STOCK MARKET AND TAX REVENUE COLLECTION IN MALAYSIA: EVIDENCE FROM COINTEGRATION AND CAUSALITY TESTS

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ABSTRACT

This study empirically examined the relationship between stock market performance and taxation in Malaysia over the period 1980 to 2008. The Gregory Hansen methodology was utilized to examine which tax collected by Malaysia's Government most impacted stock market performance in Malaysia. The results show that stock market performance contributes most to the changes in company tax revenue as compared to personal taxes and real property gain taxes. In addition, the analysis detects a significance break, which impacts the nature of the relationship between variables. This finding indicates that stock market performance in Malaysia was influenced by strong growth of company tax revenue collection. Thus, fiscal policy authorities in Malaysia should enhance efforts to promote stock market activities, which will subsequently increase the tax revenue collection.

JEL: F3, G1, H2, O2

KEYWORDS: Company tax, Personal tax, Stock market, Structural break

INTRODUCTION

Taxes have an important role in the economic and social policy of any government. Tax policies in Malaysia normally contribute to the overall economic development in two major ways :i) ensuring stable growth in revenue to finance the annual budget; and ii) providing incentives within the tax system to promote growth, especially in the private sector (Singh, 2005) . Therefore,the efficiency and effectiveness of the tax system formulation are crucial to ensure that the government is able to collect the sources for development purposes. Such development, in return, will help to encourage more investment flow in the country. Thus, taxation in terms of policies is well known as being able to promote economic activities, such as investment, manufacturing, tourism and agriculture by offering incentives, which, in return, contribute towards a more balanced growth. Therefore, this paper presents the existence of the relationship between tax revenue and the stock market in Malaysia for the period of 1980 to 2008.

In Malaysia, capital market activities have shown tremendous growth following the Government's efforts to improve the facilities and infrastructure for the investment activities. However, the booming of Malaysia's stock market began after the Asian financial crisis in 1997.This crisis has led to a fundamental change in the Malaysian financial system from bank lending to non-bank market orientation (Zhang, 2009) . This created rapid growth in the stock and corporate bond markets in Malaysia, which opened an opportunity for investment, specifically in the capital market activities. As a result, the capital market in Malaysia has increased significantly, where, in 1999, the funds raised in the capital market amounted to RM17.2 billion compared to RM7.5 billion per annum for the 30 year period from 1962-1992. The remarkable growth of Malaysia's capital market has directly and indirectly impacted the trend of tax revenue collection. Year-to-year the tax revenue collection has increased consistently. Furthermore, the Government's decision to change the method of tax collection from the Official Assessment System to the Self Assessment System in 2001 and 2004 for companies and individuals, respectively, has contributed to an increase in the tax revenue collection (Malaysia, 2004) . In addition, the government also encouraged investment activities through the announcement of incentives granted to the taxpayer to reduce their tax burden. This will further help to promote the investment activities.

Therefore, a combination of strong financial system development and solid fiscal policy is also a prominent tool to spur growth. Despite the importance of these measures, understanding of the relationship between the fiscal policy and financial system are far from complete. Although previous studies (Darrat, 1988, Darrat, 1990, Ardagna, 2009, Laopodis, 2009) have documented the relationship between the financial market and fiscal policy, no insights on particular fiscal policy tools, such as taxation instruments, which could cause a negative or positive market response, are offered in the literature devoted to developing countries. In developed country studies, the relationship is mainly analyzed using cross-sectional(Arin et al., 2009, Aarle et al., 2003) and panel analysis(Akitoby and Stratmann, 2008, Ardagna, 2009, Hung and Lee, 2010) .

The earlier studies mentioned broadly document the relationship between fiscal policy and financial markets. However, none of these studies focused on analyzing the impact of financial market activities on generating tax revenue, which is also important in analyzing the economic performance of the country. Boyd (2009) discussed the situation when the state runs out of money, which affects the budget allocation. In addition, he emphasized the significant impact of recession (specifically on the downturn in an investment on capital market) on tax revenue collection. Therefore, as fiscal policy has a pivotal role in influencing the investment performance, so does the role of investment in determining the trend of revenue collection. Realizing this, Taha et al. (2010) analyzed the role of the financial market on generating tax revenue in Malaysia. The results show that while direct tax revenue has a significant effect on the stock market and bond market activities, both financial market instruments play a pivotal role in determining the revenue collection. However, in this study the relation has been analyzed at an aggregate level, and there is no identification on which particular tax instruments are most impacted from financial market activities. Therefore, the actual causal effect of financial market activities on specific tax revenue is largely unresolved. In addition, this study did not consider the occurrence of a potential break, which might change the nature of the relationship existing between variables.

Therefore, the purpose of this paper is to examine the relationship between the stock market and tax return in Malaysia by focusing on personal tax and company tax revenue considering the pivotal role of such revenue in Malaysia's economy. In addition, this issue is of interest due to recent gyrations of the stock market due to global economic imbalance. Plummeting stock prices can cast a dark cloud over the financial position of all parties – individuals, companies and the government. However, there is a lack of discussion devoted to the effect of increasing stock market activities on the tax revenue collection. Most of the studies focused on analyzing the nexus between tax and the stock market with the aim of analyzing the effect of changes in tax burden on stock market activities. Furthermore, previous studies also aim to investigate the impact of tax on investment activities while neglecting other important components of the financial system. Based on the results, it can be concluded that a long-term relationship exists between company tax revenue and the stock market implying that taxation plays an important role in encouraging investment activities. This result is of particular importance as it offers the important determinants of capital market activities, specifically in Malaysia.

The contribution of this study is two-fold. First, this paper studies the impact of the stock market on both personal tax and company tax in Malaysia. Second, the recent analyses that cater for the existence of a break, which take into consideration all the economic events occurring during the study period were utilized. The results suggest that the stock market contributes to the strong growth in company tax revenue collection. However, there is no significant impact of stock market on personal tax revenue.

The structure of this paper is as follows: Section 2 surveys the literature, Section 3 presents the data used and the discussion of the empirical methodology. Section 4 presents the results of this study. The paper concludes with a brief summary and a discussion of the implications of the findings in Section 5.

LITERATURE REVIEW

As we are aware, the financial system and taxation are linked in many ways. Consider, for example, that a government's choice of tax instruments may have a significant influence on financial system activities. The effect of fiscal policy is transmitted in several ways, one of which is through the financial market (Arin et al., 2009) . As it is clear that a significant link does exist between the financial system and taxation, the question to be addressed is whether taxation has an impact on financial system activities, or, whether financial system activities contribute to the changes in taxation, or, if the impact is mutual. In theory, "a high (low) effective tax rate on domestic source income could be expected to discourage (encourage) domestic investment by resident investors, as well as inbound foreign investment" (Clark, 2007 pp. 247) . Assuming that financial system activities have the same impact as investment activities, where any increase in tax rate will distort the financial system development, the question remains as to whether the same result occurs in the relationship between the financial system and tax revenue.

A selective review of the literature on the financial system and taxation suggests that a relationship indeed exists; however, the results vary according to the measurement of the variables examined, different countries' characteristics, and different methodologies used. The earlier wave of research in this area focuses on the discussion of the implications between tax policy and investment. In this context, researchers used investment variables as a proxy for the non-banking financial system, and the tax rate as taxation variables and support that the increase (decrease) in tax rate will decrease (increase) the investment activities. The research examining the effect of tax policy on investment is large and diverse, with notable studies including Summers (1981) , Desai and Goolsbee (2004) , Hsieh and Parker (2007) , and Clark (2007) .

Summers (1981) discusses the relationship between tax policy and corporate investment and emphasizes the issue of how tax can affect investment. This study suggests that the decline in investment in the United States in the period 1951-1979 was caused by an increase in corporate tax rate. An announcement of changes in tax policy will impact on investment in the short-run, while the long-term effect of taxation on investment is based on the immediate changes in taxation policy that affect the investment activities (Summers, 1981) . It is most likely that any increase in tax rate will reduce the investment due to the price impact on the market. Therefore, policymakers should consider the impact of any tax changes on the financial market to ensure the stability of the market. The results found by Hsieh and Parker (2007) , and Clark (2007) emphasize the significant role of tax in determining the investment performance. They point out the importance of having an appropriate tax strategy since tax policy may negatively or positively influence economic growth as well as revenue collection regardless of individual or cross-country analysis. Kirkbride (2008) , who examined the growth of private equity, supported these findings inasmuch as the increase in tax rate negatively affects financial market development by driving investors out of the market. This further reduces the competitiveness and attractiveness of the private equity business.

Furthermore, Mannaro, Marchesi and Setzu (2008) , while studying the relationship between tax and the financial market, used foreign exchange and stock market variables as financial marketproxies. Their study examined the market conditions with and without tax using an artificial stock market. They found that the increase in tax rate heavily impacts on market behavior because it increases price volatility and reduces trading volumes. They also established the relationship between these two variables by focusing on the impact of taxation in determining the price of financial market instruments. It is believed that any taxation imposed on financial market activities will make the market less volatile as speculators leave the market due to the changes taking place. Thus, the levy of a small tax on financial system activities, specifically, stock exchange activities, could contribute to the reduction of instability in the domestic stock market.

As the majority of studies support the pivotal role of tax rate on investment performance, Desai and Goolsbee (2004) questioned the failure of tax cuts to boost investments employing the Tobin's Q (1969) model. This model studies the ratio between two valuations of the market value of a company's stock relative to the value of a company's equity book value. The results of the model suggest the low impact of changes (either increase or decrease) in tax policy on the desired increase in investment. They argue that the effectiveness of tax policy to stimulate investment depends on the type of tax changes and incentives provided to the taxpayer. Their study rules out the impact of tax rate on the investment market. However, this argument is questionable due to the lack of empirical evidence to support it.

As Laopodis (2009) explains, past budget deficits also affect current stock returns in a negative and significant manner. However, one might argue that budget deficits are not a fiscal policy issue. The argument made by Laopodis is that budget deficits influence the decisions in future policy. Therefore, the negative effect reported in the study by Laopodis suggests that the market is inefficient with respect to the available information about future fiscal policy action, but what the market considers most is important news about monetary policy.

While a massive amount of research in this area has been conducted in the developed country context, one ponders the lack of interest in the developing country context given the economic growth rates of several developing countries over the past decade. It is believed that the non-availability of long time-series data has been a common problem for empirical research for developing countries. Although time-series data have become available on most macroeconomic variables, at least since the early 1970s, for the developing countries this is not always the case. Meticulous searching in most databases provide the macroeconomic variables data backdated for the past ten years, which means it is possible to investigate the key economic relations using modern statistical techniques, specifically, the time series method. Trying to fill the gap, a study by Hsieh and Parker (2007) represents the developing country context. In line with the theory, Hsieh and Parker show how corporate tax cuts in Chile led to an investment boom and strong economic performance. One general point they make in the case of Chile's tax reform is that in countries with poorly developed financial markets, taxation of profits from investment activities may have a significant effect on corporate savings, and, therefore, can be particularly harmful for growth.

A second body of literature relating to the impact of tax policy on financial market variables, other than investments, advocated the use of tax revenue as a proxy for tax policy. This is because, in reality, frequent changes of tax policy are not feasible, specifically, to the studies that utilize time series analysis. The work of Bohn (1990) suggests a positive relationship between tax revenue and financial market, which contradicts the theoretical arguments that taxation will distort financial market activities. This difference might be due to the use of tax revenue as a proxy for tax rate as compared to other studies. The accuracy of the result can be argued, since Alesina, Ardagna, Perotti and Schiantarelli (2002) used the same measurement and also identified a result that contradicted the theory. In addition, Alesina et al. (2002) also explored the role of tax in motivating the growth of financial markets, as measured by changes in securities, including Treasury bill yields, Treasury bonds, nominal stock returns, foreign exchange rate, money market yields, and long-term government bond yields. This implies that a government could improve the taxation system to foster more growth in the financial market. The study, however, only focused on the role of the government in economic development, ignoring the role of the private sector. They argue that fiscal expansion slows down economic activity. This is in line with the non-Keynesian effects where fiscal policy contraction in government income (tax revenue) has been associated with higher growth even in the short-run. Specifically, one can expect that fiscal policy expansion will impede innovative activity and slow economic growth.

In reality, the impact of tax rates or tax revenues on financial activities varies. In focusing on the nexus of financial system and various types of taxation, the discussion now stresses that the impact of taxation on the financial market depends on the different taxes imposed on each financial system activity. For

instance, the policy changes relating to the income tax does not have a direct influence on the business activities. Prominent studies by Arin and Koray (2006) , and Arin et al. (2009) show that different fiscal shocks have different offsetting effects on the economy, and using different tax revenue measurements may conceal the effects of fiscal policy. Consistent results are reported for a panel of G3 countries and analysis of Canada where different tax policy changes produce different financial responses. It is proven that the financial system is affected by tax changes. However, in relation to tax revenue, the question is whether the level of performance of financial market activities will influence revenue collection. Focusing on this, Taha et al. (2010) examined whether tax revenue had a major effect on financial activities in Malaysia. The results support that the financial system, as proxied by monthly Malaysian data on direct taxation, the Kuala Lumpur Composite Index, loans from investment banks to the private sector, loans from Commercial Bank to the private sector and the bond market, positively influences the tax revenue collection, while in the case of tax revenue, it only has a significant impact on the stock market and investment bank activity.

DATA AND METHODOLOGY

Monthly figures for tax variable revenue, including company tax (total company tax revenue collection) and personal tax (total personal tax revenue collection) were gathered fromthe Inland Revenue Board (Malaysia) . Data for the stock market (Kuala Lumpur Composite Index) was obtained from DataStream. All data was converted into natural logs prior to the analysis. The data period under study, between January 1980 and December 2008, covers a few recession periods, of which the most significant is the 1997 Asian Financial Crisis. The summary statistics of the data are as per Table 1. All taxation variables were found to be negatively skewed. Since the sign of the kurtosis statistic is positive, the distribution of all variables is leptokurtic.

Table 1: Descriptive Analysis of Data

Variables	Company tax	Personal tax	Stock market
Mean	8.64	9.06	4.16
Median	8.58	8.92	4.13
Min	7.74	7.60	3.58
Max	9.25	9.77	4.52
Standard Deviation	8.50	9.01	3.83
Skewness	0.03	0.16	-0.36
Kurtosis	0.09	0.27	0.03

This table shows the summary statistic of company tax, personal tax and stock market for the period of 1980 to 2008. All data are in natural logarithm form.

The problem with the models containing non-stationary variables is that they will often lead to a problem of spurious regressions. In other words, the results show that there are statistically significant relationship exists between the examined variables. To avoid this problem this study used the augmented Dickey-Fuller (1981) test (ADF) and Kwiatkowski, Phillips, Schmidt, and Shin (1992) test (KPSS) to determine whether series or residuals of the regressions are stationary. In determining the optimal lag structure in ADF and KPSS testing procedure this study relies on the model selection criterions of Akaike Information Criterion (AIC) and Newey-West Bandwidth, respectively.

As mentioned earlier, the data period under study covers a few recession periods, which might have a significant effect on the direction of the relationship. In his seminal paper, Perron (1989) argues that failing to account for at least one structural break may lead the researcher not to reject the null hypothesis of unit root, when, in fact, the series are stationary around a one-time structural break. The conventional approach of the unit root test (ADF and KPSS) used above favors the null of unit root when a structural break exists, which, in other words,means it failed to capture the existence of the break. Therefore, in order to capture the effect of any possible structural shift over the estimation period, the unit root test (ZA

test) of Zivot and Andrews (1992) is employed. The test treats the presence of any structural break in the series under observation as endogenous. The proposed test utilizes the following equations.

$$\Delta y_t = c + \alpha y_{t-1} + \beta_t + \gamma DU_t + \sum_{j=1}^{k} d_j \Delta y_{t-j} + \varepsilon_t \quad \text{(Model A)}$$

$$\Delta y_t = c + \alpha y_{t-1} + \beta_t + \theta DT_t + \sum_{j=1}^{k} d_j \Delta y_{t-j} + \varepsilon_t \quad \text{(Model B)}$$

$$\Delta y_t = c + \alpha y_{t-1} + \beta_t + \theta DU_t + \gamma DT_t + \sum_{j=1}^{k} d_j \Delta y_{t-j} + \varepsilon_t \quad \text{(Model C)}$$

Model A allows for a one-time change in the level of the series, Model B permits for a one-time change in the slope of the trend function, and Model C combines one-time changes in the level and the slope of the trend function of the series. In the model DU_t is an indicator dummy variable for a mean shift occurring at each possible break-date (TB) while DT_t is a corresponding trend shift variable. Formally,

DU_t= 1….if t>TB and 0….otherwise

DT_t= t-TB….if t>TB; 0….otherwise

The null hypothesis in all three models is α=0, thereby implying that the series y_t contains a unit root with a drift that excludes any potential structural break, while the alternative hypothesis α<0, implying that the series is a trend-stationary process with a one-time break occurring at an unknown point in time. The break years are the years corresponding to the minimum *t*-statistics. If the *t*-statistics are higher than the critical values (in absolute values) of Zivot and Andrews (1992) , one can reject the null hypothesis of non-stationary.

The standard cointegration test may not, however, be appropriate in the presence of structural breaks. Thus, the Gregory and Hansen (1996) (GH tests) will be used. However, prior to this test the potential break that might exist needs to be identified. To capture the timing of unknown structural breaks the Quandt-Andrews breakpoint test is employed. This approach tests for one or more unknown structural breakpoints in the sample for a specified equation, where a single Chow breakpoint test is performed at every observation between two dates. From each individual Chow breakpoint test, two statistics are retained, namely, the Likelihood Ratio *F*-statistic and the Wald *F*-statistic. The Likelihood Ratio *F*-statistic is based on the comparison of the restricted and unrestricted sums of squared residuals. The Wald *F*-statistic is computed from a standard Wald test of the restriction that the coefficients on the equation parameters are the same in all sub-samples. The individual test statistics can be summarized into three different statistics, namely, the Sup or Maximum statistic, the Exp Statistic and the Ave Statistic (Andrews, 1993, Andrews and Ploberger, 1994) , as follows:

$$MaxF = \max_{\tau_1 \le \tau \le \tau_2} \left(F(\tau)\right); \quad ExpF = \ln\left(\frac{1}{k}\sum_{\tau_1}^{\tau_2} exp\left[\frac{1}{2}F(\tau)\right]\right); \quad \text{AveF} = \frac{1}{k}\sum_{\tau_1}^{\tau_2} F(\tau) \qquad (2)$$

where τ is a potential breakpoint test that should be considered for the structural break, and τ_1 and $\tau_2$are

the starting and ending time points that should be considered for the structural break. *k* is the number of breaks compared. Assigning a specific interval for the test determines the number of structural breaks that the test examines.

As mentioned earlier after determining the integration level of variables, the analysis will continue with the cointegration test, which, in this study,is the Gregory and Hansen (1996) (GH tests) in the presence of structural break. The GH test was utilized instead of the conventional approach since the conventional approach assumes that the cointegration relation is constant during the period of study. However, in the case of a sample period that is long with few economic events taking place, the results from conventional cointegration can be misleading, as such an approach neglects the potential break, which may exist during the period of study. The GH test has a null hypothesis of no cointegration and its alternative hypothesis suggests cointegration with one structural break. The cointegration between variables exists when the null hypothesis is rejected by the GH test. In this test, three models are created as follows:

Level shift: $y_t = \delta_0 + \delta_1(\phi_t) + \propto (x_t) + v_t$
Level Shift with trend: $y_t = \delta_0 + \delta_1(\phi_t) + \beta(t) + \propto (x_t) + w_t$
Regime Shift: $y_t = \delta_0 + \delta_1(\phi_t) + \propto_1 (x_t) + \propto_2 (x_t \emptyset_t) + z_t$

where the structural shift in each equation is shown by a dummy variable ϕ and defined as:

$$\phi_t = \begin{cases} 1{:}\ldots.\text{if } :t>\tau \\ 0{:}\ldots.\text{otherwise} \end{cases}$$

with τ denoting the point in the sample at which a break occurs.

RESULTS

As mentioned earlier the analysis began by examining the order of integration of variables to identify the time series characteristics of the data set. The results of the ADF and KPSS unit root test are reported in Table 2. The null hypothesis tested is that the variable under investigation has a unit root against the stationary alternative. Based on the unit root result the null hypothesis that each variable is integrated of order one*I* (1) except for personal tax revenue was maintained.

Table 2: Stationary Tests

	ADF Test		KPSS Test	
Variables	**Level**	**1st Differences**	**Level**	**1st Differences**
Company tax	-2.41	-6.54***	0.15	0.08***
Personal tax	-2.43	-10.91***	0.30	0.31
Stock market	-2.88	-5.76***	0.18	0.06***

Note: Asterisks (*) and (**) denote statistically significant at 1% and 5% significance levels, respectively.

However, since the data set used in this study covers the recession period the conventional unit root test above may produce spurious results. Therefore, the analysis proceeded with the ZA test as explained, in as much as this test is used to determine whether any possible break point in the series changes the stationary results or not. In this paper, the models of ZA are estimated over the period from 1980 to 2008. The results of unit root test together with the break-date for each series are presented in Table 2. These results suggest that the null of the unit root for company tax and personal tax can be rejected at the 1% significance level, while the result failed to reject the unit root hypothesis for stock market.

This result clearly contradicts the results obtained from the unit root test without structural break for these series. The result shows that the year 1992 emerges as the most significant break-year for company tax.

This can be associated with the introduction of tax incentives for research and development activities as well as the improvement of Bursa Malaysia trading for that particular year. With the introduction of such incentives it can help to woo the investors since the investment in these activities received incentives, which can reduce the burden in terms of paying tax. In addition the improvement of Bursa Malaysia's system also increase the company tax revenue collection, as the investors are more confident of making the investment. The break year for personal tax in 2002 resulted from the introduction of the self-assessment system (SAS) in 2001 for personal taxpayers. With the introduction of SAS the burden of assessing tax liability has shifted from the shoulders of tax assessors to the taxpayers. Thus, the taxpayers are more aware of how to comply with the tax system to avoid the penalty imposed.

Table 3: Results of Zivot and Andrews One-break Test

Variables	K	t-statistic	Break year
Company tax	4	-12.68***	1992 M01
Personal tax	4	-9.65***	2002 M01
Stock market	4	-3.91	1997 M08

Note: Asterisks (*) and (**) denote statistically significant at 1% and 5% significance levels, respectively.

For identifying this specific break Quandt Andrew Breakpoint Test were employed. As reported in Table 4, the breakpoint identified is for 1997M08 for both relationships between company tax – stock market and personal tax – stock market, respectively. This breakpoint is consistent with the 1997 Asian Financial Crisis that impacted the whole Asia.

Table 4: Quandt Andrew Breakpoint Test

	CT – SM	IT – SM
DATE	1997M08	1997M08

This data show the result for Quant Andrew Test, which is the test to identify the potential from the time series data utilized in this study.

Based on the breakpoint identified from the Quandt Andrew Breakpoint test the GH test for both relationshipsis conducted. The results are as reported in Table 5.

Table 5: Gregory Hansen Results

	CT - SM	IT – SM
	Constant	**Constant**
GH1	-4.94**	-3.26
GH2	-3.05	-3.56
GH3	-5.00**	-3.26
	Constant + trend	**Constant + trend**
GH1	-4.97**	-3.28
GH2	-3.05	-3.56
GH3	-5.04**	-3.27
	None	**None**
GH1	-4.94**	-3.26
GH2	-3.06	-3.56
GH3	-5.00**	-3.26

Note: (1) Asterisks (*) and (**) denote statistically significant at 1% and 5% significance levels, respectively. (2)Gregory Hansen Models: [GH1: break for the model with an intercept], [GH2: break for the model with a trend] and [GH3: break for the model with regime shift]. (3)The critical values are taken fromGregory and Hansen (1996) . The critical values for 1%, 5% and 10%: GH1: -5.13, -4.61, and -4.34; GH2: -5.45, -4.99, and -4.72; and GH3: -5.47, -4.95 and -4.68, respectively.

The results suggest that company tax and stock market are cointegrated in the presence of a structural break in the data. In other words the results suggest a long-run equilibrium relation. However,the results failed to identify any relationship between personal tax revenue and stock market. Therefore, there is no evidence of a long-run relationship between individual tax and economic growth. These results imply that

the performance of the stock market does not affect individual tax revenue collection in the long-run. What can be concluded from such results is that the stock market is more crucial for determining the increase in the company tax revenue collection rather than individual tax. This might be because the major contributor of the investment activities, specifically in the stock market, is coming from a corporate source.

CONCLUDING COMMENTS

This paper uses monthly data to determine endogenously the most important years when structural breaks occurred, and, simultaneously, test for the unit root hypothesis in the presence of these breaks in company tax revenue, personal tax revenue and stock market in Malaysia. To show the difference between the conventional approach, which, according to Perron(1989) , normally neglects the existence of the potential break, the ADF and KPSS unit root tests were utilized for which the results show that the series contains unit root at first difference.

Furthermore, this study utilized the test developed by Zivot and Andrews in which the results show contradictory results to the conventional approach, which has been utilized previously. The results show the potential break of 1992 and 2001 for company tax revenue and personal tax revenue, respectively. Having identified the potential breaks that exist from ZA, the unit root test and the analysis for cointegration is conducted by utilizing the Gregory Hansen approach. By employing the Gregory Hansen test this study also reveals that there exists a cointegrating relationship between company tax and stock market after allowing for structural breaks but not for the personal tax and stock market. However, of the three possible structural breaks, the one with an intercept shift and regime yields meaningful cointegrating coefficients. These results imply that there exists a long run relationship between company tax and the stock market in Malaysia. This result is consistent with Malaysia's economic situation as well as the trend of tax revenue collection in which the major contributions of the economic development come from the private sector. Therefore, the government should focus on formulating the policy, which can woo investment in the stock market as well in other financial market activities to increase the revenue collection, which can help to encourage the development of the country. In addition, even though this study failed to identify the existence of any significant relationship between personal tax revenue, the government should still put full effort in promoting investment activities among individuals to support economic development.

However, there is limitation in the analysis. The data coverage in this chapter was only from 1980 to 2008, and, hence, it would have been worthwhile if the data being examined could utilize data up to 2010. However, to date there is no official data available from the Inland Revenue Board. Thus, this study can be extended in several directions. First, a natural extension of this study would include other types of tax revenue data. Another possible extension of this study would be the analysis of the full impact of fiscal policy on the stock markets. To do that, research should include the expenditure variables in the analysis.

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