WHAT DRIVES CURRENT ACCOUNT DEFICIT IN KENYA? EVIDENCE FROM

TIME-SERIES DATA (1980-2014)

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DECLARATION

This research project is my original work and has not been submitted for an academic award or any other kind of award in any other university.

Sign..   Date...

Cyrus Mutuku

This research project has been presented for examination with my approval as university supervisors.

Sign..   Date...

Dr. Daniel Abala

DEDICATION

I dedicate this research to Precious Ngina and Fleming Tony Mutuku, may economics sense never leave your minds.

ACKNOWLEDGEMENT

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LIST OF ABBREVIATIONS

CBK – Central Bank of Kenya

OLS-Ordinary Least Squire

GOK-Government of Kenya

CA-Current Account

DSGE-Dynamic Stochastic General Equilibrium

UNCTAD-United Nations Conference on Trade and Development

SAPS-Structural Adjustment Programmes

ELGH-Export-Led Growth Hypothesis

EAC-East Africa Corporation

EPS-Export Promotion Strategy

GDP-Gross Domestic Product

MUB-Manufacturing under Bond

EPZ-Export Processing Zone

KETA–Kenya Export Trade Authority

TREO-Export Promotion Programme Office

EPC-Export Promotion Control

BOP-Balance of Payment

WTO-Word Trade Organization

EAC-East Africa Corporation

COMESA-Common Market for Eastern and South Africa

IGAD-Inter-Governmental Authority on Development

EU-European Union

OECD-Organization for economic co-operation and development

GMM- Generalized Moments method

VECM-Vector Error Correction Model

VAR –Vector Autoregressive

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. In order to design a policy to revert the deficit to sustainable levels, the drivers of the deficits must be empirically established. 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. A one percent improvement in trade openness leads to about 4% improvement in CA balance. The policy recommendations drawn from the study are: Kenya needs fiscal consolidation efforts geared towards reducing fiscal deficit to a balanced or surplus budget position. Secondly Kenya needs to adopt oil hedging, reserves and alternative energy policies. Finally, proper fiscal and monetary policy mix to ensure export competitiveness, stable exchange rate and smooth business cycles.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

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 (IMF 1996). The econometric representation of the current account is;

$$CAB = X - M + NY + NCT \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.1..$$

In Kenya, current account balance has shown persistent deficit for a notable duration between 1980 to 2014. Figure 1 indicates a surplus balance in the current account, standing at 0.78% GDP in 2003. By 2014, the deficit rose to 10.5% of GDP. This sharp increase in deficit has created fear about the sustainability of current account deficits given the growing public debt to GDP ratio and pressure on exchange rate. An analysis framework was developed by Milesi and Razan in 1996 for analyzing CAB deficit sustainability. According to the framework, CAB is sustainability is closely linked to solvency.

CAB deficit is sustainable if the present value of future CAB surplus matches present debt. This is so because deficit creates a financing debt. The implication of this is that the inter-temporal

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budget constraint for sustainability is satisfied. Empirically, equilibrium CAB path is achieved if exports and imports are co-integrated. Using this approach, Gichuki and Moyi (2013) and Mukras et al., (2013) concluded that CAB deficit is unsustainable.

This deficit should be matched by equal capital inflows for external balance. However, according to GoK, (2013), the persistent deficit is one of the challenges to Central Bank of Kenya (CBK) performance as the there is no significance foreign direct investment (FDI) inflows to finance the BOP negative balances. There are several reasons why unsustainable current account deficits should be of great concern to economists and policy analysts.

Firstly, there is every high likelihood of investors avoiding assets valued in foreign currency if the CAB is unsustainable. This is because they view the current account deficit as a reflection of the state of an economy. Actually, current account sustainability is a key analysis carried out by investment banks and other key capital market participants .According to Osakwe and Sher, (2007), a reversal of the CAB could also happen as a result of a drastic decline in demand for country's assets, which could harm the domestic economy. CAB reversal is an economic phenomena where abrupt stall in the inflow of capital and subsequent significant depreciation lead to a sharp decline in large deficits to small deficits is what is called reversal in the current account. Reversals are disruptive to GDP growth and often causes banking and currency crisis, as witnessed in 1994 and 1997 in Asia and 1999 in Germany (Abiad et al. 2010, Bower et al. 2010 Nguyen (2014) and Blanchard et al. (2005).

Secondly, an accumulation of foreign debt to be redeemed in the future may result from a deficit in the current account, especially for small economies that depend on short term volatile capital inflows to finance CA deficit. Rational domestic investors always anticipate an increase in the

future taxes by the government to service and repay the debt. Their investment decisions are pegged on this increases in taxes with negative implications on employment and output. Empirical evidence casts doubt on the sustainability of debt policy in Kenya. Analysis based on a fiscal reaction function approach shows that public debt has breached sustainability conditions, Mutuku (2015). Contrary, debt sustainability analysis (DSA) report by World Bank gives a clean bill of health to Kenya. However, Wyploz (2011) has criticized the forward-looking DSA by World Bank insisting on a backward-looking approach known as fiscal reaction function.

Thirdly, empirical analysis has revealed that current account is closely linked to key economic growth determinant that includes: investment, savings, trade competitiveness, capital flows, and exchange rate volatility, Fazil (2012) and Ferrero et al. (2008). It is also a critical research area for economists and policymakers in developed and developing economies. Especially in the wake of 2008-2009 global financial meltdown, Alistair et al., (2012), Clark (2012), Gichuki and Moyi (2013), Mukras et al , (2013), Obstfeld, (2013)   and Chinn and Prasad (2003), Fazil , (2012) Romer , (2011) and Ferrero, (`2008). Evidently, world trade imbalances to a large extent accounted for the financial crisis of 2008-2009, (Nguyen 2014, Blanchard et al. 2005, Obstfeld and Rogoff 2007, Menda et al. 2007, Kim and Roubini, (2008).

Lastly, although economies can run massive deficits and still retain macroeconomic stability, this is only possible if a reliable deficit financing channel is available. Otherwise, it is a challenge for employment and poverty reduction efforts, particularly when the deficits are caused by rising imports of consumer goods that can be produced by domestic industries, (Nicole 2016). The rule of the thumb is that the deficit should not be above 5% of GDP (Milesi and Razan (1996) At CAB of 10.5% of GDP in 2014, Kenya has already broken the rule. The challenge to long-run

economic stability is further magnified by declining prospects for Kenya to accessing international financial aid to finance deficits due to sluggish economic growth and commodity prices in international markets.

A substantial number of studies testing alternative theoretical models have concluded that different factors are underlying current account dynamics. These theoretical approaches include the twin deficit hypothesis, (Corsett and Muller,2006,Mosayeb and Saleh,2006),dynamic stochastic general equilibrium (DSGE) model, (Ferrero et al 2008,) the intertemporal model (Gichuki and Moyi 2013, Mukras et al , 2013), Overlapping generations models, (Obstfeld and Rogoff, 1998) and stages of development hypothesis (Roldos, 1996,). Notably, these findings are quite contradicting and therefore cannot be generalized on other economies. Alternatively, a country specific study which captures institutional and structural characteristics of the economy would be appropriate in deducing the drivers of CAB.

1.2 The Current account and trade policy Trend in Kenya(1980 -2014)

There is an unsustainable current account balances in Kenya, which it is persistently negative. The deficit has grown for a couple of years with a surplus being realized only once in the period between 2003 and 2004. The rest of the period under analysis is marked by current account deficit bias as shown in figure 1 below. This bias is explained firstly by deteriorating terms of trade. That is, the value of imports has been growing at relatively higher rates compared to exports. This is mainly caused by increasing prices of oil and other intermediate goods imports. Secondly, the Kenya's exports are dominated by few primary commodities, which have low price and income elasticity's, (Kariuki, 2009)

Figure 1**Current account balance as a percentage of GDP trend** (**1980-2014**)
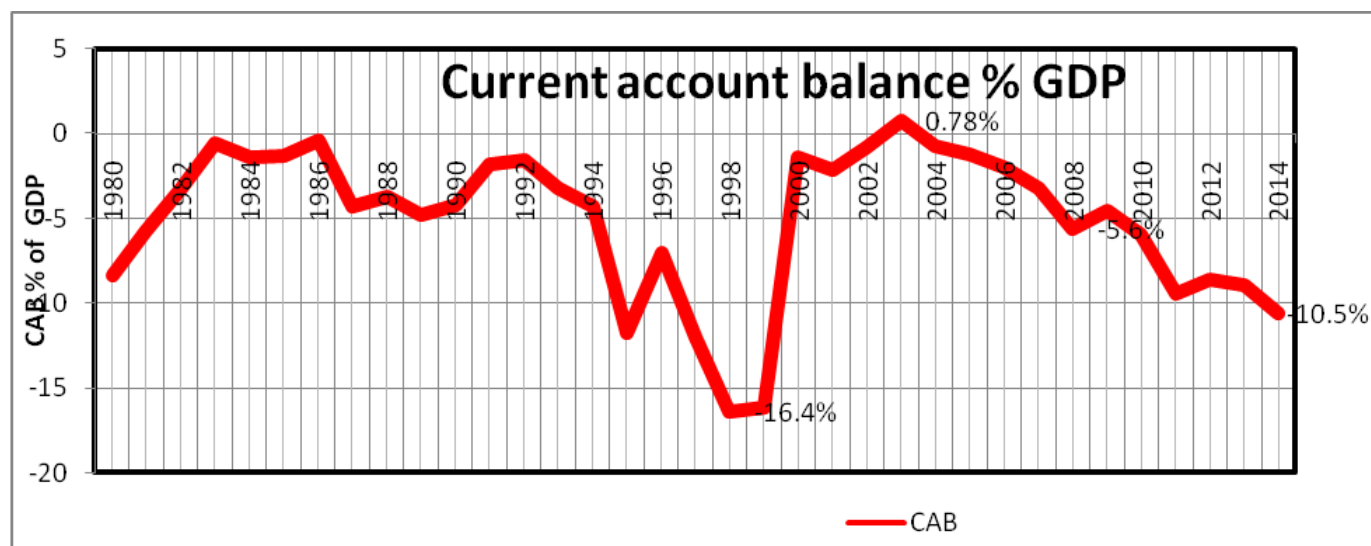
Source: UNCTAD data.

Historically, various trade policies have been put into place to influence trade and counter the deficit bias. These policies are substitution of imports, liberalization of trade through SAPs, exports led growth hypothesis and current multilateral trade agreements. The import substitution strategies aimed at industrialization through promotion of infant industries. As a result, a number of policies that were mainly regulatory and aimed at guarding key economic sectors were introduced. Incentive structures which were biased towards exporting were enacted. The driving objective was to ensure domestic availability of products. However, Kenya's industrial progress was disrupted by Import substitution policy which championed inefficiency and underutilization of available capacity. The protected infant industries could not penetrate international markets, (Bigsten et al. 2010). In 1970, following oil crisis and subsequent collapsing of East Africa Corporation (EAC) in 1977, import substitution policies were rendered inefficient.

Administrative measures including tariffs, licensing of importation and price regulations were adopted.

In early 1980s, under structural adjustment reforms and due to pressure from the multi-lateral financial institutions, Kenya shifted from imports substitution strategy (ISS) and adopted exports led growth hypothesis (ELGS) to address deteriorating exports performance. In this season, the ratio of the deficit account to GDP hit a low at 10% as shown in figure 1 above. According to Were et al, (2009), the principal exports promotions strategies put in place included Manufacturing under Bond, (Exports Processing Zones) EPZs in 1990 and the rejuvenation of the Kenya Export Trade Authority. The EPZs were subject to a tax holiday of ten years, import duty exemptions on processing equipment investments and from payments of VAT. Firms receive exemptions from import duties when their outputs are exported under MUB. Likewise, they receive exemptions from VAT on all their inputs. (Were, 2007).

Other additional incentive schemes that have been created to encourage exportation include (Exports promotion council) EPCS, Duty VAT exemption scheme administered under the Export Promotion Programmes Office. In 1992, the formation of the EPC was done to deal with challenges faced by exporters, and for a period it has managed to coordinated and coalesce this very purpose. Overhauling reforms in trade were fully implemented in the 1990s in the wake of BOP support withdrawal. In 1993, Kenya completely opened up and abolished both trade licenses requirement and foreign exchange control program. Subsequently, all registrations done under the current and capital accounts controls were withdrawn in 1994 resulting in a dip in the CAB to Gross Domestic Product ratio from 5% to 19% in 1998 as seen in figure 1. On the other hand, the decline was coupled by a widespread drought spell for the period between 1996 t0

1997. Similar drought occurrences coinciding with current account deficit noted in figure 1 between 1999 to 2001 and 2004 to 2006.

The efficacy of these measures was notably constrained by high effective rates of protection accorded to domestic industries. This is a measure of protection that is indicative of the implications of a tariff profile on the unit product's VAT, products meant for export. Other factors include exchange rate bias against exports, the high cost of imported inputs, foreign exchange controls, administrative delays and high transaction costs among others (Were et al., 2002). After the year 2000, the key trade policy measures for Kenya included treaties with the East African Community(EAC), Common Market for Eastern and Southern Africa (COMESA) and the Intergovernmental Authority on Development. (IGAD), (GOK, 2015).

The EAC members are Kenya, Tanzania, Uganda, Rwanda and Burundi. The EAC has achieved significant market growth for member country goods and services. EAC has made Market expansion possible through instruments such as EAC Customs Union Protocol and Common Market Protocol. However, its full potential has been constrained by the slow pace of implementation. On the other hand, COMESA is a Regional Economic Community of 19 countries its prime objective is to afford Member States opportunity for growing their trade on the trade block on a duty-free basis. In 2014, COMESA constituted 16% of Kenya's export destination. IGAD comprises of the following countries in the Horn of Africa - Djibouti, Somalia, Eritrea, Sudan, Ethiopia, Uganda, and Kenya. IGAD provides a regional integration framework through which trade between the seven countries can be expanded using shared commitments in other regional economic communities, (GOK 2015). CAB position improved in the wake of economic integration policies between 2000 and 2004. However, there is a sudden

increase in CAB after 2004 eroding the benefits of economic integration policies, (World Bank 2013).

Notably, despite the raft of policy measures taken to regulate international trade in Kenya, CAB is predominantly in a deficit position. This study seeks to investigate the driver of CAB in Kenya and give policy recommendations on how to revert the CAB deficit to a sustainable level.

1.4. Statement of the problem:

When a country runs persistent current account deficit for an extended period, it raises concerns about the sustainability of this deficit. As a rule of thumb, CAB deficit above 5% of GDP, is alarming especially if funded by short-term debt or foreign reserves, (Milessi and Assaf, 1996). In Kenya, current account deficit is unsustainable, (Gichuki and Moyi, (2013). The deficit worsened by 50.6 percent in the quarter two of 2013, (GOK, 2014. In 2014, the deficit was at 10.5% of GDP and 8.3% in 2015. Unsustainable current account deficit is a recipe for macroeconomic instability and financial crisis as witnessed in Asia in 1994 and 1997, Germany 1999 and European Union crisis in 2008-2013. It weakens export competitiveness, causes a currency crisis, increases external debt and reduces international reserves. Specifically, significant CAD raises the risk an abrupt cut in the flow of capital into an economy and accelerates the accumulation of debts, Blanchard et al., (2011). This abrupt stop in the flow of capital, also known as current account reversals are quite disruptive to economic growth and stability. Similarly, it is linked to key growth determinants and may also affect fiscal consolidation efforts. In the end, it may call for exchange rate regime change or tight macroeconomic policies. Evidently, the Current account continues to pose a serious threat to macroeconomic stability in Kenya, (GOK 2014). Therefore, the objective of this study was to establish the causes of persistent deficits in the CAB in Kenya explore the possible alternatives for managing the deficits

1.5 Research Questions

1. What drives the current account deficit in Kenya?

2. What measures should be taken to curb the persistent current account deficit?

1.6 Research Objectives

The general objective was to establish the possible drivers of the unsustainable CA deficit in Kenya and establish viable policy alternatives to address it.

Specific objective

1. To determine and empirically estimate what drives current account deficit in Kenya.

2. To draw policy recommendations to curb the persistent CAB deficits based on the study findings.

1.7 Justification of the Study

Despite there being empirical work on the CAB determinants, very few of them cover the subject in detail. Unsustainable CAB has implication on fiscal consolidation, macroeconomic stability and financial markets development. As Kenya strives to achieve Vision 2030, macroeconomic stability is one of the key ingredients. Similarly, the medium-term debt management strategy seeks to foster effective fiscal consolidation aimed at mitigating debt accumulation. This kind of steps have implications on the CAB. Theoretically, there is a link between current and budgetary deficit commonly known as twin deficit causality problem. It implies that if causality exists, austerity measures aimed at addressing fiscal deficit would have two-fold effects; on the budget deficit itself and consequently on the CA deficit. Therefore, a detailed understanding of the drivers of current account balance would be essential to policy makers, policy analysts, and the government.

1.8 organization of the project

The rest of the proposal is organized as follows; Chapter two reviews both theoretical and empirical literature and gives an overview of the literature while Chapter three outlines the methodology to be used by specifying the theoretical and empirical model. It also gives the data sources, types of measurement of the variables to be used.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction.

This section highlights the theoretical and empirical overview on the current account drivers. It gives a detailed analysis of the various theoretical models explaining the determinants of CAB balance. Also, the chapter contains a synthesis of past studies on the subject and an overview of literature.

2.1 Theoretical Literature Review

Analyzing current account imbalances has a standard starting point, the inter-temporal approach, an extension of absorption approach, Alistair et al., (2012) which has been extended to include fiscal policy and changing international conditions, Gali, et al., (2007). 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, Obstfeld and Rogoff, (1995). 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, (Nguyen 2014). The algebraic manipulation is shown as follows. Given national income identity;

$$Y = C + I + G + X - M --2$$

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

Similarly,

$$Y = C + S + T --3$$

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

$$S = I - T + G + (X - M) --4$$

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

$$CAB = (S - I) + (T - G) --5$$

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

The link explains several testable hypotheses. One is Mundell –Fleming hypothesis (1963) 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, Kouassi and Mougoué et al. (2004).

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. However, Ricardian equivalence hypothesis by Barro, (1974) challenges the link between the two deficits. According to this hypothesis, deficit financing through debt causes no aggregate demand and rates of interest adjustments. Rational consumers are confident about their capability of paying hiked taxes in the future, induced by the need to pay off their debts. This they do committing to save more. The disparity between total investments and expenditure in an economy can be easily connected to the deficit in the current account, hence what causes this imbalance could be the very factors that determine savings and investments such as financial and geographical ones., (Oshota and Badejo 2015).

On the other hand, structural models seem to emphasize on demographic factor, for instance, the overlapping generations model, Alistair et al, (2012), but this model are likely to produce entirely different predictions on determinants of current account imbalances. Overlapping generations' model (OGM), Obstfeld and Rogoff, (1998) suggest that fiscal deficit influences the deficits in the CAB by doing generational income distribution; both for the present and the future. The stages of development model argue that countries import more capital asset in earlier stages of development before takeoff hence run in to current account deficit. Structural models also emphasize on savings and its determinant especially demographic profile, Chinn and Prasad, (2003), and financial deepening, Haile, (2013).

The elasticity approach, Meltzer (1948) links exchange rate change with the current account changes via production and substitution effect. By allowing deviations in the exchange rates, the clear effects of prices changes can be observed on demand for both imports and exports through

the price elasticity. An assessment of influence of currency, exchange rates and flow of trade can be done on the balance of the current account. The disadvantage of this model is that it since its' a partial equilibrium analysis tool, and focuses only on the trade of commodities, not considering other market behavior determinants, then it is not exhaustive.

An alternative approach to this is the absorption method, Mead, (1951) which stipulates that macroeconomic variables on production and expenditure drive trade balances. According to this approach, negative balances in the current account can be reversed by doing trade imports from other economies, hence managing the excesses in spending and consumption. When income is in excess of consumption, then the CA is adjudged to be in surplus.

Polak, (1957) emphasized on monetary approach to BOP urging that the balance is driven by money supply and demand dynamics, the intertemporal approach derived from the absorption approach argues that current account surplus is a condition where production exceeds spending, or exports exceed imports. A country then becomes a borrower under conditions of CAB deficit. The analysis of the current account using the intertemporal approach means that attention is more on net foreign assets, hence no single approach is exhaustive in the analysis of current account deficits, Chinn and Prasad, (2003.

2.2 Empirical Literature Review.

African countries trade openness has increased tremendously over the last few decades. Consequently, their dependency on international trade has been on the rise. According to Nicole (2016), these trends are explained by a myriad of factors. Firstly trade is a crucial source of foreign exchange needed to import the intermediate goods required by local industries. Secondly, trade expands consumer choice, leads to diffusion of technology, and increases productivity,

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employment creation, and growth. Thirdly, reduction trade barriers and the increasing roles of large developing countries in the global economy have contributed significantly to international growth trade. However, Nicole (2016) notes that trade and current account deficits have also grown tremendously. Section 2.2 shows a detailed synthesis of past studies on drivers of current account deficit.

2.2.1 Current account and Fiscal deficits

The determinants of fiscal and trade deficit and their relationship have attracted a lot of concerns among economists. Some studies favor the twin deficit hypothesis, (Salvatore, 2006; Chinn and Prasad, 2003, while others support twin divergence approach, Erceg et al. 2005; Corsetti and Muller 2006. Mosayeb and Saleh, (2009) concluded that with bidirectional causality between the two deficits, policy measures to reduce the budget deficit should reduce the fiscal deficit and vice versa. These studies are either country specific or based on a panel of several heterogeneous countries or, short term, medium term or long run analysis current account balance determinants.

Chinn and Prasad (2003) used OLS panel regression techniques on 18 industrial and 71 developed economies to determine what causes the current account differences in the midterm across economies. The study incorporated both structural and macroeconomic factors as possible causes, and it was concluded that financial deepening, preliminary stock of NFAs, current account net balances, foreign assets and fiscal deficits as having positive causality effects on each other. Trade liberalization was also noted to have a negative effect on the balances of the current account.

Other than medium term analysis by Chinn and Prasad (2003), Debelle and Faruqee (1996) analyzed the short and long-run dynamics of the current account revealing from their findings

that factors influencing the balance include; business environment changes, relative incomes, demography, debts incurred by the government and exchange rates. This factors have a long term significance on the balances of the CAB. On the other hand, controls on capital, trading terms and fiscal surpluses do not. However, a panel error-correction models show fiscal policy shocks affect the current account balance. Although the study uses a standard panel approach with 21 countries, the sample is industrial countries biased. Secondly, the study fails to address joint endogeneity problem. Thirdly, it doesn't capture within and cross-economy effects in the analysis.

Calderon et al. (2002) addressed the joint endogeneity problem in Debelle and Faruqee (1996). This they did by differentiating between in country and cross country effects using advanced econometric methods. The study found that the balances in the current account become unfavorable when domestic production grows, terms of trade are improved and exchange rates are improved, while positive results are realized when private and public savings are increased, economic growth rates are improved and interest rates rise. Similar findings are echoed in Gruber and Kamin (2007) Lau, Mansor and Puah (2010) and Chinn and Ito (2008). However, Chin and Ito, (2008) contradict the earlier findings by revealing that demographics and income variables do not matter.

Similarly, the Keynesian view of twin deficit hypothesis is supported by empirical evidence from studies made by Gust and Guerrieri in 2005 which observes a strong relationship between the CA balance and fiscal deficit. However, Ricardian equivalence hypothesis which argues against an existence of twin deficit causality has been backed up by empirical findings of Evans and Hasan in 1994 and that of Kaufmann, Scharler and Winckler (2002). Rafiq in his study in 2010

surprisingly concludes that in an open economy's current account and fiscal balances are negatively correlated.

2.2.2 Fiscal and monetary policy shocks on current account

Some literature center on the effects of fiscal and monetary policy shocks on current account. Here, the VAR model, either structural VAR or recursive VAR are employed with varying identification schemes, like recursive VARS, Structural VARS or reduced form VAR. These include Bernanke and Mihov, (1998), and Romer and Romer in, (2010). They use the narrative approach, while Dungey and Fry (2007) engaged restrictions and permanent and temporary shock methodology. The findings support the effect of fiscal policy and monetary shock on critical macroeconomic variables over time.

Kim and Roubini, (2003) using a Structural VAR reported surprising results where a fiscal shock was seen to improve current account balance. Marcel at al (2009) using Bayesian structural VAR found market and housing price shocks to be having a causality effect on the US current account balances. It was found that the current account balance can be determined by the exchange rate shifts. This was against the conventional knowledge from previous literature.

Nguyen (2014) used quarterly data for Vietnam spanning 1996 to 2012 to investigate the implication of an economy's budget deficits on the CA and real rate of exchange. VAR approach was used in this analysis, the results being that the depletions in the CA balances can be caused by budget shocks which are positive through real exchange rate improvements. Nguyen, (2014) suggests that fiscal policy should be given more emphasis for macroeconomic stability. However, whether fiscal policy changes affects the current account, through Keynesian or Ricardian fashions is all pegged on the behavior of the households. Fiscal policy, it has been

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established through the Ricardian approach, cannot influence the balance in the current account; highlighting that an expansionary fiscal policy is met by a rise in savings and a decline in consumption as households expect to arise in taxation to service the debt. Alternatively, the Keynesian approach alludes that a fiscal deficit; due to a reduction in taxation or a rise in government expenditure level increases consumption, lowers savings and ultimately increases current account deficit. This is commonly known as the twin deficit hypothesis.

The effect of both fiscal and monetary policy disturbances on CA balance using recursive and sign restriction VAR models was done by Mthuli and Ndou, (2013) which outcomes point to a noteworthy and enduring impact of monetary policy on the CA balances, while at the same time the effect of fiscal policy is remarkable but interim. However, with contractionary monetary policy, Guloglu (2010) established that reverberations tend to a boost in the balance of trade, opposing the trade discoveries in numerous empirical studies. In the short-run though, the monetary expansion practices in developed economies are linked with significant boosts in the BOP, Gable, (1998).

VAR models are useful in the dynamic analysis based on impulse response functions and variance decompositions. However, they have some weaknesses. Firstly, the results are sensitive to identification procedure which explains contradictions in findings of most VAR based analysis. Secondly, most of the studies focus on fiscal shocks other than monetary shocks. In developing economies, monetary policy is more flexible and responsive to economic changes compared to fiscal policy.

2.2.3. Demographic features, macroeconomic variables and current account balance.

 Persistent negative balances in CA associated with low savings rate explained by the lack of developed financial markets, the incompleteness of assets market and low-income levels in emerging economies. Financial deepening, a key determinant for aggregate savings in an economy and has the significant effect on external balance, Chinn and Prasad, (2002). Other factors cited as having effects on the private saving and spending behaviors are growth in population and age structures. The ratio of old population, for instance, and dependency levels which are high do have a negative impact on the saving behaviors. Firstly, dependent, and the elderly consume more and produce less, exert pressure on the productive group and enhance retarded balances in the current account, Higgins, (1998) and Lane and Milesi-Ferretti, (2002).

Platon and Dimistris, (2014) using a co-integration technique and a vector error correction model revealed that the current account drivers can be categorized into, competitiveness indicators, catching up indicators, demographic factors, business-cycle indicators, fiscal variables, oil prices among others. In this study, real exchange rate is used as the competitive indicator. The debate in this study was that the purchasing domestic currency purchasing power can be improved by appreciating exchange rates hence encourage commodity imports. This improvement in the purchasing power enhances the financial valuation of properties held by local residents; such as real estates. It is due to this that a decline in domestic savings is experienced with an increase in the affinity to consume. To some extend also, the competitiveness of a country's export price tends to be diminished by the devaluation of domestic currency hence disrupting the exports in the international market. A similar argument is elucidated by Berger and Nitsch (2010).

Brissimis, et al (2010) argue that the removal of financial restrictions in the market empirically drives the current account deficit. Financial liberalization and financial deepening are positively related with reduced private saving as implied in the inter-temporal budget constraint faced by households. On the other hand, the rates of interest in real terms could, through income and substitution effects influence the individual saving behaviors. Through substitution effects, households could postpone consumption for the future when real interest rates are increased. The converse of substitution effect could occur where real interest rates are reduced hence creating a real opportunity to invest rather than save for future consumption. In the ultimate, both decisions depend on which effect is favorable.

Other determinant factors are created by inflationary tendencies in macro economy hence creating fickleness, (Brissimis, et al. 2010), a cyclical variable that is high GDP growth rate lead to small current account deficit (Barnes et. al.2010), trade openness, world oil prices and initial net foreign assets.

Milesi-Ferreti and Razin (1999) using an OLS and probit models found no effect of the growth of current account deficit for 105 developing economies. However, these results contradict Calderon et al. (1999) findings on CA and macroeconomic conditions. This study was done on panel data from 44 economies using GMM method. A very fragile relational effect was established between the CA balance and growth, a finding indistinguishable to those in Debelle and Faruqee, (1996), Bussiere et al. (2004) and Chin and Prasad, (2003).   These studies applied panel data constant effect, OLS with panel data pawn variables, GMM and VECM respectively. These suggest that determinants of current account balance may be country specific other than general for all the economies.

NFAs have been identifies in a number of studies as having an influence on the CA balance. Feusch, (2013) suggests that when the value of net fixed assets are high, economies benefit from increased high capital inflows, suggesting a direct causal effect between NFA and the CA balances. This is at variance with conclusions that the CA can be influenced by the NFA sustaining a high deficit in trade, while remaining financially sound. This results in a negative effect between the NFA and the CA balance. Another finding is that countries with high net fixed assets experience high inflow of income/ capital hence a positive causal relationship between the CA balances and the NFA, Morsy, (2009. At any particular moment, either of the two effects dominates the other, at least empirically.

2.3 Overview of Literature

Numerous studies have been conducted with an interest in the disparity of global trade and the sustainability of the CA. Current account imbalance is an indicator of not only a potential currency crisis and macroeconomic instability but also creates an impediment to achieving a sustainable economic growth. Studies tend to differ in their findings of what causes the persistence of negative balances in the current account, both theoretically and methodologically. This is regardless of whether the study is cross country or country specific.

For instance, Chinn and Prasad (2003) state that there is no single theory or model that can exhaustively explain the current account dynamics. In literature review, it is observable that the twin deficit hypothesis is widely favored (Salvatore 2006; Chinn and Prasad 2003; Nguyen 2014; Reinhart and Rogoff 2010; Kuhof and Laxton, 2010), while others support twin divergence Chin and Prasad, (2003) Mosayeb and Saleh, (2009). However, empirical evidence still exists on

Ricardian equivalence hypothesis, a challenge to twin deficit hypothesis, (Kaufmann et al, (2002).

Some studies emphasize on structural factors, (Higgins1998; in Gruber and Kamin 2007, Lau Mansor and Puah 2010 and Lane and Milesi-Ferretti2002) while other nullify their significance in explaining current account imbalances Chinn and Ito (2008). Similarly, panel models and VAR models seem to give contradictory results, Bernanke at al, (l992). Due to inconsistencies in past findings, the results cannot be generalized over other economies, not in previous samples. Hence, conclusive results would only be obtained from a country specific study. The study will analyze the causes of persistent and unsustainable current account deficit in Kenya using a log-linear econometric model.

CHAPTER 3

RESEARCH METHODOLOGY

3.0 Introduction

This section presents the econometric model used in the study and the framework upon which it has been developed. These include theoretical framework, type and sources of data, variables definition, data analysis theoretical and an empirical research model. Also, the chapter shows various diagnostic test and data analysis techniques.

3.1 Theoretical Framework

The net foreign assets, according to the intertemporal approach, acts as a key CA balance determinant, and the initial high NFA quantities are linked with the succeeding expansion of CA balances. Future flow of incomes in terms of interest, dividend inflows and outflow bring about this positive effect. On the other hand, countries with high trade deficits can sustain high trade deficits while remaining solvent these implies a negative association between NFA and CAB.

The Keynesian model explains the disparity between the fiscal and CA balances, which results in the twin deficit hypothesis. How the households respond in the Ricardian or Keynesian manner, however determines the impact. Ricardian approach observes that since rational consumers will save more while anticipating increased taxes in the future due to government incurring debts to cover for deficits hence no impact on the balances of the current account.

Stages of development hypothesis, measured by income levels show that economies tend to import capital as they move from low to middle income stages of development hence incurring deficits in their current accounts. In the advanced stages though, the pay for the build-up external

debts over time by increasing the current account (CA) balances. Under overlapping generation's model, demographic features are highlighted as key drivers of current account balance. Dependency ratio and size of the population affect the current account balance through savings channel. Alternatively, the effect of dependency ratio (DR) on CAB can be traced via public investment channel; a high DR may justify the essentiality of expanded investment in social infrastructure, hence aggravating the CA balance. A fast aging country is expected to run a current account deficit. The other structural indicator is financial deepening proxied by a size of domestic credit.

Trade liberalizations measured by the proportion of the total value of exports and imports to gross domestic product is frequently used to reflect macroeconomic policies on trade is a potential determinant of CA balance. The level of international trade liberalization highlights policy options, including regimes of tariffs applied. Trade liberalization then is noted as one of the key determinants of the balances arrived at in the current account.

This study will use oil prices as a variable that determines the balances of the current account because Kenya is a huge imported of oil. The role of exchange rate deflation and inflation on the current account balances are clearly demonstrated by the elasticity approach. The study will use the real effective exchange rate (REER) as a proxy for trade competitiveness and as a measure of the impact of exchange rate evolution on the balances of the current account balance. An appreciation of the *REER* increases the purchasing power in terms of imported goods of current and future income, as well as the value of the accumulated monetary and property assets of domestic agents. This effect tends to raise consumption and reduce the propensity to save. Thus, an increase in *REER* is expected to decrease private saving and the current account.

Therefore, a theoretical model for the study is fashioned as;

$$CAB = f(FB, NFA, REER, DR, FID, TO, OilP, Y\_gap, GDP\_P.)$$ 6

with CAB being a function of fiscal balance (FB), net foreign assets (NFA), real effective exchange rate (REER), dependency ratio (DR), financial deepening(FD), trading openness(TO), oil prices(oilP), output gap(Y-gap) and per-capita income(GDP_P).

3.2 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;

$$CABt = \beta_0 + \beta_1 FBt + \beta_2 NFAt + \beta_3 REERt + \beta_4 DRt + \beta_5 FIDt + \beta_6 TO + \beta_7 OilPt + \beta_8, Y\_gapt + \beta_9 GDP\_P + \varepsilon t ....7$$

Where $\beta_i, i = 0,1,2,...,9$ 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.

3.3 Variable Definition and Description

Current account balance (CAB): CAB is defined as the sum of the balance of trade (goods and services exports less imports), net income from abroad (NY) and net current transfers (NYT).

The net effect of cash inflows and outflows from an economy is referred to as net income from the diaspora. This cash flows include dividends, foreign direct investments and dividends. Current transfers on the other hand include unilateral transfers that yield zero returns; donations, aid, official assistance, grants, pensions and remittances, IMF, (1996). The data will be obtained from UNCTAD.

The difference between expenditure by government and revenue generated from taxes is called the fiscal deficit. (FD), measured in dollars, which data will be obtained from KNBS.Net financial assets (NFA): NFA refers to the value of oversees assets owned by a nation less the value of its domestic assets that are owned by foreigners. It is adjusted for changes in valuation. Data will be obtained from UNCTAD

Real effective exchange rate: (REER). This is the weighted average of a countries currency about an index or basket of other major currencies, adjusted for the effects of inflation. Data for this variable will be obtained from UNCTADDependency ratio (DR): Is an age-population ratio of those not in the labor force to those in the labor force. Data will be obtained from World Bank.

Financial Deepening (FID): Financial deepening refers to increase in financial services and accessibility in the economy. It's a reflection of the development of the financial sector. It will be measured using money supply aggregate M2. Data will be obtained from CBK.Terms openness (TO): is a measure of how restrictive policies in a given economy are to international trade. It's measured by the ratio of a sum of exports and imports to GDP.

Output gap is a measure of business cycles. It is the deviation of the actual output from the potential in a given year, computed by the Hodrick-Prescott (HP) Filter Method.GDP per Capita-is a measure of economic stage of development. It is measured by GDP to population ratio.

Table 1: **Table 1. Variable definition and description**

The table below shows the variables in the model estimated, type, measurement and expected prior expectation.

Variable	Denotation	Type of Variable	Measurement	A prior expectation
Current account balance	CAB	continuous	In $	dependent variable
Fiscal balance (%)	FB/GDP	continuous	Ratio	-ve or +ve
Net foreign assets	NFA	continuous	In $	Indeterminate
Real effective exchange rate	REER	continuous	index	-ve
Financial deepening	FD	continuous	In $	-ve
Trade openness	TO	continuous	ratio	+ve
Per-capita income	GDP_P	continuous	ratio	-ve
Output gap(%)	Output gap	continuous	ratio	-ve
Dependency ratio	DR	continuous	ratio	-ve
Oil prices	OILP	continuous	$ per barrel	-ve

Source: Author 2016

3.4 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. Also, longer periods are likely to be effected by structural breaks rendering the model estimated   less reliable.

3.5 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 ADF test is derived, respectively, from the following regression1 (Engle and Granger, 1987).

$$\Delta y_t = \alpha \, y_{t-1} + \sum_{i=1}^{m} \beta_i \Delta y_{t-i} + \theta + \gamma_t + \varepsilon_t \text{ (for variables at levels)}\ldots\ldots\ldots\ldots\ldots..8$$

$$\Delta \Delta y_t = \alpha \, y_{t-1} + \sum_{i=1}^{m} \beta_i \Delta \Delta y_{t-i} + \theta + \gamma_t + \varepsilon_t \text{ (for variables at first difference)}\ldots\ldots\ldots.9$$

Where m is the count of lags, ΔY the series' first differences, t is time and Y is the variable whose stationarity is being studied. The practical rule for determining the number of lags entail a trade-off between degrees of freedom and autocorrelation, implying it should be small enough to save the degrees of freedom but large enough not to allow for the existence of autocorrelation, Banerjee et, al. (1998).

We test the following hypothesis when investigating stationarity:

H_0: $\alpha = 0$ (non stationary)

H_1: $\alpha \neq 0$ (stationary)

The null hypothesis is rejected only and only if when the stationarity is established in the time series data. Co-integration test is conducted when the order of integration between variables is of the same order. This is in order to avoid spurious regression results. Co-integration test is carried out to ensure that the regression model is statistically sound for meaningful data analysis. The study ran a VAR based Johansen and Juselius (1990) tests to check for co-integration between variables. Based on the characteristic roots, Trace and Eigen statistics shall be 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.

CHAPTER FOUR

4.0 RESEARCH ANALYSIS AND FINDINGS

This chapter presents the data analysis results. It presents a preliminary analysis on descriptive statistics, time series trends and properties such as stationarity. The chapter further presents both the long run and short run models using VAR and VECM.

4.1 Table 2 Descriptive statistics

	CAB	M2_GDP	FB	DR	GDP_P	NFA_GDP	OPRICE	REER	TO	Y_GAP
Mean	-5.174857	37.15219	-11.70478	96.08057	549.0803	46.29958	45.03143	130.5630	4424.340	-0.002057
Median	-4.330000	36.51780	-11.61264	93.57000	408.9800	60.45880	36.30000	142.0620	3609.870	-0.002073
Maximum	0.790000	52.30986	-3.586560	112.9800	1358.260	118.7907	98.13000	198.5780	11069.16	0.101096
Minimum	-16.73000	26.68185	-23.91885	81.43000	222.7200	-24.47944	15.90000	67.73900	1496.148	-0.082431
Std. Dev.	4.556271	7.436712	4.380608	12.13295	308.3283	47.81144	25.82592	34.16062	3032.425	0.045694
Skewness	-1.057880	0.575690	-0.846522	0.221049	1.328194	-0.180315	0.769408	-0.566100	1.070990	0.301013
Kurtosis	3.368765	2.425887	3.617616	1.406366	3.438419	1.499695	2.419718	2.252533	2.902387	2.994350
Jarque-Bera	6.726455	2.413956	4.736445	3.988717	10.57089	3.472246	3.944331	2.684182	6.704841	0.528599
Probability	0.034623*	0.299100*	0.93647*	0.136101*	0.005065*	0.176202*	0.139155*	0.261299*	0.035000*	0.767743*
Observations	35	35	35	35	35	35	35	35	35	35

Source: Author 2016   *insignificant at 5%   =:

From table 2 above, the average current account balance was a deficit of -5.17% for the period between 1980-2014 while the fiscal deficit was on average -11.7% of the GDP. On the other hand, oil prices on average where 45 dollars per barrel while real effective exchange rate was 130. The table also shows variables normality test based on Jarque-Bera statistic. The null hypothesis of normally distributed variables is not rejected at 5% significance level.

4.2 Stationarity test

Macroeconomic time series variables mostly exhibit time variant moments. . Figure 2 below shows the time evolution of the macroeconomic variables under consideration. The line graphs shows that the variables have erratic trends suggesting that they have unit roots. This can be confirmed through stationarity test.

Figure 2: Variable trend at level
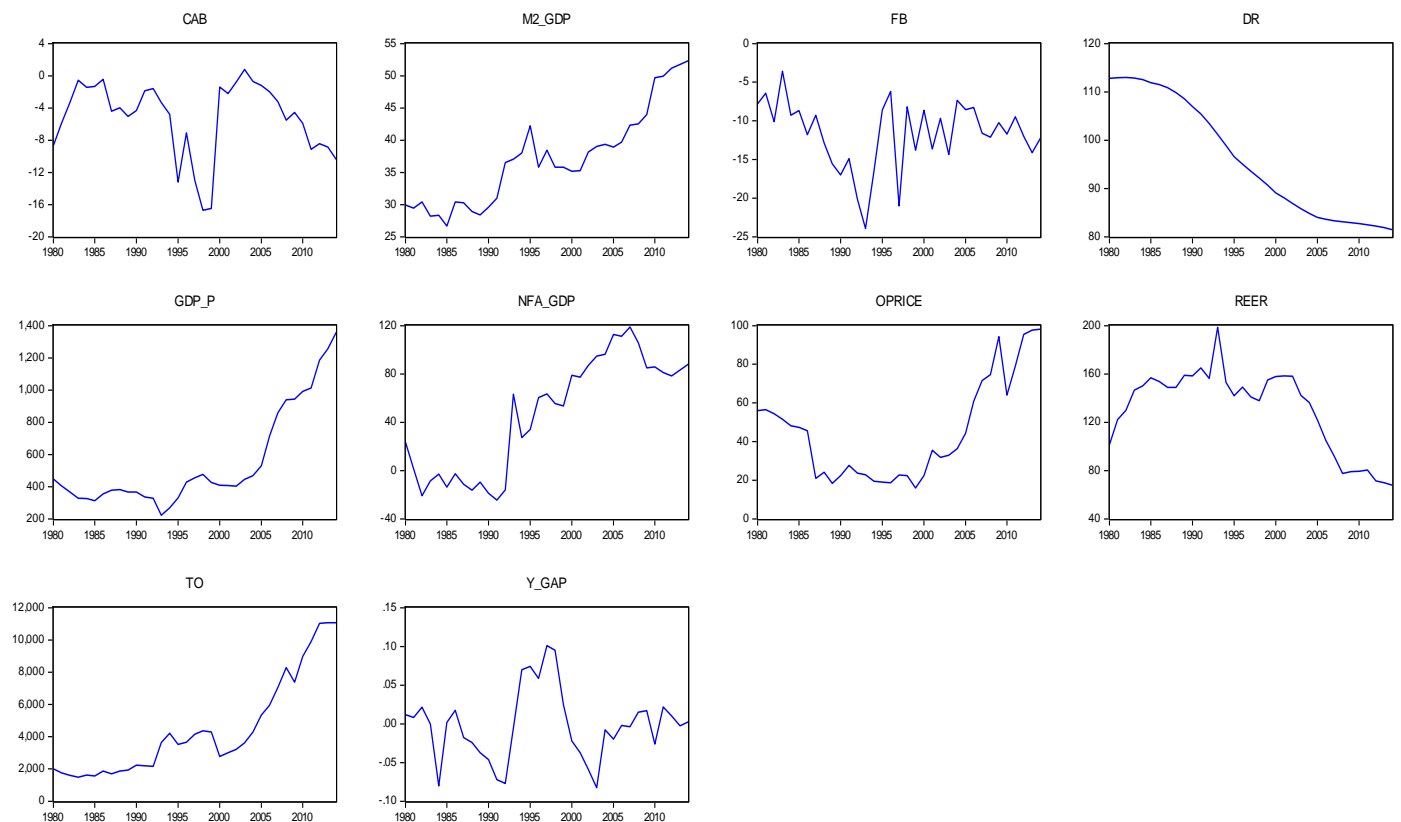
Source:Author,2016

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 residuals are white noise. The decision criterion

involves comparing the computed tau values with the Mackinnon critical values for rejection of a hypothesis of a unit root.

Table 3. Test for stationarity results

Unit root test with trend and intercept					
Variable	ADF		PP		conclusion
	Level	1st Difference	Level	1st 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)

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

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

Figure 3: Trends of differenced Variables

In figure three below, a plot of the variables at first difference shows that they are stationary since the trends revolve around the mean.
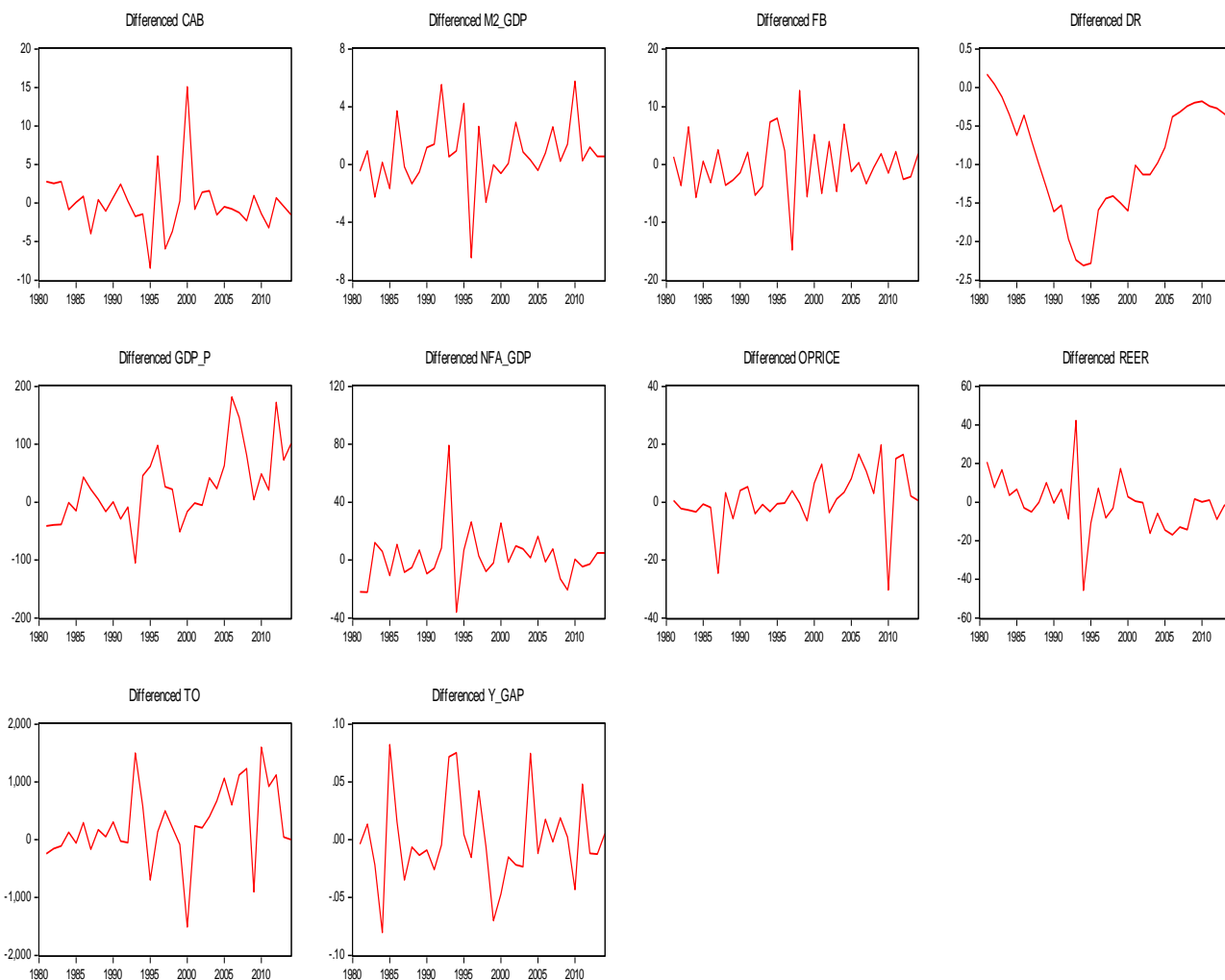
Source: Author, 2016.

4.3 Test for co-integration

Since variables have unit root at level, we tested for long run relationship using the Johansen and Juselius (1990) approach to establish the co-integrating vectors. Two test

statistics (Trace and Eigen) are used to test the number of co-integrating vectors based on the characteristic roots. For both trace and Eigen statistics, the null hypothesis is at most r co-integrating vectors. The trace statistics is computed as

$$\lambda_{trace}(r) = -T \sum_{i=r+1}^{k} \ln(1 - \hat{\lambda}_i) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.13$$

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

$$\lambda_{\max}(r, r+1) = -T \ln(1 - \hat{\lambda}_{r+1}) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.14$$

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

Table4 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				

Source: Author 2016

4.4 Estimation of VECM and co-integrating model

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

4.4.1 The Long run Model Results

The co integrating model in table 5 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 shows that fiscal balance has significant effect on the current account balance. As fiscal deficit widen, 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 result validate the Keynesian view of the relationship between the two deficits and nullifies the Recardian equivalence view. The later 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 5: 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 develops, it is likely to produce massively for external consumption hence reducing the current account deficit.

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

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

The error correction coefficient is -0.145766 as shown in the error correction model in table 6. This suggests that 15% of any disequilibrium is corrected in every year. In addition, reveals, it implies that the explanatory variables Granger-cause current account balance in the long run.

Table 6 Vector error correction model

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

Source: Author 2016.

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

CHAPTER FIVE

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary and Discussion of Results

This study sought to investigate the drivers of the persistent current account balance in Kenya. It applied both VAR and VECM models to analyze the effect of selected variables on current account balance. 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 . Although conventional knowledge has that financial deepening increase capital investment and capital gains hence relaxing consumer expenditure constraint and therefore more consumption leading to more imports and a CA deficit (Chinn and Prasad (2003), this is not true for Kenya. The contradicting findings are explained by the fact that Kenya is a developing economy and may not have developed financial markets similar to those in advanced economies.

 Notably, 1% improvement in trade openness leads to about 4% improvement in CA balance . Trade openness measures the level of trade liberalizations. It is frequently used to reflect macroeconomic policies on international trade where the level of international trade liberalization highlights policy options, including regimes of tariffs applied. This finding emphasizes that a more open economy is likely to balance its current account easily than a less open economy. Similar findings have been emphasized by by Edwards(2004).

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. As noted in Özlale,& Pekkurnaz, (2010) oil price shocks have a short term effect on CA but do not have a long run effect. This is more explained by the fact that Kenya is being a net importer of oil may not be able to control the international price market of crude oil hence it is adversely

affected by oil prices (world Bank 2013).The results from the co integrating model also shows that fiscal a balance has significant effect on the current account balance. As fiscal deficit widen, 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 nullifies the Recardian equivalence view which 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. Similar findings are echoed in Gruber and Kamin (2007) Lau, Mansor and Puah (2010) and Chinn and Ito (2008). However, Chin and Ito, (2008) contradict the earlier findings by revealing that demographics and income variables do not matter. Probably, the twin deficit hypothesis is only observable in specific countries and nor generally in all economies.

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

Finally dependency ratio and net foreign assets are negatively impacting on the current account balance. High dependency ratio reduces savings rate, increases consumption and CA worsens. Dependants consume more and produce less, exert pressure on the productive group and enhance retarded balances in the current account. This findings are consistent with Higgins, (1998) and Lane and Milesi-Ferretti, (2002).Platon and Dimistris, (2014).

On the other hand ,the net foreign assets, according to the inter-temporal approach, acts as a key CA balance determinant, and the initial high NFA quantities are linked with the succeeding expansion of CA balances. Future flow of incomes in terms of interest, dividend inflows and outflow bring about this positive effect. On the other hand, countries with high trade deficits can sustain high trade deficits while remaining solvent these implies a negative association between NFA and CAB

5.2 Conclusions

The study examined the drivers of current account persistent deficit in Kenya using time series data spanning 1980-2014. The study employed VAR and VECM models to capture the short run and long run dynamic relations ship between current account deficit and selected macroeconomics and demographic variables. The findings are: the level of financial deepening in Kenya has no effect on current account deficit. However, current account deficit is significantly driven by trade openness, fiscal deficit, business cycles, fiscal balance, trade

competitiveness, dependency level and stage of economic development and oil prices. Therefore, we recommend policies to revert CA deficit to sustainable levels based on the above findings.

5.3 Recommendations

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

1. Kenya needs to adopt fiscal consolidation efforts geared towards reducing fiscal deficit. Fiscal balance in Kenya is largely determined by efficiency of revenue authority. For inter-temporal budget constraint to be satisfied, Kenya needs to run a fiscal surplus consistently. Stringent measures on tax collection and prudence in all fiscal authorities are crucial. Efforts should be made to consistently increase government revenue to match expenditure by expanding tax net to capture all taxable individuals and firms. This would ensure that expenditure do not move too far away from revenue. In addition Authorities may consider reducing tax exemptions to avoid revenue leakages

2. Fiscal rules in form of ceilings, governing medium term expenditures and debt should be adopted. For instance, fiscal anchors such as a Fiscal Responsibility Act as in Ghana, Switzerland and Chile would be useful so as to insulate budgetary process from political influence. Independent fiscal policy committees similar to independent central banks would be relevant. However, such acts are successful if they incorporate some exit clauses.

3. Kenya needs to take steps on measures to shield its economy form eternal oil shocks. These measures include promoting a structural change toward green sources of energy, the creation of strategic petroleum reserves and adopting market hedging strategies.

4. Improving export competitiveness: The government needs to improve Kenyan good competitiveness in world markets though reducing taxes on inputs for exportable goods and subsidizing exporting industries.

5. Kenya needs a proper fiscal and monetary policy mix. These policies are Key in managing business cycles by smoothing economic growth process. Monetary policy can

be used to ensure exchange rate stability while fiscal policy can be used inform of tariffs on luxury imports to enforce expenditure switching patterns among consumers.

5.4 **Limitations of the study**

The study relied on secondary data from World Bank, UNTAD and IMF. The data may vary depending on source casting doubt on accuracy. Secondly, theory has suggesting so many factors as drivers of current account balance. Practically, it may not be possible to capture all of them in a single study.

5.5 Suggestions for further reading

This study only captures the effect of selected macroeconomic and demographic factors on current account balance. However, a country specific study on the dynamic effect of monetary and fiscal policy shocks on balance of payment components would be useful in informing policy in this area.

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