Monetary Union and East Africa's Resource Wealth

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Executive Summary

The five countries of the East Africa Community: Uganda, Kenya, Tanzania, Burundi and Rwanda, have been moving towards monetary union since 2000. Since then Uganda, Kenya and Tanzania have discovered huge hydrocarbon reserves. This will present major challenges in the push towards a single East African currency, as the newly commodity-rich countries require an increase in relative prices and become more exposed to commodity-price shocks, neither of which will be helped by a fixed currency.

This report brings together the latest academic research on the management of natural resource wealth, and its implications for East Africa's monetary union. For the monetary union to work there will need to be two key elements: sound fiscal policy, and slow, reversible integration.

Sound fiscal policy will involve:

1. Spending the resource revenues received in Uganda, Kenya and Tanzania slowly and stably:
    a. Using a sovereign wealth fund to decouple oil expenditure from revenues
    b. Focusing domestic expenditure on investing in public capital
    c. Using a temporary, offshore parking fund for overcoming capital constraints
2. Reducing and harmonizing regulation, and facilitating the free movement of labour and capital throughout the union.
3. Implementing a system of automatic fiscal transfers for managing asymmetric shocks to member countries.
4. Allowing for the possibility of jointly issuing debt at a union-level, to prevent self-fulfilling, financial market-induced debt crises.

Slow, reversible integration will involve:

5. Building on Uganda's recent success with "inflation targeting lite" by improving inflation forecasting capacity, entrenching central bank independence and promoting the deepening of the financial sector.

6. Implementing a network of fixed exchange rates amongst the other members of the EAC – possibly pegged to the Ugandan shilling and achieved by harmonizing interest rates. This should continue at least until hydrocarbon expenditure stabilises, to determine the appropriate level for entering union while retaining the flexibility to alter relative prices during the period of commodity-fuelled growth.
7. Ensuring convergence of key criteria such as inflation, long-term interest rates, fiscal deficits and the level of government debt, as agreed in the Protocol on the Establishment of the EAC Monetary Union in November, 2013.

1. Introduction

The five countries of the East African Community has been moving towards monetary union since 2000. Since then Uganda, along with Kenya and Tanzania, has made huge oil and gas discoveries, while Rwanda and Burundi have not. This paper considers how resource wealth is likely to affect the path towards monetary union, and presents options for how policy can best manage this. It draws on lessons from both the cutting edge of academic research, as well as experience from existing monetary unions, to show that resource wealth is likely to present a major challenge to the successful adoption of a single East African currency. If monetary union is to work it will involve both sound fiscal policy and a slow, reversible process of integration involving a network of exchange rate pegs.

The East African Community began moving towards monetary union in 2000 when the treaty re-establishing the community came into force. In 2005 a customs union was signed into force, but a fully-fledged customs union and the associated common market remains elusive. Most recently, in November 2013 the Presidents of the five countries signed into a Protocol on the Establishment of the East African Community Monetary Union, agreeing on implementing the preliminary stages of integration within two years, and the fiscal foundation for a common currency within ten.

Since monetary union was first discussed there have been huge discoveries of oil in Kenya and Uganda, and natural gas in Tanzania. In Kenya estimates vary widely, but range up to 20 billion barrels of oil. In Uganda the estimates are closer to 3.5 billion barrels of oil, while in Tanzania there may be an estimated 200 trillion cubic feet of natural gas.

These oil and gas discoveries are likely to present a challenge for the successful implementation of a monetary union, requiring a change in relative prices and introducing asymmetric shocks into the union. The extra oil-financed demand in Kenya, Uganda and Tanzania will require the price level in those countries to rise relative to Rwanda and Burundi. The amount will depend on how quickly the oil revenues are released by the government into the economy. If monetary union goes ahead then this change in relative prices cannot happen through the exchange rate, so will happen through costly inflation instead. The oil wealth is also likely to expose the monetary union to asymmetric shocks, as higher oil prices finance government expenditure in the commodity exporters, but increase costs in the commodity importers.

Harnessing Uganda, Kenya and Tanzania's new hydrocarbon wealth will require sound fiscal policy, particularly if monetary union goes ahead. Over the medium to long term, the most appropriate fiscal policy will depend on the domestic investment needs of each country, and their capacity to absorb new investment. As Uganda has a large windfall and significant needs for domestic investment, recent research advocates investing some of the windfall domestically, while temporarily parking the rest abroad in a Parking Fund, while absorption constraints can be relaxed. If conducted appropriately,

then this is likely to see a slow and steady appreciation of the real exchange rate, as capital is accumulated.

To support fiscal policy and stabilise the economy through a period of transformation the East African Community will also need an appropriate monetary regime. Currently the members of the community are taking diverse approaches to monetary policy. Burundi targets monetary aggregates. Kenya had a relatively flexible monetary aggregate target until 2011, at which point it announce the its use of the short term interest rate as its main policy instrument. Rwanda keeps the exchange rate pegged to the US dollar. Tanzania follows it monetary aggregate targets relatively strictly, as did Uganda until October 2009. Since then Uganda has had some success with an "inflation targeting lite" regime. Each country also supports their primary policy instrument with limited intervention in foreign exchange markets to help stabilise the currency (Berg et al., 2013).

The choice of regime is dictated by a trade-off classically articulated by Robert Mundell as the "impossible trinity" – that it is impossible for a country to have free movement of capital, independent monetary policy and a stable exchange rate. Given this trade-off we will consider four different options for the conduct of monetary policy in East Africa during the coming boom period: i) monetary aggregate targeting; ii) inflation targeting; iii) exchange rate peg; and iv) monetary union.

A monetary aggregate targeting regime is not ideal for the countries of East African because of the large shocks to money demand occurring as a result of innovation in mobile payment systems. Monetary aggregate targeting is most appropriate when money demand (the LM curve) is relatively stable, and the major shocks in the economy affect aggregate supply (the IS curve) (Poole, 1970). However, in recent years East Africa has seen major developments in mobile payment technology which, along with financial deepening, change the demand for money. This suggests that monetary aggregate targeting would be relatively less effective, consistent with Uganda's move towards inflation targeting in 2009.

An inflation targeting regime is most appropriate for Uganda because it allows monetary policy to freely respond to oil price shocks, and is less affected by shocks to money demand. For it to be more successful there should be continued development of inflation forecasting capacity, entrenchment of central bank independence and support for financial deepening. This type of regime is common amongst developed countries, and has started to become popular in Africa, with its adoption in South Africa and Ghana. It benefits from the ability to actively stabilize the effects of oil price shocks on inflation and unemployment. However, to be successful it requires a well-functioning financial sector and a credibly independent central bank. A domestic banking sector is needed to effectively transmit changes in interest rates to households and firms. A credible central bank is needed so that households and firms do not begin to expect high inflation in the future, creating a self-fulfilling cycle by raising

prices today. Recent evidence suggests that both are in place to varying degrees throughout East Africa (Berg et al., 2013; Walker, 2013).

An exchange rate peg limits the ability of monetary policy to respond to shocks, but has a number of other advantages. The first advantage is the ability to import central bank credibility from abroad as, for a given real exchange rate, inflation will be the same as in the home currency it is being pegged to. The second advantage is that a peg at an appropriate level allows the government to accumulate foreign reserves – both tying the hands of future governments and saving on behalf of households who cannot save for themselves. Third, if a country is going through a rapid period of change, such as Uganda during the coming oil boom, then it is relatively easy to adjust the relative price level by buying or selling foreign exchange reserves. The disadvantages are that there is the possibility of periodically importing recessions from abroad, as monetary policy tightens in the host country. Furthermore, there is limited scope for responding to unanticipated and temporary shocks that hit the home country, for example in the form of oil price shocks. For this reason, prudent fiscal policy is particularly important.

A monetary union also limits the ability of monetary policy to respond to shocks, but has both advantages and disadvantages relative to a system of exchange rate pegs. In a monetary union, independent monetary policy is abandoned at a national level, in exchange for monetary policy at a supra-national level. This has a number of advantages. The first is that it may be a way of credibly installing an independent central bank, because it is less easy to be dominated by a single national government if it is beholden to all governments in a currency area. The second is that it is less likely to import recessions from abroad because, while monetary policy is tied together amongst all members of the currency area, it need not be linked to other countries outside the area. Thus, a monetary tightening against inflation in the US may cause a recession in countries pegged to the US dollar, while a monetary tightening in a currency union will be in response to conditions within the union. The third is creating a single currency can significantly reduce trade costs if the countries within the union are major trade partners. However, there can also be major drawbacks to currency union. The first is that the value to having independent monetary policy may be limited in developing countries, where there is little financial intermediation and thus limited scope for changes in interest rates to affect the behaviour of households and firms. The second is the difficulty in adjusting or reversing it once union has been entered, as seen during the discussion of the Greek Euro-exit in 2012. This is a particular problem if some countries in the union are likely to grow at different rates compared to others. The third is the risk that member countries can no longer issue debt in a currency over which they have control. Thus, a loss of confidence in a country can lead to a self-fulfilling default – driving up spreads on the bonds that cannot be inflated away by the creation of new money. This again was seen in peripheral Euro countries in 2012.

On balance this paper makes two suggestions for the East African Community: sound fiscal management of hydrocarbon wealth, and a slow, reversible process of integration. Sound fiscal policy will help minimise the need for sharp changes in the price levels of East Africa's new commodity exporters, relative to their neighbours. A slow, reversible process of integration should involve Uganda building on its experience of inflation targeting. The other members of the East African Community should establish a network of stable, pegged exchange rates – ideally through harmonizing interest rates rather than accumulating foreign reserves. This network should be maintained for an extended period of time, and at least until resource expenditure stabilises. Doing so will yield the benefits of exchange rate stability amongst the East African Community, while having the "release-valve" of being able to relatively harmlessly adjust the level of the pegs if major changes in relative price levels are needed, because of rapid commodity-financed development or oil price shocks.

The paper proceeds as follows. In Section 2 we consider how fiscal policy should manage a discovery of hydrocarbons, and identify potential reasons why this may fail. In Section 3 we outline four different monetary regimes: monetary aggregate targeting, inflation targeting, exchange rate peg and monetary union, and discuss their relevance for Uganda. Section 4 concludes with the steps that would be needed to make monetary union work.

2. Fiscal Policy

On discovering oil the first, and most important, questions concern how the resource revenues should be collected, and whether they should be saved, invested or spent. Taxation of resource revenues is outside the scope of this note, but a useful starting point is the work by Daniel, et al. (2010). The decision to save revenues in foreign assets (a sovereign wealth fund), or invest in domestic capital will depend on the country's development needs and ability to access other sources of finance. The decision to spend revenues on domestic consumption should involve some delay, to build up a buffer stock of savings against oil price volatility (precautionary savings). Common pitfalls with fiscal policy involve tying expenditure too closely to the receipt of revenues – subjecting the economy to fluctuations in the oil price (e.g. Norway prior to 1990), and excessive spending near elections (e.g. Ghana in 2008 and 2012). Both are likely to cause major disruption when monetary policy is constrained, such as under an exchange rate peg or monetary union.

The decision to save or invest resource revenues should depend on the development needs of the country, and its ability to access international finance. Developed countries with little need for additional domestic capital, such as Chile, Norway and the UAE, are advised to save their oil revenues offshore in a sovereign wealth fund (SWF, according to the "permanent income rule",

Friedman, 1952; van der Ploeg and Venables, 2012). The governments of such countries, as well as firms and individuals via the banking sector, typically have ready access to international capital at market interest rates. Thus, the incremental access to financing from oil revenues shouldn't affect the decision to invest as any profitable projects should be able to be financed competitively (the Fisher separation theorem, 1930). If developed countries invest resource revenues domestically they are likely to finance poorer projects at home, and neglect the opportunity cost of investing abroad. Saving oil revenues in a sovereign wealth fund will lead to a modest and permanent increase in both the demand for domestic goods, and their price relative to the rest of the world.

Developing countries with a large need for domestic capital, such as Uganda, Kenya and Tanzania, are advised to invest part of their revenues domestically. In these countries the rate of return on domestic projects is likely to be higher than that on international assets. This is typically because governments and firms in such countries have to pay a risk premium when borrowing. Oil revenues therefore present a relatively cheap source of finance for domestic investment (van der Ploeg and Venables, 2012). If the windfall is relatively large, as in Uganda, then the country may face constraints in absorbing all the necessary investment at once. This is because of bottlenecks in the workers and capital needed to produce new capital. In this case setting up a temporary offshore parking fund may be necessary to spread investment over time (van der Ploeg, 2012). In both cases, the price of domestic goods will steadily rise relative to the rest of the world as capital is accumulated.[1]

The decision to spend oil revenues on domestic consumption should involve some delay, to build up a "Volatility Fund", or buffer stock of savings against oil price volatility ("precautionary savings", Kimball, 1990; van den Bremer and van der Ploeg, 2013). Doing this allows government expenditure to be disconnected from oil revenues. Such an approach is implicit in the structure of a number of successful sovereign wealth funds, including Norway's *handlingsregelen*[2], and Chile's explicit fiscal rule[3]. The insulation provided by such a Volatility Fund will also be very important if monetary policy is constrained in its response to oil price fluctuations, such as under an exchange rate peg or currency union.

While Uganda's fiscal policy should involve steady domestic investment, insulated from oil price fluctuations through an appropriate fiscal rule, it is important to bear in mind potential shortcomings when designing the appropriate monetary regime. Two such shortcomings are the natural inclination

[1] This is the Rybczynski theorem, which states that if there is an increase in a factor of production (in our case capital), then the relative price of the good that uses that factor intensively (the traded good) will fall. This is a real appreciation and is achieved by steady inflation in the relative price of domestic goods.

[2] "Budgetary rule", which involves spending 4% of accumulated sovereign wealth fund assets each year, so spending rises with the size of the fund.

[3] This rule was adopted in 2000 and involves restricting government spending to a balanced budget over the business cycle, based on a 10 year moving average of the copper price.

to spend more when oil prices are high, and around election times. If expenditure is not sufficiently insulated from oil price shocks then monetary policy will have an important role to play in managing the response of the economy. Constraining monetary policy, in the form of an exchange rate peg or monetary union, will see these shocks cause large fluctuations in the output gap and inflation.

3. Monetary Policy

In this section we compare four types of monetary regime in the Ugandan context: i) monetary aggregate targeting, ii) inflation targeting, iii) an exchange rate peg and iv) monetary union. Inflation targeting is seen as the most appropriate given Uganda's recent success with an "inflation targeting-lite" regime. Further improvements to Uganda's inflation forecasting capacity, entrenching central bank independence and improving the depth of Uganda's financial sector would all support a move to a fully-fledged inflation targeting regime. In practice there may remain some scope for foreign exchange interventions to stabilise large currency movements. If monetary union is to go ahead then it should involve a long period of adjustable exchange rate pegs, ideally to the Ugandan shilling to make the most of the Bank of Uganda's recent experience with inflation targeting.

I) Monetary Aggregate Targeting

Monetary aggregate targeting does not seem appropriate for Uganda because of the major changes to money demand cause by mobile payment technology and financial deepening. Monetary aggregate targeting involves setting targets for the growth of reserve money, as well as broader money targets like M2. It is appropriate when shocks to the real economy are larger than those to money demand, when the central bank has relatively good control over the supply of money or when the central bank doesn't have the independence or forecasting ability needed to properly implement inflation targeting regimes.

Benefits

The first benefit of monetary aggregate targeting is that it can effectively stabilise real shocks, if the demand for money is relatively stable. This goes back to Poole's (QJE, 1970) observation that the right choice of monetary policy target depends on the nature of the shocks that it is trying to stabilize. If aggregate supply (the IS curve) is more volatile than money demand (the LM curve) then monetary policy should focus on using money aggregate targets. However, if the converse is true, and money demand is more volatile than aggregate supply, then the interest rate is a more appropriate target. In countries such as those of East Africa, where there is rapid technological improvements in mobile payments systems and access to cash, then it is likely that money demand will be facing quite dramatic and unpredictable shocks. As a result, a system of money aggregate targeting would see

large fluctuations in interest rates, as seen in Tanzania during the food price shocks of 2011 (Berg et al., 2013).

The second benefit of monetary aggregate targeting is that it may require less forecasting capacity than other regimes, such as inflation targeting. Andrle et al (2013) study the effectiveness of forecasting in Kenya's money targeting regime and show that misses in the money supply target are not down to forecasting, but to changes in money demand.

Costs

The major disadvantage of monetary aggregate targeting is that it results in excessive volatility in real output if there are major shocks to money demand. In developed countries the shocks to money demand are of sufficient size and predictability to warrant the adoption of inflation targeting regimes. In East Africa there is reason to suggest that shocks to money demand will be even greater because of the major technological advances in mobile payments systems, and increasing improvements in in financial intermediation. This suggests that monetary aggregate targeting is not appropriate for Uganda, and that the other countries of East Africa should consider following Uganda's lead towards inflation targeting.

II) Inflation Targeting

Uganda's recent success with "inflation-targeting lite" suggests that it should focus on building central bank capacity, entrenching central bank independence and deepening the domestic financial sector to promote the movement to a fully-fledged inflation targeting regime. Inflation targeting regimes use the interest rate as the policy instrument, rather than the money supply. They have the advantage of effectively stabilising real demand shocks – such as those financed by oil revenues, and money demand shocks – such as through improved financial intermediation. However, they require central bank forecasting ability, independence and a well-functioning monetary transmission mechanism. In practice there may also be some scope for foreign exchange interventions to smooth currency shocks and further stabilise inflation (Buffie et al., 2013).

Benefits

An inflation targeting regime is effective at stabilising real demand shocks, such as during a resource boom, and operates well when there are large shocks to money demand. Its effectiveness against real demand shocks includes both contemporaneous shocks to demand from changes in oil prices, and anticipated shocks to demand from future oil production (with a minor change to the monetary rule).

Inflation targeting is able to stabilise fluctuations in demand during an oil boom (Wills, 2014). If the government spends oil revenues as they are received, then an oil price spike will boost demand and place inflationary pressure on home goods. Inflation reduces welfare because it distorts the relative

prices of goods – as uncoordinated firms raise their prices at different times. The price of shoes therefore changes relative to the price of socks, so there may be too many bought of one, and too few of the other. This "price-dispersion" causes output to fall relative to where it should be, which results in unemployment. An inflation-targeting regime is effective at avoiding this, because it ensures that inflation remains stable. Any change in the relative price of home goods can be achieved by changes in the nominal exchange rate, which is floating. In contrast, exchange-rate pegs as discussed below perform poorly as monetary policy is constrained. Any changes in the price of home goods relative to foreign goods must be achieved by inflation, which is costly.

The effectiveness of inflation targeting in stabilising resource-financed demand shocks can be seen in Ghana's experience during its 2012 elections. Since 2007 Ghana has had one of sub-Saharan Africa's few inflation targeting regimes. In the same year Ghana discovered nearly 4 billion barrels of oil in the offshore Jubilee field. While Ghana has had peaceful transfers of power via the ballot box since 2000, the elections tend to be characterised by sharp spikes in public spending. This was particularly noticeable in 2012, when the fiscal deficit rose from 4% to 12% of GDP and the public sector wage bill rose 47% (IMF, 2013a). Despite this sharp rise in demand the Bank of Ghana was able to keep inflation stable at around 11%.

A version of inflation targeting can also manage the anticipation effects that surround an expected increase in oil revenues. If oil has been discovered but the revenues have not yet been received, then there can be a period of inflation and unemployment under some monetary regimes as witnessed in a number of shale gas counties in the US (Eastwood and Venables, 1982; Wills, 2014). This happens because forward-looking firms raise their prices in anticipation of future demand, suppressing output and creating unemployment in the short-term (stagflation). If the central bank follows a standard inflation targeting rule (a "Taylor rule"), then they will tighten in response to the inflation and exacerbate the unemployment. However this can be remedied if the central bank follows an inflation targeting regime whilst also responding to anticipated changes in the natural level of output (Wills, 2014).

Inflation targeting also performs well if the economy faces large shocks to money demand. As noted above, Poole (1970) described the importance of choosing the correct target for monetary policy given the types of shocks that the economy faces. That paper shows that if money demand (the LM curve) is more volatile than aggregate supply (the IS curve) then using the interest rate as the policy lever to stabilise inflation is better than using money aggregates as the lever. Most developed countries has adopted inflation targeting as a result of the volatility of money demand. This was witnessed in the fluctuations in interest rates during US's period of money aggregate targeting during the 1980s. In developing countries such as those of East Africa, the rapid improvements in mobile payment technologies and financial intermediation mean that money demand is likely to be even more volatile

than in developed countries, suggesting that inflation targeting would be even more appropriate – if it can effectively be done.

Costs

For an inflation targeting regime to be effective it requires the central bank to be credibly independent, have some forecasting capacity, the economy to have an open capital account, and a well-functioning financial sector. Recent studies suggest that monetary transmission in East Africa is effective, though Uganda should continue improving its forecasting capacity and entrench central bank independence.

An independent and credible central bank makes monetary policy more effective by anchoring inflation expectations and allowing monetary policy to spread the effects of shocks over time. Well-anchored inflation expectations are important because they prevent self-fulfilling expectations of high inflation in the future (Fielding, 2008). This is even more important in oil exporters, because the central bank has a systematic incentive to appreciate the real exchange rate (Wills, 2014). The reason is the asymmetry in income introduced by oil revenues. In non-commodity countries, an appreciation of the exchange rate increases the buying power of domestic consumers abroad, but reduces their income because domestic goods become relatively more expensive (so foreigners demand less). In commodity countries the reduction in income does not matter as much, because there is also oil income (which is denominated in foreign currency). Thus, oil exporting central banks will have an incentive to appreciate the terms of trade, which can only be overcome when the central bank is credible. This suggests that both Uganda and Kenya should follow the experience of Rwanda and Tanzania and curtail the government's ability to alter monetary policy decisions (Berg at al, 2013).

A well-developed capacity for inflation forecasting is important because it improves the ability of policymakers to make appropriate decisions. Uganda has begun improving this capacity, and should continue to do so (IMF, 2013b).

An open capital account improves the transmission of monetary policy to the economy, by altering relative prices via the exchange rate. This happens more effectively if the capital account is open, allowing international capital to chase yields across borders, and in doing so alter the exchange rate. Berg et al. (2013) do find evidence that the exchange rate channel of monetary transmission is working in Uganda, Kenya and Tanzania.

A well-functioning financial sector also helps improve the transmission of monetary policy to the economy. This happens in three main ways. The first is the interest rate channel, where changing the policy rate alters the real interest rate, and in turn the decisions to save and invest by households and firms. The second is the bank lending channel, where changes in interest rates alter the willingness of banks to lend. The third is the balance-sheet channel, whereby changes in interest rates alter the value

of collateral that can be pledged against loans. A number of recent studies in East Africa suggest that each of these channels are currently effective (Berg et al, 2013; Walker; 2013; Opolot and Nampewo, 2014). Movements in interest rates do have a systematic effect on lending behaviour, despite the shallowness of the financial sectors in East Africa. These effects also tend to be greater for smaller, less well-capitalized banks (Walker, 2013). The effectiveness of transmission depends on the type of policy regime used, with the simplicity and transparency of Uganda's inflation targeting lite regime deemed to be the most effective in the region (Berg et al., 2013).

On balance this suggests that Uganda should continue proceeding towards a fully-fledged inflation targeting regime. To improve the effectiveness of this regime Uganda should continue to develop its inflation forecasting capacity, entrench its independence and promote the deepening of the financial sector. This may include improving the land title system, to encourage the development of collateralized mortgages.

III) Exchange Rate Peg

Exchange rate pegs benefit from importing central bank credibility and maintaining some flexibility in the level of relative prices compared to a monetary union, but this comes at the cost of monetary-induced recessions. They are most appropriate in developing countries where there may be some concerns about central bank credibility, and when relative prices may change relative to its neighbours. In Uganda there may be some role for intervening in foreign exchange markets to prevent excessive currency volatility and support inflation targeting (Buffie et al., 2013). A system of pegged exchange rates, possibly to the Ugandan shilling, would also be an appropriate intermediate step towards monetary union.

Exchange rate pegs have three key advantages: they import central bank credibility from abroad, they provide a commitment mechanism for accumulating foreign savings, and they allow for stable nominal prices while retaining some degree of reversibility. These come at the cost of responding poorly to unanticipated and temporary oil price shocks, and the possibility of importing recessions from foreign monetary policy.

Benefits

The first key advantage of exchange rate pegs is that they allow central bank credibility to be imported from abroad. Credibility is crucial because if firms and households don't believe that inflation will be low in the future, then they will start raising prices today, resulting in a destabilizing and potentially hyper-inflationary spiral. This can be ensured if monetary policy is being conducted by the ECB or US Fed on Uganda's behalf, via a currency peg. What this then requires is for the Ugandan money supply to grow slowly, and in line with that of the pegged currency (Fielding, 2008).

One way to achieve this is by a "Currency Board", which ensures that every unit of currency created at home must be backed by a unit of foreign currency (Sturzenegger, 2008).

The second key advantage of pegs is that they provide a commitment mechanism for accumulating foreign savings (Wills and van der Ploeg, 2014). Exchange rate pegs can be achieved in two main ways, through interest rates and through foreign reserve accumulation. Interest rate policy can be used to achieve a pegged exchange rate by tracking interest rates in the foreign currency, when the capital account is completely open. Foreign reserve accumulation can also stabilize the exchange rate by altering demand in the economy, if the capital account is at least partially closed. If the capital account is closed, then the central bank can alter the net amount of private saving in the economy by buying or selling foreign reserves. This affects demand and, in turn the domestic price level.

During a commodity boom it is typically desirable for at least part of the windfall to be saved abroad in foreign assets. Some governments may choose not to set up a sovereign wealth fund because of fears that the accumulated reserves will be raided in the future by political rivals. However, if the foreign assets are accumulated as central bank reserves, under the guise of an exchange rate peg, then it provides a way for the hands of future governments to be tied. If they choose to raid central bank reserves to be spent domestically, then the pegged exchange rate will move. The exchange rate is very visible to everyone in the economy, and so this provides a way of monitoring the government's accumulation of reserves. In developing countries saving resource revenues in foreign exchange reserves, under the guise of a currency peg, can also increase welfare relative to a case without intervention as the central bank is essentially saving on behalf of households without bank accounts (Wills and van der Ploeg, 2014).

The third key advantage of pegs is that they retain some degree of reversibility. At any point in time the nominal level at which the currency is pegged can be changed, by altering the interest rate or foreign currency reserves – as described above. This is important if real prices in the country are likely to undergo large, systematic changes relative to the pegged currency. A country undergoing an oil boom, such as Uganda, is one such instance. In a network of pegged currencies, the levels can be adjusted until some degree of stability is reached, which is not possible in a full monetary union.

Costs

These advantages come at the cost of being able to respond poorly to unanticipated shocks, such as from oil prices. According to Mundell's "impossible trinity", a country can only simultaneously have two of: an open capital account, a stable exchange rate and independent monetary policy. If the capital account is open, then monetary policy cannot be used to offset shocks as it must be used to ensure the stability of the currency. In this setting oil price shocks will have a particularly adverse effect on welfare (Wills, 2014). If the capital account is closed, then there is more scope for independent monetary policy. This observation has led to some suggestions that capital controls – altering the

openness of the capital account – be used as a monetary lever by exchange rate peggers (Schmitt-Grohe and Uribe, 2012; Farhi and Werning, 2013).

Exchange rate pegs also have the cost of importing recessions from abroad. This happens because exchange rate pegs outsource monetary policy to a foreign central bank. This bank will primarily be concerned with economic conditions in their own country. Thus monetary policy may tighten at a time when it would not be warranted for the pegged currency, inducing a recession. One way around this is to establish an overdraft facility with the pegging currency's central bank, so that the currencies can be exchanged at a fixed rate without constraining monetary policy in the short run, as has been done with the West and Central African monetary unions with the French treasury (Sturzenegger, 2008).

On balance an exchange rate peg seems like an appropriate choice for some of the countries of East Africa in the short to medium term, until the effects of the oil booms have stabilised. This would be an intermediate and reversible step towards monetary union. It is useful to note that 75% of resource-dependent countries have adopted some form of fixed exchange-rate regime. However, Uganda should continue to develop its capacity in moving towards a fully-fledged inflation targeting regime.

IV) Monetary Union

A monetary union is most appropriate amongst a group of countries that have strong trade links, are growing along a similar, stable path and are subject to similar shocks. The discovery of large hydrocarbon deposits in Uganda, Kenya and Tanzania means that the proposed East African Monetary Union may not satisfy all of these criteria in the short to medium term, so the progress towards monetary union may need to be delayed.

There a number of benefits to monetary unions, including improved credibility for the central bank, reduced possibility of importing recessions (relative to a peg) and a reduction in trade costs. However, monetary unions also suffer a number of drawbacks, including limited effectiveness of independent monetary policy in developing countries, the difficulty of reversing it, and greater risk of sovereign default. For this reason monetary unions are best suited to countries that satisfy some or all of the criteria identified in the optimal currency union literature.

Benefits

The first benefit to a monetary union is its ability to install a credibly independent central bank. While the governments of individual countries may be able to influence the monetary policy decisions of a national central bank, it is likely to be harder for the governments of all countries in a union to do so. As a result, the likelihood of inflation expectations becoming un-anchored is reduced, and independent monetary policy can be conducted more effectively (Rose, 2008; Fielding, 2008).

The second benefit to a union is the reduced possibility of importing recessions. Under an exchange rate peg it is possible for a monetary tightening abroad to cause a recession domestically, because all monetary decisions are made without regard to foreign countries. In a monetary union, while a single central bank makes policy for all countries in the union, the policy decision is endogenous to the conditions in those countries. As a result it is less likely that the decision will lead to a recession than under and exchange rate peg.

The third benefit to a monetary union is the reduction in trade costs. Countries that adopt a single currency have the benefit of stable nominal prices and lower transactional costs. In addition there are also benefits to the harmonisation of regulations, tax collection and freer access to capital that typically accompanies a monetary union. In the case of the European Monetary Union the benefits of the single currency have been estimated to be 0.5% of GDP and a 20% increase in trade (De Grauwe, 2011). It is unlikely that the members of an East African Monetary Union would see a similar benefit, given the great homogeneity of their trade baskets and stronger trade links with the rest of the world.

Costs

However, monetary unions also have significant drawbacks, including the limited effectiveness of independent monetary policy in developing countries. One of the benefits of a monetary union was its ability to improve the credibility of the central bank, making the conduct of independent monetary policy more effective. However, these benefits are not likely to be particularly large in developing countries with low levels of financial intermediation, such as those proposing to join the East African monetary union. This is because if households do not have ready access to mortgages and savings accounts, they do not face interest rates directly, and so one of the major transmission channels for monetary policy is ineffective.

The second drawback is the difficulty of reversing the move towards monetary union. Once countries have entered a union, it is very difficult to adjust their relative prices. The only way this can happen is through local inflation and deflation, which presents a challenge for the collective monetary authority. This point has been particularly prescient in the recent crisis within the Eurozone, where the need to increase the competitiveness of peripheral countries must come at the cost of inflation in countries such as Germany.

The third drawback is the increased risk of sovereign default. In countries that are not within a monetary union, they have the ability to issue debt in a currency they control. Default is unlikely because the governments have the ability to inflate away the debt – essentially paying for it through seignorage revenue. However, in a union this is not the case. For example, during a recession, countries running budget deficits may increase concerns about their ability to service debt. This will place a risk premium on their interest rates, placing further contractionary pressure on the economy and increasing the probability of default (De Grauwe, 2011). Self-fulfilling crises are thus more likely

(Kopf, 2011). They can be avoided by the central bank agreeing to purchase government debt of member countries, but this then imposes losses on member governments collectively. It is better to have a single fund for achieving this, so that politically members know countries know the potential extent of their liability.

Optimal currency areas

As a result of these drawbacks, monetary unions are best suited to countries that satisfy the criteria laid out in the optimal currency area literature (Mundell, 1961, 1973; McKinnon, 1963). These include: exposure to a similar growth path and similar shocks; labour and capital mobility throughout the region; a risk-sharing mechanism such as automatic fiscal transfers; and some form of fiscal integration whereby debt is issued at a union-level (Kopf, 2011). Harmonisation of regulation and taxation is also likely to help.

Exposure to a similar growth path and similar shocks is important because it means that monetary policy should be synchronised throughout the union. If countries are growing along a similar trend then there will not need to be any major change in relative prices between members of the union, which would otherwise be achieved by floating exchange rates. If countries are also exposed to similar shocks, then the monetary response to economic conditions in each country will likely be the same, so there will be fewer costs of harmonising it across the region.

Labour and capital mobility is important because it is a way to ensure that member countries have a similar growth path, and respond to shocks similarly. If labour and capital moves freely throughout the union, then it will move to where it is most productive. This should cause productivity throughout the union to converge, placing member countries on a similar growth path. In the face of a shock to one part of the union, the free movement of labour in and out of the region should also help stabilise the shock. In practice this is not perfect, because labour tends to be relatively immobile. The example of the EMU is a case in point, where labour can move freely throughout the union, but unit labour costs have diverged sharply since 2010 (OECD, 2014).

A system of automatic fiscal transfers is important because it supplements the stabilizing effects of labour and capital mobility. Mobile labour and capital is not a perfect way to stabilise asymmetric shocks within a monetary union, as noted above. For this reason it is important to have additional mechanisms to ensure that asymmetric shocks to not excessively de-stabilise a particular region. If this were to happen, then it would require the monetary authority to respond in a way that was not suited to the rest of the union, potentially causing a recession (if tightening), or inflation (if loosening). Fiscal transfers can prevent this as they can be targeted towards specific regions or industries, reducing the need for a monetary response.

Joint issuance of debt is important because it prevents self-fulfilling debt crises, particularly in times of recession (Kopf, 2011). In countries with an independent currency, the government is able to issue debt in a currency it controls. If there are fears that the debt cannot be repaid, then the government can, as a last resort, expand the money supply and pay for the debt with seignorage – inflating it away. However, in countries within a monetary union this is not possible. During a recession the government may wish to run counter-cyclical policy, increasing the budget deficit. However, if this causes financial markets to fear that the level of debt is becoming unsustainable, then they may demand a risk premium on borrowing from that country. Higher interest rates are contractionary and increase the debt burden, potentially causing a self-fulfilling default. However, if debt is issued at a union-level, then the symmetric between the control of the money supply and the issuance of debt is restored.

4. Conclusion: How to make a monetary union work

Uganda's recent experience with an "inflation targeting lite" monetary regime has seen some success, and provides a strong foundation for moving towards a fully-fledged inflation targeting regime in the future. Inflation targeting will be particularly useful during Uganda's upcoming oil boom, as a way of stabilising demand and terms of trade shocks. The other members of the East African Community may also benefit from moving towards a similar system of inflation targeting, as there is evidence that the monetary transmission mechanism is effective in all of them (Berg et al., 2013, Walker, 2013). If the East African Community continues to move towards monetary union, then there are two key elements needed for its success: sound fiscal policy coupled with slow and reversible monetary integration.

Sound fiscal policy has a number of elements. First, it requires that the newly commodity-rich countries of East Africa – Uganda, Kenya and Tanzania, spend the resource wealth slowly and stably. As discussed in Section 2, this means that i) expenditure should be decoupled from oil revenues through a sovereign wealth fund, ii) domestic expenditure should be focused on investing in public capital and iii) this may require a temporary parking fund for overcoming capital constraints. Even better would be to coordinate this expenditure amongst the three commodity-rich countries, so that they grow in step. If the countries enter currency union then the stability of this expenditure will be crucial. Otherwise it will introduce sharp asymmetric shocks into the economy – prompting a monetary response that is unsuitable in the rest of the union.

Second, sound fiscal policy will require a reduction and harmonization in regulation. This will free the movement of labour and capital throughout the union, which is an important risk-sharing mechanism, and will remove the possibility of asymmetric regulatory-driven shocks, such as minimum wage laws.

Third, it will require a system of automatic fiscal transfers. This will supplement the movement of labour and capital as a way of sharing asymmetric shocks throughout the union. In practice it should involve a centrally administered fund dedicated to this purpose, so that national governments are aware of the extent of their liabilities.

Fourth, it may require an agreement to jointly issue debt at an East African Monetary Union level, to prevent self-fulfilling, financial-market induced debt crises.

Slow and reversible monetary integration should involve a network of pegged exchange rates amongst member countries for an extended period of time – at least until hydrocarbon production in the commodity-rich countries stabilizes. Uganda should continue to build on its recent success with inflation targeting, by improving its capacity in inflation forecasting, entrenching central bank independence and promoting the deepening of the financial sector. The other members of the East African Community should move towards a system of pegged exchange rates with Uganda. Ideally this would be achieved by harmonizing interest rate policy, rather than large interventions in foreign currency markets. The system of fixed exchange rates is important because it allows each country to determine the appropriate level at which to enter the union, while retaining the flexibility to alter relative prices during an unprecedented period of commodity-fuelled growth. During this period member countries should ensure convergence of key criteria such as inflation, long-term interest rates, fiscal deficits and the level of government debt, as agreed in the Protocol on the Establishment of the EAC Monetary Union in November, 2013.

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