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The impact of exchange rate regime on Balance of payments in Namibia

AFOLABI Tunde Ahmed & NANKELA Ndinelago Monika

Abstract

The central purpose of this paper is to analyze the impact of exchange rate regime on Balance of payments in Namibia and to determine whether this arrangement is beneficial or not for Namibia. For this concern, the paper uses the VECM method of estimation with two equations with yearly data covering the period of 1990 and 2018. The empirical results indicated that there is a negative statistically significance relationship between REER and export also between REER and FDI leading then into the expensiveness of the local production of goods & services in international markets and lose competitiveness hence worsening the BoP. On the other hand, when REER depreciates foreign direct investment flows to Namibia increases. Despite the two results, FDI is the key vital engine for Namibia's export. This can be noticed in the mining sector which is the main sector whose Namibia's export is dependent on. The paper suggests that, pegging to the rand is an appropriate exchange rate regime for Namibia. However, Namibia should consider exploring macro-economic policy independence and be involved in the determination of exchange rate within the CMA framework in order to avoid further deterioration of BoP. The paper also further suggested that Namibia should reduce its dependency on import by promoting the base of its manufacturing and other sectors as this will help to protect itself from changes in foreign price developments particularly from South Africa. The study will help the Namibian policies makers to pay a closer attention to exchange rate regime policies and the researchers in their academic works.

Keywords: Exchange Rate regime, Export, FDI, GDP and VECM.

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1. INTRODUCTION

Following the collapse of the Bretton Wood system in 1971, monetary integration is still finding its ground especially in the developing economies. The period following the end of the Bretton Wood witnessed a diminishing desire for a fixed exchange rate regime, however higher interest of monetary integration, especially in the Western Europe came back into view later in the 1980s. Given the successful establishment and effective integration of the European Monetary Union, many countries have joined monetary unions. Fundamentally, it is believed to be more advantageous for economies that pose similar characteristics to form a monetary area due to the benefits that accrue to member states that forms up the union. Presently, there is no global definition to define what a monetary union is due to the fact that there is a range of monetary arrangements that display various features yet they are referred to as monetary integrations. However, the early literature on monetary integration by Mundell (1961) defines an optimum currency area (OCA) as a currency area for which the costs of relinquishing the exchange rate as an internal instrument of adjustment are outweighed by the benefits of adopting a single currency or a fixed exchange rate regime (Ricci 2008). Within a currency area, member countries can either adopt a fixed exchange rate regime or a single currency or maintain a floating exchange rate regime with the rest of the world. Giving up the use of the nominal exchange rate instrument as a policy to mitigate shocks is one of the commitment when forming a currency union therefore participating countries have to consider it beforehand. In order for a country to fall within the definition of "optimality", it means that the impact of shocks is minimized by partaking in the monetary integration. Subsequently, optimality is defined in terms of various OCA properties such as the degree of openness, inflation rate similarities, financial market integration, diversification in production and consumption, and political integration. Hence, economies forming a currency union expect the benefits to outpace the costs.

For the past decades, Namibia has been a member of a Common Monetary Area (CMA) whereby the Namibian currency (Namibia Dollar) is pegged to the South African rand on the basis one-to-one parity. The CMA is a fixed-exchange-rate arrangement that groups four countries: South Africa, Lesotho, Namibia, and Swaziland to a multilateral trade agreement in 1990. Namibia is a small open economy that is more dependent on import. 80% of Namibia's imports originate from South Africa, and 30 percent of Namibia's exports are destined for the South African market or transit through. The chief argument for Namibia to peg its currency to the South African currency is pointing to the benefits of price stability, increased investment, elimination of exchange rate risks, and increased intra trade since South Africa is its major trading partner. Furthermore, Namibia opted for this policy because by pegging their national currencies to a strong currency (principally to the South African rand) they could import credibility and confidence to their economies. Therefore, in light of the above, the paper seeks to analyze the impact of the peg between Namibia and South Africa on the balance of payment of Namibia and to determine whether this arrangement is beneficial or not for Namibia.

Statement of the problem

Namibia is a small open economy who is highly dependent on the external trade. Approximately 80% (NPC, 2002) of Namibia's good and services are imported from South Africa. South Africa on the other hand is a highly diversified economy. The deviation in the structure of the two economies makes Namibia more vulnerable to the external shocks. One of the major problems of the CMA arrangement is the loss of the autonomy in monetary

policy. This arrangement prevents Namibia from exercising any discretionary monetary policy, meaning that Namibia cannot use monetary policy independently to influence the economy. The lack of the nominal exchange rate becomes more of a trouble and costly when Namibia and South Africa get affected differently by external shocks. Namibia and South Africa have different economic structure, the Namibia's production and export base is narrow being heavily dependent on minerals and agricultural production. Whereas the South African economy is extremely diversified, it's having a wide base with regards to its mineral, agricultural, and manufacturing production. As a result, Namibia is at a greater risk of facing different shocks, dissimilar to those of South Africa. In 1994 South Africa changed its exchange rate regime from a pegged exchange rate regime to a flexible exchange rate regime, adopting inflation targeting as its monetary framework. Consequently, as a way of mitigating shocks, Namibia has resorted to fiscal deficits that are largely financed through borrowing, resulting in the lowering of international reserves and high debts. Namibia has been experiencing a persistent capital outflow, as a result of excessive foreign currency outflow to South Africa and slow foreign inflows mainly by the current account of the balance of payment. This led into a decline in foreign reserves in Namibia. An outflow of capital could mean that South Africa would have more funds for investment and development leading regional disparities.

2. Literature Review And Theoretical Analysis
2.1. Theoretical Review

From a theoretical point of view, the impact of exchange rate on balance of payments is unambiguous. On the one hand, it is argued that a rise in exchange rate instability increases the uncertainty of profits on contracts denominated in a foreign currency. This is due to the fact that risk leads risk-averse and risk-neutral agents to redirect their activity from higher risk foreign markets to the lower risk home market. On the other hand, higher exchange rate volatility and higher risk represent a greater opportunity for profit and might increase trade. However, it is the volatility of exchange rates which is the source of exchange rates risk and has certain implications on the volume of international trade, consequently on the balance of payments. As pointed out by De Grauwe, (1988), an increase in risk has both a substitution and an income effect. The substitution effect decreases export activities as an increase in exchange rate risk induces agents to shift from risky export activities to less risky ones. While a stable exchange rate motivate the agents to take their chances with the risky export activities in order to maximize their profit. The income effect, on the other hand, induces a shift of resources into the export sector when expected utility of export revenues declines as a result of the increase in exchange rate risk. Hence, if the income effect dominates the substitution effect, exchange rate volatility will have a positive impact on export activity. In addition, an increase in exchange rate volatility can create profit opportunity for firms if they can protect themselves from negative effects by hedging, or if they have ability to adjust trade volumes to movements in the exchange rate. Using the goods and money markets, Dincer and Kandil (2011) demonstrated theoretically how exchange rate affects export in the following two ways: (1) Unanticipated appreciation in the local currency against its trading partners will lead to exports being expensive while import becomes cheaper in terms of the good market. This situation does not auger well for countries that depend on the foreign markets for its extracted resources or manufactured goods and services as it has the ability to lower productivity of local firms. (2) A positive shock to the local currency through sudden appreciation or overvaluation of it leads to lower interest rates as agents will prefer to hold

less domestic currency. Thus through the money market, a positive shock to the local currency can reduce the local production output.

On the other hand, in terms of FDI we have found four main theories that tries to determine motivation behind investing in foreign countries, "the production cycle theory" "theory of exchange market or imperfect capital" "the international theory" and "the eclectic (OLI) paradigm of Dunning" Based on the production cycle theory (Vernon, 1966) there are four stages in production cycle, innovation, growth, maturity and decline. Originally a company begins with a product/idea , it grows on it in home and host country, attains maturity stage where its growth slows before decline due to less innovation or competition from other countries. There in order for the company to sustain market share in the host country it has to engage in FDI by bringing production facilities near target market in a host country.

According to "theory of exchange market or imperfect capital" (Cushman, 1985) companies engage in FDI due to fluctuations in exchange rate. Appreciation or depreciation of exchange rate can affect profitability and costs of company operation. Therefore by moving operations to a host country many uncertainties caused by exchange rate fluctuations can be reduced. The international theory (Hymer, 1972) is in some way similar to the production cycle theory. According to this theory in order for MNC"s to increase their market share in global market they have to engage into FDI in foreign countries. There are two significant benefits from this according to the theory. First one is that, by investing in the host countries MNC's can remove emerging local competition with their global expertise. Secondly, they can develop their further expertise by acquiring local resources and management practices.

2.2. Optimum Currency Theory (OCA)

OCA is a geographical region in which it would maximize economic efficiency to have the entire region share a single currency. It describes the optimal characteristics for the merger of currencies. This theory is used to argue whether a certain region is ready to become a currency union or not. The core theory of optimum currency areas (OCAs) was first initiated by Mundell (1961) who viewed factor mobility as the key criterion in the choice for deciding whether or not to join a currency union (Bayoumi 1994). Mundell (1961) emphasized the factor mobility, especially the labor mobility, as a crucial criterion in forming an OCA. He argued that if the exchange rate regime within a region causes unemployment in one part of the region, or if it forces another part of the same region to accept inflation as the cure for unemployment, then this regime is not optimal. Mundell stressed labor mobility as the mechanism that may bring the balance of payments back into equilibrium. If there is high labor mobility, then labor from region A will move to region B, so there will be no more unemployment or inflation pressures and there will be no need for having their own exchange rates, but one common monetary policy will be satisfactory to both of them. Therefore, Mundell says that if there is high degree of labor mobility within a region, then that region should have a fixed exchange rate within its borders and flexible exchange rate with the rest of the world. But if there is internal labor immobility, it does not matter what regime the respective country has. Mundell (1961) further emphasized the importance of price and wage flexibility as mechanisms to cope with idiosyncratic demand shocks. Hence, if labor mobility or price and wage flexibility is present in an economy (region), there is no need for changes in its exchange rate. McKinnon (1963) contribution to the OCA theory centered the degree of openness as an important criterion in forming the OCA. McKinnon defines degree of openness as a ratio of tradable to non-tradable. McKinnon argued that the more the economy is open the more reasons there is for adopting a fixed exchange rate, however if the economy is closed then a flexible exchange rate is preferable. The reason for this is that when there is a

higher degree of openness in the economy, the likelihood that foreign prices of tradable will be transmitted to the domestic cost of living is higher. This effect would cause the reduction of money illusion, so that wage contracts and prices will be highly influenced by the exchange rate. So, changes in the exchange rate would cause adjustments in those variables, implying that changes in the exchange rate are less efficient in changing the terms of trade and less useful as an adjustment mechanism. Therefore, a small open economy would find it beneficial to join a larger common currency area. He further stressed out that, In order to resolve balance of payments problems in the economies with a high ratio of tradable to non-tradable, those economies should rely more on alternative instruments, for example, on the fiscal policy.

2.3. Empirical literature review
2.3.1. Motivations for choice of exchange rate regime
One of the great debates in economics is whether the exchange rate should be fixed or be allowed to float. This argument is still uncertain, because the choice of exchange rate regime involves some difficult trade-offs. The choice of exchange rate regime is linked to some extent to the attainment of specific targets set by the monetary authorities. These targets are usually related to internal and external imbalances. Hence, a correlation between the choice of the exchange rate regime and real output, prices, and balance of payments stabilization is expected. Aghevli et al. (1991) stated that the choice of exchange rate regime is dependent on several other factors. These factors include the objectives pursued by the policy makers, the sources of the shocks hitting the economy and the structural characteristics of the economy. The basic argument is that, regardless of the objectives that determine the exchange rate regime, the authorities are presumed to adjust their domestic macroeconomic policies, particularly monetary and fiscal policies, to fit the chosen exchange rate policy. The exchange rate regime consecutively determines the flexibility of the monetary policy pursued. Many empirical studies stress that small open economies are better served under a fixed exchange rate regime (Nnanna, 2000).

2.3.2. Exchange rate and trade flow
In his recent paper where he examined a similar relationship but in the Middle Eastern countries, Bahmani-Oskooee (2010) maintained his earlier findings. Moreover, Garcia-Herrero and Koivu (2009) examined the relationship between the trade balance and effective exchange rate in China. They estimated standard export and import equations and used cointegration techniques to examine the long-run relationships. They found that trade balance is sensitive to the changes in effective exchange rate. However, Garcia-Herrero and Koivu reported no formal tests indicating causality between these variables. Brada et al. (1993) have also examined the long run relationship between trade and exchange rate. They found that exchange rate influence the level of trade but this effect is observed only after 1 year and suggested that the exchange rate an effective indirect tool for regulating trade. In contrast, some of the earlier studies such as Rose (1990 and 1991) found no empirical evidence for the long run relationship between exchange rate and trade. Liew et al. (2003) supported Rose's findings suggesting that in the long run trade balance is affected by real money rather than exchange rate. Frankel and Rose (2002) found evidence that currency unions exert a positive effect on international trade, and hence on income per capita. That means that international trade should be higher under fixed regimes, since a low level of exchange rate volatility and uncertainty will tend to reduce the cost of trade and, hence, increase its volume. While Nilsson and Nilsson (2000) find an evidence suggesting that more flexible regimes can favor export growth, because they are less likely to create conditions for

persistent misalignments.   Many writers wrote about the evidences of the relationship between the BoP and the Exchange rate for example

2.3.3. Exchange rate and FDI

One study on the effects of the EMU on FDI is by Schiavo (2007). Using data for a sample of 25 OECD countries covering the period from 1980 to 2001 in conjunction with the gravity model, he shows that fixing the bilateral exchange rates by setting up the currency union has encouraged FDI. He concludes that adopting the same currency seems to bring about more than only elimination of the exchange rate volatility. Another recent study by Petroulas (2007), using panel data of unilateral FDI flows among 18 developed countries between 1992 and 2001, shows that the creation of EMU caused an increase of FDI in various directions. Inward FDI from within the Euro area rose by16 percent, FDI from member countries to non-member countries rose by 11 percent, whereas inward FDI from non-member countries to member countries rose by only 8 percent. It is clear, however, that both studies are based on only a few observations after the creation of EMU and should thus be interpreted with caution.

The paper of Matthias Busse, Carsten Hefeker, and Signe Nelgen (April 2010) on the Foreign Direct Investment and Exchange Rate Regimes uses a comprehensive data set with bilateral direct investment flows and establishes the influence of the de-facto exchange rate regime for FDI flows. They has reviewed the influence of the exchange rate regime on bilateral FDI flows between countries, with mixed results: while They find a positive and significant influence of a fixed exchange rate regime for FDI in developed countries, developing countries do not receive higher FDI inflows if they employ a hard peg of their currency as a policy option. Looking at investments in the service sector, Tomlin (2008) finds that an appreciation of the dollar leads to more capital inflows into the US service industry. In the context of Namibia, exchange rate regime and the balance of payments has been studied by few authors. A study by Joel Hinaunye Eita (2011) investigated the macroeconomic determinants of the balance of payments in Namibia for the period 1999 to 2009 through the co-integrated vector autoregression methods. The study reveals that fiscal balance, GDP and interest rate are the main determinants of balance of payments in Namibia. Increase in GDP and interest rate causes an improvement in the balance of payments. It reveals that a positive effect of GDP on balance of payments implies that expansion of export has a positive impact on current account and the overall balance of payments. Hence, the study concluded that more increased export potential should be encouraged particularly through the development of new products and services. Miyajima (2007) IMF, evaluated Namibia's competitiveness position using the widely applied traditional indicator, the real effective exchange rate (REER) by comparing it to its equilibrium level. The paper revealed that the current level of Namibia's REER does not put forward a competitiveness problem however there are some essential issue that the country may need to put into consideration such as increasing educational attainment, reducing the skills mismatch, and diversifying its exports. The paper however concluded that if Namibia improves its competitiveness it can become more competitive globally. Furthermore, Eden Tate Shipanga (2009) analyzed the effect of exchange rate volatility on exports in Namibia. The main objective of the paper was to investigate empirically the impact of exchange-rate volatility on the export flows of Namibia as one of the developing countries by using quarterly data of exchange rate and the trade flow of real exports of Namibia for the period 1998 – 2008. The paper found that during the stipulated time period, Namibia had experienced tremendous volatility in its exchange rate. It also found a positive and significant impact of exchange rate volatility on Namibia's real exports. Hence, the paper concluded that

Namibia should start exploring possibility of macro- economic policy independence and be involved in the determination of exchange rate within the CMA framework.

The study of Iman (2008) on microstates of which Namibia is part of the estimated panel concluded that since it clear from theories that exchange rate policies does matter in elucidating the movements on the current account, the results indicated that the exchange rate channel for a microstate is not so essential and that also the structural features (e.g. the limited manufacturing base, level of capital market development), institutional factors (such as wage rigidities and inflexible labour markets) probably accounts for much of the explanation.

3. The Namibian economic performance and linkage between Namibia and South Africa

Often described as having two economies, a modern industrial economy, heavily dependent on the extraction and processing of minerals (diamonds, uranium) for export and to a lesser extent commercial agricultural and fisheries sectors and an economy of subsistence base on farming, where livelihoods are highly vulnerable to environmental changes and social shocks. Namibia has experienced steady growth, moderate inflation, strong balance of trade surpluses and low indebtedness as a result of generally prudent fiscal policies, a stable political environment, a fairly developed infrastructure, and a fairly strong legal and regulatory environment. The Namibian economy is closely linked to that of South Africa through the institutional relationships particularly, the Common Monetary Area (CMA), Southern African Customs Union (SACU). The economic relationship between Namibia and South Africa is a product of historical background between the two countries. This link existed and it still existing because about 80 percent of Namibia's trade is conducted through South Africa. According to (Bravenboer 2010), when Namibia was still being colonized by Germany, the banking system was modeled to that of Germany. In 1907 the Nord Deautsche Bank of Hamburg and the Deutsche-Afrika bank of Berlin opened up a branch of Deutsche-Afrika Bank in Luderitz in the southern part of Namibia.

Figure 1: SACU Revenue Share 2014-2019, (N$ Million)
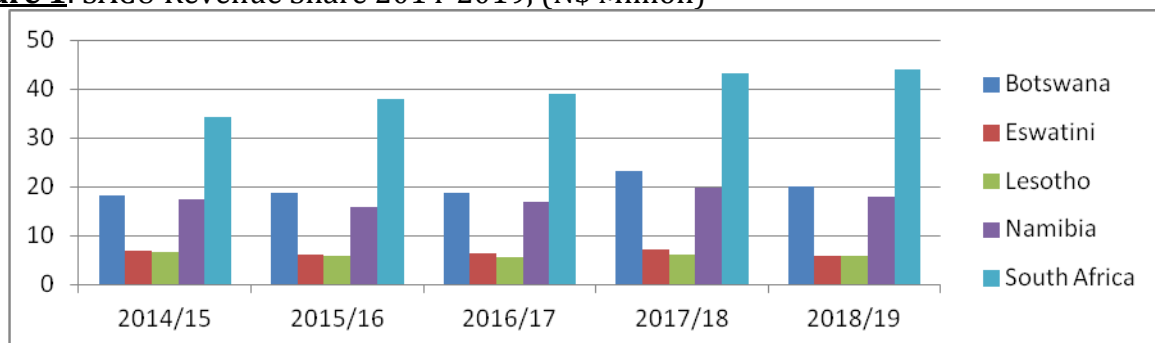
Source: SACU Annual Report, 2018/19

The collected revenue is then distributed to the member states according to three components embedded within the revenue sharing formula. It is worth mentioning that the revenue from the pool has been a significant fiscal support for the small member countries and as a result serves as primary source for international reserves of these economies. Customs revenue in the union is seriously dependent on the South African imports and as formerly declared its accounts for a sizable amount of fiscal revenue in the BLNS countries (Ivã et al. 2013).

3.1. The Costs and benefits of CMA for Namibia
3.1.1. The Benefits
Exchange rate uncertainty and Price stability

The main objective of every monetary authority is to achieve price stability. So, one of the greatest benefits of the CMA to Namibia is that it provides price stability for the economy. By pegging the domestic currency to the currency of a low-inflation country, Namibia's ability to maintain price stability is enhanced, provided there is a strong commitment on the part of the authorities to maintain the exchange rate. Since 1993 the domestic inflation rate has closely mirrored the prevailing rate in South Africa. Another benefit of the CMA is the elimination of uncertainty facing producers and consumers. Trade patterns have disclosed that Namibia is a net importer of goods and services from South Africa. Therefore, if different currencies are used, the uncertainties faced by both South African producers as well as Namibian producers and consumers will increase.

- Fiscal Discipline, Credibility, and Macroeconomic Stability

In a situation of high capital mobility, exchange rate and monetary policies are linked so that fixing the exchange rate against a dominant currency means adopting monetary policies that are consistent with those of the country issuing the dominant currency. If this country's low-inflation policy is credible and the fixed rate also perceived as firm, the nominal anchor achieves two objectives: discipline and credibility. The loss of the exchange rate as a policy instrument imposes discipline on government's fiscal policy, since it rules out the use of inflation tax as a source of government revenue. However, one implication is that if Namibia suffers a terms-of-trade shock, usually it would either; reduce expenditure and consumption or face an economic contraction, borrow from the international market, or use inflation tax. However, within CMA borrowing from international markets is impossible.

- Reduction of transaction costs

Since 80% of Namibia's imports and 30% of its exports are effected through the rand, Namibia saves on the transaction costs involved in exchanging the Namibia dollar into the South African rand and the spread between rates charged for sales and purchases of foreign currency. This benefit is increased due to the fact that the rand is legal tender in Namibia and there are no costs involved in converting the Namibia dollar into the South African rand.

- Access to financial markets

One of the main features of CMA is the free movement of goods between member countries. Since South Africa has the largest financial market, this is an advantage to Namibia. This provides wider access to financial markets and thus helps in satisfying extraordinary financial requirements for the infrastructural projects in the country. However, it is also a challenge for the private sector in Namibia to make full use of this advantage.

3.1.2 The Costs
- Loss of autonomy in monetary policy

One of the major costs of CMA membership to Namibia is foregoing the use of a nominal exchange rate or interest rate policy as an instrument of macroeconomic adjustment. As a result, Bank of Namibia cannot control the supply of money because the money supply is determined wholly by the balance of payments. Namibia is a highly open economy and given its membership of the CMA, it can hardly use exchange rates or interest rates to mitigate the

impact of external shocks. For instance, in the past 20 years Namibia has had a number of unfavorable shocks.

- Stability of the rand as a reserve currency

Among the factors that have determined the choice of the rand as a reserve currency are the direction of trade flows, the denomination of imports and exports, the deep financial market offered by South Africa and the correlation among cyclical movements between the economy of Namibia and South Africa. However, recently one of the important considerations, that have become a source of deep concern, is the stability in the value of the rand.

- Persistence of capital outflows

A further cost of the membership of CMA is the persistence of capital outflows in favor of South Africa. Labor movement between Namibia and South Africa has been very small, and it has been mainly in mining since mining is main dominant activity in the Namibian economy. However market related net movements of capital tend to be one-sided in favor of South Africa. South Africa has by far the most sophisticated financial markets in CMA, this suggest that capital flows are likely to be concentrated in that market than in Namibia whose financial markets are still at the early stages of development.

- Lender of last resort and Loss of seignorage

CMA limits the ability of bank of Namibia to perform the role of lender of last resort. The South African rand is the lender of resort in Namibia. Additionally, is the issue of loss of seignorage. This issue can be viewed into two perspectives. Firstly, in any economy that's growing there is a need for individuals and businesses that are participating in economic activities to increase their holdings of financial balances for economic transactions. A part of these balances will be in the form of currencies issued by the Central Bank, for which the Central Bank pays no interest. Secondly, the government may "tax" existing real balances by creating additional money and causing inflation. In a number of countries, inflation tax revenue is an important part of government income.

Table 1: Seigniorage Revenue

| Namibia	Lesotho	SWA	RSA	Botswana	Zambia	Zimbabwe
1.6	2.6	1.2	0.27	1.1	4.8	2.2

Source: International Financial Statistics, various issues

3.2. The Namibian Economic Performance
3.2.1 The Structure of the Namibian Economy
The structure of Namibia's economy is still highly characterized by the legacy of colonial status of South Africa, and is mainly characterized by a preponderance of the primary sector, which consists of agriculture, fishing and mining. The secondary sector, which includes manufacturing, electricity and water, and construction is small but has developed almost in line with GDP. The tertiary sector, which comprises of trade, transport, finance and government services, has grown considerably.
**Figure 2**: The contribution of each sector to GDP 2017
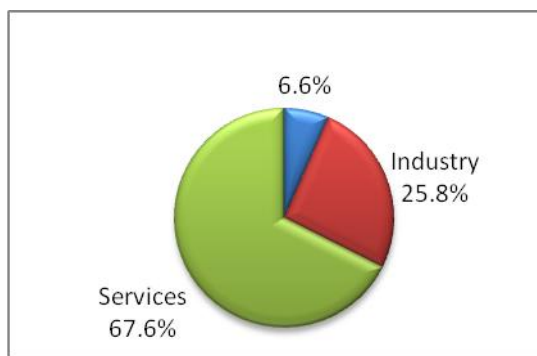
Source: indexmundi

3.2.2 Namibia Economic Growth
Since independence economic growth has averaged around 4.5 percent and public finances are considered well managed. Between 1991 and 1992, real GDP grew by 5 percent, though contracted by 2 percent in 1993 following a severe drought and a sharp drop in diamond output stemming from weak diamond markets. Between 1994 and 1995 real GDP expanded by 7 percent.

Figure 3: Economic Growth
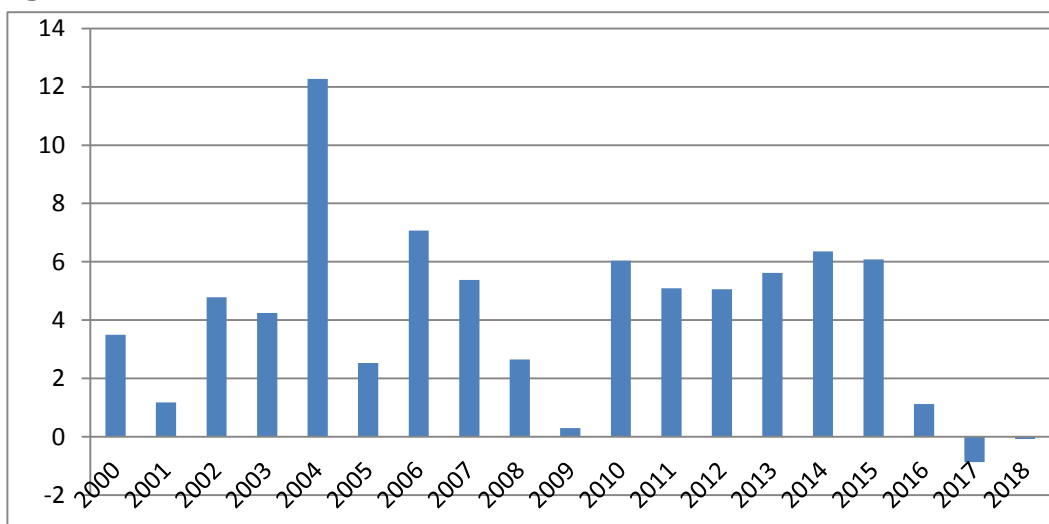
Source: World Bank, 2019

Due to the financial crisis in 2008, the economy contracted by 0.4 percent in 2009, however in 2010 Namibia' economic growth recovered strongly by 6.6 percent, boosted by stimulus measure implemented by the government and high commodity prices arising from improved global demand for mineral products. In 2011 the economy grew by 4.9 percent a sow down from 6.6 percent growth experienced in 2010. The economic growth slowed down due to the contraction of 0.9 percent in the primary sector as a result of a slowdown in the mining output which decreased due to a reduction of 24.4 percent in other mining and quarrying sub-sector and a decline in the demand for diamond exports, depletion of on-shore diamonds, industrial actions that took place in 2011, and unfavorable weather conditions.

3.3. Monetary policy in Namibia
The exchange rate policy in Namibia is fixed and operates under a conventional (soft) peg exchange regime in which the NAD is fixed on a one-to-one basis to the ZAR under the CMA and the ZAR is a legal tender in Namibia. Namibia's CMA membership also implies that it

follows the same exchange rate policy as that of South Africa. All CMA member countries apply the same exchange control regulations. There are no restrictions on foreign capital flows and capital, profits and dividends can be repatriated freely between member countries. The NAD is only convertible regionally into the ZAR but is not convertible internationally. The domestic interest rates are determined by the interest rates in the currency of the country to which the domestic currency is pegged. The experience of countries with fixed exchange rate regimes has generally demonstrated that the attainment of exchange rate stability will help in ensuring that Government services domestic prices in one country are similar to those of the pegged currency. The fixed exchange rate regime thus encourages arbitrage that tends to keep interest rates roughly at the same level in Namibia and South Africa. The ultimate goal of monetary policy in Namibia is to ensure price stability in the interest of sustainable growth and development. Namibia's monetary policy framework is underpinned by the fixed currency peg to the South African Rand. Under a fixed exchange rate regime, monetary policy remains submissive to the fixed peg. Maintenance of the fixed peg, which is the intermediate target, ensures that the ultimate goal of price stability is achieved by importing stable inflation from the anchor country. The exchange rate of the Namibia Dollar vis-à-vis other currencies is determined on the basis of cross-rates in international markets of the Rand vis-à-vis the currencies concerned. The Bank of Namibia has in turn, delegated several of the Exchange Control functions to the commercial banks that were appointed by Treasury to act as Authorized Dealers in foreign exchange, to assist the Bank of Namibia with the administration of controls. The regulatory structure of Exchange Control in Namibia therefore comprises of the Ministry of Finance, the Exchange Control Division of the Bank of Namibia and the Authorized Dealers. Presently, there are 7 Authorised Dealers (AD), and 6 Authorised Dealers with Limited Authority (ADLA) also referred to as Bureau de changes in the foreign exchange of Namibia. Furthermore, in terms of trade, trade within Namibia is strictly done in local currency, which is either the Namibian Dollar or South African Rand, which is legal tender in Namibia. Trade among CMA countries should also be equally done in local currency. However, in terms of Exchange Control, settlements of transactions with countries outside CMA must be done in foreign currency or Namibian Dollar from local non-resident account.

Namibia's Nominal Effective Exchange Rate (NEER) and Real Effective Exchange rate (REER) have been largely dictated by the South African rand. However, changes in Namibia's NEER have been muted compared to changes in South Africa's due to differences in trade weights. South Africa represents the dominant share of Namibia's international trade; for instance, in 2005 Namibia's exports to South Africa represented 31 percent of total exports and imports from South Africa were 83 percent of the total (NPC, 2006). South Africa's own trade is much more diversified. Since independence Namibia's REER has been relatively unchanged, while that of South Africa's has depreciated. The average annual inflation in Namibia has been about 1 percent higher than in South Africa and this kept Namibia's REER stronger.

3.3.4. Spillovers for Namibia

South Africa is considered as an engine growth for Namibia because it accounts for about 80 percent of Namibia's total GDP at market exchange rates. Therefore South Africa's business cycle and its long-term growth rate are expected to affect that of Namibia through multiple linkages such as: institutional, trade, and capital flow linkage.
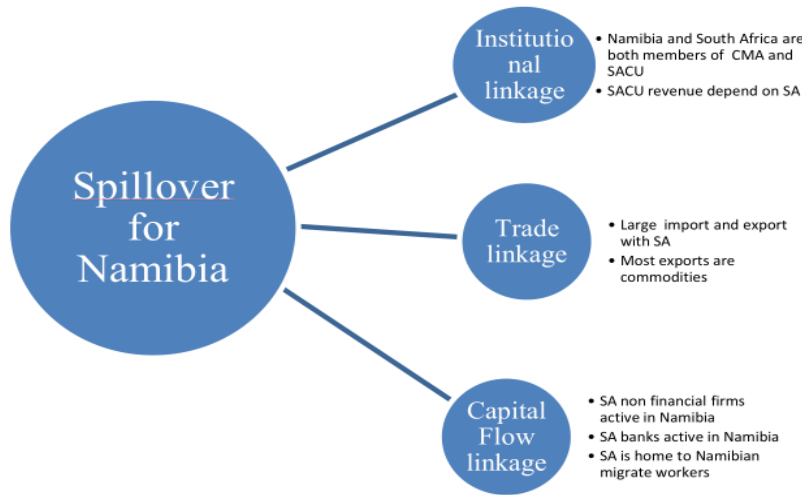
Namibia and South Africa form part of the Common Monetary Area and SACU which is heavily depends on South Africa's trade, and generates about 30% of Namibia's government revenue. South Africa is also an important trading partner for Namibia. A slowdown in SA's trade can have a substantial negative impact on Namibia's revenue and exports. South Africa is also the main source of direct investment for Namibia. According to Bank for International Settlements, the stock of South African foreign direct investments range from 3 to 4 percent of Namibia's GDP. In addition, South African non financial companies (such as large-scale retailers, mining companies, and manufacturers) have a significant presence in Namibia, and South Africa–based banks dominate the banking sector in Namibia.

4. Research methodology

In this section we will develop two models in response to our objectives. The theoretical framework of this paper is explained by Mundell-Fleming model also know as IS-LM-BP model. The Mundell-Fleming model is an extension of the IS-LM model, which was formulated by the economists Robert Mundell and Marcus Fleming. The model is an extension of the IS-LM model which tries to describe an open economy. The Mundell-Fleming model indicated that a country's balance of payments is a function of external balance and net capital flows as indicated in the equation below:

$$B = X - M + F^n = X(P, E_0) - M(y, P, E_0) + F^n(r) \dots \dots \dots \dots \dots \dots \dots \dots \dots (1)$$

Based on the equation 1 exports (X) is assumed to depend on the domestic price level and the spot exchange rate. In the Equation, the partial of exports with respect to the price level can either be positive or negative depending on the price elasticity of real export spending, while the partial of exports with respect to the exchange rate is assumed to be positive. Import (M) is assumed to be a function of real income, the price level, and the exchange rate. The final function in the Equation is net capital flows (F^n) which is assumed to depend on the domestic interest rate only. The model specifications used are based on the model used by Zukarnain (2013) who used GDP, Exchange rate, and exchange rate volatility to measure the relationship between export and exchange rate in Malaysia. This model has been modified to suit the Namibian situation. The model specification is as follow:

$$\log X = \beta_0 ER + \beta_1 \log GDP + \beta_2 \log MS + \varepsilon_i \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots (2)$$

Where logX denotes logarithm of exports, ER denotes real effective exchange rate, and MS denotes logarithm of money supply. Even though the model's idea is to explain the impact of

exchange rate on export, some of the variables are not included in the model due to unavailability of data.

4.1. Diagnostic Tests

4.1.1. Test for Stationarity

It is important to determine if the time series is stationary because time series data usually follow a particular trend and therefore the need to de-trend it otherwise spurious results will be obtained (Gujarati, 1995). Non-stationarity of time series data means that predictions based on them have little stability over time and therefore of little predictive value. If the series are non-stationary, standard econometric techniques can lead to misleading results. Therefore, it is important to remove the non stationarity One way of removing non stationarity is through the method of differencing. Unit Root test has been conducted to find out the stationarity of the time series. For the unit root test of time series the method being used is the Augmented Dickey Fuller Test (ADF).

Table 2: Unit Root Test

Variables	None	Order of Integration	Probability	Condition
X	-.5297018***	I(1)	.002	Stationary
ER	-.7621449***	I(1)	.001	Stationary
MS	-.1510226**	I(2)	.018	Stationary
GDP	.7077929***	I(1)	.002	Stationary

*, ** stand for level of significance at 1% and 5% respectively

The decision rule here is if and only if the P-value from ADF test > .05‖ then null (Ho) is accepted. Otherwise, the null hypothesis will be rejected. We applied ADF-test to all the variables separately. We get all the series are non-stationary (has a unit root) at their level form. The rest of the variables are Export, ER and GDP are stationary at first difference at 1% level of significance Except MS that is at 5% significant.

4.1.2 Co-Integration Test: Johansen cointegration

Economic theory often suggests that certain pairs of economic or financial variables should be linked by a long run economic relationship. Even if the five variables series, individually are integrated of order one I (1), it may be possible that a linear combination of the five variables may be stationary. Even if each of them individually are non-stationary (i.e. I (1)), as long as they are co-integrated, the regression involving the five series may not be spurious. Thus, we now investigate whether the six series are co-integrated and have a long run equilibrium relationship. This process involves determining the presence of any cointegrating relationships among the variables in the model. This is particularly important to confirm or refute a long-term relationship among the variables (Johansen, 1995). This approach avoids the spurious regressions (Granger & Newbold, 1987) that are common when using trended data. The series of all the variables in the model were tested for cointegration using the trace test and maximum eingenvalue test. The trace test indicates that there is one (1) cointegrating variables, while the eigenvalue indicates that there is no cointegrating variables (see appendix). This implies that Export and the explanatory variables have a long run relationship.

4.1.3 Test for functional form misspecification: Ramsey RESET

The functional form is correctly specified with $F(3, 31)=4.53$ and a Prob>F=0.0096 therefore Model has no omitted variables.

4.1.4. Test for Heteroskedasticity: White Heteroskedasticity

The test for heteroskedasticity comfirm that the model homoskedastic, that the F-statistics = 0.43 (P-value=0.00) and Obs*R-square=2.79 (P-value=0.83). Therefore we fail to reject the null hypothesis of homoskedasticity in the model with the level functional form.

4.1.5. Result Discussion: Johansen normalization restriction imposed

Beta	Coef.	Std. Err	z	P>z	[95% Conf.	Interval]
_ce1						
lnX	1					
REER	.1303174	.0359121	3.63	.000	.0599311	.2007038
lnMS	-.0457809	.0091978	-4.98	.000	-.0638083	-.0277535
lnGDP	-2.430834	.3344789	-7.27	.000	-3.086401	-1.775268
Cons	34.32632					

The cointegrating equation and the long run model

$$ECT_{t-1} = \left[Y_{t-1} - n_j X_{t-1} - \epsilon_m R_{t-1}\right],$$
$$ECT_{t-1} = \left[1.000\, lnX_{t-1} - 0.13REER_{t-1} + 0.046lnMS_{t-1} + 2.43lnGDP_{t-1} + 34.32\right]$$

In the long run the Money Supply and the GDP have a positive impact while the REER has a negative impact on the Export. All the coefficients are statistically significant at 1%. This situation implies that the Money Supply and the GDP one side and Real Effective Exchange Rate in the other side have asymmetric effect on Export on average of ceteris paribus.

4.1.6. Diagnostic Test

For the diagnostic test Autocorrelation with the Lagrange-multiplier test, there is no autocorrelation at lag order (cf appendix), the Normality Test of Jarque-Bera test shows that the Errors are not normality distributed and the stability test the VECM specification imposes 5 unit moduli. Which is very good.

5.2. Equation 2

This equation is based on Osinubi (2009) work, who investigated the effect of exchange rate volatility on FDI in Nigeria using variables such as: exchange rate, exchange rate volatility, interest rates and real GDP, FDI can be specified as follow:

$$\log FDI = \beta_0 + \beta_1 REER + \beta_2 Tariff + \beta_3 Plevel + \beta_4 MS + \beta_5 GDP + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.. (3)$$

Where: FDI stands for Foreign Direct investment. Our study used Inward Foreign Direct Investment, the Tariff, the Price Level, the Money Supply, the GDP.

5.2.1. Diagnostic Tests
Test for Stationarity
Table3: Unit Root Test

Variables	None	Order of Integration	Probability	Condition
FDI	-.5297018***	I(0)	.002	Stationary
REER	-.7621449***	I(1)	.001	Stationary
Tariff	-.050115***	I(0)	.002	Stationary
PLevel	-.8393008***	I(1)	.000	Stationary
MS	-.1510226**	I(2)	.018	Stationary
GDP	.7077929***	I(1)	.002	Stationary

*, **,*** stand for level of significance at 1% , 5% and 10% respectively
The variables are stationary according to their level and reported in the table.

5.2.2 Co-Integration Test: Johansen cointegration

The trace test indicates that there is one (1) cointegrating variables, while the eigenvalue indicates that there is no cointegrating variables (see appendix). This implies that FDI and the explanatory variables have a long run relationship.

5.2.3 Test for functional form misspecification: Ramsey RESET
The functional form is correctly specified with F(5, 24) =6.77and a Prob>F= 0.0928. Therefore the model has no omitted variables.

5.3.4 Test for Heteroskedasticity: White Heteroskedasticity
The test for heteroskedasticity comfirm that the model is homoskedastic with an F-statistics = 0.43 (P-value=0.00) and Obs*R-square=2.83. Therefore we fail to reject the null hypothesis of homoskedasticity in the model with the level functional form.

5.3.5 Result Discussion: Johansen normalization restriction imposed

Beta	Coef.	Std. Err	z	P>z	[95% Conf.	Interval]
_ce1						
lnFDI	1					
REER	1.45599	.7619548	1.91	.056	-.0374047	2.949403
Tariff	-.6802209	.3541475	-1.92	.055	-1.374337	.0138956
LnPlevel	15.57178	8.877602	1.75	.079	-1.827998	32.97156
lnMS	-6.811581	1.919428	-3.55	.000	-10.57359	-3.049572
lnGDP	6.994622	6.088972	1.15	.251	-4.939544	18.92879
Cons	.671009					

The cointegrating equation and the long run model

$$ECT_{t-1} = [1.000\ lnFDI_{t-1} - 1.46REER_{t-1} + .68Tariff_{t-1} - 15.57lnPlevel_{t-1}$$
$$+ 6.811lnMS_{t-1} - 6.99lnGDP_{t-1} - 0.671]$$

In the long run the Tariff and the Money Supply have a positive impact while the Real Effective Exchange Rate, the Price Level and the GDP have a negative impact on the FDI. The coefficient of Money Supply is statistically significant at 1% while the rest are significant at 10%. This situation implies that the Money Supply and the Tariff one side and Real Effective Exchange Rate, the Price Level and the GDP in the other side have asymmetric effect on the FDI on average of ceteris paribus.

Diagnostic Test
For the diagnostic test Autocorrelation with the Lagrange-multiplier test, there is no autocorrelation at lag order (cf appendix), the Normality Test of Jarque-Bera test shows that the Errors are not normality distributed and the stability test the VECM specification imposes 5 unit moduli. What is very good.

Conclusion
Based on the findings of this paper and previous literature, it is recommended that Namibia remains a member of CMA. However, further recommendations are made that: the Namibian Government should get involved in the determination of the exchange rate in the CMA framework. In other words, Namibia and other small economies of the CMA should make a call for the CMA agreement revision in order for them to be able to participate in the exchange rate policy decisions making along SA. Since the export sector is mainly dominated by the agricultural sector, the Government is suggested to develop policies which would direct and prompt entrepreneurship and expansion of the other sectors especially in the manufacturing sector. For instance, the Government can provide trainings and funds to entrepreneurs in other sectors in order to enhance their products. It can also help by

promoting their products internationally. The Government should put in place more incentives capable of encouraging foreign investment needed for growth. Conducive investment environment and investment opportunities should be created in order to avoid the outflow of capital to other CMA member countries, particularly to South Africa. For instance, the government can guarantee financial security.

Finally, in order to avoid excessive deficit of balance of payment the need to discourage over-reliance on imported goods and the promotion of domestic export is recommended. This can be done by encouraging local consumption or applying restrictive policies on the imported goods by increasing taxes for instance. The Namibia government through BoN should ensure that domestic money stock is consistent and in line with the macroeconomics objectives of the country in order to ensure that BoP position is sustainably maintained. Since most of the Namibian products are mainly concentrated in the South African and European market, Namibia need to explore and expanding the direction of its trade to other markets. This can be done through the promotion and marketing of Namibian products in other international markets.

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Appendix

```
                   Johansen normalization restriction imposed

         beta         Coef.     Std. Err.       z      P>|z|      [95% Conf. Interval]

    _ce1
         lnx2             1           .           .        .            .            .
          er2      .1303174     .0359121        3.63    0.000     .0599311     .2007038
        lnms3     -.0457809     .0091978       -4.98    0.000    -.0638083    -.0277535
        lngdp     -2.430834     .3344789       -7.27    0.000    -3.086401    -1.775268
        _cons      34.32632           .           .        .            .            .
```

Model

Model 2

```
                   Johansen normalization restriction imposed

         beta         Coef.     Std. Err.       z      P>|z|      [95% Conf. Interval]

    _ce1
        lnfdi             1           .           .        .            .            .
          er2      1.455999     .7619548        1.91    0.056    -.0374047     2.949403
       tarif2     -.6802209     .3541475       -1.92    0.055    -1.374337     .0138956
    lnplevel2      15.57178     8.877602        1.75    0.079    -1.827998     32.97156
        lnms3     -6.811581     1.919428       -3.55    0.000    -10.57359    -3.049572
        lngdp      6.994622     6.088972        1.15    0.251    -4.939544     18.92879
        _cons       .671009           .           .        .            .            .
```

Robustness Check

- Model 2

Autocorrelation model2

```
        Lagrange-multiplier test

   lag         chi2        df     Prob > chi2

    1        28.2553       36        0.81798
    2        20.3740       36        0.98317

   H0:  no autocorrelation at lag order
```

Normality test

```
Jarque-Bera test
```

Equation	chi2	df	Prob > chi2
D_lnfdi	51.663	2	0.00000
D_er2	148.480	2	0.00000
D_tarif2	8.979	2	0.01123
D_lnplevel2	0.384	2	0.82521
D_lnms3	13.205	2	0.00136
D_lngdp	0.058	2	0.97164
ALL	222.769	12	0.00000

The Stability Test

```
Eigenvalue stability condition
```

Eigenvalue	Modulus
1	1
1	1
1	1
1	1
1	1
.6709456 + .3322788i	.748717
.6709456 − .3322788i	.748717
.7162713	.716271
−.6532405	.65324
−.03426674 + .5721661i	.573191
−.03426674 − .5721661i	.573191
−.2199263	.219926

```
The VECM specification imposes 5 unit moduli
```

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