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IS MALAYSIA'S CURRENT ACCOUNT BALANCE SUSTAINABLE? EVIDENCE FROM INTER-TEMPORAL SOLVENCY MODEL

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ABSTRACT

Sustainability of Malaysian current account balance is examined in the framework of international inter-temporal solvency model over the period from 1980:q1 to 2012:q2. The paper is significantly different from previous studies in this field in two ways. First, it uses the most recent quarterly data on current account balance. Second, this is the first study of its kind that uses Lee and Strazicich (2004) unit root test with structural break, which is fundamentally different from similar unit root tests (such as Zivot and Andrews, 1992 and Perron, 1997) in the formulation of null hypothesis with structural break. According to inter-temporal solvency model sustainable current account should exhibit mean-reversion property. Using various unit root tests, including Lee and Strazicich (2004) this paper finds that Malaysian current account does not satisfy the solvency condition and hence unsustainable. Further anatomy of data (by splitting the data into pre- and post-reversal sub-periods) indicates that the results do not exhibit any significant improvement over the whole sample. Data in both sub-periods exhibit nonstationary behavior. These results call for active policy agenda at macro level to get the current account balance at a sustainable level.

Keywords: Current Account, Unit Root, Structural Break

1. INTRODUCTION

Current account balance, particularly current account deficit (CAD), is one of the widely researched areas in international macroeconomics. The focus of these research studies has been the sustainability of CAD, because it is consistent with the sustainability of external debts and it reduces the possibility to go bankrupt (Holmes, 2006). Temporary CAD is not considered to be a serious problem as it represents the reallocation of capital to countries where productivity of capital is highest. However, persistent deficit for an extended period is a more serious problem that the policy makers and academics are equally concerned about. It tends to increase domestic interest to attract foreign capital. Servicing accumulated external debt implies lower living standard of current generation (Wu *et al*, 1996; Baharumshah *et al*., 2003) and imposes excess burden on future generations (Holmes, 2006). However, there is

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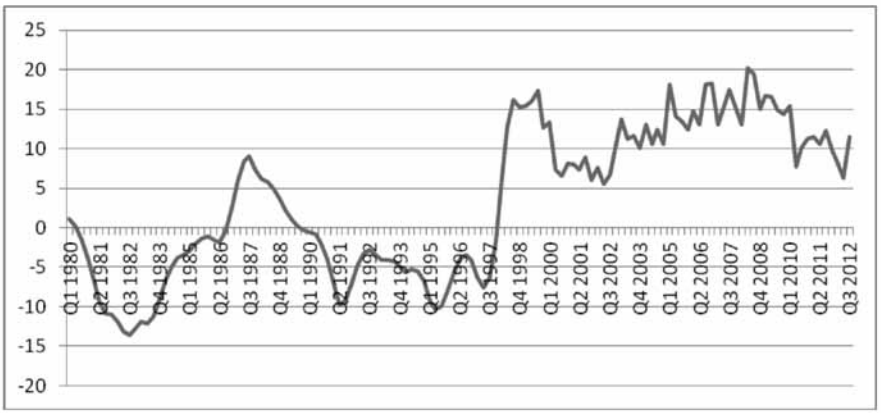
conflicting views on whether policy-makers should take corrective actions to get the CAD on a sustainable path. Some argue that government should take measures to reduce CAD to achieve sustainability, while others argue that in efficient market CAD reflects the optimal decisions of borrowers and lenders, so intervention is unwarranted (Belkar *et. al.,* 2007). Despite this argument, concerns both from academic world and policy-makers have been to reduce CAD, as markets are not always efficient and therefore do not reflect optimal decisions of lenders and borrowers.

Figure 1: Malaysia's Current Account Balance (% of GDP): 1980:q1 – 2012:q3



Source: Thomson DataStream

In this paper we study the sustainability of Malaysian current account balance. Until the Asian financial crisis in 1997, Malaysia mostly experiences deficit in its current account balance (see Figure 1). This was mainly because of its heavy reliance on foreign saving for its high domestic investment (Ismail and Baharumshah, 2008). However, after the Asian financial crisis Malaysia experiences sharp reversal in its current account balance. In q4:1997 current account balance was -1.69 percent of Gross Domestic Product (GDP), whereas this figure rises to 15.24 percent of GDP in q4:1998.[1] Since then Malaysia has been recording persistent surplus in its current account. This sharp reversal was due to the significant depreciation of ringgit, which results in falling imports and rising export (Gan and Soon, 2003; Ismail and Baharumshah, 2008). However, continuing surplus may also result from inefficient financial intermediation, leading to low investment and other distortions. From international perspective, current account surplus in one country may reduce demand and output in other countries if they are in liquidity trap and thus affect them adversely (Blanchard and Milesi-Ferretti, 2011). Thus, like CAD, although less harmful, current account surplus is also not desirable. Unlike deficits, surplus can be sustained for long time, but not for ever. In this paper an attempt is made to examine if Malaysian current account balance is sustainable in the long run.

[1] Thomson Reuter Datastream-2012.

The motivation of the paper stems from the inconclusive nature of previous research findings on the issue of Malaysian current account sustainability. A good number of studies (reviewed below) have looked into this issue empirically; however, the conclusions are not unanimous. This issue is particularly important because of Malaysia's persistent current account surplus since the financial crisis. The current account surplus is mainly recorded by the surge in commodity export, whereas its manufacturing exports remain sluggish.[2] As the commodity price has historically higher volatility than manufacturing prices (Jacks *et al,* 2009), greater reliance on commodity export may make the current account unsustainable in case of commodity shocks. Given Malaysia's present current account surplus and its dependence on commodity exports, it is of practical importance to assess the long-run sustainability of its current account balance.

The contribution of this paper is mainly twofold. First, the papers employs unit root test with structural break which has not been used before in Malaysian context. This test is fundamentally different from previous tests, such as, Zivot and Andrews (1992) and Lumsdaine-Papell (1997), in terms of null hypothesis formulation with structural break. Second, the paper uses most recent quarterly data and therefore captures the latest information contained in the movements of Malaysia's current account balance.

Rest of the paper proceeds as follows: section 2 reviews some related literature followed by an inter-temporal solvency model of current account in section 3. Section 4 describes econometric methodology followed in the paper and sources of data. Estimation results are discussed in section 5 and the paper concludes in section 6.

2. REVIEW OF RELATED LITERATURE

Malaysia's external sector has been subject to research in a number of studies. In most of them Malaysia's current account is studied with a larger set of Asian or developing countries, for example, Ghosh and Ostry (1995); Ostry (1997); Yan, (1999); Baharumshah *et al,* (2003); Lao *et al*. (2006); Kim *et al*. (2009) and Kee *et al* (2011). However, country specific studies are also there, for example, Baharumshah and Rashid (1999), Gan and Soon (2003), Choong *et al* (2004), Tang (2005) and Ismail and Baharumshah (2008). These studies examine the sustainability of Malaysia's current account either by checking the mean-reversion property of current account balance or by checking cointegration between exports and imports. Findings are diverse.

Ghosh and Ostry (1995) is possibly the first study of its kind that encompasses a large number of developing countries including Malaysia. In the framework of intertemporal approach to current account determination, they examine whether current account, under perfect capital mobility, serves as a buffer stock against shocks to output, investment and government expenditure. Statistically they examine this by testing if the variance of actual current account

[2] Malaysia Economic Monitor, April, 2012.

is significantly different from the variance of benchmark current account, which implies that the agents are able to fully smooth consumption in the face of shocks. Their estimation results show that among Asian countries, only in case of Malaysia and Sri Lanka the null of equal variances are rejected.[3] This unequal variances imply that capital mobility is either less than imperfect or speculative forces may be important in capital movements.

Ostry (1997) investigates if the current account imbalances in five ASEAN countries (namely, Indonesia, Malaysia, Philippines, Singapore and Thailand) are a problem over a period from 1960 to 1995. In doing so the author generates optimal consumption-smoothing current account time series based on a model of optimal borrowing and lending. The Wald test for the null that actual and optimal current accounts are identical is not rejected for Indonesia, Malaysia and Philippines. Correlations between these two series are also found very high (0.99 for Indonesia, Malaysia and Philippines; 0.98 for Singapore and 0.68 for Thailand). Based on these finding he concludes that widening of current account balance in these countries, particularly in Indonesia, Malaysia and Philippines, 'would not be cause of concern, as it would be fully justified on the basis of the economic fundamentals captured by the model' (Ostry, 1997: 21), implying sustainable current account balance.

Baharumshah and Rashid (1999) examine the role of Malaysia's external sector on its economic growth. They use quarterly data spanning from 1970:1 to 1994:4 and employ standard econometric methods to identify long-run and causal link between external sector and economic growth and find that export promote growth. Although this study does not directly address the sustainability of current account, the long-run cointegrating relation among export, import and growth variables provide some indication that current account deficit in Malaysia may not be a problem for the economy.

Yan (1999) investigates whether the current account deficits in East Asian countries (Indonesia, Korea, Malaysia, Philippines, Thailand, Singapore and Taiwan) were sustainable in order to predict the currency crisis these countries suffered in 1997. He examined the stationarity of current account deficits in these countries on the assumption that nonstationarity of current account is a signal of future exchange rate change. Using rolling ADF unit root test he finds that, among other countries, Malaysian current account deficit was nonstationary, signaling a possible change in exchange rate, which took place after the financial crisis.

Baharumshah *et. al.* (2003) examine current account sustainability in four ASEAN countries (Indonesia, Malaysia, Philippines, and Thailand) over 1961 – 1999 period. They use intertemporal budget constraint model to describe the behavior of current account of the sample countries. As these countries suffered serious financial crisis during 1997, structural break in economic time series are of great concern. Accordingly the authors employ cointegration test with structural break; however, they did not account for this structural break in their unit root test. The results of cointegration test indicate that except Malaysia other three countries' current accounts are on sustainable path.

[3] Data periods for Malaysia and Sri Lanka are 1970 – 1990 and 1950 – 1991 respectively sourced from International Monetary Fund (IMF)

Choong *et. al.* (2004) examines the sustainability of Malaysian current account over the period from 1959 to 2000. In the framework of intertemporal budget constraint model they examine if Malaysia's export and imports are cointegrated in the long run. Their cointegration test result indicates that exports and imports converge towards an equilibrium state and short term deviations are not sustainable. This finding is consistent with the notion of current account sustainability.

Tang (2005) conducts cointegration test between Malaysian exports and imports similar to Choong *et al* (2004) with yearly data from 1961 to 2001. However, no cointegrating relationship is found between exports and imports and Tang concludes that the differences in results are mainly due to the selection of lag length in Johansen cointegration test.

Lau *et al* (2006) examine the sustainability of current account balance in five crisis affected Asian countries, namely, Indonesia, Korea, Malaysia, Philippines and Thailand using quarterly data from 1976:1 to 2001:4. They use both univariate and panel unit root tests. According to univariate unit root tests current account in all countries are found non-stationary, while panel unit root test provides evidence in favor of stationarity implying sustainability of current account. They also provide unit root test results with structural break. According to this test, current accounts of Indonesia, Philippines and Thailand are stationary, while those of Korea and Malaysia are non-stationary, that is current accounts in Korea and Malaysia are not sustainable.

Ismail and Baharumshah (2008) address the issue of external solvency by comparing the actual path of current account balance with the optimal path over the period from 1960 to 2004. They conclude that actual path of current account balance moves closely to the estimated optimal path, which suggest that Malaysia's current account satisfy external solvency condition.

In a relatively recent paper Kalyoncu and Kaplan (2010), using yearly data from 1981 to 2008, conclude that current accounts in five ASEAN countries (namely, Indonesia, Malaysia, Philippines, Singapore and Thailand) are sustainable. They followed inter-temporal budget constraint model proposed by Husted (1992) and employed panel co-integration proposed by Pedroni (1999), Fully Modified OLS (FMOLS) and Dynamic OLS (DOLS) and find that export and import plus net transfer and net interest payments are cointegrated.

From the above review it can safely be concluded that research findings on the sustainability of Malaysian current account are diverse. Studies differ in terms of conclusion as well as econometric methods used. This inclusive nature of findings renders opportunity for further research. Present study is an effort to examine this unsettled issue of sustainability of Malaysia's current account.

3. THEORETICAL FRAMEWORK

In this paper we follow the international inter-temporal current account sustainability model of Liu and Tanner (1996). According to this approach, the net present value (NPV) of the stock

of one country's claims on the rest of the world tends to zero over an infinite horizon of time, that is,

$$\lim_{t \to \infty} \frac{f_t}{(1+r)^t} = 0 \tag{1}$$

Where f is the stock of net claims (in constant units of home currency) and r is the real world interest rate which is nominal interest rate adjusted for inflation and exchange rate change. Now in order to transform equation (1) into a testable form, first we need to specify one-period budget constraint as follows:

$$X_t - M_t + r_t f_{t-1} = f_t - f_{t-1} \tag{2}$$

Where X_t and M_t are real exports and imports of the country. For simplicity it is assumed that r_t is stationary with unconditional mean r (Husted, 1992; Liu and Tanner, 1995), where $r_t = r + v_t$, here v_t is a random error with zero mean. Since the budget constraint (2) must hold every period, we can obtain infinite horizon budget constraint by iterating (2) forward. The resulting expression is

$$(1+r) f_{t-1} = \sum_{k=0}^{\infty} \frac{(M_{t+k} - X_{t+k})}{(1+k)^k} + \lim_{k \to \infty} \frac{f_{t+k}}{(1+r)^k} + \sum_{k=0}^{\infty} \frac{v_{t+k}}{(1+r)^k} \tag{3}$$

Following Hakkio and Rush (1991) and Trehan and Walsh (1991), Liu and Tanner (1996) make additional simplifying assumption that exports and imports follow random walks with drift μ^x and μ^m respectively[4] and show that equation (3) can be written as

$$CA_t = \alpha + \lim_{k \to \infty} E\left[\frac{rf_{t+k}}{(1+r)^k}\right] + w_t \tag{4}$$

where current account $CA_t \equiv X_t + rf_{t-1} - M_t$ and $\alpha \equiv \frac{(\mu^X - \mu^m)(1+r)}{r}$ and error term w is a composite function of v_t, ε_t^X and ε_t^m. If solvency condition holds, then the expected value of present value of interest on net claim would tend to be zero as time approaches infinity, that is, second part of equation (4) will be zero. This implies that current account (CA_t) is a stationary process around a constant mean α.

[4] $X_t = \mu^X + X_{t-1} + \varepsilon_t^X$ and $M_t = \mu^m + M_{t-1} + \varepsilon_t^m$

Solvency condition can also be examined by testing cointegrating relationship among *X, M*, and *f*. However, stationary test is considered to be stronger than cointegration test, as the cointegration test imposes a vector of cointegrating coefficients of [1, -1, *r*] on the variables [*X, M, f*] (Liu and Tanner, 1996). Another advantage of stationary test is that the interest rate must be stationary for cointegration test, while it is not needed for stationary test (Trehan and Walsh, 1991). Besides, it is difficult to collect accurate data on a country's net international asset position. Accordingly in this paper we test if Malaysia's current account balance is stationary.

4. ECONOMETRIC METHODOLOGY AND DATA

Augmented Dickey-Fuller (ADF) is the widely used traditional unit root test without structural break. However, DeJong *et al*. (1992) note that it has low power against the alternative hypothesis. Elliott, Rothenberg and Stock (ERS) (1996) develop a feasible point optimal test, called DF-GLS (ERS) test, which relies on local GLS de-trending to improve the power of the unit root test. One limitation of these traditional unit root tests is that they cannot identify the structural breaks in the underlying time series data, if there are any. Therefore, the traditional unit root test results may not be valid for series having structural breaks. Zivot and Andrews (1992), and latter Lumsdaine-Papell (1997), further develop an unit root test that considers the break point as endogenous. A large number of empirical studies have allowed structural breaks in the series in question in recent years. However, one problem with the Lumsdaine-Papell (1997) test is that it assumes that there is no break under the unit root null against the alternative of structural break. Therefore, rejection of null implies rejection of unit root without break, which does not remove the possibility of unit root with structural break. The danger of this type of test with break under null is that 'researchers might incorrectly conclude that rejection of the null indicates evidence of a trend-stationary time series with breaks, when in fact the series is difference stationary with break' (Lee and Strazicich, 2003:1082). To overcome this problem Lee and Strazicich (2003 & 2004) develop a Lagrange Multiplier (LM) test that allows for breaks under both the null and alternative hypothesis. Therefore, when this LM test rejects the null it unambiguously implies a trend stationary process. This paper relies on Lee and Strazicich (2003) unit root test (henceforth LS (2003) unit root) to get unambiguous results. However, Zivot and Andrews (1992) (henceforth ZA (1992)) and Lumsdaine-Papell (1997) (henceforth LP (1997)) test results are also reported for comparison purpose. Among traditional unit root tests, ADF and DF-GLS test results are reported.

To implement Lee and Strazicich (2003) test consider the following data generating process (DGP) for current account (CA) in Malaysia:

$$CA_t = \delta' Z_t + \eta_t, \quad \eta_t = \gamma \eta_{t-1} + \varepsilon_t \tag{5}$$

where Z_t is the vector of exogenous variables. The null of unit root is given by $\gamma = 1$. Lee and Strazicich (2003) consider two models of structural change. The first one is Model A, and the second one is Model C. Model A allows two shifts in intercept under the alternative hypothesis. Model A is described by $Z_t = \left[1, t, D_{1t}, D_{2t}\right]'$, where $D_{jt} = 1$ for $t \geq T_{Bj} + 1$ and zero

otherwise, T_{Bi} is structural break date. Model C incorporates two shifts in intercept and trend. Model C is described by $Z_t = \left[1, t, D_{1t}, D_{2t}, DT_{1t}, DT_{2t}\right]'$, where $DT_{jt} = t - T_{Bj}$ for $t \geq T_{Bj}$ + 1 and 0 otherwise Applying LM principle unit root test statistics are obtained by running the following regression:

$$\Delta CA_t = \delta' \Delta Z_t + \varphi \tilde{S}_{t-1} + u_t \qquad (6)$$

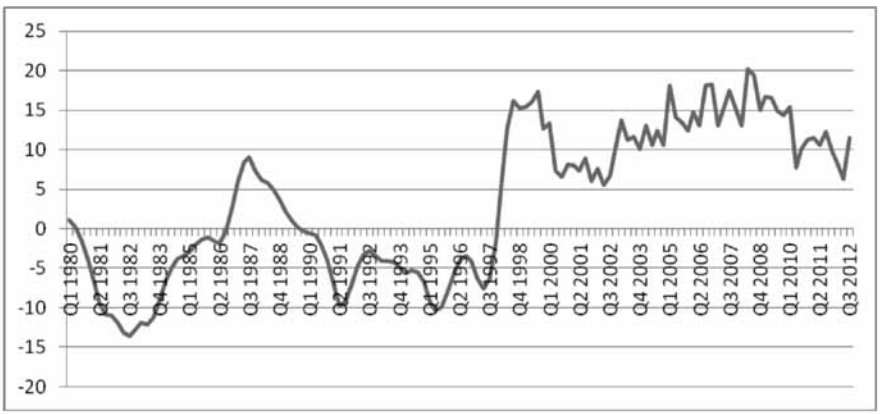
where $\tilde{S}_t = CA_t - \tilde{\psi}_X - Z_t\tilde{\delta}$; t = 2...T; $\tilde{\delta}$ are the coefficients in the regression of ΔCA_t on ΔZ_t and $\tilde{\psi}_X$ is given by $CA_1 - Z_1\tilde{\delta}$. The null of unit root is not rejected if φ in equation (6) is not significantly different from zero. Visual inspection of Malaysia's current account balance (Figure-A1 in Appendix A) indicates that there might be breaks both in level and trend. Accordingly both Model A and Model C are estimated.

Data required for this paper are collected from two sources. Quarterly data on current account balance (as a percentage of GDP) are collected from Thomson DataStream over the period 1980:q1 – 2012:q2. Yearly export and import data (as a percentage of GDP) over the period 1960 – 2010 are sourced from World Bank's online database *World Development Indicators*.

5. ANALYSIS OF EMPIRICAL RESULTS

Two major assumptions in the intertemporal solvency model described in section 3 are (1) real world interest rate is stationary and (2) exports and imports are random walk with drift. Before we proceed to examine stationarity of current account balance it is imperative to examine if these two assumptions are met. Assumption (2) can be easily verified with Malaysian export and import data; however, difficulty arises with regard to real world interest rate. There is no unique rate that can be called world rate. Besides, Trehan and Walsh (1991) note that for current account balance to be stationary, the world interest rate need not to be stationary. We,

Figure 2: Exports and imports of Malaysia (as % of GDP): 1960 - 2010



Source: World Development Indicator 2012

therefore, continue with the assumption of stationary real world interest rate and proceed to examine the second assumption.

Malaysian exports and imports (% of GDP) plotted in Figure 2 indicate that these two series exhibit the tendency to veer apart. So, they are likely to be random walk. From visual inspection it seems that data satisfy the assumptions of the model.

However, for better reliability we need to check the data with appropriate statistical methods. Accordingly we model export and imports as random walk with drift as follows $X_t = \alpha + X_{t-1} + \mu^X$ or it can be written as $X_t - X_{t-1} = \Delta X_t = \alpha + \mu^X$. Similarly, for import we can write $M_t - M_{t-1} = \Delta M_t = \alpha + \mu^m$, that is first differences of both exports and imports are stationary around a constant mean. Unit root test results of exports and imports are reported in Table-1. The results confirm that Malaysian exports and imports are random walk with drift, that is, first difference of exports and imports are stationary around a mean.

Table 1: Unit root test results of Malaysian exports and imports

Tests	Exports	Import	Critical value (1%)	Critical value (5%)
ADF test at level	-0.4449	-0.9078	-3.56	-2.92
DF-GLS test at level	-0.5854	-0.4090	-2.61	-1.94
ADF test at first difference	-5.1629	-5.6486	-3.56	-2.92
DF-GLS test at first difference	-4.4502	-5.5324	-2.61	-1.94

Once the assumptions of the model are satisfied, we proceed to test if Malaysia's current account balance is sustainable. The main focus of this analysis is on LS (2003) unit root test results with two structural breaks. Table 2 reports the results of Model A and Model C of LS unit root tests. In both cases LM statistics are below the critical values at all conventional significance levels. In Model A two breaks identified are Q4:1997 and Q3:1997, which correspond to the Asian financial crisis. These break dates are correctly identified as second half of 1997 is the transition period of Malaysia's current account balance from deficit to surplus region. In Model C both level and trend are allowed two breaks each. In both cases break dates are identical, that is, both level and trend shift at the same time. First break occurs in Q4:1986, which can be identified with the world commodity shock that affect Malaysia's macroeconomic indicators. Between 1985 and 1986 Malaysia's terms of trade index falls from 100 to 81 and due to commodity shock, export reduces significantly which causes current account deficit to fall from -1.9% of GDP in 1985 to -0.4% of GDP in 1986 (Athukorala, 2010) Table 3 provides results of some additional unit root tests with and without structural breaks. These tests, too, indicate that Malaysian current account balance contains unit root. However, the results of unit root tests with structural break(s) should be explained carefully. ZA (1992) and LP (1997) unit root tests assumes that there is no structural break(s) under the null of unit root. In the present case the null cannot be rejected at 1% and 5% significance level meaning that structural breaks are not present in the current account series. In other words, Malaysian current account is not sustainable and it does not undergo any structural break. Whereas, according to LS unit root test Malaysian current account is not sustainable and it

does undergo structural breaks in level and trend. Although the conclusions in ZA, LP and LS unit roots are same, the results of LS test is qualitatively superior in that it accommodates staructural break in its null of unit root hypothesis. Other two unit root tests in Table 3 provide similar conclusion, that is, current account is non-stationary. All these results together provide unanimous conclusion that Malaysian current account balance in not sustainable and hence does not satisfy the inter-temporal solvency condition.

Until the fourth quarter of 1997 Malaysian current account was in deficit. In first quarter of 1998 it turns into positive figure. We next examine if the current account shows any sustainability symptom after this reversal. Accordingly the whole sample is split into two sub-periods: pre-reversal (q1:1980 – q4:1997) and post-reversal (q1:1998 – q2:2012) and their stationarity properties. Results are reported in Table-4. Critical values of LS (2003) test is for a sample size of 100. As the sample sizes in pre- and post-reversal periods are less than 100, using LS (2003) will not give correct decision. We, therefore, report only LP(1997), ZA (1992), ADF and DF-GLS test results in Table-4. According to all three tests results, current account balance was unsustainable during the pre-crisis at all acceptable levels of significance. During post-reversal period ADF and DF-GLS test results show that, at high levels of significance, current account balance was sustainable, while Perron97 test result indicates that it was not sustainable during post-crisis period. However, if we consider 1% significance level then the current account balance is sustainable in any sub-period. We, therefore, do not find any strong and unanimous evidence in favor of Malaysian current account sustainability.

Table 2: Lee and Strazicich (2003) unit root test results (1980:q1 – 2012:q2)

LM Test statistics	Critical values	Break dates	Decision
		Model A: Two shifts in level	
-3.1194	-4.545 (1%)	Q4: 1997 (3.7156)	Non-stationary
	-3.842 (5%)	Q3:1997 (2.0556)	
	-3.504 (10%)		
		Model C: Simultaneous shifts in level and trend	
-4.2041	-5.823 (1%)	Level shifts: Q4:1986 (1.7056)	Non-stationary
	-5.286 (5%)	Q3:1997 (1.2236)	
	-4.989 (10%)	Trend shift: Q4:1986 (1.1756)	
		Q3:1997 (4.0284)	

Notes: Figures in the parentheses under Critical value column indicate respective significance levels and figures in the parentheses under Break date column indicate respective *t* statistics.

This finding is consistent with those of Ostry (1997), Yan (1999), Baharumshah *et al* (2003), Tang (2005), and Lau *et al* (2006). However, finding of the present paper is more reliable as it uses most recent quarterly data and employs unit root test that, unlike previous unit root test with structural break, correctly incorporate structural break both in null and alternative hypothesis.

Table 3: Additional Unit root tests results (1980:q1 – 2012:q2)

Name of test	Test statistic	Critical value (1%)	Critical value (5%)	Break-point	Decision
Zivot-Andrews	-4.250	-5.34	-4.93	Q4:1997 (level & trend)	Non-stationary
Lumsdaine-Papell	-6.356	-7.19	-6.75	Q2:1986 (level) Q3:1997 (level) Q2:1986 (trend) Q3:1997 (trend)	Non-stationary
ADF	-1.369	-3.48	-2.88	N/A	Non-stationary
DF-GLS	-2.0060	-2.58	-1.94	N/A	Non-stationary

Until Asian financial crisis in 1997 Malaysia relied heavily on foreign saving for its high gross domestic investment, which causes high current account deficit during the pre-reversal period. Private sector investment had been a key source of its economic growth. However, after current account reversal in 1998:q4, private sector investment falls significantly. Average private sector investment in Malaysia during 1990 – 1997 was 27 percent of GDP, whereas, during 2000 – 2010 this figure falls to 10.50 percent. Gross domestic saving (as a percent of GDP) also increases significantly after the crisis. During 1960 – 1997 gross domestic saving was 29 percent of GDP, which rises to 43 percent during 1998 – 2010 period.[5] Increase in saving and decrease in investment causes current account to run substantial surplus. Apparently this surplus may not be considered to be bad for the economy; however, research shows that inefficient macroeconomic state is partly responsible for this. Analyzing firm-level data, Guimaraes and Unteroberdoerster (2006) conclude that low profitability and financing constraints are responsible for low firm-level investment in Malaysia. This is particularly the case for smaller firms and service sector. At aggregate level they find that overinvestment during the pre - reversal period is the main determinant for under investment during the post-reversal period. These developments in investment and saving cause current account to run surplus after the financial crisis.

6. CONCLUSION

The objective of this paper has been to examine whether Malaysian current account balance is sustainable. In the framework international inter-temporal solvency model, this paper examines the mean-reversion property of current account balance over the period from 1980:q1 to 2012:q2. Data are examined in two steps. In the first step, the whole sample is used and in the second step the data are divided into pre- and post-reversal periods. Applying state-of-the-art econometric procedure, this paper finds that there is no strong evidence to reject the null of unit root. This implies that Malaysia's current account balance does not satisfy the inter-temporal solvency condition and hence unsustainable, which is consistent with several other previous studies. Several things can be inferred from this finding. Insolvency of current account balance implies that actual consumption-smoothing component is not consistent

[5] Figures are calculated from World Development Indicator (WDI) -2012 data.

Table 4: Unit root test results in pre- and post-reversal periods

Name of test	Test statistic	Critical value (1%)	Critical value (5%)	Break-point	Decision
			Pre-reversal period(q1:1980 – q4:1997		
Zivot-Andrews	-3.0342	-5.34	-4.93	Q2:1990 (level & trend)	Nonstationary
Lumsdaine-Pupell	-4.2318	-7.190	-6.750	Q1:1986 (level) Q1:1994 (level) Q1:1996 (trend) Q1:1994 (trend)	
ADF	-1.4874	-3.52	-2.90	N/A	Nonstationary
DF-GLS	-1.3161	-2.59	-1.94	N/A	Nonstationary
			Post-reversal period (q1:1998 – q2:2012)		
Zivot-Andrews	-3.7327	-5.34	-4.93	Q2:2010 (level & trend)	Nonstationary
Lumsdaine-Pupell	-5.5755	-7.190	-6.750	Q3:2001 (level) Q1:2008 (level) Q3:2001 (level) Q1:2008 (trend)	
ADF	-3.4554	-3.54	-2.91	N/A	Nonstationary at 1% level, stationary at 5% level
DF-GLS	-1.8927	-2.60	-1.94	N/A	Nonstationary

with the optimal consumption-smoothing component of current account. That is, agents are not able to smooth consumption in the face of external shock. For an open economy current account surplus indicates that domestic saving exceeds investment, implying underutilization of saving. Research shows that saving-led growth hypothesis worked very well in Malaysian economy before the 1997/98 financial crisis (Tang and Chua, 2012). Substantial current account surplus since 1998 indicates that domestic saving has not been instrumental in driving economic growth. Appropriate policy responses on the part of the government should be make use of excess saving productively and get the current account balance to its sustainable path.

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