

THE RELATIONSHIP BETWEEN THE CURRENT ACCOUNT BALANCE AND ITS DETERMINANTS OF SELECTED MIDDLE-INCOME COUNTRIES

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Abstract. The IMF's external sector report 2018 indicate that global current account balances are 40-50% are now excessive rather than appropriate. The fact that persistent excess imbalances are pose risk to global economy stability and putting a pressure on international trade relations. Therefore, individual economies around the globe are trying harder to fit into the global challenges which associated with risks and require policies adjustment to reduce the excess imbalances. The objective of this study is to analyse the role of debt management indicator towards the current account balance. Panel data of 13 countries is used from 1990 to 2015 for estimation which involved the Pooled Mean Group (PMG) estimator to estimate the long run relationships between debt management and current account balance. The study found evidence of long run relationships between GDP per capita growth, fiscal balance, net foreign asset, debt management, trade openness and current account balance. The variable of debt management indicator has a weak link to current account balance or debt sustainability. This study suggests several policies implications to policy makers. To strengthen the external sector position, the development of domestic debt market through fiscal and monetary policy is vital as a pragmatic step to reduce dependency on external borrowing. In addition, debt management strategies play a significant role even though relatively small in strengthening current account balance position.

Keywords: *current account balance, middle-income countries, determinants, long run relationship*

Introduction

In general, developing countries can be classified into two: those with persistent current account surpluses or persistent medium or high debt service ratio and those with persistent current account deficits and persistent medium or high debt service ratio. In fact, eleven of the thirteen developing economies experienced persistent large current account deficits with high or medium debt service ratio, while two economies recorded surpluses in their current account and high or medium debt service ratio from 2000 to 2015. From the data, the selected developing countries portray that for those countries running a medium debt service ratio was mostly prior to global financial crisis, for example country like Malaysia and South Africa. However, the data trends show that there has been a high debt service ratio in the aftermath of the global financial crisis in 2009. The data reveals that most of the middle income countries experienced current account deficit with high or medium debt service ratio.

Data reveals that from 1990 until 2000, the external debt burden was greater than government revenue for countries like Nicaragua, Jamaica, Morocco, Turkey, Bulgaria, Romania, Kazakhstan, Malaysia and Indonesia. Meanwhile, surprisingly, the number consistently indicates all selected countries have external debt burden greater than

government revenue from year 2001 until 2015. On average, these middle-income economies demonstrated persistent external debt burden of 57% as ratio to GNI in 2000, reaching a peak of 67% of GNI in 2010 and increasing to 71% of GNI in 2015. Specifically, Latin America and the Caribbean (LAC) countries such as Nicaragua, Jamaica and Dominica exhibited persistent increases in their external debt holding. During the same period, similar conditions are evidenced in Europe and Central Asia (EACA) like Belarus, Bulgaria, Romania, Turkey, Ukraine and Kazakhstan and also the Middle East and North Africa (MENA) region, such as Morocco with consistent external debt accumulation from 2010 to 2015.

The important of current account balance because it is indirectly related to current account deficit (CAD) and one of the popular researched areas in international macroeconomics. The issues of this research are on the sustainability of current account balance. The sustainability will reduce the possibility of debt servicing difficulties. In a case of temporary current account deficit, it is not considered as serious problem particularly if the productivity level of capital is high for a country. However, a persistent deficit in current account for an extended period is become a serious problem that the policy maker must concerned about. Unfortunately, the records show that most of the middle income countries experienced current account deficit (CAD) with high or medium debt service ratio. In this paper an attempt is made to examine if debt management indicator plays a significant role in the long run adjustment process of current account balance. The motivation of the paper emerges from the inconclusive of previous research findings. A number of studies have looked into this issue empirically, however there are still space for improvement.

This paper is organized into several sections. Section two discusses the theoretical background and literature review, while section three is focused on research methodology. Section four explains the empirical results of the model estimation, and the final section is the conclusion and future recommendations.

Theoretical background

The theory of optimal debt management stated that debt management primarily a tool for macroeconomic stabilisation, supporting monetary policy, strengthening domestic financial markets as well as minimising borrowing costs and risks (Wolswijk and De Haan, 2005). Thus, in any economic situation, debt management should help to stabilize the debt at manageable level and hence reduces the probability of a debt crisis. In addition, there are two ways to stabilize the economy, by minimising the borrowing cost and minimising the risk. The costs and risk are referred to increase in debt service due to unexpected changes in interest rates and the volatility of the exchange rate. Therefore, cost benefit assessment between financial risk and cost of debt service is the essential factor for the choice of debt instruments. Further, Leong (1999) investigated debt management and highlighted the importance of minimising costs and minimising risk. As such, minimising costs and risk through prudent debt management strategy is essential to achieve the benefit of external financing without creating any macroeconomic problems and achieving stability in balance of payments (BOP).

Bulut (2011), persistent high current account deficits increase the effective interest rate for countries. Therefore, heavily indebted countries in the eyes of the world are cost ineffective due to low credit rating. These countries facing a consistent current account deficit due to high costs associated with accumulated debt to finance the deficits.

To preserve fiscal solvency, the key concern is on an optimal taxation mechanism. Barro's (1999) concluded that the debt levels are permitted to vary over time to allow smooth tax rates, thus the welfare of the citizens is improving as tax rate changes because changes in tax rates can create economic distortion. Melecky (2012) discovered that good public debt management is formulated over the medium term that can support countries to reduce their borrowing cost and develop domestic capital markets. Nevertheless, to achieve the strategic target there will be financial risks, especially in countries with limited sources of financing (Anderson et al., 2010).

The significant adjustment or impact are observed on each of macroeconomics dimensions such as fiscal, growth, monetary and external accounts due to the debt management practices and reflected by the changes in macroeconomic scenarios (Anderson et al., 2010). The author discovered that debt management practices could create significant changes in macroeconomic performance.

There are several indicators and these indicators in the form of ratios are used in assessing external debt management practices. The indicators used to measure debt management practices among them are debt to GDP ratio, short term debt to total debt, and foreign debt to exports ratio. In that regards, all countries irrespective of level of income and level of indebtedness are striving to cut debt burden to lower than the critical threshold by executing debt management strategies. For example, the prudent debt management policies pursued in India have resulted in the improvement of debt sustainability indicators. Singh (2011) found that India, has decided to pursue debt management strategies based on several factors. This including focusing more on concessional loan, less expensive funding sources, preference on longer maturity profiles, monitoring short term debt and selective of the type of capital inflows. All of these debt strategies are bringing positive impact on India economy's.

Ohwofasa et al. (2012) found that external debt management using proxy external debt, debt service payment, balance of payments and foreign direct investment have had little impact on the Nigerian economy. Therefore, governments are recommended when engaging international creditors, governments should also try to encourage greater investment and trade opportunities. This is due to the negative impact of high debt service and debt stock on economic performance. Apart from that, the strategies to allocate foreign earnings for debt servicing are essential. Government must take precaution when taking a new loan and be very selective on projects undertaken, based on the solid economic reasons.

Melecky (2012) stated that the formulation of a well-designed public debt management strategy is important for a country to reduce their borrowing cost, develop their domestic debt markets, although even this action plan can contain financial risks. This study evaluates the role of public debt management strategies in strengthening current account balance position in developing economies. Therefore, it assesses the execution of public debt management strategies via institutional arrangements as an effort to lower borrowing costs and for debt sustainability.

A study of fourteen Asia Pacific developing countries, indicates fiscal deficit, current account deficit and decrease in exchange rate value have significant positive relationships with external public debt levels. However, the sign of the relationship differed between the dichotomy of two groups, high debt burden countries and lower debt burden countries. Alam and Taib (2013) suggested that the twin deficit hypothesis and decreased value of the exchange rate affected the external public debt level in the countries. A higher coefficient of the current account deficit suggested that external

funding was not purposely used towards adjustment in the current account in non-debt trap countries (NDTC). A lower coefficient of the current account deficit indicates diversion of borrowed funds towards adjustment in the current account in case of debt trap countries (DTC). This demonstrate that a prudent public debt management is present in non-debt trap countries (NDTC) as compared to debt trap countries (DTC). Therefore, clearly the debt management strategies are related to the surplus in the current account balance. The current account deficits in the long run may be unavoidable particularly to respond to external shocks which are of great concern. Therefore, the current account sustainability is crucial with the support from debt management policy in maintaining creditworthiness and confidence of other countries or creditors concerning the ability to finance debt in the future without rescheduling debt repayments (Hui, 2015).

As an overview, in an open economy, the appearance of external resources in a form of external debt is cause initiated by a fiscal deficit in the government budget. Emergence of a fiscal deficit usually leads to borrowing. In addition, deficit in current account and currency depreciation have important linkages with foreign public debt (Alam and Taib, 2013). The global crisis that consist of financial crisis, economic and debt crises led to instabilities in macroeconomics fundamentals and subsequently have an impact on output growth. The burden in country's budget deficit is financed through external public debt to supplement domestic investment for capital formation. Furthermore, the vulnerability in the global economic landscape caused the extensive disturbances in international trade and capital inflows, which led to imbalances in the current account. A fluctuation in aggregate output will ultimately influence the long-term economic development.

Regarding long term economic development, this research addresses the crucial aspect of the current account balance particularly for highly indebted countries developing economies. This research attempts to investigate the importance of external debt management on the current account position for indebted countries. The important of debt management strategies is examined through testing a dynamic impact of debt management indicators to current account balance in panel model.

Empirical literature review

The literature on the determinants of current account balances perceived that fiscal balance is one of the key determinants of current account balance. For example, Chinn and Prasad (2003), Lane and Milesi-Ferretti (2012) and Brissimis et al. (2013). This study tries to find point a strong association between debt management and current account balances.

Chinn and Prasad (2003) studied medium term macroeconomics determinants of the current account focusing on 18 developed and 71 developing countries. This study involved a yearly data covering from 1971 to 1995. Cross sectional analysis and panel regression was applied to capture the variation in the current account across different countries. The main findings indicated the existence of a positive link between budget balance and current account balances. Furthermore, the findings showed a strong evidence of the fiscal balance effect on current account balances in the developing economies but no evidence for developed countries.

Lane and Milesi-Ferretti (2012) studied current account behaviour after controlling for the impact of financial crisis in developed countries and emerging economies. The key results revealed evidence of twin deficit for developed and emerging economies.

Brissimis et al. (2013) focused on Europe over the period of 1980 to 2008 using panel estimation approach namely fixed effects method, Seemingly Unrelated Regression, and Fully Modified OLS to explore the drivers of current account imbalances. The empirical results indicated that current account imbalances are explained by similar fundamental determinants across the three different panel estimation methods.

Semmler and Tahri, (2017) assessed the external debt burden covering Italy, Spain and Germany. This study introduced a new measurement for sustainability, by using debt to asset ratio as an alternative to the common measurement of external debt to GDP. The empirical findings proved that the less developed economies became embroiled in the debt crisis, while the developed countries moved into a more stable environment. Since the Euro area is integrated, the less developed countries may also be affected in the long run.

The relationship between current account balances and debt management is debatable. The focuses on the sustainability aspect and policies to manage a country's excessive debts and ability to service the external debt obligation. Trade balance is a major component of the current account balance, thus the dependent on foreign trade. Furthermore, foreign trade as important sources for foreign currency to repayment of external debt obligation.

In general, there are several factors that may be causes for current account imbalances. Current account imbalances are part of a convergence process and naturally appear in a market economy as the consequences of macroeconomics behaviour or highlight different degrees of risk. The impact of debt management on the relationship between the fiscal deficit and the current account balance is not clear. Most recent research suggested that for less developed economies (peripheral economies) an increase in the current account imbalances are caused by unexpected flows in national demand, financial crisis and by price competitiveness (Sanchez and Varoudakis, 2013; Comunale and Hessel, 2014). Apart from that, current account imbalances emerged from changes in the fundamental factors such as employment, production and trade structures. Most peripheral countries including middle and low-income countries, use lower technology in production and usually focus on non-tradeable production (Storm and Naastepad, 2015). In highly indebted developing countries, there exist relationship between debt management, fiscal balance and current account adjustment process. Deficit imbalances require time for readjustments to take place. Faster recovery in growth or income inflows is important, because slow and sluggish growth may reflect a problem. From the market perspective, the size of the deficit in current account balances represent certain risks in the short term. This has implication on income, asset and growth. Thus, the role of debt management deserves to be taken into consideration to strengthen the current account balance.

Materials and Methods

Data and variables

This study uses a panel data analysis to examine the relationship between current account balance and its determinant in selected middle-income countries. This study utilizes annual data covering the period of 1990-2015. The reason for using annual data is due to the difficulty in obtaining higher frequency data such as monthly or quarterly data. In addition, throughout the 25 years period from 1990 until 2015, developing countries in five regions (Asia, Africa, Latin America, Europe, Middle East) have

undoubtedly experienced a unique historical series of growth and crises in their economic development. Therefore, it is apparent that annual observation will be able to allow a maximum variation in the data captured.

The data consists of seven economic variables, including current account balance, budget balance, short term debt to international reserves, external debt to GDP ratio, net foreign asset to GDP, trade openness relative to GDP, and economic growth. The hypotheses to test whether debt management indicator statistically significant and have long run relationship with current account balance including other independent economic determinants.

Model specification

The following equation is a log-linear form to model the determinants of current account balance in selected developing economies:

$$\ln CAB_{it} = \alpha_{0it} + \theta_1 \ln CAB_{it-1} + \beta_1 \ln BUDGET_{it-1} + \beta_2 \ln GDPC_{it-1} + \beta_3 \ln NFA_{GDP_{it-1}} + \beta_4 \ln STRES_{it-1} + \beta_5 \ln EXGDP_{it-1} + \beta_6 \ln TOP_{it-1} + \mu_{it}$$

(Equation 1)

In this equation 1, cross sectional units are denoted by subscript i ($i = 1, 2, \dots, N$) i.e. the different countries, and t ($t = 1, 2, \dots, T$) refers to a given time period, and $\beta = 1, 2, \dots$, refers to the parameters to be estimated for each of the predictor variable. $\ln =$ Natural logarithm, $t-1 =$ lag value, $\mu =$ time series residuals. Consequently, CAB_{it-1} represents the current account balance in the i country at time t . The value of the response variable in this study, where the current account balance of the country i is conveyed in the natural log of the current account balance and μ_{it} is random error term for country i and time t , referring to country respectively. $\ln =$ Natural logarithm, $t-1 =$ lag value, $\mu =$ time series residuals. Consequently, CAB_{it-1} represents the current account balance in the i country at time t . The macroeconomics determinants are the predictor variables, in which consisting of fiscal balance (BUDGET), the net foreign asset relative to GDP (NFA_{GDP}), GDP per capita growth (GDPC), trade openness (TOP), short term debt to international reserves (STRES), total external debt to GDP ratio (EXGDP), both as a proxy for debt management indicators. This research focuses on debt management indicators STRES and EXGDP. Most of the independent variables are expressed as weighted GDP averages such as fiscal balance, external debt, net foreign asset. This is to capture the local effect rather than the global effect. The error term μ_{it} have zero mean and a constant variance. Meanwhile, the coefficient of β_{it} is unknown and usually may vary between countries and time period.

Model estimator

The combination of both cross sectional and time series data led to more observations in panel data analysis. For this reason, panel data analysis can be considered to be a combination of the best features of the two worlds, i.e. time series and cross section to enhance the power of the estimation by allowing a greater degree of freedom and better efficiency (Gujarati, 2003; Lee and Wang, 2015). Additionally, panel data analysis has been proven to be able to produce unbiased estimates and efficient results (Hsiao et al., 1995).

Many economics variables are dynamic by nature and the major advantages of panel data is the ability to capture the individual dynamics in the model. The dynamic relationship can be explained by two sources, First, a form of persistence over time or state dependence, namely autocorrelation which reflects the presence of a lagged dependent variable among the regressors. Secondly, heterogeneity bias among the individual economy which captures for individual effects. The solution for the heterogeneity is through fresh methodology of PMG and MG estimation introduced by Pesaran et al. (1999) as well as Pesaran and Smith (1995).

Generally, PMG is assumed to offer the best approach due to the conciliation of consistency and efficiency. In reality, the global shock and peculiar news affects different countries at a different degree due to short term dynamics. On the other hand, one can expect that in the long term, referring to long run coefficients, are principally driven by a similar process across countries. As emphasised by Kim et al. (2010), the advantage of the PMG estimator over other dynamic panel econometric techniques is that it allows short run coefficients, speed of adjustments and error variances to vary across countries, yet allows for cross country homogeneity restriction solely on long run parameters.

Additionally, since the panel error correction is dynamic, there are two different estimators which are suitable when both T and N are large. Two important new techniques to estimate nonstationary dynamic panels in which the parameters are heterogeneous across groups are Mean Group (MG) and Pooled Mean Group (PMG) estimators. Pesaran et al. (1999) pointed out that for a larger T (time period), the traditional procedures for pooled models, such as fixed effects, instrumental variables (IV) and generalised method of moments (GMM) which have been proposed inter alia by Arellano and Bover (1995), Ahn and Schmidt (1995) and Keane and Runkle (1992) can produce inconsistent and potentially very misleading estimates of the average values of the parameters in a dynamic panel data model unless the slope coefficients are identical.

Reed and Ye (2011) expressed in their study that the right choice of which estimator to employ is an important procedure due to its substantial impact on the research findings. The advantages of having long time series data leads to the application of recent techniques based on Autoregressive Distributed Lags (ARDL) specification, which are consistent to correct the heterogeneity bias of traditional panel data estimation (Njoupouognigni and Ndambendia, 2010). Thus, the estimation methodology of this study is extended to the heterogeneous dynamic panel data estimators to generate more accurate, efficient and consistent results. With regards to this matter, this study will adopt several alternative dynamic panel data, which are the Mean Group (MG), and the Pooled Mean Group (PMG).

Among the proposed methods for heterogenous dynamic panels in the literature to analyse typically both T, the number of time series observations, and N, the number of groups are quite large or have the same order of magnitude, the Mean group (MG) estimator was introduced by Pesaran and Smith (1995). As compared to mean group estimator, the Pooled Mean Group (PMG) estimator is an intermediate approach which combines both pooling and averaging. Different to the MG estimator, this approach also constrains the long run coefficient to be homogeneous across individual countries and similar to the dynamic fixed effect (DFE) estimator. On the other hand, there are some similarities between the PMG and the MG estimator, because it allows the intercept, short run coefficients and error variances to differ. PMG restricts the long run slope

coefficient to be the same across countries but allows the short run coefficients including the speed of adjustment and the regression intercept to be country specific. Other similarities between MG and PMG are the consistent estimation of the mean of short run coefficients across countries by taking the simple average of individual country coefficients. Pooled Mean Group (PMG) estimator was introduced by Pesaran et al., (1999). As stated by Pesaran et al. (1999) this estimator allows the intercepts, short run coefficients and error variance to vary across countries, yet limiting the long run coefficients to be the same.

After estimating the MG and PMG models, the Hausman test of homogeneity of long run coefficients was conducted to ascertain the preferred model. This PMG estimator is expected to be meaningful when there are substantial justifications to expect that the long run relationship between variables is homogeneous, because they is a high possibility of their similar nature in terms of economic growth, level of income, level of indebtedness, financial development and market size. However, it is considered a country specific heterogeneity with respect to the effect of local policy, laws and regulations. PMG offers more appropriate estimates compared to the other two estimators under the assumption of long run homogeneity.

Results and Discussion

Results of unit root tests

Prior to the analysis discussion, it is a well-known prerequisite to determine the order of integration of the variables or unit roots properties in the sample under study. Based on IPS results, the panel variables for lnNFAGDP, lnEXGDP and lnTOP failed to reject the null hypothesis that variables is non-stationary at 5% level of significance. In this panel data framework, three types of tests were used. This test is based on Levin et al. (2002) (LLC) with the assumption the persistence parameters are common across countries. The alternative assumption is that permits a freely varying across units is in the case of ADF and PP tests proposed by Maddala and Wu (1999) and Choi (2001) and IPS test proposed by Im et al. (2003). The three of tests tested the null hypothesis of each of the series non-stationary against the alternative hypothesis of at least one of the series in panel stationary.

Table 1 shows results of the LLC, IPS and Fisher ADF tests. Based on tests results which affirmed that most variables across the developing economies are stationary at level form except lnNFAGDP and lnEXGDP in the case of IPS test. However, all of them are stationary after the first difference for the three tests. Thus, these results suggest existence of mix order of integration among the variables that allows to use panel error correction based on ARDL model.

Table 1. Panel unit root tests.

	Levin, Lin and Chu (LCC)		Im, Pesaran and Shin (IPS)		Fisher ADF	
	Level	First difference	Level	First difference	Level	First difference
Without trend						
lnCAB	-3.16***	-16.37***	-3.58***	-16.24***	56.14***	227.28***
lnGROWTH	-6.53***	-16.61***	-7.69***	-19.34***	109.48***	276.83***
lnBUDGET	-2.45***	-9.93***	-4.87***	-11.57***	73.95***	161.92***
lnSTRES	-2.23***	-13.64***	-2.03**	-14.01***	39.85**	198.31***

lnNFAGDP	-1.79**	-6.87***	-0.31	-8.73***	51.94***	126.91***
lnEXGDP	-5.85**	-10.03***	-2.82	-10.80***	55.04**	150.82***
lnTOP	-2.16**	-16.52***	-1.56	-14.98***	39.70**	211.36***
		First		First		First
With trend	Level	difference	Level	difference	Level	difference
lnCAB	-1.25	-11.50***	-2.48***	-13.27***	60.09***	173.06***
lnGROWTH	-6.81***	-15.32***	-5.49***	-16.22***	76.91***	219.30***
lnBUDGET	0.62	-6.02***	-2.03**	-9.82***	38.77**	128.40***
lnSTRES	-1.68**	-11.53***	-1.31	-13.69***	35.26	172.62***
lnNFAGDP	-2.28***	-6.02***	-1.20	-8.45***	54.84***	114.00***
lnEXGDP	-1.91**	-8.04***	-1.02	-9.32***	41.87**	120.06***
lnTOP	-2.16***	-13.93***	-1.56***	-12.96***	39.70**	171.33***

Note: The asterisks ** and *** indicate statistical significant at the 5% and 1% levels, respectively.

Results of panel ARDL approach

As it is well known that prior to estimate the MG, PMG and DFE estimation methods, the lag length of the ARDL models estimation is determined by some consistent information criterion. Thus, the lag length in the dynamic specification was chosen using the unrestricted model based on Schwarz Information Criterion (SC). The lag length selection criteria suggest that the ARDL of (1,2,2,2,2,2) is the most adequate for all countries. Based on the Schwartz information criteria this study imposed the following lag structure ARDL of (1,2,2,2,2,2) for the current account balance, GDP per capita, budget balance, short term debt to reserves ratio, net foreign asset to GDP ratio and trade openness.

Table 2 illustrates the PMG, MG and DFE estimators. The Hausman tests are run with the null hypothesis of no systematic differences between the coefficient of the PMG and MG. The null hypothesis for the Hausman test statistics is that there is long run homogeneity restriction tested against the alternative hypothesis. The corresponding p-values of the coefficients that the Hausman test failed to reject the long run homogeneity restriction, at the levels of significance. Thus, this result supports the appropriateness of the PMG estimates. The p-values is significant and thus the PMG estimation is recommended. In other words, this is to confirm that the panel is heterogeneous in the short run and homogeneous in the long run.

Table 2. Results of MG, PMG and DFE Estimation (Dependent variable: lnCAB).

	PMG		MG		DFE	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
Panel A: Long-run coefficients						
lnGROWTH	-0.155**	0.0762	2.632	3.955	-0.528***	0.203
lnBUDGET	-0.456***	0.051	-0.778	1.306	-0.2144	0.237
lnSTRES	0.099**	0.044	-11.892	9.876	0.3475	0.305
lnNFAGDP	1.036***	0.107	6.797	4.703	0.0543	0.158
lnEXGDP	-0.2904	0.210	-4.524	4.592	0.2373	0.584
lnTOP	-2.815***	0.307	22.627*	13.419	3.083	1.473
Hausman test	PMG/MG	Chi ² =0.33	Prob>Chi ²	=0.9993	(PMG > efficient)	
Error correction coefficients	-0.387***	0.142	-0.639***	0.234	-0.355***	0.118
Panel B: Short-run coefficients						
ΔlnGROWTH	-0.0543	0.093	-0.399	0.320	-0.0299	0.033

lnBUDGET	0.102*	0.061	-0.402	0.305	0.0180	0.053
ΔlnSTRES	0.0710	0.293	-0.417	0.671	0.0526	0.149
ΔlnNFAGDP	-0.2523	0.400	-1.888	1.351	0.0681	0.057
ΔlnEXGDP	0.2863	0.636	-0.357	1.409	0.4830	0.495
ΔlnTOP	-2.438*	1.329	5.263***	2.051	-0.0156	0.501
Constant	6.242	2.303	-18.1946	18.454	-5.8392	2.359
Observations	292		292		292	
No. Countries	13		13		13	

*Note: ***, **, * denote the significance level at 1 percent, 5 percent and 10 percent respectively. Estimators: PMG, MG and DFE are all controlling for country effect and time effects. Chi2 means chi-square, (Coef) is coefficient for the error term, (S.E) is the standard errors of their means and the short run and long run coefficients are averages of individual country coefficients. Dynamic specification: ARDL (1,2,2,2,2,2) and the order of variables is: current account balance, growth rate, budget balance, short term debt to reserves ratio, net foreign asset to GDP ratio, external debt to GDP ratio and trade openness. Source: Author's estimations.*

In order to confirm that there is the existence of a long run relationship among variables in the panel ARDL model, one of the conditions is that the coefficient of the error correction term has to be negative with the value not exceed than -2.0. In the output results, the Mean Group (MG) estimation results as shown in *Table 2* provide another long run relationship in heterogeneous countries. The error correction coefficient estimated is significantly negative as expected. Final estimation of PMG in *Table 2* denotes the p-value of the error correction term is significant at 1% level. The analysis of this study focuses on those obtained with PMG estimates; however this study also presented the MG and DFE estimates for comparison purposes.

Long run coefficients

In the long run, the PMG estimators produce better results and significant results at the 1% level of significance. lnGROWTH, lnBUDGET, lnSTRES, lnNFAGDP and lnTOP are statistically significant at the 1% level significance. The results marked that the positive relation between lnSTRES and lnCAB. In other words, short term debt to reserve ratio is positively and significantly linked to the current account position in the long run.

lnGROWTH, lnBUDGET, and lnTOP are negatively related to lnCAB. However, lnSTRES and lnNFAGDP are positively related to lnCAB and surprisingly, lnEXGDP records no impact on lnCAB by being insignificant. It is noticeable that lnTOP very importance because it has the greatest impact on lnCAB by having the largest coefficient of 2.81. There are several possible explanations for this result, first, openness to international trade is reflect the policy choices of one country and also may be correlated with the competitiveness attributes that make a country attractive to foreign capital. Secondly, usually the more open economies meaning that having capability to generate foreign exchange earnings through export which will improves the current account balance. Thus, it is might be a good signal of a better ability to service external debt. (Chinn and Prasad, 2003).

The second important explanatory variables are lnNFAGDP and followed by lnBUDGET. These results provide further support for the hypothesis that the expansion of the economy via previous external borrowing to accommodate domestic development needs thus create positive relationship between NFAGDP and current account balance.

For the budget balance, it may be that this finding benefitted from Ricardian Equivalence which expected a negative sign whereby a higher fiscal deficit induces higher saving among the rational household and ultimately improves current account balance (declines in the current account deficit).

It is obvious that the contribution of $\ln\text{STRES}$ as a proxy for debt management indicator is observed to be of a less degree of importance as compare with another macroeconomics factor. $\ln\text{STRES}$ has a positive value for its coefficients, being 0.09. An increase of 10% in $\ln\text{STRES}$, holding other variables constant will cause $\ln\text{CAB}$ to rise by 0.9%. It is therefore that such connections exist between short term debt stock by the stock of international reserves and the current account balance. It could be also argued that this positive relationship due to the combination of reserve accumulation, debt management and financial restrictions may improve the current account balance as part of the export led growth strategy in most developing economies. This is in accordance with Bayoumi and Saborowski (2012); Gagnon (2012) that observed the same findings.

However, the coefficient $\ln\text{EXGDP}$ shows insignificant result, means that it is not important on current account balance especially in the high public debt countries. This means that any changes in the external debt as a ratio to GDP as a proxy for debt management may not lead to the changes in the current account deficit. Thus, it happens to be insignificant for the selected middle-income developing economies.

A 1% change in $\ln\text{TOP}$ as a proxy for trade openness will result to 2.81% change in $\ln\text{CAB}$. A 1% rise in $\ln\text{NFAGDP}$ will lead to a decrease at about 1.03% in $\ln\text{CAB}$ in the long run. There is a negative association between $\ln\text{BUDGET}$ and current account balance. A 1% increase or decrease in budget balance will affect to a decrease or increase at 0.45% in $\ln\text{CAB}$ in the long run. Apparently, the linkage is positive in the short run to the negative linkage in the long run, which ascertain that the effect of budget balance (deficit or surplus) is initially effective and significant in short period, while ultimately with time this results changes into a negative budget-current account nexus.

The central point of this study is analyzing and evaluate the relationship between debt management indicator and current account balance (proxy for debt management sustainability) ($\ln\text{CAB}$). Indeed, a positive significant relationship indicate a 10% change in $\ln\text{STRES}$ will lead to a positive impact on current account balance by 0.9%, which holding other variables constant. From the positive association in the long run to the positive association in the short run, eventhough the impact is insignificant in the short run, it shows that initially with overtime it will lead to a positive impact on current account balance. This result is supported by Muhanji and Ojah (2011) who pointed out that to ensure external debt management sustainability, the initial action is to provide concrete measures of debt management that possible to adopt from the best practices of relevant macroeconomic management of each regions in the emerging economies.

Hence, it is important to manage the short-term debt to reserves ratio. This indicator as a new benchmark of reserves to capture the changing profile of capital inflows such as changes in the flows of short-term debt, portfolio investment and other mobile capital. It also measures the short term debt stock on a remaining maturity basis to the stock of international reserves available to the monetary authorities. It is also essential to achieve the positive impact in the current account and exchange rate adjustments because to balance the macroeconomics account, are magnified in a country. The results

obtained from PMG estimators concerning the importance of debt management in influencing current account balance are in line with Muhanji and Ojah (2011).

Short run coefficients

For the short run coefficients, PMG estimates namely lnSTRES and lnEXGDP proved to be statistically insignificant. This means that there is no short run impact of debt management indicators on current account. However, this result is unlike results from previous works by Chin and Prasad (2003); Nickel and Vansteenkiste (2008) who investigated the determinants related to current account balance.

Conclusion

The aims of this study were to examine the interaction of debt management on current account balance using a panel of thirteen developing economies over a 25 year period. The unit root test was conducted which resulted mix order of integration. The unit root resulted the variables are stationary at levels and at first differences While, the Panel ARDL has revealed that there is cointegration relationship among variables. The short run estimations test found that the debt management indicators has undesirable effects on current account balance. Meanwhile, the long run estimations found that debt management have positive relationship and significantly linked to the current account balance position.

Therefore, these findings proved that debt management indicators support the debt sustainability position via strengthening current account balance. These results are important to formulate debt management strategies on current account balance or debt sustainability. This is due to the belief that foreign exchange earnings are part of the current account balance, which is highly related to external debt servicing capacity and creditworthiness. It is necessary to offer a basis to managing debt and promoting long run economic growth. Surplus in the current account balance is important, to avoid twin deficit phenomenon in a country. This is because the twin deficit has impacts on creditworthiness in the long run.

The findings also suggest that debt management indicator (short term debt to reserve ratio) have a positive long run impact on current account balance for thirteen middle income economies. The positive coefficient of long run elasticity to current account balance implies that these governments should pursue prudent debt management strategies. Therefore, understanding this effect is vital because it can control market risks particularly the fiscal position in an economy. This policy can be used to control demand for short term debts to exploit a low short-term interest rates. Prudent management of government debt and assets can contribute to limiting future risks of fiscal deficits positions.

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