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**Information content of insider trading: Evidence from Colombo stock exchange**

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**ABSTRACT**

The information asymmetry between insiders and outsiders is a fundamental concern of every securities market. Insiders may buy (sell) securities when they are aware of good (bad) news. Hence, insider purchases (sales) could be considered as positive (negative) signals by the market. In consistent with this argument, this study examines whether insider trades are informative and the adjustments of security prices for insider trades are quick in the Colombo Stock Exchange (CSE), This study analyzes a sample of directors' purchases and sales events reported to the CSE during September, 2004 to August, 2012 using the standard event study methodology. The findings are not consistent with the hypotheses except the significant positive abnormal returns subsequent to the insider purchases under the Risk Adjusted Return model. In fact, the positive abnormal returns observed subsequent to insider sales are contradictory to the hypothesis that insider sales should be associated with negative abnormal returns. Furthermore, it is observed that the speed of adjustment of security prices for insider trades are not consistent which cast doubt on the efficiency of the CSE.

**Key words:** Abnormal return, Event study, Information asymmetry, Insider trade, Market efficiency.

**1. Introduction**

The use of insider information for trading has been a continuously discussed phenomenon in every security market. Insider trades in the securities markets have been of outsiders' interest believing that insiders know their business more intimately and insiders may trade to utilize such unpublished information. According to the information signaling hypothesis, insiders purchase (sell) securities when they are aware of some good (bad) news (Louis, Sun, and White, 2010), Thus insider purchases (sales) should be associated with positive (negative) abnormal returns. As well as, if the insider trading is informative, the Efficient Market Hypothesis (EMH) (Fama, 1970) suggests that this information content should be reflected in security prices immediately and fully when they are publicly available.

The empirical evidence shows that abnormal returns are positive (negative) for insider purchases (sales) in the US market (Lakonishok and Lee, 2001), in Hong Kong market (Cheung, Wong, and Wu, 2000) and in the UK market (Aktas, De Bodt, De Smedt, and Riachi, 2007), However, the timing of market reaction for the information content of insider trading is not same in every securities market. Aktas et al. (2007) in the UK and Lakonishok and Lee (2001) in the US market find that the information content of insider trading is reflected in the market within a long period of time whereas Cheung et al. (2000) find that the

Hong Kong market reflects that information within a short period of time, following the event. In the Dutch market, only the insider sellers have good timing capabilities in the short run (Biesta, Doeswijk, and Donker, 2003) and in the Swiss market, insider purchasers have good timing capabilities in the short run after the transaction date (Zingg, Lang, and Wyttenbach, 2007),

As far as Sri Lankan market is concerned, the empirical evidences related to the market efficiency of the CSE are not consistent. Dissabandara (2001) reveals that the CSE display a delayed positive reaction to dividend announcements and delayed negative reaction to decrease in dividend. Gunathilake and Kongahawatte (2011) find that stock split announcements create significant positive market reaction on the event day in the CSE. Fernando and Guneratne (2009) find that the CSE responds significantly on bonus issues with a large price appreciation on the announcement day of bonus issue providing evidence to the existence of insider activities.

However, direct studies on impact of insider trading on the prices of stocks are hardly found in the CSE. Thus, study on the information content of insider trading and the speed of the adjustment of market prices for insider trading information would be an interesting arena to be explored in the Sri Lankan capital market.

Accordingly, this study has two objectives. The first objective is to analyze whether abnormal returns of the securities subsequent to insider purchases (sales) are significantly, positive (negative) in the CSE. The second objective is to analyze whether the adjustment of market prices for insider trading information are quick in the CSE.

In the literature on insider trading top officers, directors and large share holders of organizations are considered as insiders. But with the disclosure requirements of the CSE, the quoted public companies in Sri Lanka are required to report only the insider trades of directors. Therefore, this study analyzes only the disclosed purchases and sales of directors of the quoted public companies in the CSE.

## **2. Research design**

In order to achieve the objectives, this study analyses insider trades of directors. Depending on the availability of data, the sample period of the study is from September, 2004 to August, 2012. The sample consists of insider purchases events from 156 companies and insider sales events from 131 companies. There are 2201 insider purchases events and 941 insider sales events in the sample. The insider purchases (sales) carried out under Employee Share Option Schemes (ESOPs), Trust Deeds, Share Warrants and the insider trades of non-voting ordinary securities have been excluded from the sample. Further, certain insider trading events have been excluded due to thin trading problem.

Literature on insider trading reveals that a larger abnormal return around the trading period than in the reporting period (Lakonishok and Lee, 2001) suggesting that if the market is efficient, it is expected to respond to the insider trading information around the transaction date. In consistent with these findings, this study also evaluates the abnormal returns around the insider trading date.

Due to the high volume of events and the nature of the study, it is not practical to set event windows for each security and for each event separately. Therefore, this study adopts a fixed

event window for both insider purchases and sales events for all the companies. The studies on insider trading have adopted different event windows such as -20 to +40 days (Heinkel and Kraus, 1987), -30 to +30 days (Wong, 2002), -21 to +21 days (Bajo and Petracci, 2006) and -20 to +20 (Barucci, Bianchi, and Manconi, 2006). These evidences on event window lengths have an underlying assumption that insider trades would be reflected in security prices within a shorter time horizon. Therefore, it is decided that a shorter event window would be appropriate to measure the impact of insider trades in the CSE as well. Accordingly, this study uses a fixed event window of -20 to +20 days. Further, a fixed estimation window of 41 days before the pre event window is also considered to estimate the beta of securities in order to measure the risk adjusted rate of return of securities.

Having considered the fact that the degree of information asymmetry within a market cannot be measured directly, this study uses the abnormal returns of insider trades as the proxy to measure the impact of insider trading by following Seyhun (1986) and Rozeff and Zaman (1988). The abnormal returns of insider trades are measured following the event study methodology of MacKinlay (1997) and Brown and Warner (1985). According to MacKinlay (1997), there are several choices for modeling the abnormal returns. This study adopts two models namely the Market Adjusted Return (MAR) Model and the Risk Adjusted Return (RAR) Model. The abnormal returns under each model are calculated as follows.

Abnormal returns under MAR Model

$$AR_{it} = R_{it} - R_{mt} \quad (1)$$

Where,

$AR_{it}$  = Abnormal return for security i at day t

$R_{it}$  = Actual return for security i at day t

$R_{mt}$  = Actual return for market portfolio at day t

Abnormal return under the RAR Model

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

Where,

$R_{ft}$  = Risk free rate of return i.e. 91 days Treasury bill rate at day t

$\beta_i$  = Systematic risk of security i

Returns of securities are adjusted for capital gains, dividend payments, bonus issues, stock splits and right issues on the reinvestment assumption. The Total Return Index (TRI) of the CSE is used as the return of the market portfolio. Beta coefficients of securities are estimated using the market model as given below.

$$R_{it} = \alpha_i - \beta_i R_{mt} \quad (3)$$

Where, t goes from -61 to -21.

Then, the Average Abnormal Return (AAR) and Cumulative Average Abnormal Return (CAAR) for each day of the event window are calculated using the equations given below.

$$AAR_t = \frac{1}{N} \sum_{i=1}^N AR_{it} \quad (4)$$

$$CAAR_{(t1,t2)} = \sum_{t=t1}^{t2} AAR_t \quad (5)$$

AAR<sub>t</sub> = Average Abnormal Return at day t

CAAR<sub>(t1,t2)</sub> = Cumulative Average Abnormal Return from t1 to t2

N = Total number of events

These AAR and CAAR are calculated under both the MAR and RAR Models for insider purchases and insider sales separately. The test statistics of AAR and CAAR are calculated following MacKinlay (1997) and Brown and Warner (1985) and the significance of the AAR and CAAR is tested using the standard t test.

The test statistic for AAR for any day t;

$$t \text{ stat} = \frac{AAR_t}{\hat{S}(AAR_t)} \quad (6)$$

$\hat{S}(AAR_t)$  = Standard deviation of the Average Abnormal Return at day t

The test statistic for CAAR for any day t;

$$t \text{ stat} = \frac{CAAR(t_1,t_2)}{(\sigma^2(t_1,t_2))^{1/2}} \quad (7)$$

CAAR<sub>(t1,t2)</sub> = Cumulative Average Abnormal Return from t1 through t2

$\sigma^2(t_1,t_2)$  =  $L\sigma^2(AR_t)$

$\sigma^2(AR_t)$  = Variance of the one-period mean abnormal return

L =  $t_2 - t_1 + 1$  (i.e. the horizon length of the event time)

### 3. Findings

Following the methodology explained in the previous section, AAR, CAAR and their t statistics for each day of the event period for insider purchases and sales, under the MAR and RAR models are presented in Appendix 1 and 2 respectively to identify the abnormal returns for insider purchases and sales on different days of the event period. The graphical demonstration of the AAR and CAAR for insider purchases and sales under MAR model in Figure 1 and 3 and under RAR model in Figure 2 and 4 are presented separately to identify whether the market displays an early response, immediate response or a delayed response for insider purchases and sales information. Further, CAAR for insider purchases and sales under MAR and RAR models are presented in Table 1 and 2 respectively over different event window periods in order to identify how the insider purchases and sales information are reflected on market prices during the event period.

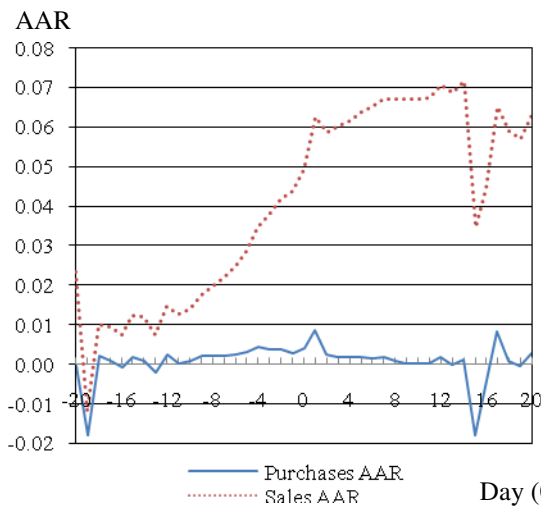
Both the AAR and CAAR under MAR model (Appendix 1) for insider purchases are not significantly positive on any date during the event period. Similarly, the CAAR for insider purchases for different event windows under MAR model as presented in Table 1 are not significant in any window period. However, the AAR under RAR model (Appendix 2) for insider purchases is positive and significant on the next day after the event day and the

CAAR under RAR model is positive and significant from the 4 days before the event date to the 20<sup>th</sup> day after the event day. Further, as shown in Table 2, CAAR for insider purchases under RAR model are positive and significant on both pre-event windows and post-event windows. The positive significant abnormal returns for insider purchases under RAR model support the hypothesis that insider purchases have a positive impact on the return. These findings further suggest that RAR model could be more appropriate in capturing the impact of insider purchases than MAR model.

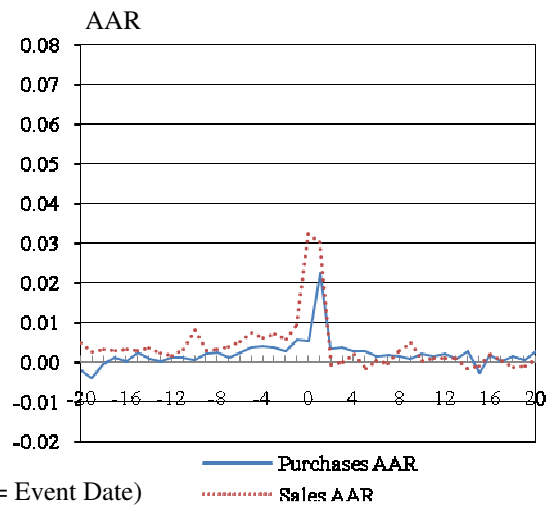
When the findings for insider sales are observed, it seems that all tests under both MAR and RAR models presented in Appendix 1 and 2, Figure 1, 2, 3 and 4 and Table 1 and 2, show positive abnormal returns for insider sales. This is a contradiction to the hypothesis that insider sales are associated with negative abnormal returns.

As a whole, the findings of this study provide supportive evidence for the hypothesis that abnormal returns for insider purchases are positive under RAR model. The findings on insider purchases under MAR model are not significant. In contrary to the hypothesis, the abnormal returns for insider sales are positive under both MAR and RAR models.

As far as market efficiency is concerned, the evidence suggests that the CSE seems to be inefficient with regard to the reflection of information content of insider trades in the market prices of securities. The findings on insider sales are contradictory to the hypothesis. Furthermore, the positive impact of insider purchases seen under RAR model is observed during the event period i.e., the impact is seen before 4 days of the event and observed until the 20<sup>th</sup> day after the event. Hence, the findings of the study cast doubt on the efficiency of the CSE.



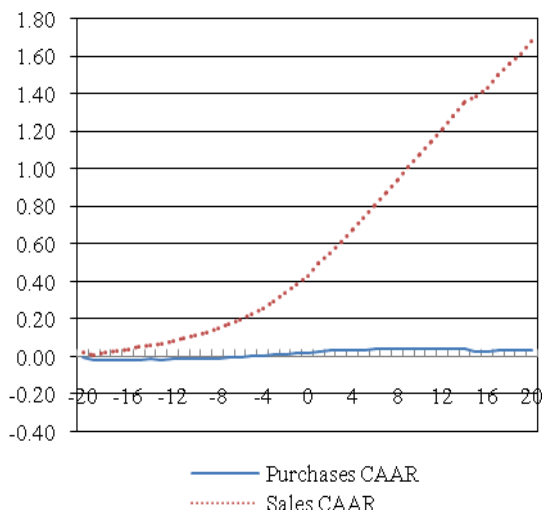
**Figure 1: AAR under MAR Model**



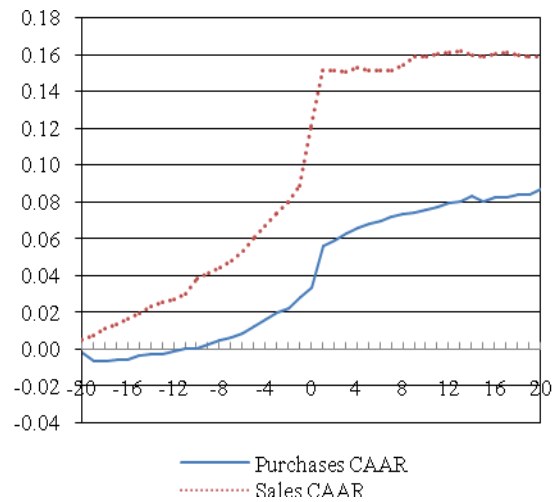
**Figure 2: AAR under RAR Model**

CAAR

CAAR



**Figure 3:** CAAR under MAR Model



**Figure 4:** CAAR under RAR Model

**Table 1:** Table showing the CAAR for different windows under MAR Model

Event Window	L	Purchases			Sales		
		CAAR	t stat	(+) Returns %	CAAR	t stat	(+) Returns %
W1 = (-20, -1)	20	0.0169	0.78	25.00%	0.3840	3.90*	100.00%
W 2 = (-10, -1)	10	0.0285	1.86	50.00%	0.2858	4.10*	100.00%
W 3 = (-1, 0)	2	0.0071	1.04	100.00%	0.0930	2.98*	100.00%
W 4 = (0, +1)	2	0.0129	1.89	100.00%	0.1118	3.59*	100.00%
W 5 = (-1, +1)	3	0.0158	1.89	100.00%	0.1555	4.07*	100.00%
W 6 = (+1, +10)	10	0.0219	1.43	100.00%	0.6411	9.20*	100.00%
W 7 = (+1, +20)	20	0.0154	0.71	100.00%	1.2434	12.61*	100.00%
W 8 = (-20, +20)	41	0.0365	1.18	63.41%	1.6767	11.88*	100.00%

Note. This table summarizes CAAR for different window periods, respective t statistics and (+) Returns % column presents the percentage of the number of days CAAR has been positive during the event window period in concern. The sample consists of 2201 insider purchases of 156 companies and 941 insider sales of 131 companies in the CSE for the period from September, 2004 to August, 2012. \* indicate statistical significance of test statistics at 0.05 level.

**Table 2:** Table showing the CAAR for different windows under RAR Model

Event Window	L	Purchases			Sales		
		CAAR	t stat	(+) Returns %	CAAR	t stat	(+) Returns %
W 1 = (-20, -1)	20	0.0281	1.68	50.00%	0.0887	2.52*	100.00%
W 2 = (-10, -1)	10	0.0283	2.38*	100.00%	0.0588	2.36*	100.00%
W 3 = (-1, 0)	2	0.0110	2.07*	100.00%	0.0417	3.75*	100.00%
W 4 = (0, +1)	2	0.0275	5.19*	100.00%	0.0626	5.63*	100.00%
W 5 = (-1, +1)	3	0.0333	5.13*	100.00%	0.0721	5.29*	100.00%
W 6 = (+1, +10)	10	0.0424	3.57*	100.00%	0.0381	1.53	100.00%

W 7 =(+1, +20)	20	0.0532	3.17*	100.00%	0.0380	1.08	100.00%
W 8 = (-20, +20)	41	0.0866	3.60*	75.61%	0.1590	3.16*	100.00%

Note. This table summarizes CAAR for different window periods, respective t statistic and (+) Returns % column presents the percentage of the number of days CAAR has been positive during the event window period in concern. The sample consists of 1632 insider purchases of 131 companies and 814 insider sales of 105 companies in the CSE for the period from September, 2004 to August, 2012. \* indicates statistical significance of test statistics at 0.05 level.

#### **4. Discussion**

It is important to ensure the validity and reliability of the findings by comparing and contrasting the findings with evidences of previous literature. Firstly, the abnormal returns of the securities subsequent to insider trades are compared with the findings of previous studies. Secondly, the findings of market efficiency i.e., the adjustment of prices on the information content of insider trades are compared with the literature.

##### **4.1. Abnormal returns of insider trades**

The first hypothesis of this study is that insider purchases (sales) associate with positive (negative) abnormal returns. The findings of this study do not support these hypotheses except that the abnormal returns subsequent to insider purchases are positive and significant under RAR model. In contrast to the hypothesis, insider sales under both MAR and RAR Models are associated with significantly positive AAR and CAAR.

In previous studies under MAR Model, Barucci et al. (2006) conclude, for an event window of  $\pm 20$  days, that insider purchases (sales) days are followed by a day with positive (negative) abnormal returns. Thus, they argue that insiders time the market to exploit short term market movements. When the abnormal returns are calculated under RAR Model, Jaffe (1974) finds that insiders earn a gross abnormal return of 2% over two months and 5% over eight months following the intensive trading periods. Finnerty (1976) finds between 4.8% to 8.3% abnormal returns over an eleven months period; Seyhun (1986) finds that security prices increase by 3% for insider purchases and security prices decline by 1.7% for insider sales; Etebari, Tourani-Rad, and Gilbert (2004) find that abnormal returns associated with insider purchases (insider sales) on the event day is 0.21% (-0.20%) but not significant and Ma, Sun, and Tang (2009) find that AAR for the total insider purchases (sales) sample is 1.71% (-0.51%) which is significant. Cheuk, Fan, and So (2006) find that under RAR Model, in the Hong Kong market, abnormal returns associated with insider sales are considerably larger than that of insider purchases. Therefore, these findings support the hypothesis that insider purchases (sales) are associated with positive (negative) abnormal returns.

On the other hand, Lakonishok and Lee (2001) provide evidence, for a 5 days window after the event, that abnormal returns of insider purchases are positive and higher around trading period than reporting period but there is no abnormal return for insider sales. Bajo and Petracci (2006) do not find conclusive evidence, under the MAR Model, for a strong and clear market reaction on transaction day. They find a significant positive (negative) abnormal return for the insider purchases (sales) on the date of announcement.



Thus, in general, the findings on insider trades are not consistent. In fact, the findings on insider purchases are more conclusive and consistent with the hypothesis than insider sales which are consistent with the findings of this study as well. The positive abnormal returns associated with insider sales could be due to the fact that the market may be relying more on the information that they know about the future prospects of the companies than relying on the negative information content of insider sales. As well as, the results of this study might have been influenced by low volume trades of directors that could be less informative since this study analyses all trades of directors reported to the CSE. Because Cheung et al. (2000) find that the information content of high volume insider trades could be more than the low volume insider trades. Moreover, the results of this study might have been affected due to the fact that we study only the trades of directors reported to the CSE but the studies on insider trades are done on trading of top officers, directors and major shareholders. Therefore, it would be appropriate to carry out a study addressing these aspects to see whether the hypotheses are supported for insider trades in the CSE.

#### **4.2. Market efficiency**

The second objective was to examine how quickly the market adjusts security prices to reflect insider trading information around insider trading days. The abnormal returns calculated under MAR model and RAR model reveal that the market reaction for insider purchases is not significant on the event day. As shown in above Figure 1, 2, 3 and 4, the direction of the market reaction is positive for insider purchases as hypothesized whereas the direction of the market reaction for insider sales is not negative as hypothesized, rather it is positive and significant under both MAR and RAR models. Furthermore, this positive impact is seen prior to the event date and continues till the end of the event period. Thus, these findings suggest that the CSE may not be efficient in reflecting the information content of insider trades. According to the previous market efficiency evidence, Barucci et al. (2006) find that insider purchases are followed by a significant positive CAAR for 20 days and insider sales are followed by a significant negative CAAR for 20 days in the Italian market. Seyhun (1988) and Barucci et al. (2006) argue that insiders are better able to time the market in the short run. However, Seyhun (1986) finds that insider purchases earn abnormal returns after 100 days and insider sales earn abnormal returns after 300 days. Lakonishok and Lee (2001) state that the market might have initially ignored the information content of insider trades and responded with a delay. Therefore, it would also be important to study the impact of insider trades over a long period of time subsequent to the insider trades in the CSE. Furthermore, Fidrmuc, Georgen, and Renneboog (2006) specifically state that the market reaction to insider sales is milder in countries having better corporate governance practices; Giamouridis, Liodakis, and Moniz (2008) find that the momentum plays an important role in identifying trades based on inside information. However, the puzzle still continues because the evidence in this study is not sufficient to determine whether insider trades are informative and the adjustment of security prices for insider trading information in the CSE is in line with the efficient market hypothesis.

#### **5. Conclusion**

In conclusion, the findings of this study are consistent with the hypotheses that insider purchases are associated with positive abnormal returns but are not consistent with the hypothesis that insider sales are associated with negative abnormal returns. In fact, the abnormal returns subsequent to the sales of directors are positive and significant in the CSE. Therefore, the efficiency of the adjustment of security prices on the information content of

insider trading is quite difficult to decide due to inconsistent reaction for insider trading in the CSE. The results of this study might have been influenced by low volume trades of directors that could be less informative and the exclusion of trades of top officers and large share holders or the CSE might have responded with a delay to the information content of insider trades. Finally, it is suggested to carry out a study addressing these issues to see whether the hypotheses are supported for insider trades in the CSE and as well as a study on analyzing the information content of insider trading could be further extended to capture the long term impact of these events by considering either weekly or monthly returns.

**Appendix 1: AAR and CAAR under market adjusted return model**

Day	Purchases				Sales			
	AAR	t stat	CAAR	t stat	AAR	t stat	CAAR	t stat
-20	-0.0003	-0.07	-0.0003	-0.07	0.0233	1.06	0.0233	1.06
-19	-0.0178	-3.67*	-0.0181	-2.64*	-0.0119	-0.54	0.0114	0.36
-18	0.0021	0.44	-0.0159	-1.91	0.0101	0.46	0.0215	0.56
-17	0.0008	0.16	-0.0151	-1.57	0.0096	0.43	0.0310	0.70
-16	-0.0006	-0.12	-0.0157	-1.45	0.0076	0.35	0.0387	0.78
-15	0.0021	0.43	-0.0136	-1.15	0.0124	0.56	0.0510	0.94
-14	0.0010	0.20	-0.0127	-0.99	0.0122	0.55	0.0632	1.08
-13	-0.0018	-0.38	-0.0145	-1.06	0.0076	0.34	0.0708	1.14
-12	0.0027	0.56	-0.0118	-0.82	0.0148	0.67	0.0856	1.29
-11	0.0003	0.06	-0.0115	-0.76	0.0126	0.57	0.0982	1.41
-10	0.0008	0.17	-0.0107	-0.67	0.0140	0.63	0.1122	1.53
-9	0.0022	0.46	-0.0085	-0.51	0.0176	0.80	0.1298	1.70
-8	0.0023	0.48	-0.0062	-0.36	0.0200	0.91	0.1498	1.89
-7	0.0022	0.45	-0.0040	-0.22	0.0221	1.00	0.1719	2.08*
-6	0.0026	0.54	-0.0014	-0.08	0.0251	1.14	0.1970	2.31*
-5	0.0031	0.63	0.0016	0.08	0.0286	1.30	0.2256	2.56*
-4	0.0046	0.96	0.0063	0.31	0.0348	1.58	0.2604	2.86*
-3	0.0040	0.82	0.0102	0.50	0.0381	1.73	0.2985	3.19*
-2	0.0038	0.78	0.0140	0.67	0.0417	1.89	0.3403	3.54*
-1	0.0029	0.60	0.0169	0.78	0.0438	1.98*	0.3840	3.90*
<b>0</b>	<b>0.0042</b>	<b>0.87</b>	<b>0.0211</b>	<b>0.95</b>	<b>0.0493</b>	<b>2.23*</b>	<b>0.4333</b>	<b>4.29*</b>
1	0.0087	1.81	0.0299	1.32	0.0625	2.84*	0.4958	4.79*
2	0.0024	0.50	0.0323	1.39	0.0587	2.66*	0.5545	5.24*
3	0.0020	0.41	0.0343	1.45	0.0602	2.73*	0.6147	5.69*
4	0.0018	0.37	0.0361	1.49	0.0617	2.80*	0.6764	6.14*
5	0.0020	0.41	0.0381	1.55	0.0640	2.90*	0.7404	6.59*
6	0.0017	0.35	0.0398	1.58	0.0654	2.96*	0.8057	7.03*
7	0.0018	0.37	0.0415	1.62	0.0672	3.05*	0.8730	7.48*
8	0.0009	0.18	0.0424	1.63	0.0672	3.05*	0.9402	7.92*
9	0.0004	0.08	0.0428	1.62	0.0671	3.04*	1.0073	8.34*
10	0.0002	0.04	0.0430	1.60	0.0671	3.05*	1.0744	8.75*

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11	0.0003	0.06	0.0433	1.58	0.0675	3.06*	1.1419	9.16*
12	0.0018	0.37	0.0451	1.62	0.0708	3.21*	1.2127	9.58*
13	-0.0001	-0.02	0.0450	1.60	0.0689	3.12*	1.2815	9.97*
14	0.0014	0.28	0.0464	1.62	0.0717	3.25*	1.3532	10.38*
15	-0.0178	-3.69*	0.0285	0.98	0.0346	1.57	1.3878	10.49*
16	-0.0041	-0.84	0.0245	0.83	0.0443	2.01*	1.4322	10.68*
17	0.0084	1.73	0.0328	1.10	0.0651	2.95*	1.4973	11.02*
18	0.0011	0.22	0.0339	1.12	0.0589	2.67*	1.5561	11.30*
19	-0.0003	-0.06	0.0336	1.10	0.0572	2.59*	1.6133	11.57*
20	0.0029	0.60	0.0365	1.18	0.0633	2.87*	1.6767	11.88*

Note. The sample consists of 2201 insider purchases of 156 companies and 941 insider sales of 131 companies in the CSE for the period from September, 2004 to August, 2012. The MAR Model is adopted using the ASPI return as the normal return. AAR is the sample average abnormal return for a specified day in the event window and CAAR is the sample cumulative average abnormal return from day -20 to the specified day. Event dates are the calendar dates on which insiders have either purchased or sold the securities. \* indicates statistical significance of test statistics at 0.05 level.

**Appendix 2: AAR and CAAR under risk adjusted return model**

Day	Purchases				Sales			
	AAR	t stat	CAAR	t stat	AAR	t stat	CAAR	t stat
-20	-0.0021	-0.57	-0.0021	-0.57	0.0049	0.62	0.0049	0.62
-19	-0.0041	-1.09	-0.0062	-1.18	0.0027	0.34	0.0075	0.68
-18	-0.0005	-0.13	-0.0067	-1.03	0.0033	0.42	0.0108	0.79
-17	0.0010	0.26	-0.0057	-0.76	0.0027	0.35	0.0136	0.86
-16	0.0000	0.01	-0.0057	-0.68	0.0032	0.40	0.0167	0.95
-15	0.0022	0.60	-0.0034	-0.37	0.0028	0.35	0.0195	1.01
-14	0.0009	0.24	-0.0025	-0.26	0.0035	0.44	0.0230	1.10
-13	0.0000	0.00	-0.0025	-0.24	0.0023	0.29	0.0253	1.13
-12	0.0012	0.33	-0.0013	-0.12	0.0014	0.18	0.0267	1.13
-11	0.0012	0.31	-0.0001	-0.01	0.0032	0.41	0.0299	1.20
-10	0.0003	0.09	0.0002	0.02	0.0082	1.04	0.0381	1.46
-9	0.0022	0.58	0.0024	0.18	0.0028	0.36	0.0409	1.50
-8	0.0024	0.64	0.0048	0.35	0.0033	0.42	0.0442	1.56
-7	0.0011	0.30	0.0059	0.42	0.0039	0.50	0.0481	1.64
-6	0.0023	0.61	0.0082	0.56	0.0051	0.64	0.0532	1.75
-5	0.0037	0.99	0.0119	0.79	0.0073	0.93	0.0605	1.92
-4	0.0041	1.09	0.0160	1.03	0.0060	0.77	0.0665	2.05*
-3	0.0037	0.98	0.0197	1.23	0.0070	0.89	0.0735	2.20*
-2	0.0027	0.72	0.0224	1.37	0.0058	0.73	0.0793	2.31*
-1	0.0058	1.54	0.0281	1.68	0.0094	1.20	0.0887	2.52*
<b>0</b>	<b>0.0052</b>	<b>1.40</b>	<b>0.0334</b>	<b>1.94</b>	<b>0.0323</b>	<b>4.10*</b>	<b>0.1210</b>	<b>3.36*</b>
1	0.0223	5.94*	0.0557	3.16*	0.0304	3.86*	0.1514	4.10*
2	0.0034	0.91	0.0591	3.28*	-0.0006	-0.07	0.1508	4.00*

3	0.0035	0.94	0.0626	3.40*	-0.0001	-0.01	0.1508	3.91*
4	0.0028	0.74	0.0653	3.48*	0.0018	0.23	0.1526	3.88*
5	0.0028	0.76	0.0682	3.56*	-0.0017	-0.22	0.1508	3.76*
6	0.0014	0.37	0.0696	3.57*	0.0004	0.06	0.1513	3.70*
7	0.0019	0.50	0.0715	3.60*	-0.0003	-0.04	0.1510	3.63*
8	0.0014	0.39	0.0729	3.61*	0.0029	0.37	0.1539	3.63*
9	0.0008	0.21	0.0737	3.59*	0.0048	0.61	0.1586	3.68*
10	0.0020	0.54	0.0757	3.63*	0.0004	0.06	0.1591	3.63*
11	0.0014	0.38	0.0772	3.64*	0.0008	0.11	0.1599	3.59*
12	0.0021	0.56	0.0793	3.68*	0.0009	0.11	0.1608	3.56*
13	0.0009	0.23	0.0801	3.66*	0.0008	0.10	0.1616	3.52*
14	0.0028	0.75	0.0829	3.74*	-0.0018	-0.22	0.1598	3.43*
15	-0.0029	-0.76	0.0801	3.56*	-0.0011	-0.15	0.1587	3.36*
16	0.0018	0.49	0.0819	3.59*	0.0018	0.23	0.1605	3.35*
17	0.0001	0.03	0.0821	3.55*	0.0004	0.05	0.1609	3.32*
18	0.0014	0.37	0.0835	3.56*	-0.0015	-0.19	0.1594	3.24*
19	0.0004	0.11	0.0839	3.53*	-0.0009	-0.11	0.1585	3.19*
20	0.0027	0.72	0.0866	3.60*	0.0005	0.06	0.1590	3.16*

Note. The sample consists of 1632 insider purchases of 131 companies and 814 insider sales of 105 companies in the CSE for the period from September, 2004 to August, 2012. The RAR Model is adopted to measure the normal return. AAR is the sample average abnormal return for a specified day in the event window and CAAR is the sample cumulative average abnormal return from day -20 to the specified day. Event dates are the calendar dates on which insiders have either purchased or sold the securities. \* indicates statistical significance of test statistics at 0.05 level.

## 6. References

1. Aktas, N., De Bodt, E., De Smedt, J., and Riachi, I. (2007), Legal insider trading and stock market reaction: Evidence from the Netherlands. Available at <http://www.uclouvain.be/cps/ucl/doc/core/documents/CORED200767.pdf>, accessed during January 2015.
2. Bajo, E. and Petracchi, B. (2006), Do what insiders do: Abnormal performance after the release of insider's relevant transactions, *Studies in Economics and Finance*, 23(2), pp 94–118.
3. Barucci, E., Bianchi, C. and Manconi, A. (2006), Internal dealing regulation and insiders' trades in the Italian financial market. *European Journal of Law and Economics*, 22, pp 107-119.
4. Biesta, M.A., Doeswijk, R.Q. and Donker, H.A. (2003), The profitability of insider trades in the Dutch Stock Market.
5. Brown, S.J. and Warner, J.B. (1985), Using daily stock returns: The case of event studies. *Journal of Financial Economics*, 14, pp 3-31.

6. Cheuk, M., Fan, D.K. and So, R.W. (2006), Insider trading in Hong Kong: Some stylized facts. *Pacific – Basin Finance Journal*, 14, pp 73-90.
7. Cheung, Y.L., Wong, M. and Wu, L. (2000), Insider Trading in the Hong Kong Stock Market. *Asia-Pacific Financial Markets*, 7, pp 275–288.
8. Dissabandara, D.B.P.H. (2001), Dividend signaling, market response to dividend change and capital market efficiency: An empirical analysis. *Proceedings of the Annual Research Sessions 2000/2001 of the Faculty of Management Studies and Commerce, University of Sri Jayewardenepura*, pp 23-51, Sri Lanka.
9. Etebari, A., Tourani-Rad, A. and Gilbert, A. (2004), Disclosure regulation and the profitability of insider trading: Evidence from New Zealand. *Pacific-Basin Finance Journal*, 12, pp479-502.
10. Fama, E.F. (1970), Efficient Capital Markets: A Review of Theory and Empirical Work. *The Journal of Finance*, 25(5), pp383-417.
11. Fernando, K.G.K and Guneratne, P.S.M. (2009), Measuring Abnormal Performance in Event Studies: An Application with Bonus Issue Announcements in Colombo Stock Exchange (CSE), available in [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1513320](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1513320), accessed during January 2015.
12. Finnerty, J. E. (1976), Insiders and market efficiency. *Journal of Finance*, 31, pp1141-1148.
13. Fidrmuc, J.P., Goergen, M. and Renneboog, L. (2006), Insider Trading, News Releases, and Ownership Concentration. *The Journal of Finance*, 61(6), pp 2931-2973.
14. Giamouridis, D., Liodakis, M. and Moniz, A. (2008), Some insiders are indeed smart investors. Retrieved from SSRN: <http://ssrn.com/abstract=1160305>.
15. Gunathilaka, C. and Kongahawatte, S. (2011), Stock splits in Sri Lanka: Valuation effects and market liquidity. Paper presented at the Eighth International Conference on Business Management, Colombo, Sri Lanka.
16. Heinkel, R. and Kraus, A. (1987), the Effect of Insider Trading on Average Rates of Return. *The Canadian Journal of Economics*, 20(3), pp588-611.
17. Jaffe, J. (1974), Special information and insider trading. *Journal of Business*, 47, pp410-428.
18. Lakonishok, J. and Lee, I. (2001), Are insider trades informative? *The Review of Financial Studies*, 14, pp79–111.
19. Louis, H., Sun, X. and White, H. (2010), Insider trading after repurchase tender offer announcements: timing versus informed trading. *Financial Management*, 39(1), pp 301-322.

20. Ma, Y., Sun, H. and Tang, A.P. (2009), Do insiders have inside tracks: An examination of Wall Street Journal's Inside Track columns?. *International Review of Economics and Finance*, 18, pp 520–530.
21. MacKinlay, A.C. (1997), Event studies in Economics and Finance. *Journal of Economic Literature*, 35, pp13-39.
22. Rozeff, M.S. and Zaman, M.A. (1988), Market Efficiency and Insider Trading: New Evidence. *Journal of Business*, 61(1), pp 25-44.
23. Seyhun, H. N. (1986), Insiders' profits, costs of trading, and market efficiency. *Journal of Financial Economics*, 16, pp 189-212.
24. Seyhun, H.N. (1988), the Information Content of Aggregate Insider Trading. *The Journal of Business*, 61(1), pp 1-24.
25. Wong, E. (2002), Investigation of market efficiency: An event study of insider trading in the stock exchange of Hong Kong. Unpublished manuscript, Stanford University, US.
26. Zingg, A., Lang, S. and Wytttenbach, D. (2007), Insider trading in the Swiss Stock Market. Retrieved from <http://dx.doi.org/10.2139/ssrn.1091348>.