What Drives Current Account Balance in West Africa States: Evidence from Panel ARDL

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Abstract: This paper examines the determinant of current account balance (CAB) within the panel Autoregressive distributed lag (ARDL) model framework for West African countries. Both the Pooled Mean Group (PMG) and Dynamic Fixed-Effect (DFE) , as informed by the Hausman test were estimated. The results indicate that in the long-run, GDP per capital, INV, M2 and DER in PMG model positively impact CAB while the real effective exchange rate (REER) has a negative and statistically significant long term effect on CAB. The results of DFE model suggest that an increase in GDPPC and M2 increases CAB in the long run while in the short run, investment (INV) exert positive impact on CAB in the two models. An increase in REER has a significant negative impact on CAB. The present of a long-run relationship between the current account balance (CAB) and its determinants implies the effectiveness of targeting one of the variables in influencing the long run behavior of other variables by policy makers.

Keywords: Current Account, Pooled Mean Group, Dynamic Fixed-Effect, Hausman test, long run relationship.

JEL Classification: C52, F32, F41

1. Introduction and Research Issues

Macroeconomic crises in developing countries have underscored the need to clearly identify factors determining a country's current account balance (CAB). A country's current account allows us to see a clear picture of the current extent of a country's industries, services and capital market activities. It also reveals the inter-temporal decisions of domestic and foreign residents with respect to saving, investment, the fiscal position, and demographic factors. A striking feature of the CAB in West African[1] region is the recurrent deficits of many countries in the region. These Prolonged deficits in most of the countries have become unsustainable, crowd out domestic saving or lead to economic instability. (Opoku-Afari, 2005; Osakwe and Verik, 2009).

A variety of factors has been advanced in explaining these imbalances. With respect to the 1980s and 1990s where large increases in the current account imbalances were observed, the main reasons include dramatic falls in commodity prices; global recessions of 1981-82 and 1991-93.

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[1] West African countries include Benin, Burkina Faso, Cape verde, Cote 'I'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Maurania, Niger, Nigeria, Senega, Sierraleone, Togo.

This caused contraction in world trade and increased protectionism in the developed countries against less developed countries (LDC) export (Holmes, 2003).Empirical research suggests that an overvalued real exchange rate, inadequate foreign exchange reserves, excessively fast domestic credit growth, unfavorable terms of trade shocks, inflation, low growth in partner countries and higher interest rates in industrials countries influence the occurrence of persistence current account deficits experienced by the majority of West African countries over the years.

The West African countries, though, have been facing turbulent current account dynamics over the past three-and-a-half decades, they have not been the subject of many empirical studies despite the fact that the position of the current account is typically used as one of the main leading indicators for future behavior of an economy. Also, the abound numerous empirical literature on the behavior of current account balance are based either on the experiences of a set of developed countries or on the basis of large samples consisting of a mixture of developed and developing countries using cross section and panel data without much consideration to their time dimension. The main limitation with this kind of approaches is that the corresponding results can only provide a generalized picture for such economies. Cross –country regression analysis is also based on the assumption of homogeneity in the observed relationship. This assumption, however limits the significant differences between countries with regard to their institutional features and structural characteristics. An understanding of the current account balance and its determinants will therefore, not only aid better policy prescriptions but also help policy makers to determine the main determinants which affect the size of current account balance, and consequently, to create and perform adequate macroeconomic policy measures in order to achieve sustainable level of current account balance.

Accordingly, this paper estimates the long- and short-run relationship between current account balance and its key determinants in West African countries using a panel of data pooling time-series and cross-section effects. This is achieved by specifying an autoregressive distributed lag (ARDL) model for each country for the period between 1980 and 2012, pooling them together in a panel, and then testing the cross-equation restriction of a common long-run relationship between the variables using the pooled mean group (PMG) estimator of Pesaran, Shin, and Smith (1999). This kind of a country-specific ARDL approach allows us to accommodate not only cross-country heterogeneity but also to capture time-series relations that cross-section analysis alone cannot deal with. Moreover, this methodology deal with the low power of unit root tests against plausible alternatives and it partially circumvents some of the problems with cointegration analysis that focuses only on the estimation of long-run relationship among I(1) variables.

The present of a long-run relationship between the current account balance (CAB) and its determinants found in this study, implies the effectiveness of targeting one of the variables in influencing the long run behavior of other variables by policy makers. The rest of this paper is structured as follows: Section 2 presents trends in current account balances of three economies in West Africa. Section 3 presents the theoretical, methodological and empirical literature pertaining to current account balance determination. The theoretical framework and the methodology make up section 4. Section 5 contains the estimation and interpretations of the results of the model while the conclusions and recommendations for policy complete the final section.

2. Stylized Facts on Current Account Balance (CAB) in West Africa

Traditionally, the most studied external imbalance is that of the current account, where the sum of a country's balance on goods and services and net official and private transfers differs significantly from zero. Many West African countries run a current account deficit, with a number of economies maintaining high deficits above 5% for many years (Table 1). A profile of the current account balance of the West African countries, during the period 1978 to 2011 shows that many countries in the region for many years experienced deficits. Eleven out of the fifteen countries of the region has on average a current account deficit well over 5% which according to the literatures is the threshold for sustainability of the current account deficit

The external balance posted an average current account deficit of -5.99 as a percentage of GDP between 1978 and 2012 for West African region. At individual country's level, the average current account balance for all the countries reflect negative trends except for Nigeria (Table1). In terms of the specific components of the current account, imports have always exceeded exports in the majority of the countries in the region as shown in Table 1. This is an indicative of competitiveness problems. However, between 1985 to1990 (not shown here). Current account deficits eased in a number of countries because of a varied set of factors. Imports contracted more strongly than exports in countries such as the Gambia, and Togo, leading to improvement in the current account balances of these countries. The stronger gold exports contributed to improvement of the external balances of countries such as Ghana and Mali. In the same period, the spiraling price of crude oil has provided Nigeria with a great deal of unexpected income which, coupled with wiser budgetary management, has helped to free up surpluses. Also, in response to recent improvements in the terms of trade, the gap between exports and imports has narrowed over the last five years or so. Net income (INC) resulting from investment and employment receipts has been trending downwards since the early 1980s entering negative territory (Table 1). Representing such inflows as grants and other forms of aid, net current transfers (TRS) have trended positively in many of the countries in the region indicating that inflows grow at a higher rate than outflow with the results that the surplus are applied to keep down the deficits of the current account balance. This reflects the important role this component plays in keeping down the current account deficits of the region.

3. Literature Reviews

3.1 Review of Theoretical Models of Current Account Determination

A variety of theoretical models have been used to explain the determinants of the current account balance. Each of the models carries with it different economic policy implications. The traditional analysis of current account imbalances and their adjustment was based either on the so-called "elasticity approach" or the "absorption approach", while the intertemporal approach is the more recent approach.

The elasticity approach emphasizes the role of the exchange rate and trade flows in the current account adjustments (Goldstein and Khan, 1985). It is mainly based on the analysis of price elasticity of demand for imports and that of demand for exports, with respect to changes in exchange rate. It thus has the benefit of giving straightforward estimates of the price and income elasticities of exports and imports, making it easy to predict the partial - equilibrium impact on the trade deficit of expected changes in the terms of trade and relative income growth. However, the

main weakness of this approach is that it is a partial equilibrium based analysis as it only looks at the traded goods market and ignores the interaction of other various markets in an economy.
The absorption approach takes cognizance of the fact that current account balance can be viewed as the difference between income and absorption, or equivalently, the difference between savings and investment. It states that if an economy spends more than it produces (i.e. absorption exceeds income), it must import from other countries for its excess consumption and spending and such economy thus runs a current account deficit. On the other hand, if this economy spends less than it produces (i.e. income exceeds absorption), it runs a current account surplus. This approach provides a more inclusive, and less misleading, framework to analyze and forecast the current account than does the elasticity approach by making it easier to incorporate determinants of financial account transactions into modeling the current account balance.

More recent theory tends to analyze current account developments on the basis of models of intertemporal maximization, either of the representative-agent or of the overlapping-generation variety. The intertemporal approach to current-account analysis extends the absorption approach through its recognition that private saving and investment decisions, and sometimes even government decisions, result from forward-looking calculations based on expectations of future productivity growth, government spending demands, real interest rates, and so on. The intertemporal approach achieves a synthesis of the absorption and elasticity's view.

3.2 Methodological Review

From the plethora of economic literature reviewed, the main methodologies explored by researchers to determine the effect of sets of macroeconomic variables on the current account balance are: accounting approach, quantity-based approach and Intertemporal Optimal approach

The Accounting Approach is a balance sheet-based approach (BSA), such as the external sustainability approach and determining the equilibrium current account as one consistent with a benchmark for the desired net foreign asset position. The BSA represents a framework for identifying Stock - based vulnerabilities and transmission mechanisms between sectors. Knowledge of balance sheet mismatches can aid policymakers in reducing and identifying appropriate policy response once a financial crisis unfold. One of the key insights of the BSA is that cross-holding of assets between residents can create internal balance sheet mismatches that can leave accounting vulnerable to external balance of payment crisis. This approach is found in the work of Milesi-Ferreti and Razin (1996)

The quantity-based approach such as the macro-balance approach aims to identify the equilibrium exchange rate that allows for the simultaneous compliance of an external balance and an internal equilibrium, estimate of medium-term current account balances as a function of medium-term characteristics of the economy or fundamentals. One of its main objectives is the estimation of a long-term exchange rate level (or time path) consistent with the underlying fundamentals, thus allowing policymakers to recognize short-term misalignments in exchange rates. This underlying current account balance approach may however indicate an undervaluation of a currency, which nevertheless would be justified once the uncertainty over future policy is taken into account. Isard and Faruqee (1998) are some of the examples under this methodology.

The Intertemporal Optimal Approach provides econometric estimates of a reduced form equation for the current account balance as a function of fundamental variables. These models have been extensively tested using time-series econometric techniques, VAR and Panel data techniques, which use both the time and cross-sectional dimension to the data. The intertemporal approach, as it is founded on utility maximizing decisions by economic agents, provides a better way to judge sustainability of the deficits than an approach based on aggregate relationships between saving and investment. Large deficits according to the intertemporal approach can be optimal and sustainable and therefore not a cause of concern for policymakers. Debelle and Faruqee (1996), Calderon, Chong and Loayza (1999), Chin and Prasad (2000), Gruber and Kahn (2007) are examples under this methodology.

3.3. Empirical Review of Literature

Evidence from past studies indicates that there are conflicting results on the same data sets of variables that determines the current account balances.

Aristovnik (2007) used a (dynamic) panel-regression technique to characterize the properties of current account variations across selected MENA (Middle East and North African countries) economies between 1971 and 2005. The results indicate that higher (domestic and foreign) investment, government expenditure and foreign interest rates have a negative effect on the current account balance. Chinn and Ito (2007, 2008) in their extended research of the work of Chinn and Prasad (2003) find that the standard determinants, such as demographics and income variables, used in the work of Chinn and Prasad (2003) cannot alone explain the upswing in Asian countries' current account. Therefore, they augment Chinn and Prasad (2003) specification with indicators of financial development and legal environment that are likely to affect saving and investment behaviour and economic growth.

Gruber and Kamin (2007), using a panel data of 61 countries over the period 1982-2003 and including the standard current account determinants such as per capita income, relative growth rates, fiscal balance, demographic factors and international trade openness find that the Asian surpluses can be well explained by a model that incorporates, in addition to standard determinants, the impact of financial crises on current accounts. However, their model fails to explain the large U.S. current account deficit even when the model is augmented by measures of institutional quality. Saqib et al (2007) utilized cointegration and error correction techniques in estimating the long and short run behavioral relationship between Pakistan's current account balance and difference economic variables. The empirical results advocate that there exists a significant relationship between the current account balance and the balance of trade, domestic saving, total consumption and workers' remittances during the period 1972-2005. Doisy/Hervé (2003) estimates a benchmark for current account positions applying a solvency constraint and also identifies determinants of the saving-investment balance. They include the fiscal balance, the share of the private sector in value added, per capita income, the ratio of capital income to wage income and the openness of an economy. Calderon, Chong and Loayza (1999) adopt an econometric methodology that controls for simultaneity and reverse causation through a reduced-form approach to investigate the empirical relations between current account developments and a large number of macroeconomic variables proposed in the literature on the panel sample of 44 developing countries during the period 1966-1995.They observed that increase in GDP, the level of public or

private savings, real exchange rate appreciation increases the current account deficit while increase in the level of world interest rates reducing the level of current account deficit of developing countries.

Yang (2011) examines both the long-run and short-run impacts of initial stock of net foreign assets, degree of openness to international trade, real exchange rate and relative income on current account balances for eight selected emerging Asian economies over the period 1980-2009, making use of the cointegrated VAR (Vector Autoregression) methodology. The paper found that current account behaviors in emerging Asian economies are heterogeneous. The results indicate that initial stocks of net foreign assets and trade openness are important in explaining the long-run behaviors of current accounts, but have less important roles in interpreting the short-run variations in current accounts in most of the selected economies. The Real exchange was also found to be less important in explaining current account adjustments, both in short-run and long-run. Belke and Dreger (2013), uses a panel econometric techniques to examine the determinants of current account imbalance in the Euro area. The analysis show that lack of competitiveness was responsible for the external deficits of the Euro countries experiencing external deficit cum debt crisis while the evidence is not feasible for surplus countries.

4. Theoretical Framework and Model Specification

Economic theory provides an established theoretical /conceptual framework for analyzing the determinants and the implications of current account balances. Since a country's current account balance is the counterpart of the difference between the country's total savings and total investment expenditure, its determinants must be found among the factors that may cause saving and investment within a country to differ in any period of time.

Following the work of Herrmann and Jochem (2005), this study attempts to empirically test some of the determinants of the current account as suggested by saving-investment theory, also in line with the intertemporal approach as a benchmark to define the factors that affect the current account in our selected countries.

The starting point of the empirical analysis is the accounting identity of the current account (CA) which is equal to the difference between domestic saving (S) and investment (I).
Taking the equation for national income

$$Y = C + I + G + X - M \tag{1}$$

Defining gross domestic savings as S = C + I + G, equation (1) becomes

$$CA = X - M = S - I \tag{2}$$

This study aims to focus on pattern of domestic savings and domestic investment and basic identity is:

$$CA = S - I \tag{3}$$

For normalization purposes and to remove heteroskedasticity that usually plaque the estimation of nominal variable equation, all variables are expressed as ratios of GDP (Y) and thus we have:

$$\frac{CA}{Y} = \frac{S}{Y} - \frac{I}{Y} \tag{4}$$

We specify the domestic saving to GDP ratio (S/Y) as a function of different economic variables, including GDP per capita, the real effective exchange rate (REER) and the ratio of domestic investment to GDP (I / Y) . It is obvious that domestic investment plans by private agents will affect private saving ratios to the extent that these are financed domestically.
Our basic private saving specification is the following:

$$\frac{S}{Y} = f\left[GDPPC, REER, \frac{I}{Y}\right] \tag{5}$$

In addition to the basic specification, the following financial and demographic factors are considered to explain the domestic saving rate: (i) the financial deepening (M2) (ii) the dependency ratio (DER). The extended domestic saving specification reads as:

$$\frac{S}{Y} = f\left[GDPPC, REER, \frac{I}{Y}, M2, DER\right] \tag{6}$$

$$\frac{CA}{Y} = f\left[GDPPC, REER, \frac{I}{Y}, M2, DER\right] - \frac{I}{Y} \tag{7}$$

domestic investment is taken into the equation both as determining factor of private saving, as well as an autonomous variable influencing directly the current account balance..
A linear representation of equation (5) can be written as:

$$\frac{S}{Y} = \beta_0 + \beta_1(GDPPC) - \beta_1 REER + (\beta_3 - 1)\frac{I}{Y} + \beta_4 M2 + \beta_5 DER \tag{8}$$

where

$(\beta_3 -1) = 0$,and fixed domestic investment is assumed to be completely financed by domestic savings (Feldstein-Horioka hypothesis).

5. Definition of variables and Source of data

- **Gross Domestic Product per capita (GDPPC):** It is defined as per capital income of the country.We expect GDP per capita to be positively related to current account. The variable is only negative in the short run. It has long run positive effect on the current account balance which implies that income is significant in the long run period.
- **Real effective exchange rate (REER):** Changes in the real effective exchange rate play an important role in the relative income and asset position of an economy. Thus, an increase in REER is expected to decrease private saving and the current account. However, a temporary real appreciation should result in an improvement of the current account

according to the consumption smoothing hypothesis. Overall, the link between the real exchange rate and saving ratio can only be determined empirically.

- **Domestic investment (INV)**: It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital. It has the effect of reducing the current account balance. So a positive relationship is expected between current account and Investment
- **Financial deepening (M2):** Money and quasi money comprise the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central government. This definition of money supply is frequently called M2
- **Dependency ratios (DER)**: Proxied by population growth rate of the age profile of the population, is likely to be a structural determinant of domestic saving. An increase in the dependency ratio will decrease the saving ratio because, according to the life-cycle hypothesis, the young and the old are net consumers. However, other factors like the desire of the elderly to leave bequests, the uncertainties about the lifespan after retirement and the financial support that will be required, as well as the public-pension portion of their incomes, may urge them to save rather than spend. Consequently, the effect of the demographic variable on private saving and the current account may be positive or negative.

The study uses annual data series for analyzing current account determinants for West African countries. The main data source is the World Development Indicators (WDI) 2013 and the IMF's World Economic Outlook (WEO), 2012.

6. Estimation Methodology

The study adopts the panel auto-regressive distributed lags (ARDL) methodology proposed by Pesaran et al (1999). Following (Pesaran and Smith, 1995; Pesaran *et al.*, 1999), we estimate the mean group (MG), pooled mean group (PMG), and dynamic fixed effect (DFE) model as presented in equation 9. MG imposes no restrictions on the parameters of ARDL specification and derives long-run parameters from the average of long-run parameters obtained from the ARDL estimators. While this estimator is always consistent it does not take advantage of the possible poolability of the data among panel-forming units. An alternative estimator being set up under the assumption of homogeneity slope is dynamic fixed effects (DFE), in which the slopes are fixed and the intercepts allow to vary across country. Under slope heterogeneity, Pesaran and Smith (1995) point out that the DFE estimates are affected by a potentially serious heterogeneity bias, especially in small firm samples. As an alternative, Pesaran et al. (1999) developed the maximum likelihood-based PMG approach which yields a more efficient estimate. PMG is used to constrain long term co-movements among the panel-forming countries while it allows constant term, error variances and short-run parameters to vary by countries. In other words, PGM allows for short-run heterogeneity with regard to long-run homogeneity in the panel ARDL model. However, the relative decision among the three alternative estimators is a common modeling problem. Pesaran et al. (1999) suggested using the Hausman (1978) test for testing the homogeneity of long-run parameters (Erdem et al., 2010, Gülerand Özyurt, 2011).

To uncover the long and short-run consequences of determinant of current account balance in west Africa region, we estimate the following restricted error correction model between current account balance and its determinants .

$$\Delta cab_{it} = -\mu + \phi_i(cab_{i,t-1} - \lambda_1 gdppc_{i,t-1} - \lambda_2 reer_{i,t-1} - \lambda_3 inv_{i,t-1} - \lambda_4 m_{2i,t-1} - \lambda_5 dep_{i,t-1})$$
$$+ \sum_{j-1}^{p-1}\gamma_j^i\Delta(cab_i)_{t-j} + \sum_{j=0}^{q-1}\delta_{1j}^i\Delta gdppc_{i,t-j} + \sum_{j=0}^{q-1}\delta_{2j}^i\Delta reer_{i,t-j} + \sum_{j=0}^{q-1}\delta_{3j}^i\Delta inv_{i,t-j} + \sum_{j=0}^{q-1}\delta_{4j}^i\Delta m_{2i,t-j} +$$
$$\sum_{j=0}^{q-1}\delta_{5j}^i\Delta dep_{i,t-j} + \xi_{i,t} \tag{9}$$

Where cab is the dependent variable, $\emptyset_i$ is the error-correction speed of adjustment coefficient, the λterms is parenthesis are the vector co-integration coefficients (i.e. long-run coefficients) while δ_1^i - δ_5^i are the short-run dynamic coefficients and Δ is the first-order difference operator. If the variables exhibit a return to long-run equilibrium (evidence of cointegration), one would expect $\emptyset_i$ to be negative.In this paper, we employ panel unit root test methods by Levin, Lin and Chu (2002) and Im, Pesaran and Shin (2003) and Fisher ADF and P-P Chi-square tests to test if the relation in the parenthesis of (1) satisfies the cointegration (or I (0)).

7. Empirical Results

Before proceeding with ARDL MG, PMG or DFE model, the test for the stationarity of the variables has been performed in order to determine the order of integration of the variables under consideration. Such a test is necessary because according to Pesaran and Pesaran (1997) if the variables are I(2) stationary then it will generate spurious regression. Table 2 presents the results of the panel unit root tests for all the variables. The results show that most of the level values of the variables are panel non-stationary. However, the tests of the first difference reject the null hypothesis, implying that these time series variables are all integrated of order 1.

Table 2 shows the results for the three alternative dynamic panel data estimation procedures for unrestricted MG, mutual long-run efficient PGM and DFE assuming that all trend and error variances are equal for all the countries. The determination of the most proper method to be used is very important. The Hausman (1978) test showed that the PGM estimator and the DFE estimator were valid for the panel as they cannot reject the null hypothesis of being significantly different from the consistent MG estimator. So we focus our analysis on the PMG and DFE estimation results. The result of such analysis indicates that the error-correction coefficient $\emptyset_i$ is negative and significant and fall within the dynamically stable range for PMG and DFE estimators. This indicates that there exists a long-run relationship between the variables of concern. Moreover, this also gives evidences of mean reversion to a non-spurious long-run relationship and therefore stationary residuals, meaning the variables are cointegrated.

Regarding the long-run coefficient, PMG estimate tends to be different from the DFE estimate. Moreover there are more statistically significant explanatory variables in PMG model than in DFE model. For example in PMG model all of the explanatory variables are statistically significant individually, while only two of the explanatory variables are significant in the case of DFE model. The GDPPC, INV, M2 and DER in PMG model have been found to have a positive and statistically significant long term effect on the CAB while REER has been found to have a negative and statistically significant long term effect on CAB. A 1% increase in GDPPC, INV, M2 and DER

have 0.98%,0.34%, 0.01% and 0.91% positive contribution respectively to the growth of CAB. In term of the magnitude of effects, GDP exert greater influence on Cab, followed by DER and INV. The percentage increase in M2 was not high while REER reduces CAB. The result of DFE model suggest that 1% increase in GDP results in 0.58% increase in CAB while a 1% increase in M2 results in a 0.98% increase in CAB.

As for the short term error correction coefficient the constant is statistically significant in both PMG and DFE models meaning that there is fixed effect of these variables on the growth of CAB. INV exert positive short run impact on CAB in the two models. Aside investment variable, the REER has a significant negative impact on CAB. However, the short term error correction coefficient has been found to be statistically significant and the value is negative in the two models. This indicates that the error correction forces the short run coefficient to proceed to its long run path.

7. Conclusion

Using the 1980–2012 data, we investigated the determinant of current account balance within the panel ARDL in West African region. Our analysis focused on the PMG and DFE estimation models as advised by the Hausman test. The results indicate that there exists a long-run relationship between the current account balance (CAB) and its determinants. The GDPPC, INV, M2 and DER in PMG model were found to positively impact CAB while REER has been found to have a negative and statistically significant long term effect on CAB. The result of DFE model suggest that an increase in GDPPC and M2 increases CAB in the long run. In the short run INV exerts positive impact on CAB in the two models while an increase in REER has a significant negative impact on CAB. Also, the error correction term indicates that the error correction forces the short run coefficient to proceed to its long run path. The present of a long-run relationship between the current account balance (CAB) and its determinants found in this study, implies the effectiveness of targeting one of the variables in influencing the long run behavior of other variables by policy makers.

Endnotes

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Table 1: Current Account Balance of the West African countries: 1978 to 2012 (Average)

Countries	CAB/GDP	EXP/GDP	IMP/GDP	TRS/GDP	INC/GDP
Benin	-7.41	20.22	31.70	6.33	-1.16
Burkina Faso	-5.69	10.65	26.35	9.50	-0.35
Cote d'Ivoire	-3.43	40.03	34.38	-3.11	-7.50
Cape Verde	-9.38	25.98	66.95	30.26	-1.64
Ghana	-4.93	23.75	34.28	7.84	-1.61
Guinea	-6.86	27.44	30.66	2.28	-5.98
Gambia, The	-5.82	34.44	46.25	9.54	-1.66
Guinea Bissau	-7.24	17.80	41.96	7.63	-3.30
Liberia	-8.79	41.33	68.20	31.81	-13.32
Mali	-4.99	21.22	35.76	7.42	-2.37
Mauritania	-3.23	43.23	62.27	4.30	-1.64
Niger	-7.81	18.94	26.02	3.68	-1.45
Nigeria	3.17	34.61	29.52	3.29	-6.95
Senegal	-7.84	26.70	38.55	5.99	-2.51
Sierra Leone	-8.40	18.83	27.19	5.17	-4.06
Togo	-7.32	39.21	51.04	8.43	-2.59
Average	-5.99	26.74	39.25	9.07	-3.76

Source: Authors computations based on data from Africa Development Indicators (ADI), 2013

Table 2: Result from Panel unit root (with individual intercept and trend under first difference)

Variables	Levin, lin& Chu t*	ImPesaran Shin W-stat	ADF-Fisher Chi square	PP- Fisher Chi square
LNCAB	-8.37**	-7.45**	139.12**	139.12**
LNGDPPC	-1.67**	-1.43**	20.78**	29.90**
LNREER	-5.43**	-7.46**	35.77**	6.49**
LNINV	-2.33**	-2.98**	43.07**	30.17**
LNM2	-0.31**	-1.85**	65.95**	28.57**
LNDER	-1.89**	-0.16**	163.70**	99.79**

** indicates that variables are stationary at 5 % significance level

Table 3:The determinant of current account balance in West Africa: Dependent variable (Ln Cab)

Long run variables	Pooled mean group	Mean group	Dynamic fixed effect
LNGDP	0.98 (7.31)**	0.29 (0.78)	0.58 (4.43)**
LNREER	-0.91 (-4.27)**	0.35 (0.68)	-0.07 (-0.38)
LNINV	0.34 (2.89)**	0.07 (2.26)**	0.96 (32.00)**
LNM2	0.01 (2.65)**	0.02 (0.17)	-0.01 (-1.23)
LNDER	0.19 (2.71)**	0.36 (0.90)	0.09 (1.22)
Error Correction Model	-0.61 (-8.38)**	-0.98 (17.98)**	-0.62 (-14.82)**
ΔLNGDP	-6.93 (-1.24)	0.01 (0.02)	-0.37 (-1.33)
ΔLNREER	0.99 (1.45)	-0.01 (-0.04)	0.77 (2.62)**
ΔLNINV	0.59 (2.01)**	-0.07 (-0.25)	0.37 (5.86)**
ΔLNM2	-0.01 (-0.86)	-0.01 (-0.38)	0.07 (1.20)
ΔLNDER	-0.03 (-0.05)	0.66 (0.46)	0.19 (1.44)
c	-4.69 (-6.05)**	-6.19 (-1.09)	-7.15 (-4.05)**
NOS OF OBSERVATION	496	496	496
NO OF GROUP	16	16	16
Hausman test (chi-square)	13.48(0.01)		15.73(0.00)