

CHAPTER 3 RESEARCH METHODOLOGY

3.1 Theoretical framework

This research is exploratory in nature. Thus far, there has not been any study carried out to empirically test direct insider trading in Malaysia based on an analysis on daily price movement. This study would explore based on the filings made to the KLSE to find out whether insider trading exists in Malaysia on the short horizon.

The focus on short horizon in this study is to concentrate on short-term insiders who are interested about maximising their immediate profits and would always trade to conceal their information. This is evident in most studies carried out in the US which focus on short term nature of abnormal gains by insiders (Bernhardt, Hollifield and Hughson (1995)) and US legislations such as the SEA which prohibits short-swing profit by insiders.

As it is extremely difficult, if not impossible, to detect and identify a true insider trade, reliance will be placed on secondary data. The reliance on secondary data is very much in line with the research methodology carried out overseas especially in the US where registered insider trades are published. This is the closest information that one can get on insider trades. Inference will then be made from analysis of the secondary data.

3.2 Hypothesis

For the purposes of this paper, the following hypothesis will be tested, in line with the objective of this paper.

Hypothesis 1:

Insider trading exists in the Kuala Lumpur Stock Exchange.

If insider trading exists, it will be reasonable to expect that prior to the disposal of such stocks, there should be evidence of increasing abnormal returns and non existence of such abnormal return after insiders disposed off their stocks. Similarly for purchases of stocks, there should be evidence of abnormal returns after the purchase. The existence of insiders can be inferred from evidence of abnormal return gained by insiders before they disposed off their stocks and after they have purchased their stocks.

Null Hypothesis, H_0 :

Insiders do not earn abnormal return from their own trade.

Alternative Hypothesis, H_1 :

Insiders earn abnormal return from their own trade.

Hypothesis 2:

The insider traders are able to earn a higher abnormal return on the KLSE Second Board compared to KLSE Main Board.

It is generally regarded that the KLSE Second Board counters are more speculative in nature and more prone to speculative play by insiders. The perception is due to the smaller capitalisation and thinner trading volume of KLSE Second Board counters making the prices of companies listed on the KLSE Second Board able to fluctuate higher. As such, this study will also attempt to look into the question whether insider trading, if exist, can earn a higher abnormal return on the KLSE Second Board as compared to the KLSE Main Board.

Null Hypothesis, H_0 :

Insiders do not earn higher abnormal return from KLSE Second Board companies as compared to the KLSE Main Board companies.

Alternative Hypothesis, H₁:

Insiders earn higher abnormal return from KLSE Second Board companies as compared to the KLSE Main Board companies.

Hypothesis 3:

Outside investors can use the publicly available information about insider transactions to earn abnormal profits.

The SIA requires notice to be given within fourteen days of change in interest by insiders and the Companies Act requires a notice of fourteen days for directors and seven days for substantial shareholders. Since an insider may possess fundamental information, the insiders' disclosures may be informative. If an insider discloses that he/she (disposed) bought stock, the market infers that if the insider is informed, his/her information is probably (un) favourable and the stock price would be expected to (fall) rise. If abnormal returns can be derived beyond the day after the statutory notices have been given, then outsiders can use the information to ride on the abnormal returns by mimicking the insiders.

Null Hypothesis, H₀:

Insider trades are not informative.

Alternative Hypothesis, H₁:

Insider trades are informative.

3.3 Types and Sources of Data

The research will be via compilation of data which can be described as follows:

	Types of data	Sources	Reliability
1.	Filing dates on disposal or purchase of shares by substantial shareholders or directors	KLSE data file*	Very reliable

	Types of data	Sources	Reliability
2.	Transaction dates, number of shares disposed and purchased by substantial shareholders and/or directors**	KLSE data file*	Very reliable
3.	Daily transaction prices of shares	Published price in Bloomberg	Very reliable
4.	The Kuala Lumpur Stock Exchange Main Board All Share Index (EMAS) and Kuala Lumpur Second Board Index (KLSI)	Published index in Bloomberg	Very reliable

*Section 69F of the Companies Act 1965 requires a substantial shareholder in a company to give notice within seven days in writing to the company where there is a change in the interest or interests of the substantial shareholder of the company. Section 69I requires the notice to be served on the Stock Exchange on the same day notice under Section 69F is given. Section 135 of the Companies Act 1965 requires a director of a company to give notice to the company within 14 days of change in interest in share holdings in a company. The director is also required to serve a copy of the notice to the Stock Exchange within the same day the notice is given. See Appendix 1 for a sample of filing made to the KLSE.

**See Appendices 2 and 3 for detailed information of companies and nature of disposal and purchases.

3.4 Sample Design

Population : Original filings made to KLSE on disposal or purchase of shares by substantial shareholders or directors for companies listed on the KLSE's Main Board and Second Board.

Sample : Filings made to the KLSE between 1 March 2000 to 7 March 2000. The sample covers 297 filings (purchases: 109 and disposal: 188) by companies listed on the KLSE on disposal or purchase of shares by substantial shareholders or directors of the companies.

The duration from 1 March 2000 to 7 March 2000 was chosen based on convenience sampling to cover trading days from beginning of 1999 up to first quarter of 2001.

Stock prices ending each trading day for 150 days (more than 7 months) after and before change in shareholdings for purchases and disposal of shares on each effective day of change in shareholdings by substantial shareholders or directors. This period forms the study windows. Certain stocks may not have total of 150-day price data either before or after event day. As such, in calculating the adjusted market return, the non- availability of data is adjusted accordingly to derive average cumulative adjusted market returns.

The resulting sampled database contains 36,421 data ranging from February 1999 to March 2001. This data includes 13,545 prices under the purchases category and 22,876 prices for disposal.

The sampled 297 transactions consists of 121 companies listed on the KLSE segmented as follows:

	Purchase (Number of companies)	Disposal (Number of companies)	Total (Number of companies)
KLSE Main Board	33	49	82
KLSE Second Board	12	27	39
	<u>45</u>	<u>76</u>	<u>121</u>

This study focuses on two types of trading i.e. "Purchases" and "Disposal" which refer to open market or private purchases and disposals, respectively. Open market and private transactions are not distinguished because the filings made to KLSE do not explicitly differentiate whether the transactions made are via open market or private. A sampled company is included into the "Purchases" ("insider buy") category if the number of shares purchased is more than the number of shares disposed and vice versa for "disposal" ("insider sell") category. Should the number of shares purchased and disposed be equal, the sampled company is included into both "Purchases" and "Disposal" categories.

3.5 Cumulative Abnormal Returns

This study tries to measure the abnormal returns of stocks for each trading day. Returns are calculated based on the daily closing prices of the stocks. The performance of stock after disposal or accumulation of shareholdings of substantial shareholders or directors are evaluated using the market adjusted cumulative abnormal returns (CAR).

As security's price performance can only be considered "abnormal" relative to a particular benchmark, the EMAS and KLSI Index were chosen as the benchmark.

For companies listed on the KLSE Main Board, CAR = EMAS returns are deducted from the actual returns of the stocks.

For companies listed on the KLSE Second Board, CAR = KLSI returns are deducted from the actual returns of the stocks.

This model is chosen for return analysis because of the difficulty in obtaining data and in using alternative models such as the market model or the CPAM, due to the thinness of the market.

The market- adjusted return is obtained as follows : $ar_{it} = r_{it} - r_{mt}$

where, ar_{it} : Market adjusted return for stock i in event day t
 R_{it} : Actual return on stock i in event day t
 R_{mt} : Market return in event day t. The EMAS Index is used in computing the market return for companies listed in the KLSE Main Board and KLSI for companies listed in the KLSE Second Board.

Average market return on a portfolio of n stocks for event day t is the equally weighted arithmetic average of the market adjusted returns $AR_t = (1/n)\Sigma ar_{it}$

Where, AR_{it} : average market adjusted return in event day t, and n is the number of stocks in the portfolio in event day t.

The cumulative market adjusted returns from event day r to event day s is the summation of the average market - adjusted returns : $CAR_{r,s} = \Sigma AR$

3.6 Market Proxy

It is quite difficult if not impossible to have an accurate market return based on the combination of asset classes. A solution will be to use a more widely used EMAS Index (The Kuala Lumpur Stock Exchange Main Board All Share Index, being a capitalisation weighted index of all companies quoted and listed on the KLSE Main Board) for companies listed on the KLSE Main Board. For companies listed on the KLSE Second Board, the KLSI (KLSE Second Board Index being a capitalisation weighted index of all stocks traded on the KLSE Second Board excluding all Initial Public Offerings that have traded less than three months) will be used. Although both index will not be able to be the accurate proxy of the market, that is the closest one can obtain.

The Kuala Lumpur Composite Index (KLCI) is not used as it is a broad -based capitalisation weighted index of only 100 stocks. The advantage of using both the indices is that EMAS and KLSI represent all the traded shares on the KLSE Main Board and KLSE Second Board respectively. A weakness in using both the indices is that weighting of the index is the market value of issued shares. Nevertheless, the shortcomings of both the indices do not materially affect the results of this study as only the relative returns are looked at here.

Market rate of return for KLSE Main Board companies is calculated as follows:

$$R_m = \frac{(E_{t+1}-E_t)}{E_t} \times 100$$

Where

- R_m = market rate of return
- E_t = EMAS in period t
- E_{t+1} or E_{t-1} = EMAS in period t+1 or t-1

While, market rate of return for KLSE Second Board companies is calculated as follows:

$$R_m = \frac{(SI_{t+1}-SI_t)}{SI_t} \times 100$$

Where

- R_m = market rate of return
- SI_t = KLSE Second Board Index in period t
- SI_{t+1} or SI_{t-1} = KLSE Second Board Index in period t+1 or t-1

3.7 Data Analysis Technique

The data analysis of this study solely relies on Microsoft Excel running on a personal computer. First of all, the price for each stock and index for each day is

extracted from the Bloomberg and placed in two columns with their respective dates on another column. The returns on both the stock and the market are calculated based on the formula discussed in Section 3.5 and 3.6 and placed in another two columns.

Then the abnormal return is derived by deducting the return of each day's index from the return of the stock corresponding to the same day and placed in another column. The cumulative abnormal return is then computed and placed in a new column.

The cumulative abnormal return of all the stocks are then transferred to a new Excel spreadsheet and the total market adjusted return is derived by summing up all the cumulative abnormal return of all the stocks and placed in a new column. The cumulative average market adjusted return is then derived by dividing the total cumulative abnormal return by the number of stocks in the portfolio and place in another column.

The data are depicted in graphical format using the Microsoft Excel Graph Programme. Due to the volume of data involved in the process, only the processed data is attached to this report. Appendices 5 and 6 show the adjusted market returns of all sampled stocks in this study.