# THE IMPACT OF DIVIDEND TAX CHANGES ON THE PERFORMANCE OF MALAYSIAN REITS

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# THE IMPACT OF DIVIDEND TAX CHANGES ON THE PERFORMANCE OF MALAYSIAN REITS

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**In Fulfilment of the Requirement for the Degree of Master of Finance**

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I declare that the substance of this project paper has never been submitted for any degree or postgraduate program and qualifications.

I certify that all the support and assistance received in preparing this project paper and the entire source abstracted have been acknowledged in this stated project paper.

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## ABSTRAK

Karya ini merupakan kajian empirikal yang pertama untuk mengkaji kesan cukai dividen terhadap prestasi REIT di Malaysia. Bajet tahunan 2007, 2009 dan 2011 yang diumumkan oleh kerajaan Malaysia memaklumkan bahawa potongan cukai dividen bagi sektor REIT menawarkan peluang kepada penyelidik untuk mengkaji kesan cukai ke atas prestasi harga dan kecairan REIT. Daripada hasil keputusan yang telah dilakukan, penyelidik mendapati bahawa pengumuman pemotongan cukai dividen yang dibuat pada tahun 2006 dan 2008 mengakibatkan reaksi harga saham yang positif. Justeru, CAARs adalah signifikan pada aras 10% dalam pengumuman pertama dan kedua. Manakala, CAARs untuk pengumuman ketiga bagi cukai dividen pada tahun 2011 adalah tidak signifikan. Keputusan ini menyokong hipotesis bahawa pengumuman pemotongan cukai dividen akan meningkatkan kekayaan REIT kerana cukai adalah salah satu bentuk kos urusniaga. CAARs untuk pengumuman ketiga tidak signifikan mungkin disebabkan oleh tiada pemotongan cukai dividen yang dikenakan dan tiada maklumat baru diumumkan oleh pihak kerajaan. Pengumuman ketiga hanya memanjangkan tempoh cukai dividen pada kadar yang sama untuk empat tahun yang seterusnya sehingga tahun 2016. Walau bagaimanapun, saya tidak mendapati sebarang bukti untuk menyokong hipotesis bahawa pemotongan cukai dividen akan meningkatkan kecairan REIT.



Kata kunci: cukai, volum dagangan, CAAR, pengumuman, saham bebas, pemilikan, saiz, tahun, turun naik, prestasi.

## ABSTRACT

This is the first empirical research examining the effects of dividend taxes on the performance of real estate investment trusts (REITs) in Malaysia. The Malaysian government's announcement of remissions of dividend tax for the REIT sector under the 2007, 2009 and 2011 budgets, provide an excellent but rare opportunity to examine the impact of taxation on stock price performance and stock liquidity. It can be concluded that dividend tax cut announcements made in 2006 and 2008 resulted in a positive stock price reaction from the stock market. The cumulative average abnormal returns (CAARs) are significant at the 10% level across the three event windows. The CAARs for dividend tax remission announced in 2011, on the other hand, are not significantly different from zero. These results support the hypothesis that the announcement of dividend tax reductions increases the wealth of REITs because tax is a form of transaction cost. The insignificance of third announcement CAARs could possible due to lack of new information as it merely extended the dividend tax benefits for another 4 years until 2016. It is also verified that there were no evidence to support the hypothesis that dividend tax cuts will increase the liquidity of REIT shares as proxied by shares trading volume.



Keywords: Dividend Tax, Trading Volume, REITs, Liquidity, Performance


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# CHAPTER ONE: Introduction

## 1.0 Introduction

This chapter presents the overview and background of Real Estate Investment Trusts (REITs), problem statement of the study, research objectives which consist of general and specific objectives, research questions, hypotheses of the study, significance of the study, scope and limitation of the study and chapter layout.

REITs are entities that own income producing real estate such as commercial buildings and apartments and derive most of their income from rentals. REITs provide investors a stable stream of dividend income since rental incomes tend to be fixed in the short-run. Similar to other unit trust funds, REITs offer diversification benefits and long term capital appreciation. REITs facilitate retail investors to invest in commercial properties through the purchase of REIT shares. Investors could earn a share of the income produced through REITs without having to own the property.

One of the uniqueness of REITs as compared to general stocks, is that it has conditional tax exemption status. REITs do not have to pay corporate taxes as long as they distribute 90% of their taxable income as dividends to the shareholders. The tax exemption status has been used by regulators world-wide to spur the growth of the REIT sector in their respective countries. Malaysia is the first Asian country to introduce property trusts. The first property trust was listed on the Kuala Lumpur Stock Exchange (KLSE) in year 1989. The purpose of introducing this investment vehicle was to provide the small investors an avenue to invest in the local property sector. However, the property trust sector never really took off due to the absence of

tax exemption status. In 2005, property trusts in Malaysia was rebranded as “REITs” to ride on the wave and popularity of REIT IPOs in Japan, Singapore and South Korea. At the same time, the Securities Commission implemented new guidelines to provide a legal framework to safeguard the investors and monitor the newly introduced REITs more effectively. At the corporate level, REITs are structured as tax exempted entities as long as they distribute 90% of their taxable income as dividends to the shareholders. Nevertheless, individual REIT shareholders still need to pay taxes on dividends disbursed by REITs.

Malaysia government introduced tax transparency for REITs to make REITs more attractive. Tax transparency is that the REITs do not have to pay corporate tax on their net income as long as 90% of net income is distributed to the REIT shareholders. The tax exemption status of REITs have encouraged more investors to invest in REITS and contributed to the growth of REIT sector in Malaysia.

In Asia, the Malaysian REITs have achieved rapid and significant growth due to the grant of preferential tax treatment which is tax transparency status for REITs. Malaysia not only offered preferential tax treatment to REITs but also reduced the withholding tax twice during year 2007 and 2009 budget announcements and extended these tax benefits to end of year 2016 to accelerate the expansion of REITs in Malaysia. These benefits are the main reasons underlying the rapid growth of Malaysia REITs and their attraction to local and foreign investors.

## 1.1 Overview and Background of REITs in Malaysia

Malaysia's appetite for investments in property have become less robust in past few years due to escalation in property prices and interventions by the Government through the implementation of various cooling measures. The Government doubled the real property gains tax and discouraged developers to bear any interest during construction by prohibiting interest bearing schemes in a bid to rein in the escalating house prices in year 2012. This drastically reduced the number of property transactions and impacted especially those from the middle and lower income groups. REIT can be an investment instrument to overcome the above issues because the primary motivation of REITs, is to allow retail investors to have exposure in direct real estate investments such offices, malls and industrial buildings. Investors are not required to pay high stamp duties or legal fees when purchasing REIT-linked properties and furthermore, the REIT shares are traded on stock exchanges.

As a business entity, the REIT is regulated by Securities Commission Malaysia (SC) in terms of loans that it could borrow to invest. According to the REIT 2012 guidelines, the amount of borrowings should not exceed 50% of the total asset value at the time the borrowings. The objective of imposing a threshold is to safeguard the REIT from over-gearing and to prevent it from becoming insolvent and unable to honour its repayments of its debt obligations, in the event of unforeseen circumstances. This is particularly relevant as REITs are required by regulation to distribute 90% of their taxable income in order to maintain their tax-exemption status. This effectively renders REIT a capital constraint entity that could aggravate its exposure to the vagaries of external capital market conditions.

In term of dividend declarations, the dividends pay-out of REITs has been on an uptrend since year 2005. This speaks volumes about the resilience of a good REIT even during the economic downturns. REIT differs from the listed companies as the REIT operations are governed by a trust deed. This trust deed requires the management company to administer and manage the REIT according to its stated objectives and guidelines. Besides, a registered trustee is tasked as a custodian to protect investors' interests as unit holders.

Table 1.1 displays the 14 REITs listed in Bursa Malaysia Stock Exchange and their price performance indicators. The average dividend yield is 6.236% as of April 17, 2015 which is higher than risk free rate of 3.84% (Malaysia Government Bond 10Y) during the corresponding period. YTL Hospitality REIT exhibited the highest yield at 8.03% while Axis registered the lowest yield of 4.65%. In terms of net asset value (NAV), Axis REIT has the highest NAV value at RM2.42 on the back of RM3.57 in market price. UOA REIT has the highest distribution per unit (DPU) at 5.73 cents.

| REIT | Assets Type | Price (RM) | Yield | NAV (RM) | DPU (cent) |
|---|---|---|---|---|---|
| Axis | Office | 3.57 | 4.65% | 2.42 | 4.15 |
| YTL Hospitality | Diversified | 1.04 | 8.03% | 1.17 | 1.87 |
| UOA | Office | 1.6 | 7.16% | 1.5 | 5.73 |
| Tower | Office | 1.3 | 5.41% | 1.91 | 3.2 |
| Al-AQAR Healthcare | Healthcare | 1.39 | 5.50% | 1.19 | 3.79 |
| Hektar | Retail | 1.51 | 6.95% | 1.55 | 2.7 |
| AmFirst | Office | 0.95 | 6.54% | 1.22 | 3.09 |
| Quill Capita | Office | 1.21 | 6.93% | 1.34 | 4.28 |
| AmanahRaya | Retail | 0.93 | 7.03% | 1.13 | 1.8 |
| Atrium | Industrial | 1.2 | 6.00% | 1.38 | 1.8 |
| Sunway | Diversified | 1.69 | 5.37% | 1.24 | 2.27 |
| CMMT | Malls | 1.54 | 5.69% | 1.24 | 4.38 |
| Pavilion | Malls | 1.56 | 5.28% | 1.26 | 4.12 |
| IGB REIT | Malls | 1.35 | 5.78% | 1.06 | 3.9 |

Table 1.1: Malaysia REIT Performance as at 17 Apr, 2015

Exhibit 1.1 shows the percentage of REITs by property focus. The most common type of property focus is office and retail malls at 35.7% each. This is followed by diversified REITs that owned more than one property type. Sunway REIT, a diversified REIT has both office and retail malls in its portfolio. Exhibit 1.2 displays the listed US REITs in S&P Global REIT Index by assets type. Similar to

Malaysian REITs, the top three property types among REITs in the US are retail (28.7%), diversified (16.2%) and office (15.9%).

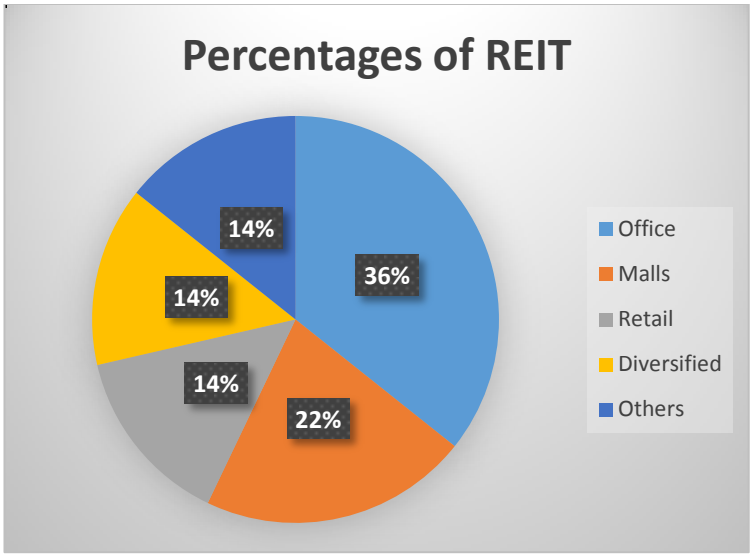



Exhibit 1.1: Malaysia REIT by assets type as at 17, April, 2015

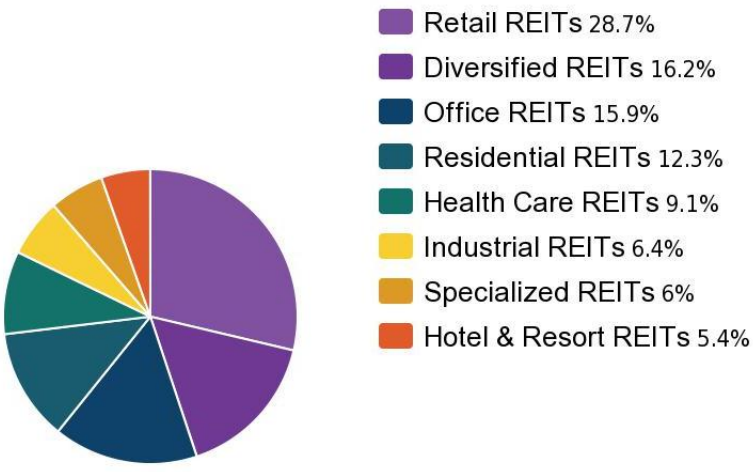



Exhibit 1.2: S&P GLOBAL REIT Index by assets type as at 31 March 2015

**REIT dividend taxes**

The Malaysian Government has gradually reduced the dividend taxes imposed on REIT unit holders as formally announced in the annual budgets in 2007, 2009 and 2012. It was reduced to 15% in year 2007 and a further 10% in 2009 for all individual and domestic institutional investors. The low tax rate was further extended to end of year 2016 in the 2012 budget. Foreign institutional investors were taxed at corporate tax rate before 2007 budget announcement, similarly as domestic investors. The tax rate was reduced to 20% in year 2007 and further decreased to 10% in 2009. The validity of the 10% tax rate was extended to end of year 2016 as enjoyed by domestic investors. The aim of the tax incentives is to promote the growth of REITs in Malaysia. The objective was evident through the offer of incentives and lower tax rates to unit trust holders under the budgets of Year 2007, 2009 and 2012 (Annual Budget 2007, 2009, 2012).

At mentioned earlier, at the corporate level, REITs are not subjected to corporate taxes as long as they distribute a minimum of 90% of its current year taxable income as dividends. At the shareholders level, a dividend tax is imposed on the distributed dividends in the form of withholding tax. Presently, dividend tax is 10% for resident investors and 25% for non-resident investors. Withholding tax mechanism has been introduced as a part of the Malaysia tax transparency system. The REIT management has to deduct withholding tax based on investor's profile. The REIT managers have to determine who the investors are and whether they are resident or non-resident and deduct the appropriate withholding tax. The REIT investors are subjected withholding tax as Table 1.2

| Entity | Status | Tax Type | Tax Rate (%) |
|---|---|---|---|
| Individual | Resident | Withholding Tax | 10 |

| | | | |
|---|---|---|---|
| | Non-Resident | Withholding Tax | 10 |
| Company | Resident | Corporate Tax | 25 |
| | Non-Resident | Withholding Tax | 25 |
| Foreign Institutional Investors | - | Withholding Tax | 10 |

Table 1.2: Malaysia Current REIT Withholding Tax Table

Malaysia imposes withholding tax on income received such as interest, royalties, lease payments and technical fees made to non-residents. This mechanism ensures that tax is levied on recipients of income where the tax and compliance may be difficult to ascertain. Most countries have imposed some form of withholding tax mechanisms within their tax system and withholding tax on REIT distributions is common. Various countries such as Singapore, Japan, the United States, Canada, Australia, and many European countries, have some form of withholding tax mechanisms on REIT dividend distributions.

In comparing withholding tax rates among the continents, besides Japan and Singapore, the Malaysian REITs have lowest withholding tax rates. The Malaysian government imposes a 10% withholding tax on all individuals and non-corporate investors such as institutional investors (regardless tax resident or non-tax resident) and 25% withholding tax on non-resident companies.

## 1.2 Problem Statement

A significant growth in the number of REITs in Malaysia can be seen especially after the introduction of the new guidelines on REITs by Securities Commission (SC) in January 2005. The SC has also issued revised guidelines on REITs on August 2008 to further promote a more competitive REITs industry.

Among the key changes to the REIT guidelines include the granting of tax exempt status to REITs if they distribute up to 90% of their taxable income as dividends, increase in borrowing limits from 10% to 35% of REIT's total asset value. A crucial stipulation was revoked in the new guidelines. It uplifted the requirement that sponsors have to be subsidiaries of financial institutions.

Malaysian government initiated several incentives to develop the REIT market as presented in annual budgets starting from the 2004 budget. There are three budgets that contain incentives for the investors. The incentives include the remissions of the tax rates on income distributed to unitholders, or dividends, and the extension of the period of tax benefits to December 31, 2016. In 2007 budget, which was presented on September 1, 2006, Malaysian government reduced the tax rates on individuals and domestic unitholders to 15% while foreign institutional investors were levied a rate of 20% if at least 90% of REIT's income is distributed to unitholders. These reductions are valid for a period of five years, until December 31, 2011. In 2009 budget, presented on August 29, 2008, the Government further reduced the tax rates to the above parties to 10%.

Finally, the Government extended the period of tax reductions to December 31, 2016 in 2012 budget, which was announced on October 7, 2011. It is pertinent to indicate that up to this point in time, no research has been conducted on tax effects on the performance of REITs. . Thus, this study contributes to the literature and policy by investigating the effectiveness of the policy focusing on whether investors will react positively to these tax changes and whether stock liquidity will improve following such announcements.

## 1.3 Research Questions

(1) Does the market react positively to the announcements of REIT dividend tax reductions?

(2) Does the trade volume increase following the announcements of REIT dividend tax reductions?

## 1.4 Research Objectives

The two main objectives of this study are:

(i) To investigate how stock market reacts to dividend tax cut announcements.

(ii) To determine how trading volume change following the announcements of dividend tax reductions.

For the (ii) objective, the study control for other factors that are known to affect trading volume include number of free float shares, the percentage of institutional ownership, REIT size, REIT age, stock volatility and individual REIT's past performance prior to tax change announcements.

## 1.5 Significance of the Study

To the best of my knowledge, there is no study that examined the effects of dividend taxes on the performance of REITs in Malaysia. This study therefore contributes to this field of literature by focusing on the market reactions and trading activities surrounding the three dividend tax reduction announcements, i.e., September 1, 2006 (Budget 2007), August 29, 2008 (Budget 2009) and October 7, 2011 (Budget 2012).

Findings from this study will answer the policy question of whether dividend tax reductions spur the growth of REIT market in Malaysia. Positive answers to the above research questions would justify the tax reduction policy implemented by the Government. Moreover, REIT managers and investors alike could make their deductions on the relationship between trade volume and stock performance with future dividend tax reductions.

## 1.6 Scope and Limitation of the Study

This study covers all 14 listed REITs in Malaysia as of April 2015. The final sample comprises 192 firm-quarter observations over the period of 2006-2012 (second objective). The primary limitation of this study is the small sample size due to the short operating history of REITs in Malaysia. I am not able to conduct regression analysis on the first objective because the total observations obtained were

less than the minimum recommended level of 30 observations for a meaningful analysis.

## 1.7 Organization of the Thesis

This paper is structured as follows: Chapter 1 introduces the background of REITs and the problem statements. Besides that the objectives, study purposes and limitations of the study are also highlighted. The foundations of research paper has been formed and the brief outlines are presented in this chapter. The literature review, which presents previous studies on the trading volume relationship is described in Chapter 2. The theoretical framework is also depicted in this chapter. The similarities and contrasts of the past studies are exhibited in this section. The research methodology is explained in Chapter 3, especially data collection methods, secondary data and data analysis methods. Chapter 4 is the result analysis part where the empirical results and analysis of the results according to the stated hypotheses and research questions are demonstrated. A comparison of my results with previous studies' findings are submitted in this chapter. Finally, the summary and conclusions of my study are highlighted in Chapter 5, which also include implications of the study and suggested recommendations.

# CHAPTER TWO: Literature Review

## 2.0 Introduction

This chapter reviews the literature on dividend tax changes and stock trading volumes. The objective of this section is to develop the expected relationship between independent variables (free float of REIT shares, institutional ownership, REIT size, REIT age, volatility and REITs' performance) and dependent variable (REIT shares trading volume). I recapitulate the previous research done on the relationship of the same variables with REIT trading volume. The outline of this chapter 2 will be introduction, review of the literature, review of relevant theoretical models, proposed theoretical framework as well as the conclusion.

## 2.1 Review of the Literature

### 2.1.1 Tax and Trading volume

The imposition of tax tends to reduce trading volume because it is a form of transactions cost. In a world without tax, investors would trade shares on which they have accrued a gain as long as the expected future rate of return on alternative stock exceeds the expected future rate of return on their existing holdings. When withholding tax is imposed, REIT investors have to put higher expected future rate of return on alternative stock to offset the tax payment.

Tobin tax, suggested by Laureate economist, James Tobin who is Nobel Memorial Prize in Economic Sciences, was originally defined as a tax on all spot exchanges of one currency into another. The theory introduced the concept of a transaction tax on the currency market to cope with exchange rate volatility. Based on the theoretical and previous empirical evidence, the level of tax is expected to be positively relative to share trading volume.

Lin and Zeng (2005) examine the impact of capital gain taxes on stock returns and trading volume of Canadian companies listed in Toronto Stock Exchange. The empirical results based on daily stock returns and trading volumes indicate stock prices decreased three days prior to the announcement of the Canadian federal government budget for year 1986. The budget presented on 23 May, 1985 provided individual taxpayers with a cumulative tax exemption for capital gains up to a lifetime limit of $500,000. Besides, the results also indicate that the trading volume increased two days and four days before the budget announcement and five days after the budget announcement. Authors do not provide any justifications for the drop in stock prices. However, their findings on the increase of trading volume before and after the announcement are consistent with my hypothesis.

Henderson (1990) examines the relationship between changes in capital gains tax rates and stock market trading volume. The tax cuts for the year 1978 and 1981 were found to increase trading volume. However, the positive relation between tax cuts and trade volume was inconclusive since they failed to detect any significant decrease in share volume following an increase in capital gains tax rate in 1987.

### 2.1.2 Free float of REIT and Trading volume

Rezaei and Tahernia (2013) investigate the relationship between number of free float shares, share trading volume, number of buyers and the number of share transactions. The study examines how the number of free float shares affects share trading volume, number of buyers and number of transactions. The sample size consists of 63 companies listed on the Tehran Stock Exchange from the beginning of year 2005 to the end of 2009. They document significant positive relationship between free float shares and trading volume. Salmon (1989) defines the free float shares as the percentage of the total capital of a stock that is available for trading without limitation in the stock market. He suggests that the company should increase their free float shares in order to increase the stock liquidity. He contends that this will lead to easy access to external funding.

Bostanci and Kilic (2008) investigate the impact of free float ratios on stock closing prices, price volatilities and trading volumes for 199 listed firms on Istanbul Stock Exchange for the year 2007. The authors also report the positive link between free float ratios and share trading volume. The authors suggest that higher floating ratio implies higher market value for stocks, greater liquidity in the market and lower cost of capital to the company.

### 2.1.3 Institutional Ownership and trading volume

Utama and Cready (1997) demonstrate how firm ownership structure could affect the relationship between trading volumes in a non-linear fashion. Focusing on earning announcements made by companies listed in New York Stock Exchange (NYSE) from year 1991 to 1994, they establish that when institutional ownership is

lower than 50%, an increase in institutional ownership is associated with a decrease abnormal trading volume. The result flips to negative when the level of institutional ownership exceeds 50%. Institutional ownership is measured by the percentage of outstanding shares held by institutional investors. The authors contend that this is because individual investors (lower institutional ownership) find earning announcements more informative than institutional investors.

Chung and Lee (1998) also investigate the impact of ownership structure on abnormal trading volumes surrounding the earning announcements. Focusing on Japanese listed companies, the authors are able to decompose their ownership data to three groups of owners, i.e. corporate stockholders, foreign investors, and ordinary domestic shareholders. Foreign investors in Japan are mainly institutional investors. The findings exhibit positive relationship between institutional investors and foreign investors to trading volume. The trading volume increase with an escalation in the percentage of shares held by foreign or institutional investors.

### 2.1.4 REIT Size and Trading volume

The empirical findings between firm size and trading volume are mixed. Ro (1981) highlights the insufficient theoretical and empirical support for size-trading volume relationship. He contends that there is no clear evidence to prove whether share volume is inversely related to firm size. A more recent study by Barron, Schneible and Stevens (2011) find a positive relationship between firm size and trading volume. They also provide evidence that the positive relationship is due to increases in differential pre-announcement precision of information in large size firms. This is consistent with the findings by Hope et al. (2009) and Miller (2010)

who document a positive relationship between firm size and trading volume. Bostanci and Kilic (2008), on the other hand, do not find any significant relationship between firm size and trading volume.

### 2.1.5 REIT Age and Trading volume

The literature is generally silent on the relationship between firm age and trading volume. The nearest strand of literature we could rely on is the studies that examine the relationship between firm age and firm performance. Clark (2002) investigates the relationship between firm age at IPO and aftermarket stock performance. He finds that a statistically significant positive relationship firm age and post-IPO performance. His sub-sample tests reveal that the positive relationship is driven by non-IT companies. The relationship is negative for sub-sample of IT companies where younger firms tend to outperform their older counterparts post-IPO.

### 2.1.6 Volatility and Trading volume

Prior empirical evidence on the relationship between volatility and trading volume relationships are also mixed. Kao and Fung (2012) examine the relationship between intraday return volatility and trading volume of future contracts in GLOBEX trading platform. The sample of future contracts included in this study are Japanese yen futures, euro FX futures, and E-mini S&P 500 futures which trade on a 24-hour GLOBEX trading platform from 2 January, 2005, to 30 December, 2008. They document a significant positive relationship between future contract volume and volatility which is consistent with Jones, Kaul, and Lipson's (1994) findings.

Ane and Ureche-Rangau (2008) assess the relationship of volatility and trading volume with a MDH (mixture of distribution hypothesis) model by systematic analysis. Correlations between volume and volatility are examined by assuming that the variance of daily changes of price and trading volume are both driven by the same latent variable. The study suggests that volatility and trading volume have positive relationship in the short term but their long term relationship may not be positive. Rossi and Magistris (2013) examine the volatility and trading volume for 25 selected stocks in NYSE. Their results conclude that volatility and trading volume are not fractionally co-integrated. The result is robust due to the presence of structural breaks.

### 2.1.7 REIT performance and trading volume

The long run co-movement between stock performance and trading volume is a well-established empirical regularity. Sapna and Dani (2014) examine the relationship between the share prices and trading volume of 125 samples in Bombay Stock Exchange from quarter 1 of the year 2013. The chi square test indicate the significance level as 0.00 at 90% confidence level, so it is evident that significant relationship exists between the two variables under study. The value of contingency coefficient of 0.993 shows significant positive relationship. Based on these findings, they conclude that the stock prices affect the trading volume positively.

## CHAPTER THREE: Methodology

### 3.0 Introduction

The purpose of this chapter is to explain the methodology employed to examine the two main objectives of this study, i.e. (i) to investigate how stock market reacts to dividend tax cut announcements; and (ii) to determine how trading volume change following the announcement of dividend tax reductions. The first objective is assessed by applying event study method while the second objective is explored using ordinary least square regression method.

### 3.1 Research Strategies

The first stage of this research is to determine the reaction of investors to the announcements of tax changes. The relevant announcements were made in the annual budgets which were presented on September 1, 2006 for Budget 2007, August 29, 2008 for Budget 2009 and October 7, 2011 for Budget 2012. The Table 3.1 displays the tax rate change before and after budget announcements for both individuals and domestic and foreign institutional investors. Prior to year 2007, all REITs were taxed at the prevailing corporate tax rate of 28%.

| Budget Year | Tax rate change from | Tax rate change to |
|---|---|---|
| 2007 | - | All individuals & domestic institutional investor: 15%<br>Foreign institutional investor: 20% |
| 2009 | All individuals & domestic institutional investor: 15%<br>Foreign institutional investor: 20% | All individuals & domestic institutional investor: 10%<br>Foreign institutional investor: 10% |
| 2012 | All individuals & domestic institutional investor: 10%<br>Foreign institutional investor: 10% | Extent the tax incentive and remain unchanged |

Table 3.1: Malaysia REIT Withholding Tax Changes Table

The second stage of this research is to estimate impact of dividend cut announcements on trading volume by controlling factors that are known to affect trading volume such as free float ratios, percentage of institutional ownerships, REIT size, REIT age, stock volatilities and individual REITs' past performances.

## 3.2 Hypotheses Development

This paper hypothesizes that, all else is equal, a reduction of dividend taxes will lead to a positive stock market reaction. We further hypothesize that the first two announcements made in 2006 and 2008 resulted in higher market reactions as compared to the third announcement made in 2011. This is because the third announcement was essentially a provision to extend the tax incentive to year 2016.

*Hypothesis I: Market reacts positively to dividend taxes cut announcements and the announcement effects are stronger for the first and second announcements as compared to the third announcement.*

We hypothesize that the positive impact of dividend cuts will be translated into increase number of shares traded as investors find REITs more attractive in the post-tax announcement period.

*Hypothesis II: Shares trading volume is larger after the post-dividend cut announcements period as compared to pre-announcement period*

The predicted relationships for the other controls in trading volume regression as guided by the literature are shown as below:

*Hypothesis III: There is a positive relationship between free float of REIT and trading volume.*

*Hypothesis IV: There is a negative relationship between institutional ownership of REIT and trading volume.*

*Hypothesis V: There is a positive relationship between REIT size and trading volume.*

*Hypothesis VI: There is a negative relationship between REIT Age of REIT and trading volume.*

*Hypothesis VII: There is a positive relationship between Volatility of REIT and trading volume.*

*Hypothesis IX: There is a positive relationship between REIT performance and trading volume.*

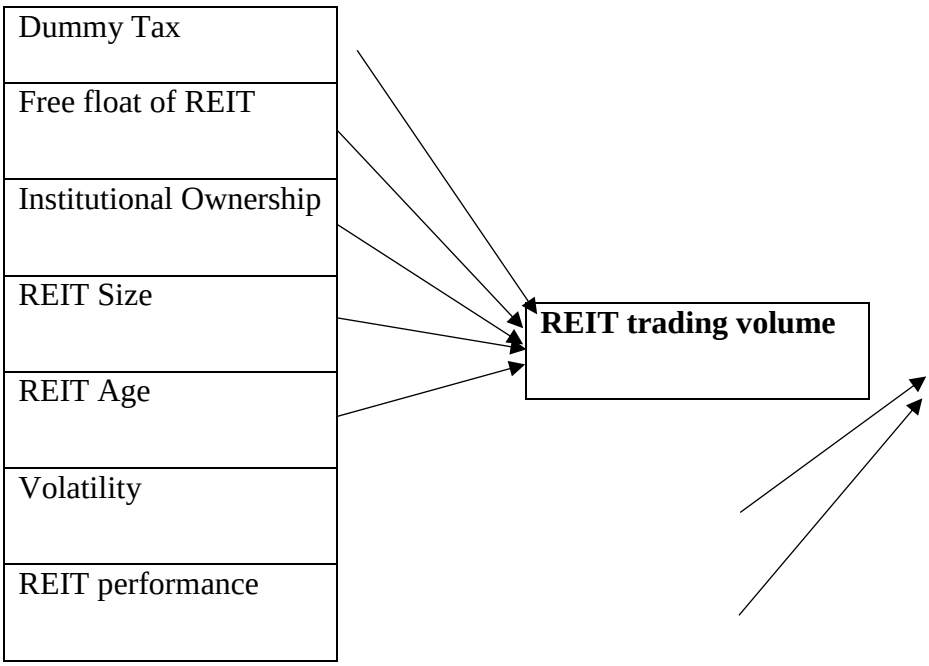
## 3.3 Research Framework

### 3.3.1 The profile of REIT Investors' Reaction

Independent variables Dependent variable


### 3.3.2 The Determinants of REIT Trading volume

Independent variables Dependent variable




## 3.4 Measurement of Variables

### 3.4.1 REIT trading volume

We use daily REITs' trading volume as the dependent variables measurement. The volume is measured in lots equivalent to 1000 units per lot.

### 3.4.2 Tax

Dummy variable equals to one for trading volume during the first four quarters after dividend tax announcements and zero otherwise.

### 3.4.3 REIT Free float ratio

Free float ratio is measured as total shares held by investors excluding the restricted shares.

### 3.4.4 Institutional Ownership

Institutional ownership is the percentage of shares owned by institutional investors such as financial institutions and investment funds. The data was extracted from individual REITs' annual report.

### 3.4.5 REIT Size

The REIT size is the individual REIT's market capitalization measured as the stock price multiplied with total outstanding shares.

### 3.4.6 REIT Age

REIT age is measured as the numbers of years since the date of IPO.

### 3.4.7 Volatility

The volatility in the study is measured by standard deviation of daily return 60 days prior to dividend tax cut announcements.

### 3.4.8 REIT performance

The performance matrix is the cumulative of past three months return prior to dividend tax cut announcements.

## 3.5 Methodology

### 3.5.1 Event Study Method

Event study method is used to investigate the reaction of investors to the announcements of tax changes. This study examines the stock market's reactions towards three dividend tax cut announcements made in annual budgets of years 2007,

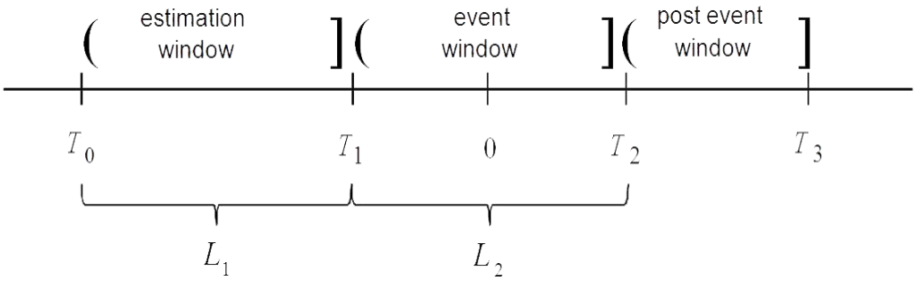
2009 and 2012. The three relevant dates are 1st September 2006, 29th August 2008 and 7th October 2011.

The procedure of an event study comprises the following:

Step 1:

My event is the tax reduction announcement during annual budget as stated and my event date is - 90 days to + 30 days. Besides the broad event window, I design three narrow event windows to test the effects of the event which are 0 day to + 2 days, - 1 day to + 1 day and - 2 days to + 2 days.

Step 2:




Estimation has been identified and stated in our research objectives and event periods determined as in Step 1. Sufficient post event days are required to examine the full effects to capture the accurate picture. It should not be too long as it may include spill-over effects of other events.

Step 3:

In the next step, I will estimate the important parameters that will provide the expected returns during the event window. As I am using market model, so I will need to estimate the Intercept, Slope, R Square and Standard Error (Steyx). Steyx

estimate the standard error for the straight line of best fit and variance of the error term.

Step 4:

To measure the abnormal return over the event window, many models could be utilised such as CAPM model, arbitrage pricing theory and constant mean model. I am using market model to find the abnormal return by deducting the expected returns from the actual returns. The FTSE KLCI is used as the benchmark of Market Return to test the reaction.

Step 5:

Average abnormal return is computed from different REITs to get AARs for every single event day. In final step, we sum up the average abnormal returns over the entire period of days to get the cumulative average abnormal return (CAAR). Then, a graph of the AAR and CAAR would be plotted over the different event windows to check the effects of the event on REIT's returns.

There are four REITs in the 1st event, ten REITs in the 2nd event and 12 REITs in 3rd event as some REITs are yet to be listed on the event date. This is due to limited number of REITs listed in that particular period.

### 3.5.2 OLS Method

The second stage of this research is to estimate seven independent variables which contribute to the change of trading volume using OLS regression. The full regression model is specified as follow.

VOL = f (Tax Dummy, Free Float Ratio, Institutional Ownership, REIT Size, REIT Age, Volatility, REITs' Performance)

The model is specified as:

$$VOL_t = \alpha + \beta_1 TD_t + \beta_2 FF_t + \beta_3 IO_t + \beta_4 Size_t + \beta_5 Age_t + \beta_6 VL_t + \beta_7 PFM_t + \varepsilon_t$$

Where:

VOL = Natural logarithm of daily trading volume (in '000)

Free float ratio = Percentage of shares available to public without restriction (%)

Institutional Ownership = Percentage of shares owned by institutional investors (%)

REIT Size = Natural logarithm of market capitalization of the REIT (in RM'000)

REIT Age = Number of years since IPO

Volatility = Standard deviation of daily return 60 days prior to dividend tax cut announcement.

REIT performance = cumulative of three months return prior to dividend tax cut announcement.

### 3.5.3 Diagnostic checking

For the Ordinary Least Square method, after obtaining the OLS results, I will check for regression analysis whether there is an assumption violation or not through several ways. If any of these assumptions is violated, the forecasts, confidence intervals, and economic insights yielded by a regression model may be inefficient or seriously biased or misleading. I will check for multi-collinearity and heteroscedasticity.

#### 3.5.3.1 Heteroscedasticity

Heteroscedasticity is a problem where the error terms do not have a constant variance. To detect the heteroscedasticity problem, various Residual Heteroskedasticity Tests are used to check for it. The null hypothesis and the alternative hypothesis of this test are stated below:

**$H_0$:** There is no heteroscedasticity in the residuals

**$H_1$:** There is heteroscedasticity in the residuals

If the probability is larger than 10%, so do not reject the null hypothesis of **$H_0$**, which means that there is no heteroscedasticity problem existing in the regression model.

#### 3.5.3.2 Multicollinearity

Collinearity means there is a linear relationship between two variables so that they move together. Multi-collinearity means there is a linear relationship between several variables. I am using correlations matrix to test the pair-wise correlations between independent variables. If the coefficient of correlation between two independent variables is high, which is more then 0.8, then collinearlity problem exists.

### 3.6 Data Collection

The primary data is obtained from DataStream for the years 2006-2012. Institutional ownership information is obtained from individual REITs' annual reports. Adjusted stock prices are used because they provide an accurate representation of the REIT's value rather than the simple market price. These stock prices account for all corporate and financial actions such as stock splits, bonus, dividends distributions and rights offerings. The quarterly trading volume is obtained by average of daily trading volume. This will avoid certain quarterly data which may not able to reflect real trading volume due to quarterly trading volume is taken from last trading day of the quarter and may be affected by any event incurred on that day. Data was transferred to GRETL and SPSS for analysis.

## CHAPTER FOUR: Results and Discussion

### 4.0 Introduction

This chapter presents the results and interpretations of the relationship between trading volume with dummy tax, number of free float shares, percentage of institutional ownership, REIT size, REIT age, stock volatility and individual REIT's past performance from year 2005 to 2012. The purpose of this chapter is to analyse how stock market reacts to dividend tax cut announcements and determine how trading volume change following the announcements of dividend tax reductions by using event study and ordinary least square regressions respectively.

The first section of this chapter presents the summary of statistics. Then, event study results will be presented. The following section is to determine the relationship between the variables to independent variable by OLS regression. The last section is the diagnostic checking which consists of normality test, autocorrelation and heteroscedasticity of the variables.

## 4.1 Data and Summary Statistics

Table 4.1 illustrates the market capitalization of REITs. Total market capitalization for REITs in Malaysia is RM15,460 million as at 10 April 2015. The largest REIT is Sunway REIT which is valued at RM5,020 million and constitutes 32.47% of the market capitalization while Atrium REIT is the smallest REIT valued at RM147 million and makes up 0.95% of market capitalization. The top three REITs in terms of market capitalization are Sunway, Capitamalls and Axis REIT.

| REIT Company | Market Capitalization (’000) | Market Share (%) |
|---|---|---|
| Axis | RM 1,971,929 | 12.75% |
| Ytl Hospitality | RM 1,377,365 | 8.91% |
| UOA | RM 685,052 | 4.43% |
| Tower | RM 353,430 | 2.29% |
| Al-akqar Healthcare | RM 953,830 | 6.17% |
| Hektar | RM 604,958 | 3.91% |
| Amfirst | RM 641,785 | 4.15% |
| Quill Capita | RM 475,960 | 3.08% |
| Amanahraya | RM 524,496 | 3.39% |
| Atrium | RM 147,379 | 0.95% |
| Sunway | RM 5,019,824 | 32.47% |
| Capitamalls | RM 2,704,044 | 17.49% |
| **TOTAL** | **RM15,460,052** | **100%** |

Table 4.1: Market capitalization of REITs
Note: Market capitalization of REITs listed in Bursa Malaysia Stock Exchange as at 10 April 2015.
Source: RHB Investment Bank.

**Abnormal Returns**

Table 4.2, 4.3 and 4.4 present the 1st, 2nd and 3rd announcements of tax reduction effects respectively. The three tables reports the portfolio average abnormal return each day in a 21-day period around the announcement date. The 1st announcement event consists of four REITs: Axis, YTL Hospitality, UOA and Tower REIT, while 2nd announcement event consists of 10 REITs: AL-AKQAR Healthcare, Hektar, Amfirst, Quill Capita, Amanahraya and Atrium REIT including the 4 in 1st announcement. The 3rd announcement event consists of all REITs in the 2nd event in addition to Sunway and Capitamalls REITs. Asterisk means that the value is statistical significance by at least 10%. The Mean on day 0 which is event date is significant and positive reaction by at least 10% in 1st and 2nd announcements. This matches our hypothesis that tax reductions will lead to positive market reactions.

| Event Day / Window | Mean | Standard Deviation | Median | Min | Max |
|---|---|---|---|---|---|
| -10 | 0.5528%* | 0.9793% | 0.1197% | -0.0439% | 2.0157% |
| -9 | 0.1889%* | 0.3484% | 0.0503% | -0.0488% | 0.7039% |
| -8 | 0.9062%* | 0.7498% | 1.0849% | -0.1502% | 1.6052% |
| -7 | 0.0814% | 0.7884% | -0.0150% | -0.7767% | 1.1324% |
| -6 | -0.4710%* | 0.8619% | -0.1889% | -1.6829% | 0.1767% |
| -5 | 0.1259% | 0.8657% | 0.2354% | -1.0170% | 1.0499% |

| | | | | | |
|---|---|---|---|---|---|
| -4 | 0.3355%* | 0.5413% | 0.1260% | -0.0475% | 1.1374% |
| -3 | 0.5396% | 1.9564% | 0.5572% | -1.7930% | 2.8371% |
| -2 | -0.3884%* | 0.6215% | -0.2887% | -1.1775% | 0.2014% |
| -1 | 0.0734%* | 0.0913% | 0.0835% | -0.0445% | 0.1712% |
| 0 | 0.8106%* | 1.2320% | 0.2784% | 0.0529% | 2.6329% |
| 1 | 0.0972% | 1.4009% | -0.3963% | -0.9562% | 2.1376% |
| 2 | -0.4880%* | 0.8557% | -0.3817% | -1.6142% | 0.4258% |
| 3 | -0.1978% | 1.7702% | 0.0674% | -2.5065% | 1.5806% |
| 4 | 0.2003% | 0.6356% | 0.0766% | -0.4254% | 1.0734% |
| 5 | 0.3062%* | 0.5017% | 0.1130% | -0.0504% | 1.0493% |
| 6 | 0.9268%* | 1.6996% | 0.1359% | -0.0377% | 3.4732% |
| 7 | -0.4961%* | 0.6123% | -0.5433% | -1.1540% | 0.2561% |
| 8 | 0.3103% | 0.8778% | 0.3356% | -0.5182% | 1.0881% |
| 9 | 0.1100% | 0.7286% | 0.0489% | -0.7171% | 1.0593% |
| 10 | 1.0350% | 2.5929% | 0.2619% | -1.1687% | 4.7847% |
| CAAR(0,+2) | 4.2081%* | 0.2583% | 4.3060% | 3.9152% | 4.4032% |
| CAAR(-1,+1) | 4.0682%* | 0.4984% | 4.3060% | 3.4954% | 4.4032% |
| CAAR(-2,+2) | 3.9084%* | 0.4500% | 3.9152% | 3.4220% | 4.4032% |

Table 4.2: 21 days average abnormal returns based on KLCI benchmark surrounding 1st budget announcements

∗Denotes statistical significance at the 10% level or higher.

| Event Day / Window | Mean | Standard Deviation | Median | Min | Max |
|---|---|---|---|---|---|
| -10 | 0.3325%* | 0.4236% | 0.3301% | -0.6392% | 0.8996% |
| -9 | -1.2653% | 2.9568% | 0.0580% | -8.9257% | 0.6196% |
| -8 | -0.4079% | 2.0680% | 0.1114% | -4.4187% | 2.9330% |
| -7 | 0.0804% | 0.5674% | 0.0941% | -0.6777% | 0.8947% |
| -6 | -0.5553%* | 0.9181% | -0.3429% | -2.1669% | 0.5106% |
| -5 | 0.7855%* | 0.7945% | 0.7115% | -0.4480% | 1.8995% |
| -4 | -0.8082% | 2.6473% | 0.2885% | -7.3745% | 0.7761% |
| -3 | 2.0544%* | 3.7089% | 0.3540% | 0.0124% | 11.5658% |
| -2 | 0.4987% | 1.1247% | 0.1263% | -0.9514% | 2.8742% |
| -1 | -0.7273% | 2.3315% | 0.0018% | -6.2282% | 1.6268% |

| | | | | | |
|---|---|---|---|---|---|
| 0 | 1.7555%* | 2.5201% | 0.9488% | -0.2832% | 8.0202% |
| 1 | 0.1032%* | 0.1354% | 0.1103% | -0.0741% | 0.2924% |
| 2 | 0.3450% | 2.4478% | 0.2256% | -5.3676% | 4.2497% |
| 3 | 0.4736% | 1.6132% | 0.2598% | -1.6351% | 4.3816% |
| 4 | -0.0533% | 2.1455% | 0.0350% | -5.2790% | 2.7892% |
| 5 | -0.2496% | 1.1668% | 0.1723% | -3.2539% | 0.7943% |
| 6 | 1.3290% | 5.1931% | -0.0219% | -5.3856% | 11.1070% |
| 7 | -1.3390% | 4.1082% | 0.0377% | -10.7650% | 4.0193% |
| 8 | 0.8093% | 2.4751% | 0.2296% | -1.6051% | 7.6223% |
| 9 | -1.2687% | 2.9771% | -0.0526% | -9.2703% | 0.5795% |
| 10 | -0.1168% | 0.6056% | 0.0976% | -1.0828% | 0.6304% |
| CAAR(0,+2) | 3.0904%* | 0.2347% | 3.0098% | 2.9066% | 3.3549% |
| CAAR(-1,+1) | 2.3559%* | 1.0446% | 2.9066% | 1.1511% | 3.0098% |
| CAAR(-2,+2) | 2.4602% | 0.9157% | 2.9066% | 1.1511% | 3.3549% |

Table 4.3: 21 days average abnormal returns based on KLCI benchmark surrounding 2nd budget announcements

*Denotes statistical significance at the 10% level or higher.

| Event Day / Window | Mean | Standard Deviation | Median | Min | Max |
|---|---|---|---|---|---|
| -10 | -0.3605% | 1.0904% | -0.3683% | -2.8440% | 1.4218% |
| -9 | -0.2384% | 0.8562% | -0.1550% | -1.2478% | 1.6333% |
| -8 | -0.7086%* | 1.3765% | -0.4997% | -4.1459% | 1.2301% |
| -7 | -0.2043% | 0.8873% | -0.2345% | -2.3320% | 0.7820% |
| -6 | -0.3588% | 0.9414% | -0.1982% | -2.5309% | 1.4868% |
| -5 | 0.7827% | 1.7942% | 0.0010% | -1.7972% | 3.7269% |
| -4 | 0.2015% | 0.9039% | 0.0837% | -1.2731% | 1.7569% |
| -3 | 0.2351% | 0.6335% | 0.2333% | -0.7502% | 1.6347% |
| -2 | -0.2949% | 0.9806% | -0.6460% | -1.6035% | 1.4883% |
| -1 | -0.4010% | 0.9521% | -0.7394% | -1.9337% | 1.5077% |

| | | | | | |
|---|---|---|---|---|---|
| 0 | -0.0196% | 0.7583% | -0.1428% | -0.9642% | 1.3793% |
| 1 | -0.2887% | 1.0466% | 0.0918% | -2.0815% | 0.9584% |
| 2 | 0.1252% | 1.5383% | -0.3536% | -2.0196% | 3.1987% |
| 3 | -0.7725%* | 1.3728% | -0.7324% | -4.7500% | 0.6170% |
| 4 | -0.3720%* | 0.7375% | -0.2002% | -1.7256% | 0.6443% |
| 5 | 0.1326% | 0.8549% | 0.0798% | -1.7225% | 1.5052% |
| 6 | -0.7218%* | 0.7843% | -0.7679% | -1.7889% | 1.0062% |
| 7 | 0.5980%* | 0.5523% | 0.7257% | -0.3654% | 1.1654% |
| 8 | 0.2801% | 0.6415% | 0.2326% | -0.5473% | 1.1948% |
| 9 | -0.0766% | 0.8615% | 0.0821% | -1.9774% | 1.1939% |
| 10 | 0.6729%* | 0.8108% | 0.4228% | -0.5209% | 1.9544% |
| CAAR(0,+2) | 0.2735% | 0.1448% | 0.2607% | 0.1355% | 0.4242% |
| CAAR(-1,+1) | 0.3345% | 0.1726% | 0.4242% | 0.1355% | 0.4438% |
| CAAR(-2,+2) | 0.4218% | 0.2680% | 0.4242% | 0.1355% | 0.8448% |

Table 4.4: 21 days average abnormal returns based on KLCI benchmark surrounding 3rd budget announcements
*Denotes statistical significance at the 10% level or higher.

| | Event 1 | Event 2 | Event 3 |
|---|---|---|---|
| Event Window | CAAR | CAAR | CAAR |
| (-2,0) | 4.2081%* | 3.0904%* | 0.2735% |
| (-1+1) | 4.0682%* | 2.3559%* | 0.3345% |
| (-2,+2) | 3.9084%* | 2.4602%* | 0.4218% |

Table 4.5: CAAR for 3 Event Windows

Table 4.5 above reproduce the cumulative average abnormal return (CAAR) for three different event windows from the last three rows of Table 4.2-4.4. I find that dividend tax cut announcements made in 2006 and 2008 result in a positive

stock price reactions from the stock market. The CAARs are significant in at the 10% level across all the event windows. The CAARs for dividend tax cut announcement in 2011, on the other hand, are not significantly different from zero. These results support the hypothesis that the announcement of dividend tax cuts increases the wealth of REITs because tax is a form of transaction cost as theorized by James Tobin. The insignificance of third announcement CAARs could possibly be attributed to lack of new information because the 2011 budget only extended the tax benefits to REIT shareholders for another 4 years until 2016. Besides, I also did an experiment on the event study with property companies index (Bursa Malaysia Properties Index) and the results are similar to those using KLCI index.

Exhibit 4.1-4.3 track the mean CARs for the sample over the corresponding 21-day window period. We can see uptrend of CAAR during event date (Day 0) to reach 8% and 5% respectively in 1st and 2nd announcements. However, there are reported downtrend CAAR during event date in 3rd announcement. This is because there was no tax reduction in 3rd announcement and investors do not read it as good news.

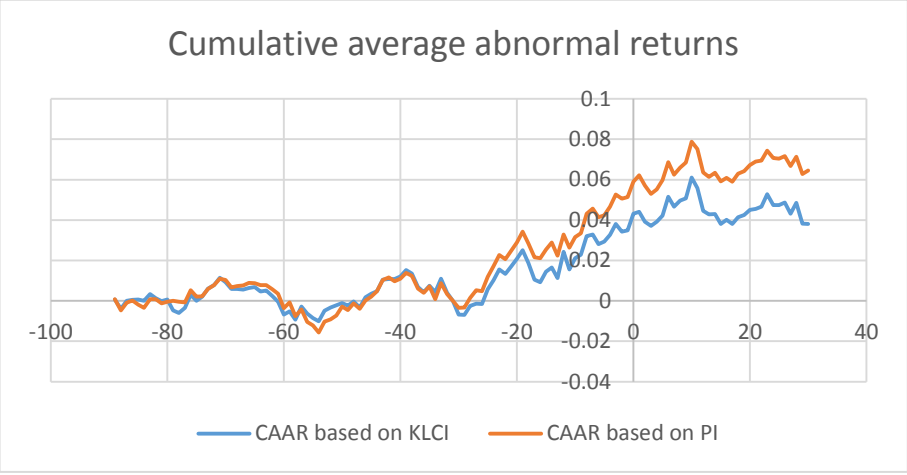



Exhibit 4.1: REIT Cumulative average abnormal returns (CAAR) for 1st Event

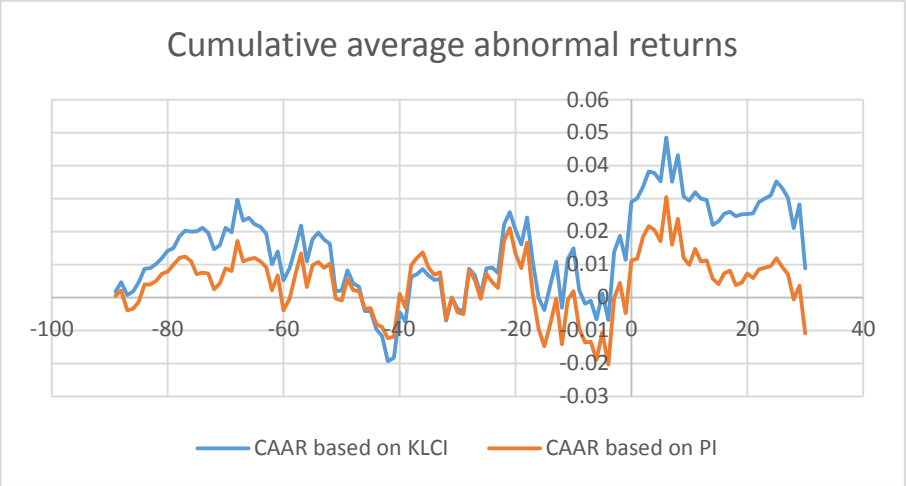



Exhibit 4.2: REIT Cumulative average abnormal returns (CAAR) for 2nd Event

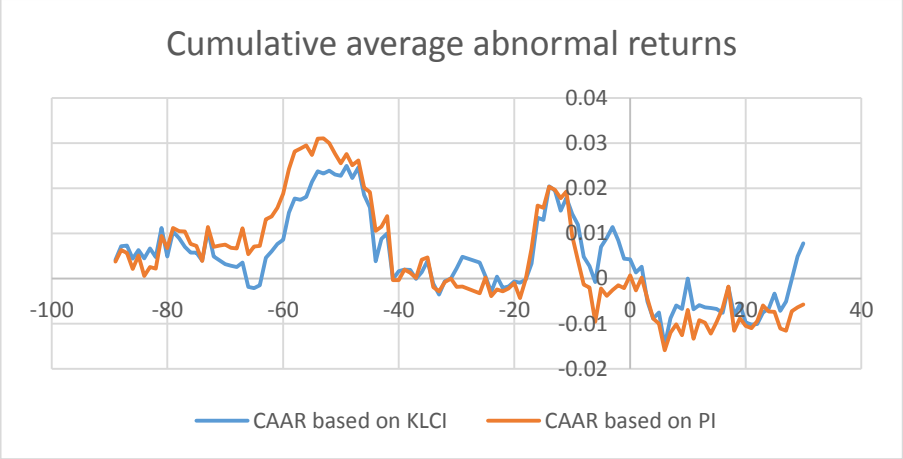



Exhibit 4.3: REIT Cumulative average abnormal returns (CAAR) for 3rd Event

## 4.2 Ordinary Least Square regressions

In 1st event, we have only two REITs data due to the limited number of listed REITs available. As we take four quarters before and four quarters after the announcement to test the reaction, so we have 16 observations. In 2nd event, we have data from 10 REITs, so we have 80 observations, and 96 observations in 3rd event since data from 12 REITs were available. By using GRETL statistical software

package, the regression model is as below: *Share volume = f(Post-tax, Free float, Institutional Ownership, REIT Size, REIT Age, Volatility, REIT Performance)*

| Dependent Variables | Model 1 | | Model 2 | |
|---|---|---|---|---|
| | Lg (Volume) | | Volume/Share Outstanding | |
| | Coeff. | t-Stat. | Coeff. | t-Stat. |
| *Intercept* | −2.4758 | −5.45*** | 0.0010 | 1.42 |
| *Post-Tax* | 0.0488 | 1.03 | −0.0001 | −0.89 |
| *Free Float* | 0.1448 | 1.40 | 0.0002 | 1.31 |
| *Institutional Ownership* | −0.5545 | −4.72*** | −0.0001 | −1.58 |
| *REIT Size* | 0.9242 | 13.31*** | −0.0001 | −0.18 |
| *REIT Age* | −0.0847 | −5.73*** | −0.0001 | −3.37*** |
| *Volatility* | −11.4843 | −3.54*** | −0.0072 | −1.42 |
| *REIT Performance* | 0.0665 | 0.29 | 0.0006 | 1.55 |
| *No of Obs* | 192 | | 192 | |
| *R2* | 0.6238 | | 0.1765 | |
| *Adj R2* | 0.6095 | | 0.1452 | |

Table 4.6: Estimation results of robustness tests with different dependent variables in the regression models.

The statistical significance is indicated by ***, which represent significance at the 10% levels of confidence.

From the regression and its significance in Model 1, we can conclude that there are four independent variables which are significant namely, Institutional Ownership, REIT Size, REIT Age and Volatility. However, dummy tax, free float shares and past performance did not display any significance to trading volume as expected. This may due to relatively small size of sample compared to previous study and the short tenure of listing.

In Model 2, we use quarter volume trade divided by total share outstanding as our trading volume dependent variable. The results confirm that the variables have small coefficients and only REIT Age is significant at 1% level. The small value of dependent variable maybe a reason to contribute to the issue. As a result, we adopt Model 1 as our primary model.

In the aspect of independent variables relationship to the trading volume in model 1, we found that REIT Size have positive relationship while Institutional Ownership, REIT Age and Volatility indicate negative relationship to trading volume, which support our hypothesis. For example, the positive and significant result of REIT size and trading volume are supported by the study by Barron, Schneible and Stevens (2011). Our findings indicate that free float shares have positive influence to trading volume which is supported by Rezaei and Tahernia (2013) who document significant positive relationship between free float shares and trading volume by examining 63 companies listed on the Tehran Stock Exchange. Sapna and Dani (2014) lend confirmation to our findings that past performance have positive relationship with trading volume, as evident in their study involving 125 companies listed in Bombay Stock Exchange. However, volatility negatively affect trading volume in our study which contradict to the hypothesis. This may be due to the fact Malaysian REIT investors are more conservative and prefer less volatile REITs.

Besides, I perform unit variance test or Independent t-test to identify whether pre or post tax reduction announcements result in higher trading volume. Table 4.7 exhibits that 96 observations are pre-tax quarters and 96 observations are post-tax

quarters in the study. The both pre-tax and post-tax dummies have 2.34 and 2.26 of mean value respectively. The F value in Table 4.8 is only 0.137 and it is very small and its P-value is 0.712 indicating that it is not significant. In t-test for equality of means, the t value is 1.319 with 190 degrees of freedom, the significance value is 0.189 and it also indicate that it is not significant at 10% confidence level. Since with a t-test we only have two groups which are pre and post-tax, we need to look at the table with the descriptive statistics to find out either pre or post tax reduction announcements lead to higher trading volume. As a conclusion, we could not reject the null hypothesis of no difference between the mean and we state that the difference in volume between pre-tax and post-tax are not statistically significant. The findings indicate that regardless whether the variances are equally assumed or not equally assumed, the results are similar. This corresponds to our OLS result that tax do not contribute significantly to REIT trading volume.

| | Tax Dummy | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Volume | Pre-tax | 96 | 2.34124 | .445930 | .045513 |
| | Post-tax | 96 | 2.25626 | .446951 | .045617 |

Table 4.7: Group Statistics

| | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 95% Confidence Interval of the Difference | |
| | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Volume | Equal variances assumed | .137 | .712 | 1.319 | 190 | .189 | .084979 | .064438 | -.042127 | .212085 |
| | Equal variances not assumed | | | 1.319 | 189.99 | .189 | .084979 | .064438 | -.042127 | .212085 |

Table 4.8: Independent Samples Test

## 4.3 Diagnostic checking

The validity and reliability of the regression models are important. Therefore, diagnostic tests such as the normality test, the test for autocorrelation as well as heteroskedasticity are conducted.

### 4.3.1 Heteroscedasticity

We run several tests to test heteroscedasticity problem.

**$H_0$** = There is no hetero problem

**$H_1$** = There is hetero problem

By using White's test for heteroskedasticity.

OLS, using observations 1-192 and Dependent variable: uhat^2. The unadjusted R-squared is 0.263855 and Test statistic: TR^2 = 50.660171, with p-value = P(Chi-square(34) > 50.660171) = 0.032940.This indicate that P-Value is

significant at 5%. The result indicates that there is presence of heteroskedasticity in the residuals

By using Breusch-Pagan test for heteroskedasticity.

OLS, using observations 1-192 and Dependent variable: scaled uhat^2. The explained sum of squares = 47.7127 and Test statistic: LM = 23.856361, with p-value = P (Chi-square(7) > 23.856361) = 0.001208. This indicate that P-Value is significant at 5%. The result indicates that there is presence of heteroskedasticity in the residuals.

By using Breusch-Pagan test for heteroskedasticity

OLS, using observations 1-192 and Dependent variable: scaled uhat^2 (Koenker robust variant). The explained sum of squares = 0.267504 and Test statistic: LM = 14.735002, with p-value = P (Chi-square(7) > 14.735002) = 0.039550. This indicate that P-Value is significant at 5%. We can conclude that there is presence of heteroskedasticity in the residuals.

It is usual situation for heteroskedasticity problem to exist in stocks returns and trading volume data. Since there is presence of heteroskedasticity in the residuals, we run robust standard error to modify it. The Table 4.7 shows that as the standard error of Model 1 and 3 are different, the model may be misspecified. The specification error in the model leads to errors in the likelihood function. Comparing classical and robust standard errors might help us to detect misspecification error.

| Dependent Variables | Model 1 | Model 3 |
|---|---|---|

| | Lg (Volume) | | variant HC1 | |
|---|---|---|---|---|
| | Coeff. | Std. Error | Coeff. | Std. Error |
| *Intercept* | −2.4758 | 0.454723 | −2.4758 | 0.413167 |
| *Post-Tax* | 0.0488 | 0.0471434 | 0.0488 | 0.0476229 |
| *Free Float* | 0.1448 | 0.103199 | 0.1448 | 0.0970978 |
| *Institutional Ownership* | −0.5545 | 0.117364 | −0.5545 | 0.112456 |
| *REIT Size* | 0.9242 | 0.0694208 | 0.9242 | 0.0612750 |
| *REIT Age* | −0.0847 | 0.0147978 | −0.0847 | 0.0132698 |
| *Volatility* | −11.4843 | 3.24553 | −11.4843 | 4.23692 |
| *REIT Performance* | 0.0665 | 0.228399 | 0.0665 | 0.263614 |
| *No of Obs* | 192 | | 192 | |
| *R2* | 0.6238 | | 0.6238 | |
| *Adj R2* | 0.6095 | | 0.6095 | |

Table 4.9: Estimation results of robustness tests with robust standard error test in the model 3.

### 4.3.2 Multicollinearity

Table 4.7 and 4.8 shows the correlation coefficient for all variables. The situation in which the independent variables are highly correlated among themselves is referred to as multi-colinearity (Hair et al., 2006). According to Gujarati (2009), the model may face collinearity problem if VIF value is larger than 10.

| | Trading volume | Post-Tax | Freefloat | Institutional Owneship | REIT Size | REIT Age | Volatility | REIT performance |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Trading volume | 1 | | | | | | | |
| Post-Tax | -0.0952 | 1 | | | | | | |
| Freefloat | -0.055 | -0.0623 | 1 | | | | | |
| Institutional Owneship | -0.0989 | -0.0311 | -0.0197 | 1 | | | | |
| REIT Size | 0.6613 | 0.0117 | -0.3965 | 0.1617 | 1 | | | |
| REIT Age | -0.3169 | 0.382 | -0.5653 | -0.1145 | -0.005 | 1 | | |
| Volatility | -0.144 | 0.0955 | 0.4377 | 0.1638 | -0.146 | -0.364 | 1 | |
| REIT performance | 0.0426 | 0.2317 | -0.1078 | 0.0012 | 0.1002 | 0.144 | -0.0556 | 1 |

Table 4.10: Correlation matrix of the explanatory variables

| Variables | VIF | Variables | VIF |
|---|---|---|---|
| PostTax | 1.365 | REITAge | 2.132 |
| Freefloat | 2.138 | Volatility | 1.385 |
| InstitutionalOwneship | 1.075 | Stockperformance | 1.074 |
| LogREITSize | 1.363 | | |

Table 4.11 Variance Inflation Factors (VIF)

Minimum possible value = 1.0, Values > 10.0 may indicate a collinearity problem.

VIF(j) = 1/(1 - R(j)^2), where R(j) is the multiple correlation coefficient between variable j and the other independent variables

Properties of matrix X'X:

1-norm = 12768.825

Determinant = 66405544

Reciprocal condition number = 5.6041569e-007

From the Variance Inflation Factors (VIF) and Correlation matrix result, we can conclude that the study do not have any collinearity problem.

### 4.3.4 ANOVA

Analysis of Variance (ANOVA)

| | Sum of squares | df | Mean square |
|---|---|---|---|
| Regression | 23.839 | 7 | 3.40557 |
| Residual | 14.3764 | 184 | 0.0781324 |
| Total | 38.2154 | 191 | 0.200081 |

R^2 = 23.839 / 38.2154 = 0.623807

F(7, 184) = 3.40557 / 0.0781324 = 43.5872, p-value = 6.93e-036

This indicate that P-Value significant at 5%.

## CHAPTER FIVE: Conclusion and Recommendation

### 5.0 Introduction

This chapter highlights the findings of the study to conclude whether the findings are able to achieve the objectives of my research. The first section summarizes the findings of the study, following which I will recommend some implications of the r analysis and present some recommendations for the future researches.

## 5.1 Conclusion

The purpose of this paper is to examine the reaction of investors to three budget announcements and re-investigate the significance of the dependent variables which are dummy tax, Free float of REIT, Institutional Ownership, REIT Size, REIT Age, Volatility and REITs' past performances, to the trading volume of Malaysian REITs throughout the research period. The data for this research paper is collected form UUM's DataStream and individual REIT's annual reports. A total of 192 REIT-quarter observations were collected for the 2005 to 2012 period for the regression analysis.

Based on the literature review, we found that most of our findings match with the previous researcher's findings. Event study results answer the first research question, which is "does market react positively to the announcement of REIT dividend tax reductions". The CAARs of 1st and 2nd budget announcements show strong and positive reactions. Both CAARs, based on KLCI Returns and Property Index Returns, show similar results which indicate consistent results. The CAAR of 3rd budget announcement does not show any positive reaction as no tax reduction was announced in 3rd budget announcement in 2012 Budget tabled on October 7,

2011. This is because investors will react positively to tax reductions while in the reverse, if otherwise.

It satisfies our first research objective, namely, to investigate how stock market reacts to dividend tax cut announcements. A regression analysis is performed to answer second research question, "does trade volume increase following the announcement of REIT dividend tax reduction". Seven control variables are identified such as tax dummy, number of free float shares, the percentage of institutional ownership, REIT size, REIT age, stock volatility and individual REIT's past performance to test how they affect trading volume. Our data are normally distributed, free from heteroskedasticity and multicollinearity problems.

The findings of our research indicate that Institutional Ownership, REIT Size, REIT Age and Volatility affect trading volume. It is consistent with the findings of Lin and Zeng (2005) that reduction in taxes will increase the trading volume. Rezaei and Tahernia (2013) document significant positive relationship between free float shares and trading volume by using sample size of 63 companies listed on the Tehran Stock Exchange. The REIT size impact positively on trading volume as supported by findings by Hope et al. (2009) and Miller (2010). Although four independent variables have positive relationship to trading volume, but our results show that dummy tax, free float shares and past performance are not significant in contributing to trading volume.

Besides, results show that institutional ownership, REIT age and volatility are significant in contributing to trading volume, but have negative relationship which is

contradict to our hypothesis. For institutional ownership, Utama and Cready (1997) postulate that trading responses decrease with institutional ownership when institutional ownership is high beyond 50%. Some of our institutional ownership percentages are more than 50%, so it may lead to negative relationship. Our findings on negative relationship t between volatility and trading volume is consistent to the conclusions by Ane and Ureche-Rangau (2008) who advance that relationship of volatility and trading volume is positive in the short term but their long term relationship is negative.

## 5.2 Implications

This study quantifies the reaction of investors to the announcements of REIT dividend tax reductions and determine how trading volume change. This finding is valuable to both policymakers and investors alike. The significant issue that needs to be carefully considered from time to time in order to better determine the direction of future policies is whether contractionary policies effectively achieve the regulator's objective in increasing market participation. Hence, identifying the effects of the seven independent variables is an essential part in implementing an effective policy to encourage or discourage market participation.

To policymakers, this research is able to assist the regulator such as Securities Commission (SC) to initiate an effective policy to achieve their objective. The policymaker could manipulate the tax rate in order to increase or decrease the REITs' returns. They could reduce the tax if the intention is to increase the appeal of REIT to

investors or implement higher tax rate, if otherwise. The reduction of tax could possibly outweigh the loss of revenue to the Government.

To investors and prospective investors, this research assists them to identify and forecast trading volume by looking at institutional ownership, REIT size, REIT age and volatility. Low institutional ownership, low REIT age, low volatility and large REIT size indicate that the REITs have high trading volume. This will allow investors choose their preferred liquidity level of REIT to trade.

## 5.3 Recommendations for Future Research

The study is useful for other researchers as this is one of the very few studies that have been conducted. However, future research could expand to include other developing countries to test whether the results obtained could be generalized to other countries. The future research could expand to examine developing countries that are currently considering a REIT structure such as India and Brazil or other Asian countries. It is interesting to explore as India and Brazil are the fastest growing economies in the world with large property markets and huge populations.

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