

CURRENT ACCOUNT DEFICIT DYNAMICS IN KENYA: EVIDENCE FROM TIME-SERIES DATA (1980-2014)

ABSTRACT

AS A RULE OF THUMB, CURRENT ACCOUNT DEFICIT SHOULD NOT EXCEED 5% OF GDP. IF IT EXCEEDS, IT MUST RAISE CONCERNS ABOUT ITS SUSTAINABILITY. IN KENYA, CURRENT ACCOUNT BALANCE DEFICIT INCREASED TO 10.5% OF THE GDP BY 2014 AND 8.3% IN 2015. EMPIRICAL EVIDENCE SHOWS THAT THERE IS AN UNSUSTAINABLE CURRENT ACCOUNT DEFICIT IN KENYA. UNSUSTAINABLE CURRENT ACCOUNT DEFICITS ARE A POTENTIAL RECIPE FOR A CURRENCY CRISIS AND CURRENT ACCOUNT REVERSAL WHICH HAVE NEGATIVE IMPLICATIONS ON MACROECONOMIC STABILITY OF A COUNTRY. THIS STUDY SOUGHT TO DETERMINE THE DRIVERS OF CURRENT ACCOUNT BALANCE AND POLICIES THAT SHOULD BE PUT INTO PLACE TO REVERT THE BALANCE TO SUSTAINABLE LEVELS. IT USED TIME SERIES DATA SPANNING 1980-2014 AND EMPLOYED VAR AND VECM MODELS. THE ESTIMATED LONG RUN CO-INTEGRATING MODEL REVEALED THAT FINANCIAL DEEPENING IN KENYA HAS NO EFFECT ON THE CURRENT ACCOUNT BALANCE AT 5%, 10% AND 1% STATISTICAL SIGNIFICANCE LEVELS. HOWEVER, TRADE OPENNESS, OIL PRICES, FISCAL DEFICIT, OUTPUT GAP, REAL EFFECTIVE EXCHANGE RATE, GDP PER-CAPITA, DEPENDENCY RATIO AND NET FINANCIAL ASSETS SIGNIFICANTLY AFFECT CURRENT ACCOUNT BALANCE.

Keywords: [current account deficit ,Kenya , policy , sustainability,VAR , VECM]

(Note: 1. Case Reports should follow the structure of Abstract, Introduction, Presentation of Case, Discussion, Conclusion, Acknowledgements, Competing Interests, Authors' Contributions, Consent (where applicable), Ethical approval (where applicable), and References plus figures and/or tables. Abstract (not more than 250 words) of the Case reports should have the following sections: Aims, Presentation of Case, Discussion and Conclusion. Only Case Reports have word limits: Papers should not exceed 2000 words, 20 references or 5 figures. Other Type of papers have no word limits.

2. Review papers may have different headings of the sections and are exempted from following these suggestions.

3. Research Papers and Short Notes should follow the structure of Abstract, Introduction, Methodology, Results and Discussion, Conclusion, Acknowledgements, Competing Interests, Authors' Contributions, Consent (where applicable), Ethical approval (where applicable), and References plus figures and/or tables.)

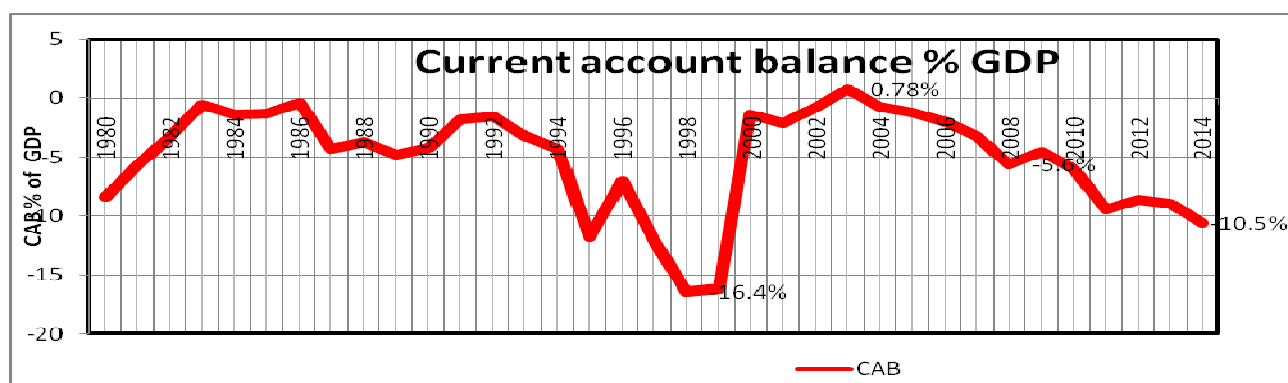
1.0 INTRODUCTION

Macroeconomic policymakers seek to attain both internal and external balance objectives in policy design and management. One way of measuring the external balance position of a country is the current account balance (CAB). The balance is computed by the sum of amounts traded net of imports for both goods and services, incomes earned from abroad in net terms, and the net current amount of transfers from abroad. The net effect of cash inflows and outflows is what is referred to as the net incomes from abroad. They include salaries, dividends, and direct investments returns. On the other hand, current transfers are unilateral transfers with zero returns for example remittances, donations, aid, grants, official assistance and pension (1). The econometric representation of the current account is;

32 $CAB = X - M + NY + NCT$ 1
 33 ..

34 In Kenya, current account balance has shown persistent deficit for a notable duration between 1980
 35 and 2014. Figure 1 indicates a surplus balance in the current account, standing at 0.78% GDP in
 36 2003. By 2014, the deficit rose to 10.5% of GDP.

37 Figure 1 **Current account balance as a percentage of GDP trend (1980-2014)**
 38



39
 40 **Source:** UNCTAD data.

41 This sharp increase in deficit has created fear about the sustainability of current account deficits given
 42 the growing public debt to GDP ratio and pressure on exchange rate. An analysis framework was
 43 developed by (2) for analyzing CAB deficit sustainability. According to the framework, CAB is
 44 sustainability is closely linked to solvency.

45 CAB deficit is sustainable if the present value of future CAB surplus matches present debt. This is so
 46 because deficit creates a financing debt. The implication of this is that the inter-temporal budget
 47 constraint for sustainability is satisfied. Empirically, equilibrium CAB path is achieved if exports and
 48 imports are co-integrated. Using this approach, (3) and (4) concluded that CAB deficit is
 49 unsustainable.

50 This deficit should be matched by equal capital inflows for external balance. However, according to
 51 (5), the persistent deficit is one of the challenges to Central Bank of Kenya (CBK) performance as the
 52 there is no significance foreign direct investment (FDI) inflows to finance the BOP negative balances.
 53 There are several reasons why unsustainable current account deficits should be of great concern to
 54 economists and policy analysts.

55 Firstly, there is a very high likelihood of investors avoiding assets valued in foreign currency if the
 56 CAB is unsustainable. This is because they view the current account deficit as a reflection of the state
 57 of an economy. Actually, current account sustainability is a key analysis carried out by investment
 58 banks and other key capital market participants .According to (6), a reversal of the CAB could also
 59 happen as a result of a drastic decline in demand for country's assets, which could harm the domestic
 60 economy. CAB reversal is an economic phenomenon where abrupt stall in the inflow of capital and
 61 subsequent significant depreciation lead to a sharp decline in large deficits to small deficits is what is

62 called reversal in the current account. Reversals are disruptive to GDP growth and often causes
63 banking and currency crisis, as witnessed in 1994 and 1997 in Asia and 1999 in Germany (7), (8), (9).

64 Secondly, an accumulation of foreign debt to be redeemed in the future may result from a deficit in the
65 current account, especially for small economies that depend on short term volatile capital inflows to
66 finance CA deficit. Rational domestic investors always anticipate an increase in the future taxes by the
67 government to service and repay the debt. Their investment decisions are pegged on this increases in
68 taxes with negative implications on employment and output. Empirical evidence casts doubt on the
69 sustainability of debt policy in Kenya. Analysis based on a fiscal reaction function approach shows
70 that public debt has breached sustainability conditions, (10), Contrary, debt sustainability analysis
71 (DSA) report by World Bank gives a clean bill of health to Kenya. However, (11) has criticized the
72 forward-looking DSA by World Bank insisting on a backward-looking approach known as fiscal
73 reaction function.

74 Thirdly, empirical analysis has revealed that current account is closely linked to key economic growth
75 determinant that includes: investment, savings, trade competitiveness, capital flows, and exchange
76 rate volatility, (12) and (13). It is also a critical research area for economists and policymakers in
77 developed and developing economies. Especially in the wake of 2008-2009 global financial
78 meltdown, (14), (3), (4), (15), (12), (16) and (13). Evidently, world trade imbalances to a large extent
79 accounted for the financial crisis of 2008-2009, (8), (9), (17), (18).

80
81 Lastly, although economies can run massive deficits and still retain macroeconomic stability, this is
82 only possible if a reliable deficit financing channel is available. Otherwise, it is a challenge for
83 employment and poverty reduction efforts, particularly when the deficits are caused by rising imports
84 of consumer goods that can be produced by domestic industries. The rule of the thumb is that the
85 deficit should not be above 5% of GDP (2). At CAB of 10.5% of GDP in 2014, Kenya has already
86 broken the rule. The challenge to long-run economic stability is further magnified by declining
87 prospects for Kenya to accessing international financial aid to finance deficits due to sluggish
88 economic growth and commodity prices in international markets.

89 A substantial number of studies testing alternative theoretical models have concluded that different
90 factors are underlying current account dynamics. These theoretical approaches include the twin deficit
91 hypothesis, (19), dynamic stochastic general equilibrium (DSGE) model, (13), the intertemporal model
92 (3), (4), Overlapping generations models, (20), and stages of development hypothesis (21). Notably,
93 these findings are quite contradicting and therefore cannot be generalized on other economies.
94 Alternatively, a country specific study which captures institutional and structural characteristics of the
95 economy would be appropriate in deducing the drivers of CAB. Therefore, the objective of this study
96 was to establish the causes of persistent deficits in the CAB in Kenya explore the possible
97 alternatives for managing the deficits.

98
99

100

101 1.2 LITERATURE REVIEW

2.1 Theoretical and empirical Literature Review

Analyzing current account imbalances has a standard starting point, the inter-temporal approach, an extension of absorption approach, which has been extended to include fiscal policy and changing international conditions, (22). It replaces Mundell -Fleming extended version of IS-LM model. This approach analyses the CAB determinants by focusing on the microeconomic perspectives using the investments and savings factors. It observes that the optimizing actions of various agents determine the CAB, and that these behaviors are dependent on various macroeconomic outcomes under the budget constraints.

The inter-temporal approach views the CAB as an outcome of forward looking dynamic saving and investment decisions based on expectations of future production, government policy and interest rates, (23). This approach incorporates both absorption and elasticity view by accounting for macroeconomics determinants of relative prices and analyzing the impact of current account and future prices on savings and investments. This approach is used to investigate the effect saving and investment determinants and macroeconomic shocks or business cycles on the current account balance.

On the other hand, national accounting identity provides a link between current account, fiscal deficits and savings; otherwise known as the twin deficit hypothesis, (8). The algebraic manipulation is shown as follows. Given national income identity;

$$Y = C + I + G + X - M \text{-----} 2$$

Where Y is national income, C is consumption, I is investments, G is government expenditure, and $X - M$ is net exports or current account balance.

Similarly,

$$Y = C + S + T \text{-----} 3$$

meaning that part of income is saved, consumed or taxed. Substituting equation three into equation two, we obtain equation 4.

$$S = I - T + G + (X - M) \text{-----} 4$$

Rearranging equation four, we get equation five where $CAB = X - M$

$$CAB = (S - I) + (T - G) \text{-----} 5$$

Equation 5 above reveals that CAB is a function of investments, savings, and fiscal deficit.

The link explains several testable hypotheses. One is (24), where current account deficit is affected by the budget deficit via interest rate and income channels. This model observes that fiscal deficits encourage pressure on the interest rates domestically. This pushes the rates up, which induces the inward flow of capital to an economy. In turn also, a general experience of exchange rates appreciation is witnessed. Ultimately, the CAB turns to the dire extremes, (25).

Secondly, Keynesian absorption theory argues that a rise in fiscal deficit increases aggregate demand leading to a domestic absorption which eventually worsens the current account balance.

138 However, Ricardian equivalence hypothesis by (26) challenges the link between the two deficits.
 139 According to this hypothesis, deficit financing through debt causes no aggregate demand and rates of
 140 interest adjustments. Rational consumers are confident about their capability of paying hiked taxes in
 141 the future, induced by the need to pay off their debts. This they do committing to save more. The
 142 disparity between total investments and expenditure in an economy can be easily connected to the
 143 deficit in the current account, hence what causes this imbalance could be the very factors that
 144 determine savings and investments such as financial and geographical ones (27).

145 On the other hand, structural models seem to emphasize on demographic factor, for instance, the
 146 overlapping generations model, but this model are likely to produce entirely different predictions on
 147 determinants of current account imbalances. Overlapping generations' model (OGM), (20) suggest
 148 that fiscal deficit influences the deficits in the CAB by doing generational income distribution; both for
 149 the present and the future. The stages of development model argue that countries import more capital
 150 asset in earlier stages of development before takeoff hence run in to current account deficit. Structural
 151 models also emphasize on savings and its determinant especially demographic profile, (15), and
 152 financial deepening, (28).

153 The elasticity approach, links exchange rate change with the current account changes via production
 154 and substitution effect. By allowing deviations in the exchange rates, the clear effects of prices
 155 changes can be observed on demand for both imports and exports through the price elasticity. An
 156 assessment of influence of currency, exchange rates and flow of trade can be done on the balance of
 157 the current account. The disadvantage of this model is that it since its' a partial equilibrium analysis
 158 tool, and focuses only on the trade of commodities, not considering other market behavior
 159 determinants, then it is not exhaustive.

160 An alternative approach to this is the absorption method, (29) which stipulates that macroeconomic
 161 variables on production and expenditure drive trade balances. According to this approach, negative
 162 balances in the current account can be reversed by doing trade imports from other economies, hence
 163 managing the excesses in spending and consumption. When income is in excess of consumption,
 164 then the CA is adjudged to be in surplus.

165 In literature, it is observable that the twin deficit hypothesis is widely favored (30; 15; 8; 31; 32), while
 166 others support twin divergence (15; 33). However, empirical evidence still exists on Ricardian
 167 equivalence hypothesis, a challenge to twin deficit hypothesis, (34).

168 Some studies emphasize on structural factors, (35; 36) while other nullify their significance in
 169 explaining current account imbalances (37). Similarly, panel models and VAR models seem to give
 170 contradictory results, (38).

3.0 Empirical model

The study estimated a VAR and VECM models in trying to elaborate the causes of current account balance in the long run and in the short run respectively. The long run co integrating model took the following functional form;

$$CAB_t = \beta_0 + \beta_1 FB_t + \beta_2 NFA_t + \beta_3 REER_t + \beta_4 DR_t + \beta_5 FID_t + \beta_6 TO_t + \beta_7 OilP_t + \beta_8 Y_{gap_t} + \beta_9 GDP\_P_t + \varepsilon_t \dots 6$$

Where $\beta_i, i = 0, 1, 2, \dots, 9$ are parameters to be estimated while ε is a white noise error term? CAB is current account balance, FB is fiscal balance, NFA is net foreign assets, REER is real effective exchange rate, DR dependency ratio, FID is financial deepening, TO is trading openness, OilP is oil prices, and GDP_P is per-capita income. The gap in output gap is a gauge of business cycle indicating a disturbance of output from its prospects in a given years and is computed by the application of the Hodrick-Prescott (HP) filter Method

3.1 Data type and source

The study will employ time series secondary data covering periods between 1980 and 2014. These will be obtained from sources such as CBK, International financial statistics, KNBS and UNCTAD. The data scope was much informed by availability of consistent data for the entire variables.

3. RESULTS AND DISCUSSION

3.2 diagnostic tests

The study employed some preliminary and diagnostic tests. A unit root test was carried out to establish whether the time series data are stationary and if not, what is their order of integration are they integrated of the same order. This was confirmed through stationarity test. In testing for stationarity, this study employed Augmented Dickey-Fuller (ADF) and Phillips-Perron tests. . The study ran a VAR based (39) tests to check for co-integration between variables. Based on the characteristic roots, Trace and Eigen statistics was applied in establishing the number of co-integrating variables. The Vector error correction model (VECM) will was modeled to capture the short run dynamics while a VAR based co integrating model was estimated to measure the long run variables relationship.

4.0 stationarity test

Macroeconomic time series variables mostly exhibit time variant moments. . In testing for stationarity, this study employed augmented Dick-Fuller (ADF) and Philips-Perron tests ADF test was employed with intercept and lag length selected based on the SIC information criterion to ensure that the

204 residuals are white noise. The decision criterion involves comparing the computed tau values with the
 205 Mackinnon critical values for rejection of a hypothesis of a unit root.

206 **Table 1. Test for stationarity results**

Unit root test with trend and intercept					
Variable	ADF		PP		conclusion
	Level	1 st Difference	Level	1 st Difference	
MS-GDP	-2.5650	-5.0894	-2.3738	-6.2196	I(1)
Y-GAP	-3.8074	-4.8878	-3.3385	-5.7474	I(1)
Oil_PRICE	-1.03173	-3.7709	-0.6084	-3.9612	I(1)
REER	-1.03171	-3.7709	-0.6084	-3.9612	I(1)
FB	-2.5582	-5.9111	-4.3278	-13.0578	I(1)
DR	-2.6742	-6.3865	-2.4196	-8.9137	I(1)
TO	-3.8042	-4.8878	-3.5162	-5.7474	I(1)
CAB	-2.4835	-6.2476	-2.6036	-6.2678	I(1)
GDP_P	2.9549	-3.0933	2.1513	-3.0108	I(1)

207 I(1) integrated of order one Source: Author,(2016)

208 This test shows that all the variables are non- stationary at levels. This means that the individual time
 209 series have a stochastic trend and do not revert to average or long run values after a shock strikes
 210 and the distributions has no constant mean and variance. However the variables are integrated to
 211 order one, meaning that they are stationary at first difference.

212 4.2 Tests for co-integration

213 Since variables have unit root at level, we tested for long run relationship using the (39) approach to
 214 establish the co-integrating vectors. Two test statistics (Trace and Eigen) are used to test the number
 215 of co-integrating vectors based on the characteristic roots. For both trace and Eigen statistics, the null
 216 hypothesis is at most r co-integrating vectors. The trace statistics is computed as

$$217 \lambda_{trace}(r) = -T \sum_{i=r+1}^k \ln(1 - \hat{\lambda}_i) \dots\dots\dots 6$$

218 The alternative hypothesis is at most k co integrating vectors. The maximum Eigen statistics is
 219 computed as,

220 $\lambda_{\max}(r, r+1) = -T \ln(1 - \hat{\lambda}_{r+1}) \dots \dots \dots 7$

221 The alternative hypothesis is at most $r+1$ CI vectors. It tests rank $r+1$ by testing if $\hat{\lambda}_{r+1}$ is zero.

222 **Table 2 Co integration test results**

Series: CAB M2_GDP FB DR GDP_P NFA_GDP OPRICE REER TO Y_GAP				
Unrestricted Co-integration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigen value	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.968415	493.9553	251.2650	0.0000
At most 1 *	0.950822	379.9382	208.4374	0.0000
At most 2 *	0.905104	280.5319	169.5991	0.0000
At most 3 *	0.792812	202.8178	134.6780	0.0000
At most 4 *	0.732415	150.8716	103.8473	0.0000
At most 5 *	0.703141	107.3671	76.97277	0.0000
At most 6 *	0.531189	67.28867	54.07904	0.0022
At most 7 *	0.452837	42.28937	35.19275	0.0073
At most 8 *	0.347428	22.39008	20.26184	0.0251
At most 9	0.222486	8.304555	9.164546	0.0726
Trace test indicates 9 co-integrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Co-integration Rank Test (Maximum Eigen value)				
Hypothesized No. of CE(s)	Eigen value	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.968415	114.0171	65.30016	0.0000
At most 1 *	0.950822	99.40629	59.24000	0.0000
At most 2 *	0.905104	77.71408	53.18784	0.0000
At most 3 *	0.792812	51.94620	47.07897	0.0139
At most 4 *	0.732415	43.50449	40.95680	0.0253
At most 5 *	0.703141	40.07847	34.80587	0.0107
At most 6	0.531189	24.99931	28.58808	0.1344
At most 7	0.452837	19.89929	22.29962	0.1046
At most 8	0.347428	14.08553	15.89210	0.0941
At most 9	0.222486	8.304555	9.164546	0.0726
Max-eigen value test indicates 6 co-integrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

223 Source: Author 2016

224

4.3 Estimation of VECM and co-integrating model

This part estimates the long run and the short run model using the VAR and VECM approach.

4.4 The Long run Model Results

The co integrating model in table 3 below shows the coefficients of the long run determinants of current account deficit in Kenya. The model has a 0.85 coefficient of determination (R^2) implying that the model explains 85% of the Variations in the current account. The joint F statistic which measures the general model statistical significance is significant at 5% meaning that the explanatory variables used in this model are effective. The Durbin Watson statistic which measures the possibility of linear autocorrelation is 2.1 showing that the error term is not serially correlated. The measures of model fitness like Akaike info criterion, Schwarz criterion and Hannan-Quinn criterion indicate that the model is appropriately parsimonious.

The results on long run co-integrating model reveal that financial deepening in Kenya has no effect on the current account balance at 5%, 10% and 1% statistical significance levels. However, trade openness, oil prices, fiscal deficit, output gap, real effective exchange rate, GDP per-capita, dependency ratio and net financial assets significantly affect current account balance. A one percent improvement in trade openness leads to about 4% improvement in CA balance. This finding emphasizes that a more open economy is likely to balance its current account easily than a less open economy.

On the other hand, oil price has a significant negative effect on the current account balance. This implies that when oil prices increase by one dollar per barrel, the current account worsens. This is more explained by the fact that Kenya being a net importer of oil may not be able to control the international price market of crude oil. The results from the co integrating model also show that fiscal balance has significant effect on the current account balance. As fiscal deficit widens, the current account balance also worsens. A shilling increase in fiscal deficit leads to 11 shillings worsening of the current account balance. This finding amplifies the link between current account and fiscal balance in the line of twin deficit hypothesis. In addition, the results validate the Keynesian view of the relationship between the two deficits and nullify the Ricardian equivalence view. The latter postulates that fiscal deficit has no effect on the current account deficit. The Keynesian view argues that

domestic agents tend to spend more of their disposal income resulting from expansionary fiscal policy on imports worsening the CA deficit.

Table 3: Long run co-integrating model

Dependent Variable: CAB					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
M2_gdp	.6219107	1.261432	0.49	0.622	
To	.0397637	.0053678	7.41	0.000	
O_price	-1.704017	.2520971	-6.76	0.000	
FB	-11.64419	.672518	-17.31	0.000	
Y_gap	-147.981	64.13219	-2.31	0.021	
Reer	-.7887681	.2624766	-3.01	0.003	
GDP_P	-.5290175	.0576354	-9.18	0.000	
DR	-3.944485	8979051	-4.39	0.000	
NFA_GDP	-.8640198	.158209	-5.46	0.000	
constant	1.869563	0.018265	-2.27	0.0302	
R-squared	0.853168	Akaike info criterion		-3.667579	
F-statistic	3.522037	Schwarz criterion		-3.298956	
Prob(F-statistic)	0.004555	Hannan-Quinn criter.		-3.531642	
		Durbin-Watson stat		2.179206	

Source: author 2016.

Notably, output gap (y-gap) which measures business cycles in the economy in form of upswings and down swings in economic performance has a negative effect on current account balance. This implies that internal economic shocks or instability which disrupt domestic production of export goods and trigger more imports ultimately worsen the current account deficit. Real effective exchange rate is a measure of economic competitiveness in international trade. In this study, the coefficient is negative and significant implying that changes in REER impacts on economic activity by altering the relative returns in the tradable and non-tradable sectors.

From the estimate long run model, GDP per capita has a negative significant effect on the CA deficit. This is consistent with both the absorption model and the stages of growth hypothesis. Absorption approach to current account sums up the Keynesian macroeconomic view which claims that an increase in disposable income raise consumption of both domestic and external goods and services hence worsening the current account position. Alternatively, the stages of growth hypothesis postulates that a developing economy needs to import substantial capital goods during the early stages of economic development hence running into CA deficit. However once the economy

271 develops, it is likely to produce massively for external consumption hence reducing the current
272 account deficit.

273 Finally dependency ratio and net foreign assets are negatively impacting on the current account
274 balance. High dependency ratio reduces savings rate, increases consumption and CA worsens. In
275 addition, high net foreign assets have negative impact on the current account position. The net foreign
276 assets, according to the inter-temporal approach, acts as a key CA balance determinant, and the
277 initial high NFA quantities are linked with the succeeding expansion of CA balances. Future flow of
278 incomes in terms of interest, dividend inflows and outflow bring about this negative effect. Countries
279 with high trade deficits can sustain high trade deficits while remaining solvent these implies a negative
280 association between NFA and CAB.

281 **4.4.2 The Short Run Results-Vector error correction model (VECM)**

282 The error correction coefficient is -0.145766 as shown in the error correction model in table 4. This
283 suggests that 15% of any disequilibrium is corrected in every year. In addition, reveals, it implies that
284 the explanatory variables Granger-cause current account balance in the long run.

285 **Table 4 Vector error correction model**

Vector Error Correction Estimates			
Co-integrating Eqt:			
Error Correction:	D(CAB)		
ECMt-1	-0.145766		
	(0.07476)		
	[-1.94966]*		
D(CAB(-1))	-0.338615		
	(0.17810)		
	[-1.90121]		
D(DR(-1))	-3.863527		
	(1.65520)		
	[-2.33417]*		
D(GDP_P(-1))	0.007810		
	(0.01628)		
	[0.47967]		
D(FB(-1))	-0.148729		
	(0.15594)		
	[-0.95374]		
D(M2_GDP(-1))	0.029352		
	(0.28478)		
	[0.10307]		

D(NFA_GDP(-1))	-0.108101		
	(0.04682)		
	[-2.30904]		
D(OPRICE(-1))	0.001116		
	(0.07914)		
	[0.01410]		
D(REER(-1))	0.228225*		
	(0.07929)		
	[2.87837]		
D(TO(-1))	-0.000522		
	(0.00116)		
	[-0.44939]		
D(Y_GAP(-1))	-25.95129		
	(19.7232)		
	[-1.31578]**		
C	-3.451999*		
	(1.75115)		
	[-1.97128]		
R-squared	0.592387		
Sum sq. resids	187.5460		
S.E. equation	2.988438		
F-statistic	2.774499		
Log likelihood	-75.49399		
Akaike AIC	5.302666		

286 Standard error in () t-statistic in[] * 5% significant ** 10% significant

287 Source: Author 2016.

288 5.2 Conclusions

289 The study examined the drivers of current account persistent deficit in Kenya using time series data
 290 spanning 1980-2014. The study employed VAR and VECM models to capture the short run and long
 291 run dynamic relations ship between current account deficit and selected macroeconomics and
 292 demographic variables. The findings are: the level of financial deepening in Kenya has no effect on
 293 current account deficit. However, current account deficit is significantly driven by trade openness,
 294 fiscal deficit, business cycles, fiscal balance, trade competitiveness, dependency level and stage of
 295 economic development and oil prices. Therefore, we recommend policies to revert CA deficit to
 296 sustainable levels based on the above findings.

297 4. CONCLUSION

299 5.3 Recommendations

300 The current account deficit in Kenya is unsustainable. It has dominantly depicted a persistent deficit
 301 for the period running from 1980-2015. The deficit has driven external debt upwards, increased
 302 pressure on exchange rate and now puts Kenya at a risk of current account reversals. To curb this
 303 problem, the government is recommended to:

- 304 1. Kenya needs to adopt fiscal consolidation efforts geared towards reducing fiscal deficit.

- 305 Fiscal balance in Kenya is largely determined by efficiency of revenue authority. For inter-
 306 temporal budget constraint to be satisfied, Kenya needs to run a fiscal surplus consistently.
 307 Stringent measures on tax collection and prudence in all fiscal authorities are crucial. Efforts
 308 should be made to consistently increase government revenue to match expenditure by
 309 expanding tax net to capture all taxable individuals and firms. This would ensure that
 310 expenditure do not move too far away from revenue. In addition Authorities may consider
 311 reducing tax exemptions to avoid revenue leakages
- 312 2. Fiscal rules in form of ceilings, governing medium term expenditures and debt should be
 313 adopted. For instance, fiscal anchors such as a Fiscal Responsibility Act as in Ghana,
 314 Switzerland and Chile would be useful so as to insulate budgetary process from political
 315 influence. Independent fiscal policy committees similar to independent central banks would be
 316 relevant. However, such acts are successful if they incorporate some exit clauses.
- 317 3. Kenya needs to take steps on measures to shield its economy from eternal oil shocks. These
 318 measures include promoting a structural change toward green sources of energy, the creation
 319 of strategic petroleum reserves and adopting market hedging strategies.
- 320 4. Improving export competitiveness: The government needs to improve Kenyan good
 321 competitiveness in world markets through reducing taxes on inputs for exportable goods and
 322 subsidizing exporting industries.
- 323 5. Kenya needs a proper fiscal and monetary policy mix. These policies are Key in managing
 324 business cycles by smoothing economic growth process. Monetary policy can be used to
 325 ensure exchange rate stability while fiscal policy can be used inform of tariffs on luxury
 326 imports to enforce expenditure switching patterns among consumers.

327 REFERENCES

- 328 1. International Monetary Fund (IMF) (1996). Balance of Payments Textbook, IMF, Washington
 329 DC
- 330 2. Milesi-ferretti M. and Assaf Razin .(1996). current account sustainability.NBER
 331 working paper, no: 5791.
- 332 3. Gichuki, K., and Moyi, E.(2013). An Intertemporal Assessment of Kenya's Current Account
 333 Deficits. *International Journal; of Economics and Management*. vol. 2, No. 9, 2013, pp. 34-43
- 334 4. Mukras, S., Momanyi, G. and Nyongesa, N. (2013). Is Kenya's current account sustainable?
 335 Stationarity and Cointegration Approach: *European Scientific Journal*. September 2013 edition
 336 vol.9, No.25 ISSN: 1857 – 7881
- 337 5. Government of Kenya (2013). Annual Central Bank Of Kenya Report.
- 338 6. Osakwe, P. And Sher, V.(2007). Current Account Deficits in Sub-Saharan Africa: Do they
 339 Matter?. United Nations Commission for Africa.
- 340 7. Abiad, A., Daniel L., Marco E. T. (2010). Transitioning from large surpluses: What are the
 341 costs? IMF Research department. CEPR policy portal. Account Balances, Swiss National Bank,
 342 Working Paper 2013-6.

- 343 8. Nguyen Bao,(2014). the effect of fiscal shocks on the current account Balance and Real
344 Exchange rate in Vietnam, Crawford school of public policy, Australia.
- 345 9. Blanchard, O., and Giavazzi. F (2005). The US current account and the dollar, National
346 Bureau of Economic Research. Brookings Papers on Economic Activity, 1:2005
- 347 10. Mutuku, C. (2015). Assessing Fiscal Policy Cyclicalilty and Sustainability: A Fiscal Reaction
348 Function for Kenya. *Journal of Economics Library*.Volume2.Issue 3
- 349 11. Wyplosz, C. (2011). Debt sustainability assessment: Mission impossible. *Review of*
350 *Economics and Institutions*, 2(3), 1-37. doi: 10.5202/rei.v2i3.42
- 351 12. Fazil, K. (2012) Determinants of the current account balance in Turkey: Vector auto
352 regression (VAR) approach. *African Journal of Business Management* Vol. 6(17), pp. 5725-5736,
353 2012
- 354 13. Ferrero, A., Mark, G., and Lars E.(2008) current account dynamics and monetary policy.
355 NBER working paper series
- 356 14. Clark, L. Chery, C. and Gardener, G. (2012). The external current account in the
357 macroeconomic adjustment process in Turkey. Princeton University Paper.
- 358 3. Gichuki, K., and Moyo, E.(2013). An Intertemporal Assessment of Kenya's Current Account
359 Deficits. *International Journal; of Economics and Management*. vol. 2, No. 9, 2013, pp. 34-43
- 360 4. Mukras, S., Momanyi, G. and Nyongesa, N. (2013). Is Kenya's current account sustainable?
361 Stationarity and Cointegration Approach: *European Scientific Journal*. September 2013 edition
362 vol.9, No.25 ISSN: 1857 – 7881
- 363 15. Chinn D. and, Prasad, S. (2003). Medium-term determinants of current accounts in industrial and
364 developing countries: an empirical exploration. *Journal of International Economics* 59 (2003) 47–
365 76
- 366 12. Fazil, K. (2012) Determinants of the current account balance in Turkey: Vector auto regression
367 (VAR) approach. *African Journal of Business Management* Vol. 6(17), pp. 5725-5736, 2012
- 368 16. Romer, C., and Romer, D.(2011). The Macroeconomic Effects of Tax Changes: Estimates Based
369 on a New Measure of Fiscal Shocks. *American Economic Review*, Vol. 100, June, pp. 763–801.
- 370 13. Ferrero, A., Mark, G., and Lars E.(2008) current account dynamics and monetary policy. NBER
371 working paper series
- 372 8. Nguyen Bao,(2014). the effect of fiscal shocks on the current account Balance and Real Exchange
373 rate in Vietnam, Crawford school of public policy, Australia.
- 374 9. Blanchard, O., and Giavazzi. F (2005). The US current account and the dollar, National Bureau of
375 Economic Research. Brookings Papers on Economic Activity, 1:2005
- 376 17. Obstfeld, M., Rogoff, K.,(2007).The unsustainable Us current account position revisited. University
377 of Chicago Press. Volume ISBN: 0-226-10726-4
- 378 18. Kim, S. and Roubin, N. (2008). Twin deficit or twin divergence? Fiscal policy, current account,
379 and real Exchange rate in the US, *Journal of international economics*. Volume 74, Issue 2, Pages
380 362–383
- 381 2. Milesi-ferretti M. and Assaf Razin .(1996). current account sustainability. NBER
382 working paper, no: 5791

383 19. Corsett, G., and Muller, J.(2006).Twin deficit: Squirring theory, evidence, and common sense.
384 CEPR paper

385 13. Ferrero, A., Mark, G., and Lars E.(2008) current account dynamics and monetary policy. NBER
386 working paper series

387 3. Gichuki, K., and Moyi, E.(2013). An Intertemporal Assessment of Kenya's Current Account Deficits.
388 *International Journal; of Economics and Management*. vol. 2, No. 9, 2013, pp. 34-43

389 4. Mukras, S., Momanyi, G. and Nyongesa, N. (2013). Is Kenya's current account sustainable?
390 Stationarity and Cointegration Approach: *European Scientific Journal*. September 2013 edition vol.9,
391 No.25 ISSN: 1857 – 7881

392 20. Obstfeld, M., Rogoff, K., (1998). Foundations of International Macroeconomics. *MIT Press*,
393 Cambridge, MA.

394 21. Roldos, J. (1996). Human capital, borrowing constraints, and the stages of the balance of
395 payments. *NBER working paper series*. -7581

396 22. Galí, Jordi, J. David López-Salido, and Javier Vallés. "Understanding the effects of government
397 spending on consumption." *Journal of the European Economic Association* 5.1 (2007): 227-270.

398 23. Obstfeld, Maurice and Kenneth Rogoff (1995).The Intertemporal Approach to the Current
399 Account. In G. Grossman and K. Rogoff (eds.), *Handbook of International Economics*, Vol. 3.
400 Amsterdam: North Holland

401 8. Nguyen Bao,(2014). The effect of fiscal shocks on the current account Balance and Real Exchange
402 rate in Vietnam, Crawford school of public policy, Australia.

403 24. Mundell, R. (1963). Capital Mobility and Stabilization Policy under Fixed and Flexible Exchange
404 Rates'. *Canadian Journal of Economics and Political Science*
405 29: 475–85

406 25. Kouassi, E., Mbodja M., and Kern O. (2004). Causality tests of the relationship between the twin
407 deficits. *Empirical Economics*, Vol 29, 503-525.

408 26. Barro, Robert J., 1974. Are Government Bonds Net Wealth? *Journal of Political Economy* 82 (6),
409 1095–1117.

410 27. Oshota, S. O., & Badejo, A. A. (2015). Impact of remittances on economic growth in Nigeria:
411 Further evidence. *Economics Bulletin*, 35(1), 247-258.

412 20. Obstfeld, M., Rogoff, K., (1998). Foundations of International Macroeconomics. *MIT Press*,
413 Cambridge, MA.

414 15. Chinn D. and, Prasad, S. (2003). Medium-term determinants of current accounts in industrial and
415 developing countries: an empirical exploration. *Journal of International Economics* 59 (2003) 47–76

416 28. Haile, A.(2013). Determinants of domestic savings in Ethiopia: An autoregressive distributed lag,
417 (ARLD) bounds testing procedure. *Journal of Economics and international finance*. Vol. 5(6), pp. 248-
418 257

419 29. Meade, J.E. (1951). The Balance of Payments, Oxford: *University Press*.

420 30. Salvatore, D., (2006). Twin deficits in the G-7 countries and global structural imbalances. *Journal*
421 *of Policy Modelling*. 28, 701-712.

15. Chinn D. and, Prasad, S. (2003). Medium-term determinants of current accounts in industrial and developing countries: an empirical exploration. *Journal of International Economics* 59 (2003) 47–76
8. Nguyen Bao,(2014). the effect of fiscal shocks on the current account Balance and Real Exchange rate in Vietnam, Crawford school of public policy, Australia.
31. Reinhart, CM and Rogoff, KS (2010).Growth in a time of debt. *American Economic Review*, Vol. 100, No. 2 (May 2010): 573-578
32. Kumhof, M. and Laxton, D.(2010). Fiscal deficits and current account deficits.IMF working paper. WP/09/237
15. Chinn D. and, Prasad, S. (2003). Medium-term determinants of current accounts in industrial and developing countries: an empirical exploration. *Journal of International Economics* 59 (2003) 47–76
33. Mosayeb, P., and Ali, S. (2009). Budget deficits and current account deficits in the Philippines. A causal relationship. *American journal of applied sciences*, 6 (8). pp. 1515-1520
34. Kaufmann, S. Scharler, J & Winckler, G. (2002). The Austrian current account deficit: Driven by twin deficits or by intertemporal expenditure allocation? *Empirical Economics*, vol. 27, no. 3, pp. 529-42
35. Gruber, J.W., and S.B. Kamin, (2007).Explaining the Global Pattern of Current Account Imbalances. *Journal of International Money and Finance*, 26(4), pp. 500–522.
36. Lau, E, Mansor, SA & Puah, C. (2010).The revival of the Twin Deficits in Asian Crisis affected Countries. *Economic Issues*, vol. 15, no. 1.
37. Chinn, Menzie D., and Hiro Ito. "Global current account imbalances: American fiscal policy versus East Asian savings." *Review of International Economics* 16.3 (2008): 479-498.
38. Bernanke, B., and Blinder, A. (1992). The Federal Funds Rate and the Channels of Monetary Transmission. *American Economic Review*, 82(4), pp. 901 921.
39. Johansen, S. and Juselius, K. (1990).Maximum likelihood estimation and inference on cointegration with applications to the demand for money", Oxford Bulletin of Economics and Statistics, vol. 52, pp. 169-210.
39. Johansen, S. and Juselius, K. (1990).Maximum likelihood estimation and inference on cointegration with applications to the demand for money", Oxford Bulletin of Economics and Statistics, vol. 52, pp. 169-210.

DEFINITIONS, ACRONYMS, ABBREVIATIONS

Here is the Definitions section. This is an optional section.

Term: Definition for the term

APPENDIX