

The Equity and Efficiency of the Australian Share Market with respect to Director Trading

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Abstract

Thirteen percent of own-company trades by directors do not meet the ASX requirement of reporting within 5 business days, while seven percent are not reported within 14 business days as required by the Corporations Act. Such breaches of reporting regulations are particularly important given that directors tend to purchase (sell) shares when the price is low (high), thereby achieving abnormal returns. These abnormal returns are highest for purchases in resource companies. Ignoring transaction costs outsiders can achieve abnormal returns by imitating directors' trades. Directors avoid small but statistically significant losses in the period between selling shares and these trades being reported to the market.

1. Introduction

Recent media releases and reports from investment firms have highlighted that many directors fail to meet the requirements of the Australian Stock Exchange (ASX) to report their trades within five business days of the transactions.¹ These reports also document that some directors are in breach of the Corporations Act, which requires them to report to the market within fourteen days. With corporate governance being given greater focus in Australia and overseas, there is a need for the extent of late reporting to be closely examined.

Brown, Foo and Watson (2003) also report that Australian directors on average achieve abnormal returns from trading in shares of their own companies. The current paper extends upon the Brown et al. evidence. We also examine the feasibility of imitators achieving abnormal return from a trading strategy of buying (selling) shares when directors report buying (selling) activity in their own stock. Such analysis has been undertaken for the US market by Seyhun (1986), but is absent in Australia.

The motivation and contribution of the paper is therefore threefold. Firstly, the paper provides the first academic research into the extent of late reporting by directors in Australia. Secondly, it provides an examination of the abnormal returns earned by imitators from a trading strategy of buying (selling) shares when directors report buying (selling) activity in their own stock. Thirdly, an analysis is undertaken to determine whether directors are able to earn abnormal returns over the period between their trading in shares and the subsequent reporting of those trades. This final section is extended by providing an analysis to determine whether directors late reporting increases the abnormal returns directors are able to earn that are not available to other

¹ See Australian Stock Exchange (ASX) Media Release 27 June 2008 and BT Financial Group (2005).

investors. This approach has not been employed in previous studies. Notably, it shows that returns are being missed by outside investors due to late reporting.

The paper is organised as follows. Section 2 describes the relevant literature, Section 3 provides a discussion of the methodology, Section 4 examines the data collection and the results are presented in Section 5. Section 6 provides a summary.

2. Literature Review

Discussion regarding the late reporting of trading by directors in their own company shares in Australia has largely been confined to the media. This includes a report by BT Financial Group's Position Paper, "Director and Executive Share Trading" released 11 November 2005, examining all trades by directors in 2004 and a media release by the ASX on June 27, 2008 reporting on whether trades by directors over the 3 months to 31 March 2008 were reported to the ASX on time and in accordance with the Corporations Act. In the UK, Balmforth, Burton, Cross and Power (2007) found that 14% of all trades by company directors in the UK were reported late. In Australia, Chang and Meynert (2009) use year-end director shareholdings to estimate that over the period from 2002 to 2007, 45% of directors failed to report at least one trade in any given year.

The most comprehensive study of director trades in Australia following the mandatory reporting of such trades is by Brown, Foo and Watson (2003). This study hypothesises that directors behave as contrarian investors, using inside information to buy shares when they are underpriced and to sell shares when they are overpriced. Major findings by Brown, Foo and Watson (2003) are that directors achieve abnormal returns from sales (particularly for resource companies) in that by selling they avoid future losses; however, the purchases do not capture future abnormal price rises. They do not find any bias due to the size of the company or the size of trade.

Additional Australian studies demonstrate that directors are trading on inside information, that at least some of these trades achieve abnormal returns and that some strategies could provide abnormal returns to an imitator. Chang and Chopra (2007) conclude that Australian director trades contain industry information and an imitator can avoid losses by investing in the relevant industry following a trade by a director. Freeman and Adams (1999) examine the extent of insider trading in Australia, prior to the introduction of reporting requirements by the ASX, based on a survey of company directors. They report (p. 1) that “a significant proportion of directors indicated a propensity to time their trades based on inside information”. Watson and Young (1998) show that insider trading occurs at the time surrounding takeover announcements in Australia. Hotson, Kaur and Singh (2007) also show that directors and imitators profit from trades in small companies.

Internationally, the most comprehensive study of director trading was undertaken by Seyhun (1986) using US data. He finds that directors achieve abnormal returns from both sales and purchases of shares in their own companies. However, he shows that imitators could not achieve abnormal returns using a trading strategy that mimics the behaviour of the directors. He also shows that those who are expected to know more about the overall affairs of the firm, such as chairmen of the boards of directors or officer-directors, make better trades than officers or share holders alone. In addition, he concludes that insiders know on which inside information to rely and can exploit this information by adjusting the volume of trading. He also shows that the size of the company is important and that ignoring greater transaction costs for smaller companies may result in an overstatement of abnormal returns achieved by smaller companies.

Several international studies have analysed insider trading abnormal returns available to directors of different sized companies. Seyhun (1986) and Lakonishok

and Lee (2001) show that abnormal returns are achieved by insiders for purchases of shares in small companies. Gregory, Matatko, Tonks and Purkis (1994) also demonstrate that UK directors can achieve abnormal returns particularly in small companies. However, they show that applying a benchmark that takes account of company size eliminates abnormal returns. Brown, Foo and Watson (2003) confirm that company size does not impact the abnormal returns in such trading activity. Given that the data available for the current study is biased towards larger stocks (those in the All Ordinaries Index), we do not conduct analyses conditioned on size.

International studies attempt to find additional indicators for abnormal returns of insider trades by directors. Baesel and Stein (1979) show that US directors earn abnormal returns by trading in their own company's shares, and that bank directors achieve the largest abnormal returns. Friederich, Gregory, Matatko and Tonks (2002) show that medium sized trades by UK directors can predict future returns, but that this trading strategy does not result in abnormal returns. Hillier and Marshall (2002) find that director's trading in unison can be a good indicator for future share prices.

A strong asymmetry in insider trading profits is widely documented. Jeng, Metrick and Zeckhauser (2003) find that US directors earn 6% p.a. abnormal returns by purchasing shares of their own companies, but that no abnormal returns are achieved from the sale of shares. Pope, Morris and Peel (1990) find that there appears to be a sharp market movement around the time director's trade in shares of their own company, particularly on the sell side.

The length of time over which abnormal returns are achieved is also examined in international studies. Friederich, Gregory, Matatko and Tonks (2002) show that UK directors achieve abnormal returns from short term trades. Ke, Huddart and Petroni (2003) demonstrate that US directors trade on accounting information up to 2 years prior to an event taking place, but that trading does not generally occur in the 2

quarters immediately prior to the event. They conclude that this is consistent with directors adhering to the antifraud provisions of the Securities and Exchange Act 1934, especially section 10(b), which is designed to prevent insider trading. Lakonishok and Lee (2001) show very little market movement surrounding US director trades at the time of the trade and at the time of reporting. Pope, Morris and Peel (1990) find sharp market movement around the time directors trade in shares of their own company.

There is still some debate about whether those attempting to imitate trades by directors, purchasing (selling) shares when directors report that they have purchased (sold) shares in their own company, can achieve abnormal returns. Gregory, Matatko and Tonks (1997) conclude that abnormal returns can be made by imitators when UK directors sell. Lin and Howe (1990) show that in the US, transaction costs eliminate profits by both inside traders and imitators.

3. Research Method

This study uses the standard event study methodology to examine the abnormal returns from director trades in the shares of their own company². The first section of analysis examines the returns to directors from trading in shares of their own companies – day 0 is the day the trade takes place. The second section of analysis examines whether abnormal returns could be earned by an imitator who trades based on when directors trade – day 0 is the day the trade is reported to the market. The final section of analysis investigates the returns achieved by directors between the time they trade in shares of their own company and the time the trade is reported to the market – day 0 is the day the trade takes place, however, the returns

² As the event-study in this paper involves a short-window analysis, the conventional methodology rather than the Barber and Lyon (19XX) methodology is employed. The Barber and Lyon methodology is designed to detect long-run (one to five year) abnormal stock returns (see page X of their paper).

are excluded from the analysis when the trade is reported to the market. Cumulative abnormal returns are calculated using market model estimates based on the All Ordinaries Accumulation Index from 250 days to 20 days prior to the trade.

The pre-event period is 14 days prior to either the trade taking place or the trade being reported to the market. The post-event period includes the day of the trade taking place or the trade being reported and 14 days after either the trade taking place or the trade being reported to the market.

4. Data

The sample of director trades is obtained from news releases of director's interest from the IRESS Market Technology Ltd (IRESS) database for the period from 1 January 2005 to 31 December 2007. Trades are only included in the sample where the trade and the date of the trade was at the discretion of the director.³ For this reason director' trades that resulted from dividend reinvestment schemes, the exercise of options, the exercise of rights issues, or from employee share purchase plans, are excluded from the analysis. These trades are obtained for the 473 companies that were included in the All Ordinaries index as at 1 January 2005.

As shown in Table 1, the sample comprises 2932 insider trades by directors: of which 2189 are purchases and 743 sales. The ASX requirement is that directors report trades within five business days. However, of the 2932 trades, 376 or 13% are not reported within five business days. Of the 2189 (743) purchases (sales), 263 or 12% (113 or 15%) are not reported within five business days. This finding is consistent with that of the study by the ASX (as reported in a media release on 27

³ By way of contrast, Brown, Foo and Watson (2003) analyse all trades including "...changes in share holdings for "miscellaneous" and possibly uninformative reasons such as option conversions, rights issues, employee share purchase schemes and participation in dividend reinvestment plans. "Miscellaneous" reasons result mostly in increases in shareholdings and add relatively more noise to the purchases sub-sample".

June 2008). The ASX reported that 538 (13%) of the 4137 notices of director trades breached the ASX reporting requirements. BT Financial Group also released a report in 2004 that stated that from its study 432 (15%) of the 2936 notices of director trades breached the ASX requirement.

The Corporations Law requirement is that directors report to the market within fourteen days of a trade in their own company. Figure 1 shows the length of time taken to report trades by directors trading in their own company shares. Of the 2932 trades, 212 or 7% are not reported within fourteen days. Of the 2189 (743) purchases (sales), 144 or 7% (68 or 9%) are not reported within fourteen days. This finding is also consistent with the ASX study, where 289 of the 4137 notices (7%) breached the Corporations Act reporting requirements. The average (median) number of days to report is 16 (3) for all trades, 17 (3) for purchases and 15 (4) for sales.

Table 1 also shows the number of trades and the time taken to report trades for large, medium and small companies.⁴ When purchases and sales are considered together, no relationship between company size and timeliness of reporting is found. For example, for each company-size category, 87% of trades are reported within 5 business days. However, for this sample the failure to report sales within 5 business days is particularly apparent for larger companies, with 18%, 14% and 12% of director sales for large, medium and small companies respectively being reported after 5 business days.

When purchases and sales are considered together, there is also no relationship between the size of the trade and timeliness of reporting. However, where the trade size is small, only 77% of sales are reported with 5 business days, as compared with 81% for the medium sized trades and 88% for the largest sized trades.

⁴ Large companies are the 100 companies with the largest market capitalisation in the All Ordinaries Index, the next 273 companies are categorised as medium and small companies are the 100 companies with the smallest market capitalisation in the All Ordinaries Index.

Information regarding the number of trades and the time taken to report trades for resource companies and non-resource companies was also collected. When purchases and sales are considered together, directors of resources companies more often report trades within 5 business days than do directors of non-resource companies. For example, for resource companies, 92% of trades are reported within 5 business days whereas for non-resource companies 87% of trades are reported within 5 business days. This pattern is particularly apparent for sales with 8% of trades being reported after 5 business days for resource companies and 16% of trades being reported after 5 business days for non-resource companies.

These results show the extent of non-compliance with the ASX rules and with the Australian legal requirements by directors required to report trades in their own companies to the market. Approximately 13% (7%) of all trades are not reported to the ASX (market) within the specified timeframe. Such late reporting by directors confirms the perception that the market is not being informed in a timely manner.

5. Results

5.1. Returns for Trades by Directors in Relation to the Day of Trade

Table 2 shows average abnormal returns before and after trades by directors in their own-company shares. For this analysis and all analysis of returns associated with director trades, where more than one director purchased (sold) shares on the same day, only the trade that was reported first was included in the analysis. This screen reduced the sample of purchases (sales) from 2189 (743) to 1949 (632).

For the total sample, the cumulative abnormal return over the 14 days prior to directors purchasing shares was -2.0% and significantly different from zero at the 1% level, while the cumulative abnormal return over the 14 days following the trade was

0.3% and not significantly different from zero. Conversely, the cumulative abnormal return over the 14 days prior to directors selling shares was 2.7% and significantly different from zero, with the cumulative abnormal return over the 14 days following the trade being -1.1% and significantly different from zero. These results demonstrate that directors avoid losses of 1.1% by selling shares in their own companies.

Table 2 also shows the average abnormal returns before and after directors trade in their own-company shares categorised by the time taken to report the trade. It shows that the results above are largely driven by directors reporting trades within 5 business days of the trade taking place. The cumulative abnormal return over the 14 days prior to purchases for this group was -2.1% and significant at the 1% level, while the cumulative abnormal return over the 14 days following the trade was 0.3% and not significantly different from zero. Conversely, the cumulative abnormal return over the 14 days prior to directors selling shares was 3.1% and significantly different from zero, with the cumulative abnormal return over the 14 days following the trade being -1.0% and significantly different from zero.

For trades reported between 5 and 14 business days after the trade, only the cumulative abnormal return of -3.3% over the 14 days following sales was significantly different from zero. For trades not reported within 14 business days none of the cumulative abnormal returns for purchases or sales are significantly different from zero. While the findings of Chang and Meynert (2009) suggest that it is likely that there is also considerable failure to report trades at all, the finding that abnormal returns are associated with trades that are reported within a 5-day period is suggestive that failure to report is not be associated with abnormal return performance.

For resource companies, the cumulative abnormal return over the 14 days prior to directors purchasing shares was -2.4% and significantly different from zero at

the 1% level, while the cumulative abnormal return over the 14 days following the trade was 1.6% and significantly different from zero at the 5% level. Conversely, the cumulative abnormal return over the 14 days prior to directors selling shares was 3.6% and significantly different from zero, with the cumulative abnormal return over the 14 days following the trade being -1.6% and not significantly different from zero. These results demonstrate that directors of resource companies achieve cumulative abnormal returns of 1.6% by purchasing shares in their own companies.

Figure 2 provides a graphical representation of Table 2. It shows the cumulative abnormal daily returns for 14 days before and after purchases and sales by company directors. The cumulative abnormal returns prior to a purchase are negative and significant, while the cumulative abnormal returns after the purchase are positive but not significant. The significant positive returns prior to a sale are followed by significantly negative returns after the sale.

The results reported in this section are broadly consistent with Brown, Foo and Watson (2003) in that prior to purchases companies experienced negative returns and prior to sales, companies experienced positive returns. Following the purchases there are slightly positive returns and following the sales there are negative returns. The results for resource companies are also consistent with Brown, Foo and Watson (2003) in that the purchase (sale) of shares by directors of resource companies is followed by positive (negative) returns, however we do not find that the abnormal returns following sales are statistically significant. This finding is also consistent with Pope, Morris and Peel (1990) who conclude that directors do make abnormal returns particularly in being able to avoid losses by selling prior to share price falls.

5.2. Returns from a Trading Strategy from the Day of Reporting the Trades

This section demonstrates a trading strategy for an outsider to imitate trades by directors by purchasing (selling) shares when a director discloses to the market that they have purchased (sold) shares. It examines the returns before and after purchases and sales of company shares are reported.

Table 3 shows average abnormal returns to imitators before and after directors report trades in their own-company shares. For the total sample, the cumulative abnormal return over the 14 days prior to directors reporting purchasing shares was -1.5% and significantly different from zero at the 1% level, while the cumulative abnormal return over the 14 days following the trade being reported was 0.0% and not significantly different from zero. Conversely, the cumulative abnormal return over the 14 days prior to directors reporting selling shares was 1.5% and significantly different from zero, with the cumulative abnormal return over the 14 days following the trade being reported being -1.7% and significantly different from zero. Results in section 5.1 demonstrate that directors avoid losses of 1.1% by selling shares in their own companies. This section demonstrates that imitators could achieve an abnormal return of 1.7% by short-selling shares when directors report the sale of shares. As noted by Seyhun (1986), while transaction costs will be heterogeneous across firm size, trading volume and trade size, it is likely that after allowing for such costs abnormal returns are likely to be small.

Table 3 also shows that the overall results are largely driven by directors who report trades within 5 business days of the trade taking place. The cumulative abnormal return over the 14 days prior to directors reporting purchasing shares was -1.7% and significantly different from zero at the 1% level, while the cumulative abnormal return over the 14 days following the trade being reported was 0.0% and not significantly different from zero. Conversely, the cumulative abnormal return over the

14 days prior to directors reporting selling shares was 1.7% and significantly different from zero, with the cumulative abnormal return over the 14 days following the trade being reported being -1.5% and significantly different from zero. For trades reported between 5 and 14 days after the trade, only the cumulative abnormal return of -3.2% over the 14 days following the sale being reported was significantly different from zero. For trades not reported within 14 days none of the cumulative abnormal returns for purchases or sales are significantly different from zero.

For resource companies, the cumulative abnormal return over the 14 days prior to directors reporting purchasing shares was -2.1% and significantly different from zero at the 1% level, while the cumulative abnormal return over the 14 days following the trade being reported was 1.4% and significantly different from zero at the 5% level. Conversely, the cumulative abnormal return over the 14 days prior to directors reporting selling shares was 2.4% and significantly different from zero, with the cumulative abnormal return over the 14 days following the trade being reported being -2.7% and significantly different from zero. Results in section 5.1 demonstrate that directors of resource companies achieve cumulative abnormal returns of 1.6% by purchasing shares in their own companies. This section demonstrates that imitators could achieve an abnormal return of 1.4% by purchasing shares when directors report the purchase of shares.

Figure 3 provides a graphical representation of Table 3. It shows the cumulative abnormal daily returns for 14 days before and after the reporting of purchases and sales by company directors. The cumulative abnormal returns prior to a purchase being reported are negative and significant. The cumulative abnormal returns after the purchase are positive but not statistically significant. The positive returns prior to a sale being reported are followed by significantly negative returns after the sale is reported. However, there is some evidence that the peak in positive

returns prior to sales and negative returns prior to purchases occurs prior to the trades being reported.

5.3. Abnormal Returns from Trades by Directors prior to Reporting the Trades

This section analyses returns to directors after they trade but before they announce the trade to the market. Day zero is defined as the day the director trades in shares of their own company. This section also analyses returns to directors five days after they trade but before they announce the trade to the market. The reported abnormal returns are those from a portfolio that has an equal weight in all shares from time zero to the day prior to the trade being reported.⁵

For the full sample of purchases, the cumulative abnormal return after purchases but before the reporting of the trade is not significantly different from zero. This suggests that directors do not earn abnormal returns after purchasing shares in their own companies that is not available to the market due to the delay in reporting. However, the cumulative abnormal return after sales but before the reporting of the sale, was small (-0.2%) but significantly less than zero. This suggests that directors are able to avoid a small but statistically significant price fall that may not be avoided by the market due to the delay in reporting.

Table 4 also shows that the overall results are largely driven by directors who report trades within 5 business days of the trade taking place. The cumulative abnormal return after sales but before the reporting of the sale, was small (-0.2%) but significantly less than zero. For trades reported between 5 and 14 days after the trade and trades not reported within 14 days, none of the cumulative abnormal return after

⁵ For example, if a director purchased shares on 15 January, 2007 and reported the trade on 19 January, 2007, then the abnormal returns on that company's shares would be included in the portfolio for days 15 January to 18 January inclusive.

purchases (sales) but before the reporting of the purchase (sale) are significantly different from zero.

Table 5 shows returns to directors five days after they trade but before they announce the trade to the market. The cumulative abnormal return five days after sales but before the reporting of the sale, was -0.6% and significantly less than zero. This may be considered an estimate of the “cost” borne by people who have traded the shares in the interim. This shows the public policy (and class action) aspects of the issue in that it quantifies the loss that is caused to some investors by the lateness of the disclosure.

For resource companies, none of the cumulative abnormal returns after purchases (sales) but before the reporting of the purchase (sale) are significantly different from zero.

6. Summary

We investigate the extent of directors breaching the reporting requirements of the ASX and the Corporations Act in Australia. We also update the work of Brown, Foo and Watson (2003) to determine whether directors in Australia achieve abnormal returns from trades in their own companies. We apply the methodology of Seyhun (1986) in determining whether an imitator could mimic director trades to earn abnormal returns. Previous research is extended to determine the abnormal returns available to directors between the time of insider trades and the time they report these trades to the market. This methodology has not been adopted in previous literature. Consistent with research by Brown, Foo and Watson (2003) this analysis is conducted for all companies, resource companies and non-resource companies. Analysis is also conducted for trades reported within 5 business day, between 5 and 14 business days and trades not reported within 14 business days.

On average, 13% (7%) of insider trades are not reported within the five (14) business days required by the ASX (as specified in the Corporations Act). Second, directors do appear to act as contrarian investors, purchasing (selling) shares when the price is low (high). Third, directors do achieve abnormal returns through trading in shares of their own companies. The abnormal returns are highest for purchases in resource companies where directors achieve abnormal returns by purchasing shares prior to the share price rising. These results are largely driven by directors who report trades within 5 business days. Fourth, imitators adopting a strategy of purchasing (selling) when directors purchase (sell) shares secure a small abnormal return. However, it is highly unlikely that this abnormal return could cover transaction costs and the buy/sell spread. Fifth, analysis of returns to directors after they trade but before they announce the trade to the market shows that, over this period, directors are making small but statistically significant returns that are not available to the market.

Directions for future research include an examination of blackout dates and trading windows put in place by individual companies to prevent insiders from trading on inside information. In addition, an examination of whether any relevant announcements to the ASX are made in the period following the directors' trades might explain abnormal returns achieved by directors. It would also be interesting to examine the legal position if a director did trade and then relevant information was released.

Table 1 - Summary Statistics

	All Trades	Purchases	Sales
All Companies			
Number of Trades	2932	2189	743
Length of Time to Report the Trade:			
Within 5 Business Days	2556	1926	630
Between 5 Business Days and 14 Days	164	119	45
More than 14 Days	212	144	68
Large Companies			
Number of Trades	996	732	264
Length of Time to Report the Trade:			
Within 5 Business Days	871	655	216
Between 5 Business Days and 14 Days	55	38	17
More than 14 Days	70	39	31
Medium Companies			
Number of Trades	1107	780	327
Length of Time to Report the Trade:			
Within 5 Business Days	966	686	280
Between 5 Business Days and 14 Days	72	49	23
More than 14 Days	69	45	24
Small Companies			
Number of Trades	829	677	152
Length of Time to Report the Trade:			
Within 5 Business Days	721	587	134
Between 5 Business Days and 14 Days	75	61	14
More than 14 Days	33	29	4
Trades 0% to 0.1% Outstanding Shares			
Number of Trades	1161	1024	137
Length of Time to Report the Trade:			
Within 5 Business Days	1001	895	106
Between 5 Business Days and 14 Days	74	66	8
More than 14 Days	86	63	23
Trades 0.1% to 0.3% Outstanding Shares			
Number of Trades	665	545	120
Length of Time to Report the Trade:			
Within 5 Business Days	592	495	97
Between 5 Business Days and 14 Days	39	30	9
More than 14 Days	34	20	14
Trades >0.3% Outstanding Shares			
Number of Trades	1106	620	486
Length of Time to Report the Trade:			
Within 5 Business Days	965	538	427
Between 5 Business Days and 14 Days	89	52	37
More than 14 Days	52	30	22

Table 2 – Abnormal Returns Before and After Director Trades in Own-Company Shares

	Purchases		Sales	
	Pre-trade	Post-trade	Pre-trade	Post-trade
	All Trades			
Mean	-2.0%	0.3%	2.7%	-1.1%
Number	1,949	1,949	632	632
P Value	0%	21%	0%	0%
	Trades Reported Within 5 days			
Mean	-2.1%	0.3%	3.1%	-1.0%
Number	1,706	1,706	540	540
P Value	0%	18%	0%	0%
	Trades Reported Between 5 and 14 days			
Mean	-0.9%	0.6%	-0.3%	-3.3%
Number	137	137	52	52
P Value	26%	42%	89%	0%
	Trades Not Reported Within 14 days			
Mean	-1.8%	-0.8%	1.6%	-0.2%
Number	106	106	40	40
P Value	23%	45%	37%	79%
	Resource Firms			
Mean	-2.4%	1.6%	3.6%	-1.6%
Number	178	178	56	56
P Value	0%	2%	0%	20%
	Non-Resource Firms			
Mean	-1.9%	0.2%	2.6%	-1.1%
Number	1,771	1,771	576	576
P Value	0%	49%	0%	0%
Cumulative Abnormal Returns are based on market model estimates from an estimation window (-250 to -20)				
Cumulative Abnormal Returns are calculated from t-14 to t-1 then from t0 to t14				
P Value is for a two tailed test				

Table 3 – Abnormal Returns Before and After Director Discloses Trades in Own-Company Shares

	Purchases		Sales	
	Pre-trade	Post-trade	Pre-trade	Post-trade
	All Trades			
Mean	-1.5%	0.0%	1.5%	-1.7%
Number	1,949	1,949	632	632
P Value	0%	80%	0%	0%
	Trades Reported Within 5 days			
Mean	-1.7%	0.0%	1.7%	-1.5%
Number	1,706	1,706	540	540
P Value	0%	99%	0%	0%
	Trades Reported Between 5 and 14 days			
Mean	-1.2%	0.1%	-0.1%	-3.2%
Number	137	137	52	52
P Value	10%	87%	93%	0%
	Trades Not Reported Within 14 days			
Mean	2.0%	0.6%	1.2%	-2.1%
Number	106	106	40	40
P Value	10%	41%	23%	10%
	Resource Firms			
Mean	-2.1%	1.4%	2.4%	-2.7%
Number	178	178	56	56
P Value	0%	2%	3%	1%
	Non-Resource Firms			
Mean	-1.6%	0.0%	2.2%	-1.7%
Number	1,771	1,771	576	576
P Value	0%	81%	0%	0%
Cumulative Abnormal Returns are based on market model estimates from an estimation window (-250 to -20)				
Cumulative Abnormal Returns are calculated from t-14 to t-1 then from t0 to t14				
P Value is for a two tailed test				

Table 4 – Abnormal Returns After Director Trades in Own-Company Shares and Before Disclosure is Made

	Purchases Post-trade	Sales Post-trade
	All Trades	
Mean	0.0%	-0.2%
Number	1,714	564
P Value	41%	0%
	Trades Reported Within 5 days	
Mean	0.2%	-0.2%
Number	1,471	472
P Value	1%	1%
	Trades Reported Between 5 and 14 days	
Mean	0.0%	-0.4%
Number	137	52
P Value	95%	10%
	Trades Not Reported Within 14 days	
Mean	-0.2%	0.2%
Number	106	40
P Value	23%	29%
	Resource Firms	
Mean	0.3%	0.0%
Number	155	47
P Value	17%	96%
	Non-Resource Firms	
Mean	0.0%	-0.3%
Number	1,559	517
P Value	50%	0%
Cumulative Abnormal Returns are based on market model estimates from an estimation window (-250 to -20)		
Number of trades is for the first day after the trades occur		
P Value is for a two-tailed test		

Table 5 – Abnormal Returns 5 Days After Director Trades in Own-Company Shares and Before Disclosure is Made

	Purchases Post-trade	Sales Post-trade
	All Trades	
Mean	0.0%	-0.6%
Number	243	92
P Value	79%	0%
	Resource Firms	
Mean	-1.6%	-5.4%
Number	16	5
P Value	0%	0%
	Non-Resource Firms	
Mean	0.1%	-0.3%
Number	227	87
P Value	64%	10%

Cumulative Abnormal Returns are based on market model estimates from an estimation window (-250 to -20)

Number of trades is for the sixth day after the trades occur

P Value is for a two-tailed test

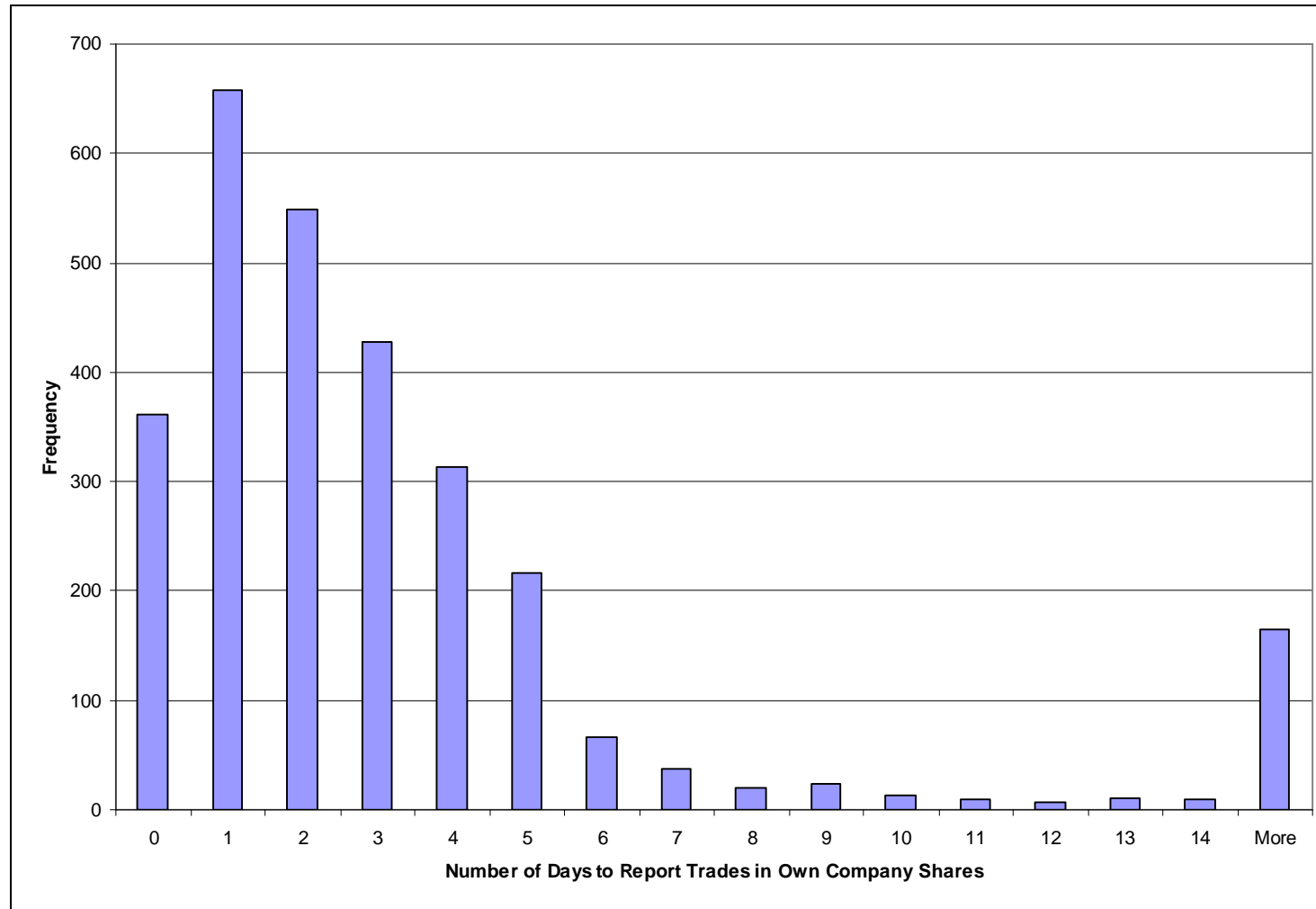
Figure 1 – Length of Time to Report Trades

Figure 2 – Abnormal Returns 14 Days Before and After Director Trades in Own-Company Shares

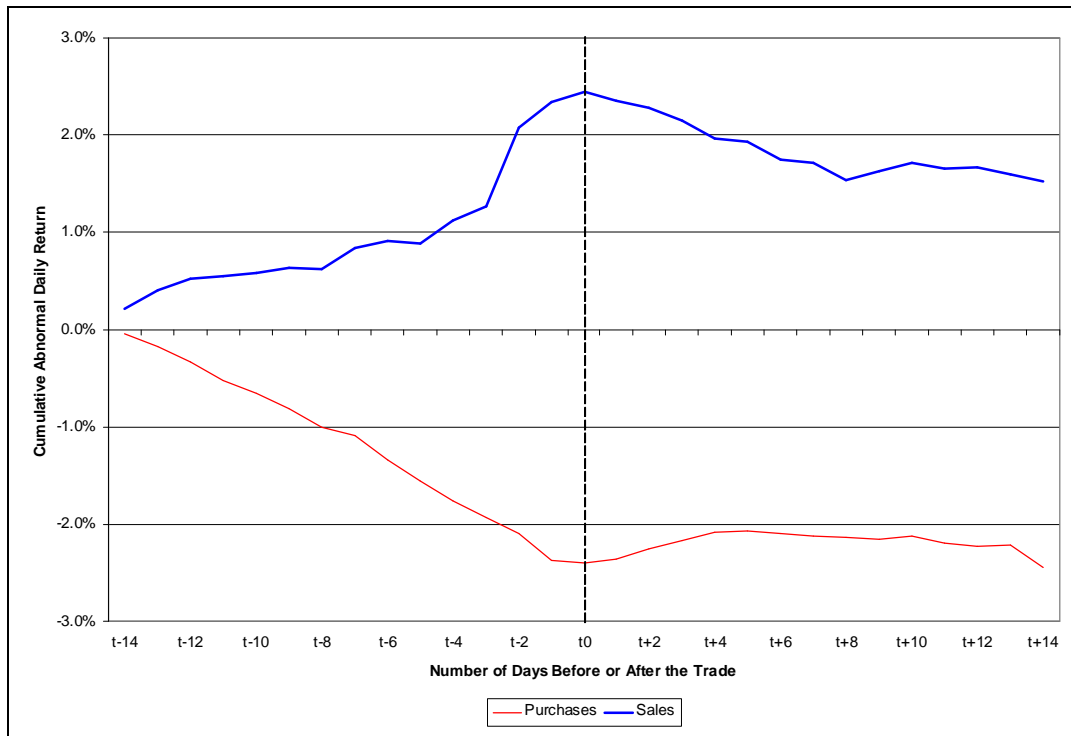
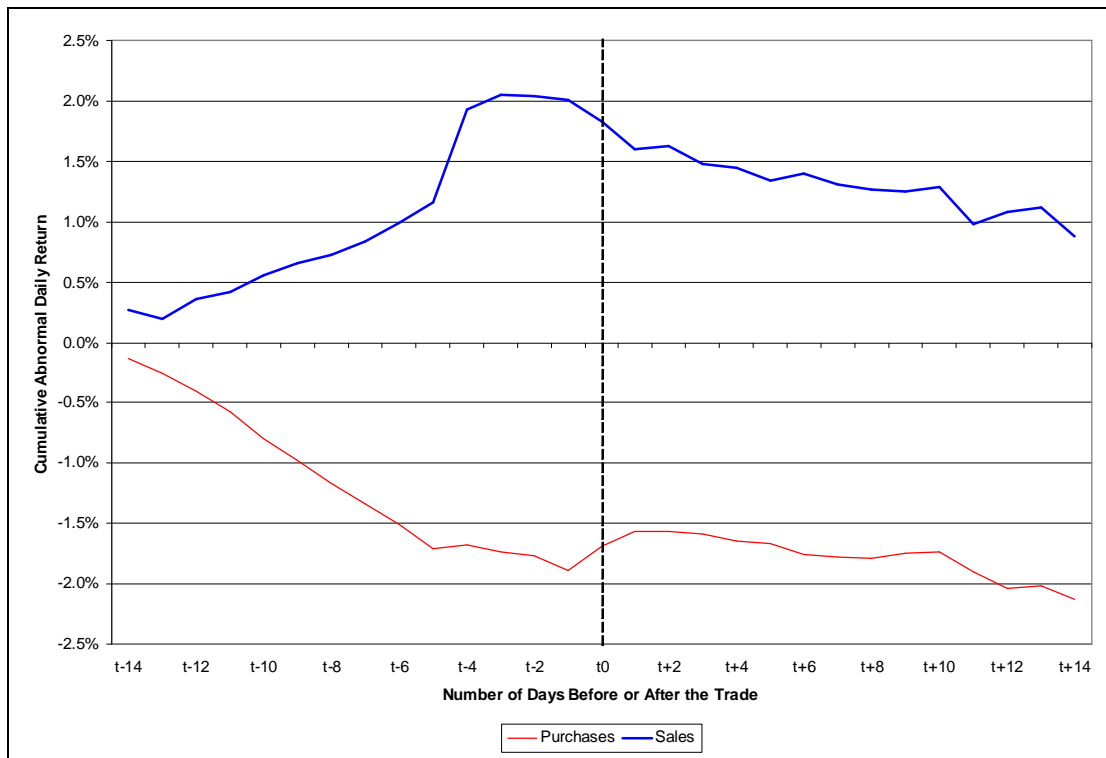


Figure 3 – Abnormal Returns 14 Days Before and After Director Discloses Trades in Own-Company Shares



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