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## **The Impact of Regulatory Change on Insider Trading Profitability: Some Early Evidence from New Zealand**

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# THE IMPACT OF REGULATORY CHANGE ON INSIDER TRADING PROFITABILITY: SOME EARLY EVIDENCE FROM NEW ZEALAND

## ABSTRACT

*This paper adds to the scant literature on the tightening of regulations and its impact on the profitability of insider trades by examining the effects of the recent enactment of the Securities Market Amendment Act 2002 in New Zealand. We investigate the abnormal returns around the date of insider transactions both before and after the introduction of this Act. We find that the number of insider transactions decreased just prior to the introduction of the Act; further we observe a marked reduction in profitability of directors. However, the difference between the pre and post-change returns lacks statistical significance.*

JEL Codes : G38, G14

Keywords: Insider Trading, Profitability, Regulatory Change

## INTRODUCTION

Insider trading remains a contentious issue in both the finance and law literature as it has both harmful and beneficial impacts on the market. While the quick dispersal of the information that an insider uses to trade on improves the informational efficiency and resource allocation of the market, the possibility of trading against a better informed party reduces participation in the market by outside investors with flow on effects on the economy as a whole. In practise, countries have tended to allow some insider trading as a necessary evil. This is achieved by implementing laws that allow the most beneficial insider trading and prohibit the most harmful. According to Bhattacharya and Daouk (2002), insider trading has been regulated in over 80% of countries with a capital market. However, even legal trading can be damaging as insiders expropriate trading gains at the expense of uninformed outsiders. This raises questions about the efficacy of insider trading regulations allowing some trading given insider share dealings have been shown to be profitable regardless of legal structure. Studies have failed to detect that the tightening of the laws governing insider transactions has had a positive effect on legal insider trading profitability.

The profitability of insider trading has been almost uniformly established. Starting with Lorrie and Neiderhofer (1968), numerous papers have examined insider trading profitability. In the US studies such as Jaffe (1974a), Finnerty (1976), Seyhun (1986, 1998), Rozeff and Zaman (1988) and Lakonishok and Lee (2001) have all found that insiders earn significantly higher returns following their purchases and avoided losses following their sales. These papers have been supported in a variety of other markets including Canada (Baesel and Stein, 1979), Spain (Del Brio, Miguel and Perote, 2002), Poland (Wisniewski and Bohl, 2004), New Zealand (Etebari, Tourani-Rad and Gilbert, 2003) and the U.K. (Pope, Morris and Peel, 1990; Friederich, Gregory, Matatko and Tonks, 2002). Only scant contrary evidence exists to suggest insiders cannot trade profitably based predominantly on Eckbo and Smith (1998) who examined the Oslo Stock Exchange. These papers cover a broad cross-section of markets, sample periods and regulatory regimes, yet in virtually every study insiders have been able to earn abnormal returns.

These studies also provide some indirect evidence on the effectiveness of the tightening of regulations on insider trading profitability. In the US, various papers have examined this issue over a long period of time, almost continual coverage from the early 1960's through to 1995, encompassing several periods of marked changes in the laws, including increased sanctions and an increase in the will to prosecute by the Securities Exchange Commission (SEC). Despite the laws being strengthened on several occasions Lakonishok and Lee (2001), one of the most recent US studies, still found insiders trade before price increases and sell prior to price decreases resulting in significant returns. Their results suggest that the changes in the laws have achieved little to make legal insider trading unprofitable.

Several papers have specifically examined the impact of regulatory changes on insider trading profitability. Jaffe (1974b) was the first to explore this issue in the US by calculating cumulative abnormal returns earned by insiders over the period 1962-1968. The study focused on the profits earned and volume traded before and after several court cases which were argued as having a major impact on the enforcement of insider trading. The decisions, the Cady, Roberts decision, the Texas Gulf Sulphur indictment and Texas Gulf Sulphur decision, were argued to demonstrate a new will to prosecute as well as extending the definition of insider. However, these decisions, either individually or cumulatively, were found to have no significant impact on the profitability or the volume traded.

The findings of Jaffe (1974b) are supported by Seyhun (1992) who examined the profitability of insider trading around major changes in the insider trading laws that occurred in the US in the 1980's. The early years of the 1980's in particular saw a much higher expected cost of insider trading due to rapid incremental increases in the potential penalties and greater vigilance by the SEC. Despite these massive changes to enforcement, Seyhun (1992) found that insider trading actually became more lucrative between the period prior to 1980 and that following 1984. This was also accompanied by a dramatic increase in the volume traded. The paper did find that court rulings impacted on insider trading in terms of dissuading insiders from trading before earnings announcements and takeovers. The author concluded that the involvement of the courts gave insiders too much certainty in what was and was

not covered by the laws. This allowed them to trade more profitably on legal information, avoiding the increased sanctions and vigilance.

In both studies the focus of the change in regulations was the tightening of the enforcement regime. In Jaffe (1974b) this was an increase in the possibility of prosecution and a broadening in the definition of who was covered, whereas Seyhun (1992) tested the effect of improvements in enforcement involving both higher sanctions and the greater possibility of prosecution. However, both studies examined this impact on enforcement against the profitability of legal insider trading rather than illegal trading, an aspect that is more likely to be affected by improvements in enforcement. This is borne out to a degree by Seyhun (1992) who notes that the law changes were not aimed at legal insider trading. This raises the question of whether regulatory changes targeted specifically at legal insider trading will have more effect on reducing the profits earned by insiders than has been evidenced to date in the US.

The New Zealand market provides a prime opportunity to examine this issue due to the recent enactment of the Securities Market Amendment Act 2002. This act was introduced to address weaknesses in the previous regulations governing both legal and illegal insider trading. In particular, two key deficiencies were addressed by the new laws. The first was the perceived weakness in the enforcement regime. Under the previous rules enforcement was the domain of the company in which the trading occurred or the other party to a trade against an insider. This meant that insider trading cases could only be pursued by those with little access to the information required to make a case. The weakness in this system was compounded by allowing the other party to the trade to only pursue a case for the value of the loss they as an individual suffered. This meant taking a case was extremely uneconomical given the loss often would be far less than the expected cost of the prosecution. As a result of this system, in the 14 years that the old rules operated there was not a single successful prosecution for insider trading.

The other weakness addressed was the disclosure regime. Under the old rules only substantial shareholders, those with more than 5% of the voting stock, were required to disclose within 5 working days. Directors were not required to



divulge details of their trade until the annual report was published, a delay of 9-10 months on average (Etebari *et al.*, 2003). Executives, those Seyhun (1998) states have the best access to information and therefore could earn the largest profits, were not required to disclose at all, provided they did not fall in either the director or substantial shareholder categories. This delay in disclosure in New Zealand resulted in ongoing opportunities to profit by insiders who could continue to trade for a prolonged period of time before the market could observe their information and adjust the price to remove this information asymmetry. Huddart, Hughes and Levine (2001) argue that delays in disclosure could theoretically allow insiders to earn significantly higher profits. This was supported empirically by Etebari *et al.* (2003) who examined the profitability of delayed versus immediate disclosures in New Zealand prior to the introduction of the new laws. They found those able to delay their disclosures earned significantly greater returns than those required to disclose immediately. It was argued that the new laws being introduced at the time could therefore result in a reduction in profitability of directors transactions.

This paper builds on the findings of Etebari *et al.* (2003) by examining whether the prediction of a decrease in the profitability of directors has held true following the introduction of the new laws. The amendment of the regulations in New Zealand provide a good opportunity to add to the literature on the impact of regulations by examining changes that are targeted at the profits of legal insider trading. This is in contrast to the works of Jaffe (1974b) and Seyhun (1992) who examined law changes whose effects were primarily aimed at illegal insider trading. If the laws in New Zealand have had the effect expected we should observe a strong reduction in the profits of insiders between transactions that occurred prior to the introduction of the new laws and those that were undertaken following the changes.

We employ a sample of 1489 transactions conducted between January 1996 and December 2003 in companies listed on the New Zealand Exchange. The profitability of these transactions is tested using a market adjusted model. The abnormal returns for various event windows within the test period of -50,50 days around the trade are examined. The transactions were separated, based on when the trade occurred, into one of three sub-samples, the pre-change, change and post-change. The difference between the pre and post-change groups was then tested to

observe whether the law changes had been effective in reducing the abnormal returns of insiders. The results show that there were fewer trades in the period immediately prior to and following the new Act's introduction. Further, there is some evidence, albeit not statistically significant, indicating a reduction in the profitability of insider trading.

The rest of the paper is structured as follows. Section 2 discusses the sample and methodology employed in this paper. Section 3 provides the empirical findings and their discussion and Section 4 concludes.

## SAMPLE AND METHODOLOGY

To examine the impact of changes in regulations on the profitability of insider trades we employ a sample of 89 companies that have been listed on the New Zealand Exchange (NZX) between January 1996 and December 2003. For each company we collect information on all disclosed directors transactions that occurred over the sample period. We examine only directors' transactions as there was no real change in the rules applying to substantial shareholders as they were required to disclose in a timely fashion under the old laws. Further, executives were not subjected to mandatory disclosure requirements under the old law making the profitability of their trading before the changes impossible to gauge. Directors by contrast are affected by the recent regulatory changes and their gains can be examined in both periods making their transactions suitable for establishing the impact of the new regime. Directors' transactions, prior to the introduction of the new laws, were collected from the company annual reports, the only place they were disclosed, while after the law change we obtained information on the trades from the disclosures filed with the New Zealand Exchange. Information on the position within the firm of the insider was taken from the annual report while market capitalisation and price information was gathered from Thompson Financials DataStream database.

To examine the impact of the law changes on the profitability of insider trading we use an event study methodology. We calculate the profitability of insider trading in three periods, the pre change period covering transactions that occurred between January 1996 and December 2001, the post change period encompassing

transactions that occurred between December 2002 and December 2003 and the change period, transactions that occurred between January 2002 and November 2002. We separate out the change period to isolate any potential bias caused by the Securities Market Amendment Bill 2002 passage through the legislative process.

Panel A: Breakdown of Transactions			
Number of Transactions per year			
	Aggregate	Purchases	Sales
1996	244	114	130
1997	213	124	89
1998	246	154	92
1999	222	126	96
2000	217	124	93
2001	126	75	51
Change Period	75	56	19
Post Period	146	93	53
Total	1489	866	623
Firms with at least one trade			
	89	82	61
Transactions by Position			
<i>Pre Change Period</i>			
Managing Director	205	130	75
Chairman	173	85	88
Director	890	502	388
<i>Change Period</i>			
Managing Director	10	6	4
Chairman	8	5	3
Director	57	45	12
<i>Post Change Period</i>			
Managing Director	18	10	8
Chairman	20	14	6
Director	108	69	39

**Table 1: Transaction Breakdown and Summary Statistics**

Note: The *Pre Change* spans January 1996 to December 2001. The *Change Period* spans from January 2002 until November 2002. *Post Change* spans December 2002 until December 2003.

Table 1 gives a breakdown of the insider transactions, the sample consists of 1489 transactions (866 purchases and 623 sales). Unlike studies from the US and UK, we find fewer sales than purchases, largely due to the fact that there is limited use of managerial stock options in New Zealand as compensation. The breakdown of

transactions by years also shows that prior to 2001 there were typically in excess of 200 director trades a year. In the years since 2001 this has decreased markedly with the numbers finally picking up again in the post period. This could be a reaction to the proposed introduction of the new insider trading laws. One possible explanation is that insiders may have voluntarily reduced their number of trades in an effort to forestall the introduction of the new laws. With the amendments in place the need for circumspection has ended resulting in the increase of insider trades in the post change period although the numbers are still lower than observed prior to 2001. This could be due to either less information driven trading as a result of the new Act or some residual uncertainty about the effect of the changes with insiders continuing to play it safe. Whether this is a permanent change remains to be seen.

When the trades are broken down by the insiders position within the company, it can be seen that directors typically undertake the most trades followed by managing directors and chairmen who have similar levels of trading. In percentage terms the largest reduction in trading however has occurred in the managing directors sub-sample who have gone from an average of 34 trades per year in the pre-change period to 18 in the post change period, a reduction of nearly half. Chairmen have experienced a smaller reduction in trades followed by directors who reduced the number of their transactions least. This is in line with the information hierarchy proposed by Seyhun (1998) and tentatively suggests that in the short run at least there has been a greater reduction in the number of trades by those with the greatest access to information, although a larger sample over a long period is needed to fully ascertain this.

We calculate the profitability of the transactions using a market adjusted model in the form:

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

Where  $R_i$  is the return of company  $i$  and  $R_m$  is the return on the NZSE40 capital index. This index represents 98% of the market capitalisation of the NZX making it a suitable proxy for the market portfolio. We calculate the profitability over various

event windows within the test period -50,50 by calculating cumulative abnormal returns (CARs) in the form:

$$CAR(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_t \quad (2)$$

The CARs were then aggregated for all trades. Sales transaction CARs are multiplied by -1 in the process of aggregation to account for the fact that a decrease in returns following the sale represents the loss avoided by the insider. This measure of sales is used in all the testing.

We calculate the significance of the returns using a bootstrap methodology which was introduced by Efron (1979) and applied in the context of event studies by Foster, Olsen and Shelvin (1984) and Wisniewski and Bohl (2004). The procedure is relatively robust to the problems of non-normality, heteroscedasticity and time dependence of security returns as it avoids many distributional assumptions of parametric tests (Kramer, 2001). This testing was conducted by randomly selecting a replacement firm-date pair from the entire population of companies and dates to match each of the insider purchases and sales from our initial sample. The cumulative abnormal returns following each of these random events were then computed for the respective event windows and aggregated. This process was repeated 2000 times to develop the distribution. The null is rejected at the  $\alpha$  percent level if the abnormal return from the insider trading sample exceeds  $(1-\alpha)*2,000$  simulated values from the empirical distribution.

The significance of the difference between the profitability in the pre and post change periods was calculated using the formula:

$$t = \frac{(x_1 - x_s)}{\sqrt{\frac{S_1^2}{n} + \frac{S_2^2}{m}}} \quad (3)$$

where  $S_1 = \sqrt{n} * \sigma_{AR1}$ ,  $S_2 = \sqrt{m} * \sigma_{AR2}$

Table 2 reports the sample cross correlations between the variables employed in this paper. The results show a significantly negative relationship between market value, *MV*, and managing directors, *MD*. This implies that managing directors are less likely to trade in larger companies. This is consistent with the idea that larger companies are the subject of greater scrutiny resulting in less information asymmetry and therefore opportunities to profit.

	Change	MV	MD	CH
Post	-0.0750 (0.1156)	0.0138 (0.6453)	-0.0314 (0.3628)	0.0048 (0.8710)
Change		0.0200 (0.5158)	-0.0118 (0.6986)	-0.0326 (0.3490)
MV			-0.1188 (0.0553)	-0.0123 (0.6876)
MD				0.1689 (0.0310)

Table 2: Sample Cross Correlations

Note: *p*-values are reported in the parentheses. *Post* is a dummy variable that equals 1 for the months December 2002-December 2003. *Change* is a dummy variable that equals 1 for the months between January 2002 and November 2002. *MV* is the natural logarithm of the market capitalisation. *MD* is a dummy variable that equals 1 when a transaction is undertaken by a managing director or CEO. *CH* is a dummy variable that equals 1 when a transaction is undertaken by the Chairman of the board of directors.

## RESULTS

The theoretical model of Huddart *et al.* (2001) predicts that the requirement to disclose in a timely fashion should have a significant effect on the profitability of insider trades. The literature has shown almost uniformly that insider trading is profitable, while studies specifically examining the effect of changes in insider trading laws on profitability have found little impact. Jaffe (1974b) and Seyhun (1992) both concluded that tighter regulations had at best a minimal impact on insider trading.

<b>Panel A: Aggregate Sample CARs</b>					
Windows	Pre-Change		Change	Post-Change	
	CARs		CARs	CARs	t-stat difference
0,1	0.0024		0.0097 *	-0.0034	0.4179
0,5	0.0048 *		-0.0007	0.0003	0.3173
0,10	0.0074 *		0.0059	0.0004	0.5044
0,20	0.0139 ***		0.0006	0.0093 **	0.3311
0,50	0.0272 ***		0.0200 **	0.0201 **	0.5122
-50,50	0.0122 *		-0.0134	-0.0029	1.0777

<b>Panel B: Purchase Sample CARs</b>					
Windows	Pre-Change		Change	Post-Change	
	CARs		CARs	CARs	t-stat difference
0,1	0.0028		0.0107 *	-0.0051	0.4224
0,5	0.0044		-0.0041	-0.0062	0.5773
0,10	0.0059		0.0046	-0.0082	0.7643
0,20	0.0132 **		-0.0088	0.0025	0.5784
0,50	0.0271 ***		0.0155 **	0.0151 *	0.6472
-50,50	0.0294 ***		-0.0160	-0.0212	2.7314 ***

<b>Panel C: Sale Sample CARs</b>					
Windows	Pre-Change		Change	Post-Change	
	CARs		CARs	CARs	t-stat difference
0,1	0.0022		0.0066	-0.0004	0.1248
0,5	0.0054		0.0094	0.0119	-0.3051
0,10	0.0099		0.0097	0.0155	-0.2646
0,20	0.0155 *		0.0285 *	0.0213 **	-0.2719
0,50	0.0293 **		0.0332	0.0288 *	0.0218
-50,50	-0.0080		-0.0056	0.0292 **	-1.7466 *

**Table 3: Insider CARs and Average Volume**

Note: \*\*\* Significant at 1%, \*\* Significant at 5%, \* Significant at 10%.

Abnormal returns were calculated using the market adjusted model. The significance level was assessed using the bootstrap methodology employing 2000 iterations. *Pre Change* includes the 1268 transactions (717 purchases and 551 sales) that occurred between January 1996 and December 2001. *Change* includes the 79 transactions (56 purchases and 19 sales) that occurred between January 2002 and November 2002. *Post Change* includes the 146 transactions (93 purchases and 53 sales) that occurred between December 2002 and December 2003.

The results in Table 3 provide evidence on the profitability in both the pre and post-change periods in New Zealand. As can be seen in Panel A, the aggregate sample provides evidence that the regulatory changes have had an impact on insider trading profitability but the effect is not strong. Pre-change insiders experience significant cumulative abnormal returns within 5 days of their trade, eventually earning a premium of 2.72% above the market over the first 50 days. The results for post-change show that insiders earn .7% less over the 0,50 day window and that the significance of the CARs is delayed until the 0,20 day window. The delayed

significance of post-change trades may indicate a change in the trading behaviour of insiders. Insiders may be increasing the time delay between their trades and upcoming disclosures in an attempt to avoid the increased scrutiny of regulators. This could account for the delayed significance observed in Table 3 and the sharp jump in CARs in Figure 1, 15-20 days following the transaction. The post-change CARs increase at a slower rate than those for pre-change trades until this point at which point the rate of increase appears to be similar. Insiders still earn a statistically significant return of 2.01% over the market in the first 50 days. The post-change patterns can also be observed in the change period where insiders earn similar CARs which become significant in the same event window. This suggests there has been some pre-emption of the effects of the new laws.



Figure 1: -50,50 Day CARs for the Aggregate Sample

Note: The vertical axis represents the cumulative abnormal returns based on a market adjusted model. Sales transactions CARs were multiplied by -1 before aggregation. The pre-change sample contains 1268 transactions that occurred prior to January 2001. The post-change sample contains 146 transactions that occurred after 1 December 2002.

Another point of interest is the change in the timing of insider trades in relation to the pre-trade price performance of the stocks. The greatest difference in returns is over the -50,50 day event window where pre-change insider transactions earn 1.22%



while post-change trades make  $-.29\%$ . As can be seen in Figure 1 this is a result of insiders in the post-change sample trading after a much greater drop in the CAR. In fact at Day 0 post-change trade companies have suffered twice the decrease in price, approximately  $2.5\%$  versus  $1.3\%$ . This suggests that insiders have switched to a more long-term contrarian investment strategy based on price movements caused by market misvaluation which has the advantage of reducing the risk of a prosecution for insider trading.

While the CARs for the aggregate sub-sample show a decrease of  $.7\%$  in the change and post-change trades and there appears to be evidence of a change in the behaviour of insiders, the t-stats of the difference between the pre and post-change periods are insignificant. None of the event windows demonstrate a significant reduction in CARs despite the large decrease in CARs apparent over many of the event windows. The results therefore suggest that while there has been a reduction in the profitability it is not as prominent, providing limited support for the belief that the regulatory change has had a significant impact on the abnormal returns earned by insiders.

Panels B and C report the results where the sample is separated into purchases and sales. Not all sales are information driven transactions as insiders may sell for diversification or liquidity needs. As the new regime should affect information driven transactions most, we separate out the sample to see whether there is a difference in the impact of the new laws. The results in Panel B report the CARs for the purchase sub-sample. In the pre-change period insiders expropriate abnormal returns of  $2.71\%$ . The change and post-change transactions earn significant returns for the 0,50 day event window of just  $1.55\%$  and  $1.51\%$  respectively, a reduction of about  $1.2\%$ . These large decreases appear to be largely responsible for the aggregate sample results, supporting the idea that the changes would have the greatest impact on information driven trades.

Figure 2 also reveals similar patterns in timing to those for the aggregate sample. Again there is a significant difference in the pre-trade CARs with the pre-change transactions showing no signs of significant movement prior to the trade. Post-change on the other hand experience a steady decrease in CAR over the 50 days

prior to the trade. This presents even stronger evidence of insiders switching to relying on mispricing in the share price to profit. Figure 2 also shows why there is such a long delay in the CARs becoming significant as the CARs do not start to increase for approximately 15 days following the trade. This is again similar to the pattern observed for the aggregate sample where the significance appeared dependent on a sharp increase in the returns around day 15.

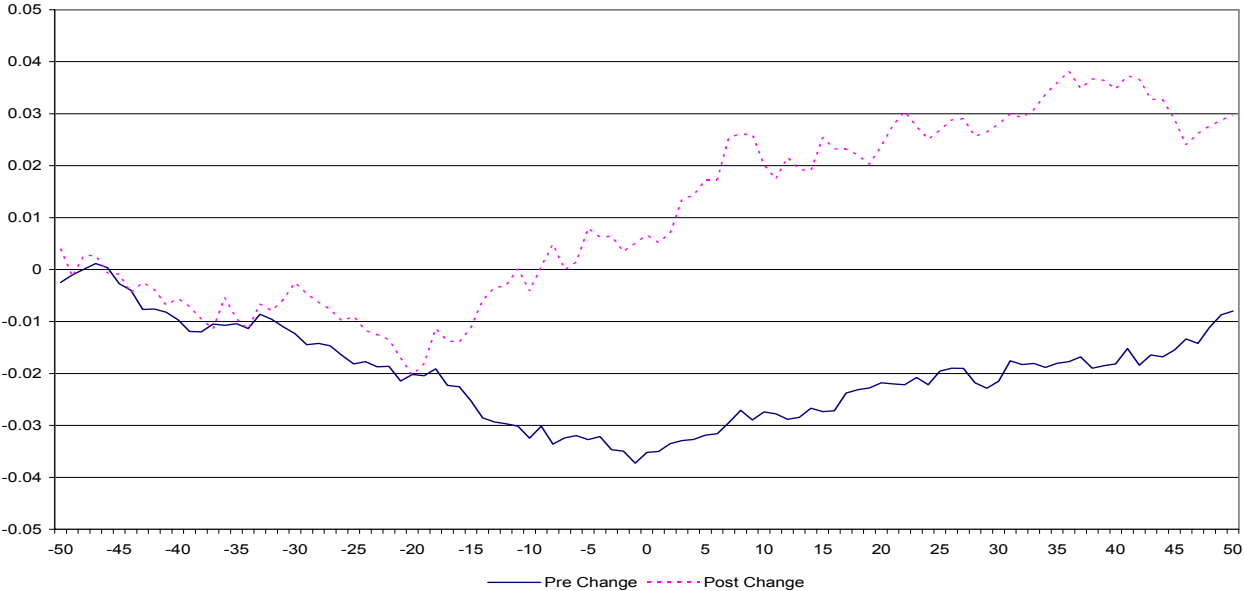


Figure 2: -50,50 Day CARs for the Purchase Sample

Note: The vertical axis represents the cumulative abnormal returns based on a market adjusted model. The pre-change sample contains 717 transactions that occurred prior to January 2001. The post-change sample contains 93 transactions that occurred after 1 December 2002.

Despite the reduction in CARs of over 1% and the very different patterns in the CARs both before and after the trade, the t-stat of the difference is still insignificant. Only in the -50,50 time period is the difference great enough to produce large t-stats, caused largely by insiders switching to a more contrarian style of investing. As with the aggregate sample the evidence suggests that although insiders display evidence of better timing and their trades earn smaller CARs, the difference in returns are insignificantly different.

Panel C reports the results for the sales sub-sample. Unlike the aggregate and purchase samples there is little evidence of an improvement following the introduction of the new law for sales. The pre and post change results are very similar at 2.93% and 2.88% respectively which is supported by low t-stats of the difference. The returns also become significant at the same point, during the 0,20 event window. Only the -50,50 event window is significantly different although in this case it is the pre-change which demonstrates superior timing. Figure 3 shows the two samples are comparable up until about 20 days prior to the trade. While the pre-change CARs continue to decrease, they start to increase for the post-change. The insignificant impact of the regulatory changes on sales however is likely a result of the fact that most of the sales are not information driven transactions. As explained in Lakonishok and Lee (2001) insiders can sell for a number of reasons including liquidity needs and diversification. Tourani-Rad and Gilbert (2004) also found that only a very small number of sales were timed to take advantage of bad news announcements although sales were still profitable. It may be that the high number of non-informational trades has allowed insiders to camouflage information driven trades more successfully than purchases.



**Figure 3: -50,50 Day CARs for the Sales Sample**

Note: The vertical axis represents the cumulative abnormal returns based on a market adjusted model. All transactions CARs were multiplied by -1. The pre-change sample contains 551 transactions that occurred prior to January 2001. The post-change sample contains 53 transactions that occurred after 1 December 2002.

	Aggregate Sample			Purchase Sample			Sales Sample		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Constant	0.0268 *** (0.0045)	0.0276 *** (0.0047)	0.0728 *** (0.0161)	0.0260 *** (0.0058)	0.0271 *** (0.0062)	0.0652 *** (0.0216)	0.0278 *** (0.0071)	0.0283 *** (0.0072)	0.0844 *** (0.0247)
Post	-0.0067 (0.0088)	-0.0076 (0.0089)	-0.0059 (0.0087)	-0.0109 (0.0104)	-0.0120 (0.0106)	-0.0091 (0.0103)	-0.0010 (0.0159)	-0.0005 (0.0159)	-0.0044 (0.0163)
Change		-0.0077 (0.0116)	-0.0053 (0.0116)		-0.0116 (0.0142)	-0.0114 (0.0142)		0.0049 (0.0194)	0.0104 (0.0209)
MV			-0.0087 *** (0.0025)			-0.0069 ** (0.0032)			-0.0115 *** (0.0042)
MD			0.0162 (0.0140)			0.0012 (0.0164)			0.0407 (0.0258)
CH			0.0268 *** (0.0102)			0.0227 (0.0145)			0.0283 *** (0.0146)
Observations	1489	1489	1489	866	866	866	623	623	623
R-Squared	0.02%	0.02%	1.99%	0.05%	0.08%	1.12%	0.00%	0.02%	3.89%

**Table 4: Regression Model Results**

Note: \*\*\* Significant at 1%, \*\* Significant at 5%, \* Significant at 10%

Standard errors are reported in parentheses. *Post* is a dummy variable that equals 1 for the months December 2002-December 2003. *Change* is a dummy variable that equals 1 for the months between January 2002 and November 2002. *MV* is the natural logarithm of the market capitalisation. *MD* is a dummy variable that equals 1 when a transaction is undertaken by a managing director or CEO. *CH* is a dummy variable that equals 1 when a transaction is undertaken by the Chairman of the board of directors.

We also check the impact of the regime change on insider profitability by employing regression analysis. Table 4 presents the results of the regressions of the 0,50 day CARs against a number of explanatory variables. Models 1, 4 and 7 regress insiders profits against a dummy that equals 1 for those transactions that occur in the post-change period. Models 2, 5 and 8 add to the previous models a dummy for transactions that occur during the change period while Models 3, 6 and 9 add in three dependent variables; the firm size, *MV*, and two dummies for the insiders position within the company, *MD* and *CH*. Numerous studies have found that insiders in larger companies earn smaller profits, largely due to the heightened media attentions and coverage which reduces the information asymmetry in those firms. Lakinshok and Lee (2001) and Seyhun (1998) have also found that the position of insiders can have a large impact on the profitability of their transactions with managing directors and chairmen earning higher profits due to better access to information.

The results again suggest that the law changes have reduced the profitability of insider trading but have failed to have the significant impact expected. In all models the relationship between the profits earned by insiders and the *Post* variable is negative but insignificant. This supports the results in Table 3 which found reductions, albeit small ones in the case of sales, in the CARs of insiders following the introduction of the new Act. It is also interesting to note that the *Change* variable is also negative in the aggregate and purchase sample models suggesting that the slight effect on insider profitability occurred prior to the law change. As expected, the regressions results show a significantly negative relationship between insiders profits and *MV*. Only trades by chairmen, *CH*, are important in terms of insiders position and only for the aggregate and sales sub-samples although it is close to significant for the purchase sample. The results therefore suggest that the profits expropriated by insiders are smaller in large companies, likely due to less information asymmetry, and that chairmen are better at timing their sales than other insiders.

The results show that the new Act has had some impact but that the effects have been smaller than expected. The difference in CARs, while reasonably large in economic terms for the aggregate (.7%) and purchase sub-samples (1.2%), are insignificantly different between the pre and post-change periods. The purchase and aggregate trades also suggest a change in the trading patterns of insiders with the

transactions appearing to be based on a more contrarian investment strategy. Further, the significance occurs much later, suggesting insiders are trading earlier to avoid regulatory scrutiny. The sales CARs are almost identical in both the pre and post-change periods with only the pre-trade returns causing any difference in the samples. These results are fully supported by the regressions which show insignificant negative relationships between the 0,50 CARs and the *Post* dummy. While the results suggest only a marginal impact on profitability, they are in line with Jaffe (1974b) and Seyhun (1992) who both found little or no positive effect from tightened insider trading laws.

## CONCLUSIONS

While the debate on the merits of insider trading is ongoing, the vast majority of countries have chosen to impose restrictions in the hope of maximising the benefits of insider trading and minimising the harm from it. The most visible aspect of insider trading, the profitability of the trades, has been well researched and almost universally established. However the impact of regulations on the expropriated profits has only been the subject of minimal research restricted almost solely to the US. The scant evidence on this topic, in addition to other anecdotal findings, suggests that regulations do not reduce the profitability of insider trades. Seyhun (1992) even concluded that the tighter enforcement regime of the 1980's increased the abnormal returns accruing to insiders. This paper seeks to add to the literature by focusing on the experiences of a market with different legal structure. Further, the law changes considered are likely to more directly impact on legal rather than illegal insider trading, as was the case in Seyhun (1992) and Jaffe (1974b).

We examined the impact that the recently enacted Securities Market Amendment Act 2002 has had on the profitability of directors' trades in companies listed on the New Zealand Exchange. Transactions were separated into three samples; pre-change which included transactions between January 1996 and December 2001, change which contained trades between January 2002 and November 2002 and the post-change sample which encompassed share dealings between December 2002 and December 2003. A market adjusted model with a test period -50,50 was employed to calculate the profitability of each sample which was

then compared to determine the effect of the new laws. A decrease in director share dealings in the period prior to the introduction of the act was observed with a small increase following its enactment. The results also showed that CARs were smaller for the change and post-change aggregate sample although this was largely driven by an economically significant decrease of over 1% in purchase sample CARs. The sales however showed no evidence of a decrease and the differences were statistically insignificant. Further, the regressions showed a negative but statistically insignificant relationship between the (0,50) day CARs and the transactions occurring in the post change period.

The results therefore suggest that the new laws have had only a marginal impact on the profitability of insider trades. It is possible that an examination of a longer event period or a sample with more transactions post change may find a more marked decrease in profitability although this will require more time to pass before such testing can be conducted. It is also possible that the full impact of the changes in the laws has yet to be established. Bhattacharya and Daouk (2002) found that it took the first enforcement of insider trading laws before a reduction in the cost of capital was experienced. This may prove to be the case in New Zealand, with the market requiring a demonstration of the political will and ability to enforce the new rules before the full effect of the changes are experienced. It should also be noted that while this paper has found that the new laws have had only a marginal impact on profitability, the new regime is likely to have effects on other areas in addition to abnormal returns. Before the new regulations can be written off as ineffective their impact on market microstructure elements such as liquidity, bid-ask spreads and the cost of capital must be established. It may be that the new laws have had a larger impact on illegal insider trading, as shown by those factors, than it had on disclosed share dealings.

## REFERENCES

- Baesel, J., & G. Stein (1979), "The Value of Information: Inferences from the Profitability of Insider Trading". *Journal of Financial and Quantitative Analysis* 14, 553-571.
- Bhattacharya, U., & H. Daouk (2002), "The World Price of Insider Trading", *Journal of Finance* 57(1), 75-108.
- Del Brio, E., Miguel, A., & J. Perote (2002), "An Investigation of insider trading profits in the Spanish Stock Market", *The Quarterly Review of Economics and Finance* 42, 73-94.
- Eckbo, B., & Smith, D. (1998), "The Conditional Performance of Insiders Trades", *Journal of Finance* 53, 467-498.
- Efron, B. (1979), "Bootstrap Methods: Another Look at the Jackknife", *Annals of Statistics* 7, 1-26.
- Etebari, A., Tourani-Rad, A., and A. Gilbert (2003), "Disclosure Regulation and the Profitability of Insider Trading: Evidence from New Zealand", *Pacific-Basin Finance Journal* Forthcoming.
- Finnerty, J. (1976), "Insiders and Market Efficiency", *Journal of Finance* 31, 1141-1148.
- Foster, G., Olsen, C., & T. Shelvin (1984), "Earnings Releases, Anomalies, and the Behavior of Security Returns", *Accounting Review* 59, 574-603.
- Friederich, S, Gregory, A, Mataka, J and I. Tonks (2002), "Detecting Returns Around the Trades of Corporate Insiders in the London Stock Exchange", *European Financial Management* 8, 7-30.
- Huddart, S., Hughes, J., & C. Levine (2001), "Public Disclosure and Dissimulation of Insider Trades", *Econometrica* 69, 665-681.
- Jaffe, J. (1974a), "Special Information and Insider Trading", *Journal of Business* 47, 410-28.
- Jaffe, J. (1974b), "The Effect of Regulation Changes on Insider Trading", *Bell Journal of Economics and Management Sciences* 5, 93-121.
- Kramer, L.A. (2001), "Alternative Methods for Robust Analysis in Event Study Applications", *Advances in Investment Analysis and Portfolio Management*, C.F. Lee, ed., Volume 8, 109-132, Elsevier Science Ltd.
- Lakonishok, J., & I. Lee (2001), "Are Insiders Trades Informative?", *The Review of Financial Studies* 14, 79-111.
- Lorie, J., & Neiderhoffer, V. (1968), "Predictive and Statistical Properties of Insider Trading", *Journal of Law and Economics* 11, 35-53.
- Pope, P., Morris, R., and D. Peel (1990), "Insider Trading: Some Evidence on Market Efficiency and Directors Share Dealings in Great Britain", *Journal of Business, Finance and Accounting* 17, 359-380.
- Rozeff, M., & Zaman, M. (1988), "Market Efficiency and Insider Trading: New Evidence", *Journal of Business* 61, 25-44.
- Seyhun, N. (1986), "Insider Profits, Costs of Trading and Market Efficiency", *Journal of Financial Economics* 16, 189-212.
- Seyhun, N. (1992), "The Effectiveness of Insider-Trading Sanctions", *Journal of Law and Economics* 35, 149-182.
- Seyhun, N. (1998), *Investment Intelligence from Insider Trading*. Cambridge, MA: MIT Press.



- Tourani-Rad, A., & Gilbert, A. (2004), "The Source of Insider Trading Profits: Evidence from New Zealand", *Auckland University of Technology Working Paper*.
- Wisniewski, T.P., & Bohl, M.T. (2004), "The Information Content of Registered Insider Trading under Lax Law Enforcement", forthcoming *International Review of Law and Economics*.

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