CHAPTER 3 : RESEARCH METHODOLOGY

3.1 Introduction

Chapter 3 reviews the methodology applied in this thesis ie the event study methodology. Information of the announcement of the change of logo is obtained from the corporation's website and newspapers. The effects of the announcement of a corporate logo changed were analysed in order to justify any abnormal returns on the date of announcement. Qualitative research using case study method was conducted on two companies which gives an opportunity to study a contemporary phenomenon within a real-life context (Yin, 1989 p. 23). Theory developed from case study research has important strengths such as testability, novelty and empirical validity. Case study method is well-suited to new research areas or research areas for which existing theory seems inadequate.

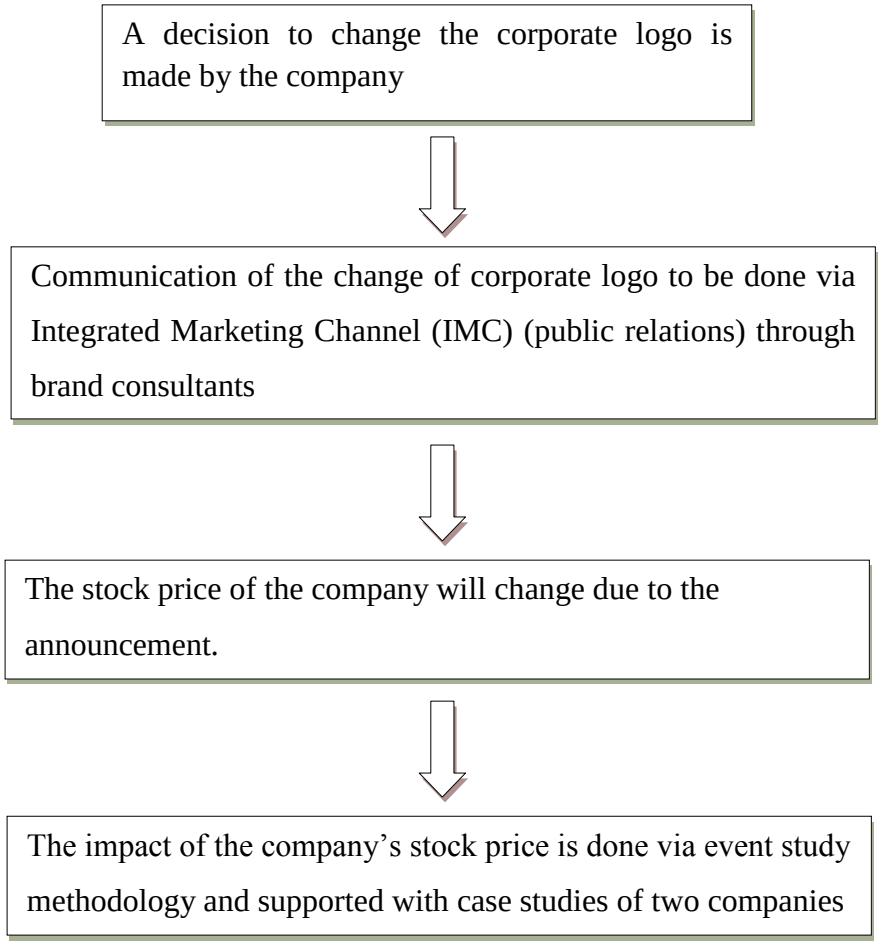


Figure 4 : Framework of the Methodology

3.2 Development of Hypotheses

This study develops and tests two hypotheses relating to the relative success of the change of corporate logo on the organisation's market value.

H_0 : *Corporate rebranding exercise through corporate logo changes has no significant impact on an organisation's market value*

Under the null hypothesis, H_0, the corporate rebranding event has no impact on the behaviour of returns (mean or variance), the distributional properties of the abnormal returns can be used to draw inferences over any period within the event window.

H_1 : *Corporate rebranding exercise through corporate logo changes has a positive impact on an organisation's market value.*

The alternate hypothesis relates that the change of corporate logo by the company will have a positive impact on the organisation's market value, ie companies will reap abnormal returns due to the change of corporate logo announcement.

The summary of the hypotheses is shown below :

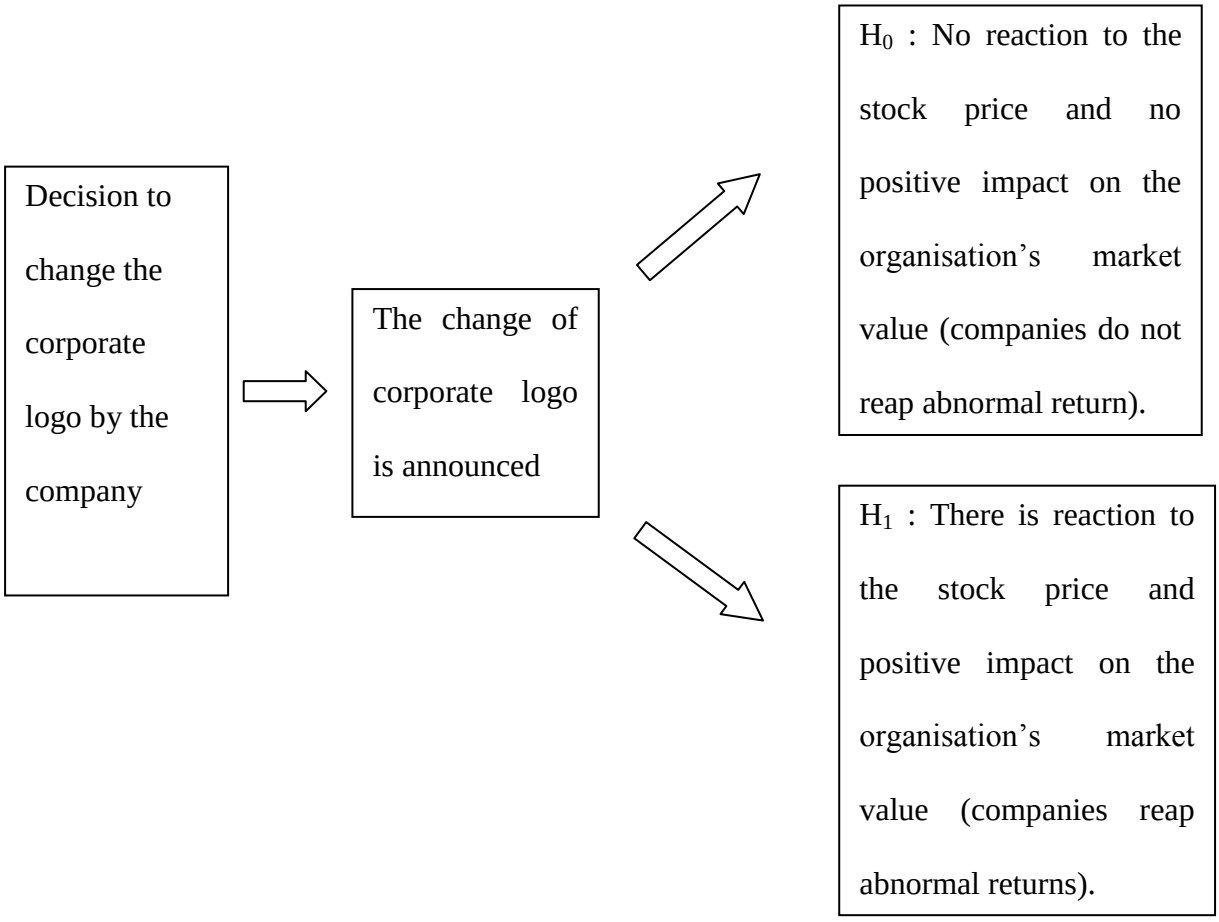


Figure 5 : Development of hypotheses, H_0 and H_1

3.3 Selection of Measures

Using the Efficient Market Hypothesis theory (Fama, 1970), the stock market will adjust the price of a firm to reflect future prospects of the company's brand. If stock prices reflect all the available information of firms, then when the market faces an event that is not anticipated, abnormal returns should occur, causing either a positive or negative impact on stock prices. An example of such an event is one that is likely to have a financial impact on the firm, providing new information that is unanticipated by the market and where there is no confounding effects (McWilliams and Siegel, 1997). Brown and Warner (1980) performed a study to examine the various methodologies which were used in event studies to measure security price performance.

Corporate rebranding can be seen as a very strong and formal signal for stakeholders to perceive that something about the company has changed (Muzellec and Lambkin, 2006). It is expected that corporate rebranding exercise will create an impact on the company's market value and thus constitute a signal that shareholders will use when they evaluate the company.

Activities which usually make up the event study methodology will be discussed in detail in the following subsections below:-

a**) Identification of the event of interest;**

An appropriate event is one that is likely to have a financial impact on the firm, is unanticipated by the market and provide new information to the market (McWilliams and Siegel, 1997). This activity forms the core of the methodology as it determines the basis of the event being studied. In the marketing area, events include the recall of a faulty product or the announcement of a firm's intention to sponsor a big event. The event of interest identified for this study is the change of corporate logo announcements by the respective public listed companies which are listed on the Bursa Malaysia. The days approaching the event day were examined and checked to ensure that there is no dilution of information being announced.

b) identification of event window

An event window is then set in determine the timeframe where the event of interest is captured. In a fully efficient market, an expectation that the impact on stock prices occurs either on the event day (day 0) or in the following day (day +1), if the information only became available after the market closes on the event day. As markets are usually not fully efficient, a larger set of days will be considered around the event window. Depending on the purpose of the studies, short or long event windows may be set. In this paper, the event

window is defined to include five days before and after the event day. This allows for the possibility that the arrival of information to the market may have been leaked before the event day which could lead to an effect on price occurring on the days before day 0. In addition, this will account for the possibility of some market rigidities or a lagged response by inventors who may be sceptical of the announcement. Therefore, this study will analyze price behaviour until day +5. To measure the event's impact, the requirement is to measure abnormal returns around the event day. The abnormal return is the return of the stock during the event window, deducted by the normal return of the organisation over the same period. The normal return is defined as the expected return if the event did not take place.

There are disadvantages of taking an event window that is too large. This is because there could be other significant announcements made about the organisation during that period which may impact the reaction of the stock prices. It may contaminate the data with events other than the event of interest itself, hence affecting the results of the study. Therefore, it is important to select a suitable event window balancing the advantages and disadvantages of smaller and larger windows.

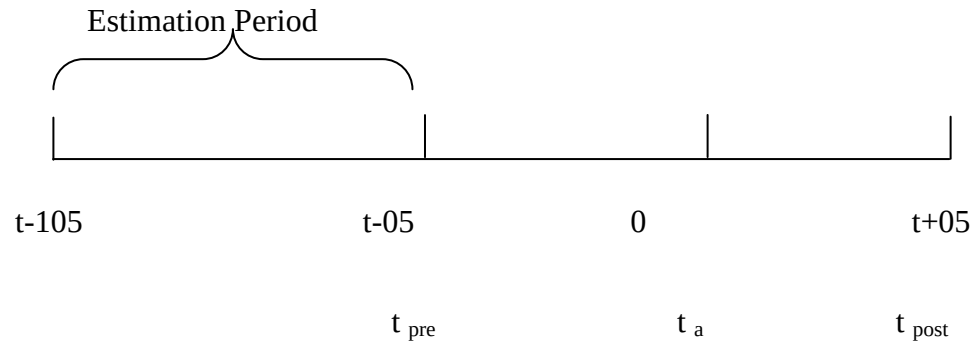
A short timeframe may sometimes fail to capture the whole effect of an event of interest, especially if the event of interest coincides with other major events.

For the purpose of this study, the event window is divided into three categories :

a. pre-announcement window (day -5 to day -1);

b. announcement date (day 0); and

c. post announcement (day +1 to day +5).



t_{pre} = pre-announcement period

t_{a} = announcement date

t_{post} = post-announcement period

The estimation period, which is the time required to estimate expected or theoretical returns, consists of 100 days preceding the first event window, which is prior to t-5.

c) sample selection

Caution has to be taken during sample selection to ensure its representation of the population being studied. This activity is further elaborated under Section 3.4 Sampling Design.

d) prediction of normal returns

In the event study methodology, this activity predicts the returns if the event of interest did not occur. For the purpose of this work, this is defined as normal returns when there are no corporate rebranding exercise announcements. The Single Index Market Model (SIMM) is applied to predict the normal returns and the model equation is given by:-

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t}$$

whereby

$R_{i,t}$ = normal return on security *i* at time *t*

α_i = constant term for security *i*

β_i = slope coefficient for security *i*

$R_{m,t}$ = return on market index on event day *t*

$\varepsilon_{i,t}$ = error term for firm *i* at time *t*, *t* = 1, 2, … k (total k days in the estimation period)

Daily returns of a particular selected security are regressed against the daily market returns over the predetermined estimated period using the ordinary least square model.

The FTSE Bursa Malaysia KLCI Index and Kuala Lumpur Composite Index or KLCI are used as a proxy of market returns. The estimation period also differs amongst researchers, with some opting for 100 days (Creighton, Gower and Richards, 2007) up to 300 days (Doma and Omar, 2006). Prior research had used the time period before the event window (Creighton, Gower and Richards, 2007, Goh and Ederington, 1993, Doma and Omar, 2006), after the event window (Richards et al, 1999) or a combination of both (Goh and Ederington, 1999).

e) calculation of abnormal returns

To measure the impact of an event on shareholder value, the difference between a company's normal everyday returns and the abnormal returns experienced around the event date are

calculated. The abnormal returns within the event window period are calculated by subtracting the expected return from the actual return.

$$AR_{i,t} = R_{i,t} - R_{i,t}^*$$

whereby

$AR_{i,t}$ = abnormal return on security i at time t

$R_{i,t}$ = actual return on security i at time t

$R_{i,t}^*$ = expected return on security i at time t

The daily return for each stock in the sample is computed using the following formula :

$$R_{i,t} = \frac{(P_{i,t} - P_{i,t-1})}{P_{i,t-1}}$$

Where $P_{i,t}$ indicates closing price for stock *i* at day *t* and $P_{i,t-1}$ is the closing price for stock *i* at day day *t-1*. The $R_{i,t}^*$ was calculated using the Capital Asset Pricing Model (CAPM).

$$R_{i,t}^* = r_f + (r_m - r_f)\beta$$

whereby

r_f = Risk Free rate at time *t*

r_m = Market return at time *t*

β = Beta at time *t*

The risk free rate (r_f) at time t is obtained by looking at the 3-month Treasury Bill (T-bill) as stated on the Bank Negara's website. As the period of this study ranges from 2001 to 2010, the T-bill rate was obtained for each of the stock at the period of announcement.

The daily market returns (r_m) using series from Bursa Malaysia closing prices were computed.

Beta, β was calculated by calculating the slope of the regression line of the security *i* and the market during the estimation period (t-105 to t-5).

For the purpose of this thesis, $AR_{i,t}$ is calculated for each day within the event window period.

f) aggregation and averaging of abnormal returns across samples and periods

The average abnormal returns on event day *t*, AAR_t are calculated by dividing the mean abnormal returns of all securities on day *t* by the number of companies in the sample (N).

$$AAR_t = 1/N \sum_{t=1}^{N} AR_{i,t}$$

whereby

AAR_t = average abnormal return of all securities on time *t*

N = total number of companies in the sample

$AR_{i,t}$ = abnormal return on security *i* at time *t*

A statistical significance test of $AR_{i,t}$ is employed using one sample t-test to determine the standardized average abnormal returns (AAR_t)

Besides computing the average abnormal returns, the cumulative daily abnormal returns for the securities were aggregated throughout the particular portfolio within the event window with the purpose of drawing overall inferences for the event window. The average abnormal returns, AAR_t is aggregated according to the event window period to obtain the cumulative abnormal returns, CAR using the equation below:-

$$CAR_{Nn} = \sum_{t=t1}^{t2} AAR_t$$

whereby

CAR_{Nn} = cumulative abnormal returns for N companies for period n (event window period or t1 to t2)

t1 = first day of the event window period *i.e.* day -5

t2 = last day of the event window period *i.e.* day +5

AAR_t = average abnormal return of all securities on time *t*

The CAR_{Nn} is finally averaged by n or the event window period to obtain the cumulative average abnormal returns, CAAR

$$CAAR_{Nn} = 1/N \sum_{t=t1}^{t2} CAR_{Nn}$$

whereby

$CAAR_{Nn}$ = cumulative average abnormal returns for period n, the event window period

t1 = first day of the event window period i.e. day -5

t2 = last day of the event window period i.e. day +5

CAR_{Nn} = cumulative abnormal returns for N companies for period n (event window period or t1 to t2)

g) statistical test of significance

The calculated average abnormal returns are tested for significance using the t-statistics at the 90% confidence level to determine whether the hypothesis tested is accepted or not. To obtain the t-test value, the standard deviation for the estimation period for each of the ratings within the sample is calculated using the following formula:-

$$\sigma_i = \sqrt{\frac{\Sigma\ (R_{i,t} - \overline{R_{i,t}})^2}{T}}$$

whereby

σ_i = standard deviation for security *i*

t1 = first day of the estimation period

t2 = last day of the estimation period

$R_{i,t}$ = daily return for security i in the estimation period

$\overline{R_{i,t}}$ = expected for security i over the estimation period

T = estimation period i.e. 100 days

The test statistic with a degree of freedom of (n-1) is defined as:-

$$t = \frac{AAR_t - 0}{s / \sqrt{n}}$$

whereby s = sample standard deviation

n = sample size

3.4 Sampling Design

The data used in this thesis consist of corporate logo changes announced by the respective companies through their website, newspaper or magazines. During the period studied, there are a total of 34 companies which have changed their corporate logo from 2001 to 2010. These companies consist of both private and public listed companies. Of the 34 corporate logo change companies, 11 are excluded from the sample due to inability to find the ticker on the Bursa Malaysia or it is a private company. Table 1 displays the list of companies that have changed their corporate logo from the period 2001 to 2010. The total number of companies selected is 23.

3.5 Data Collection Procedure

The study was conducted by investigating the companies that have conducted a change in corporate logo from 2001 to 2010. To identify which companies to be chosen, the announcement made must be specifically on the change of the corporate logo. The announcements were collected and tabulated to ensure that each company had similar events to make a comparison.

This thesis also uses qualitative research method to gather more information on the corporate rebranding exercise. The main purpose of qualitative research is to understand and gain insights of the phenomenon (Ghauri and Gronhaug, 2005). Interviews were conducted with two companies to confirm the rationale and the success of the corporate rebranding exercise. Semi-structured questions were prepared beforehand and were used as a guideline for the interview. A sample of the semi-structured question is enclosed in the Appendix.

3.6 Data Analysis Techniques

Quantitative Method

Data collected for this study were tabulated and analyzed using Excel. Following are the procedures taken to analyze the data :

Stage 1

1. Firstly, an extensive research was conducted through the internet, newspapers and magazines to obtain the number of companies that have changed their corporate logo since 2000.
2. The companies which include private and public listed companies were recorded.
3. For the purpose of the work, only public listed companies were considered.
4. Abnormal returns between t-5 to t+5 (the event window) were tabulated for each company

Stage 2

1. Test to see if any of the days in the event window showed any significant impact on the company's market value. The t-test is any statistical hypothesis test in which the test statistic has a student's t distribution if the null hypothesis is not rejected.

Qualitative Research

The interview with the representative from two companies was used to support the reasons on why companies conduct corporate rebranding. The interviews were converted into case studies where the findings have assisted in supporting the research questions. Case study method is well suited to new research areas for which existing theory seems inadequate (Eisenhardt, 1989). This is applicable to this study where there has been lacking of previous literature. It is also an appropriate way to collect data in this study since brand equity and rebranding are less charted phenomena that are not easy to explain (Hirsjarvi and Hurme, 2009).

The interviews were recorded to make it easier to analyze the data.