Sustainable Growth in Sub-Saharan Africa

A White Paper Examining 'The Holy Grail'of Economic Success & The Central Bank Policy Solutions That can Deliver It

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Abstract

Sub-Saharan African Central Banks have been trying for decades to achieve sustainable growth by enacting various Monetary Policies. These policies have failed to achieve the expected results due to a lack of Financial Depth. This weakness is due to the unwillingness of Commercial Banks to lend to SMEs, who have contributed to the high occurrence of Non-Performing Loans (NPLs). In this White Paper, Ovamba proposes a solution that will solve this issue for Central Banks, by enabling them to see and assess what is really happening throughout the business eco-system, in particular, the 'base of the pyramid' where 90% of SMEs are most active, yet somewhat obscured.

For decades, Africa's Central Banks have tried various approaches to boost growth amongst Africa's small and medium business sectors – especially those in the informal sector. In the last decade, this has become increasingly essential, if not crucial, owing to the more than 45 million registered businesses who are not able to access capital and the underserved entrepreneurs who are excluded from financial services.

The demand for trading integration that African countries are seeking, along with the free-fall in commodity prices, have taken their toll on the promise of economic growth. Although various monetary policies have been put in place, most of them have been expansionary and have failed to yield the expected results. Ionel Zamfir (2016) highlighted that while African economic growth seems fast, it lacks depth. In this particular instance, depth is understood to mean 'Financial Depth'.

Before going any further, we should define 'Financial Depth' and why it matters. The World Bank defines Financial Depth as follows:

"Financial depth captures the financial sector relative to the economy. It is the size of banks, other financial institutions, and financial markets in a country, taken together and compared to a measure of economic output.A proxy variable that has received much attention in the empirical literature in this regard is private credit relative to gross domestic product (GDP). More specifically, the variable is defined as domestic private credit to the real sector by deposit money banks as percentage of local currency GDP. The private credit, therefore, excludes credit issued to governments, government agencies, and public enterprises. It also excludes credit issued by central banks."

With this definition in mind, one can understand the importance of Financial Depth and its strong correlation to sustainable economic growth.

On one hand, Dimitris K. Christopoulos and Efthymios G. Tsionas (2003) have demonstrated in their study, the existence of a causality between financial depth and economic growth. Using a sample of the 10 developing countries in Latin America, their study findings pointed to a unidirectional causality; from financial depth to economic growth which is noticeable in the long run, rather than the short run. Jude Okechukwu Chukwu and Cletus Chike Agu (2009) found the same relationship in Nigeria in a study that covered data from 1971 to 2008.

On the other hand, Nicholas M Odhiambo (2008) underlined that in the case of Kenya, the causality is bi-directional, creating a dynamic cycle between financial depth and economic growth. His study also refers to the fact that it is in following an impact of financial depth on the economic growth that there is a returned effect of the latter to the former.

It can be settled that the starting point in both arguments: unidirectional causality and bi-directional causality, is the financial depth. Therefore, if Africas' Central Banks want to achieve sustainable economic growth, they will need to induce long-run financial depth. This is their real challenge.

Background

Revisiting Central Bank Traditional Monetary Policy

At the heart of Financial depth lies Private Credit - direct lending by financial institutions to non-public companies. Private Credit is part of the Credit Channel mechanism that Central Banks rely on when putting Monetary Policies in place. Before diving into details, it is important to understand the purpose of a Monetary Policy and why the Credit Channel is crucial.

Monetary policy; the management of money supply, is a tool the Central Bank uses to promote growth, sometimes referred to as 'liquidity management'. Promoting growth has to balance tight control over inflation, unemployment and interest rates. When inflation is on the rise, the Central Bank can use a contractionary Monetary Policy to drive inflation down to the desired rate. Nevertheless, when unemployment is on the rise, the Central Bank can use an expansionary Monetary Policy that will increase consumption which will have the rebound effect of increasing employment as more manpower will be needed to increase output and production.

To conduct these policies, The Central Bank uses the Credit Channel mechanism to affect change in money supply which in turn influences the real economy through banks. The Credit Channel mechanism is a combination of the Bank Lending Channel and the Balance Sheet Channel. For the purposes of this White-Paper, the focus will be on the Bank Lending Channel.

In an expansionary monetary policy, Central Banks lower their interest rates to banks. Thus, it becomes cheaper for banks to store their reserves.

Consequently, banks have more cash available than is needed. Naturally, banks will be inclined to capitalize on the 'extra' cash available and will therefore lend to businesses. While conducting a study on the asymmetric effects of monetary policy on output, Jui-Chuan (Della) Chang and Dennis W. Jansen (2005) tests confirmed that there is, indeed, an increase in lending following an expansionary monetary policy. They went further by specifying that large banks were more responsive to an expansionary monetary policy than the smaller banks.

Traditionally, an expansionary monetary policy is supposed to stimulate the real economy through an increase in direct lending. But this phenomenon is not quite happening in most Sub-Saharan African countries. The Question here is, 'Why is it failing?'

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Commercial Banks Would Not Comply

In October 2019, The Central Bank of Nigeria (CBN) fined 12 commercial banks a total of $1.3 billion for failing to comply with the new directive on lending whereby the loan-to-deposit ratio (LDR) was supposed to be increased to 60% by September 2019 (Africanews). The increase in LDR was expected to go primarily towards SMEs. Commercial Bank reluctance to lend to SMEs is due to 2 basic issues that have yet to be resolved: high Non-Performing Loans (NPLs) and little understanding of how to mitigate some of the risks associated with SME activities.

Historically, Sub-Saharan African country NPLs were not high. However, the past five years have witnessed a gradual increase. For example, in Kenya, the ratio of NPLs to Total Gross Loans increased from 6% in 2015 to 11.7% in 2017 (IMF database on core Financial Soundness Indicators). In Cameroon NPLs increased from 9.3% in 2015 to 13.6% in the first quarter of 2019. In Ghana the increase soared from 14.7% in 2015 to 18% in Q2 2019. This increase is present in at least 8 additional Sub-Saharan countries with a record high in Equatorial Guinea of 44.8% Q1 2019.

The Commercial banks responded to this increase by downsizing SME lending portfolios in order to reduce their NPLs and gain long term control. Subsequently, this approach has caused a "weakening" amongst Commercial banks due to restricted direct lending, thus contracting the Bank Lending Channel. This action resulted in a breakdown of the Credit Channel and that has impeded the Monetary Policy effectiveness.

But before reaching the far extreme - a complete cessation of lending to SMEs, Commercial Banks made some effort to gain understanding, with meagre results. The International Finance Corporation (2010) put together a guide to assist the banks with this challenge. In this guide some suggestions were made on strategies and methods to increase understanding and visibility into the SME market, which did little to unveil the workings of the informal sector which comprises as much as 90% of businesses according to Dr. Samuel Muiruri Muriithi (2017).

In the case of developing countries where data is limited, the guide reports on the efforts banks have made to harness understanding of the SME market with even scantier results. Banks mainly relied on SME turnover, their business classification and segmentation. The IFC suggests that Banks should go further by extracting information on SME supply chain and customer account activity to increase their understanding of the businesses in this market.

To some extent, there has been some effectiveness, limited as it may be, but it does not solve the larger issue of how banks can get a more permanent and immediate control of their NPLs; Solving this is the 'Holy Grail of Growth'.

Banks in developing countries have a limited understanding of SMEs because contrary to what the IFC suggests, some SMEs may not even have bank accounts. Those that do, may be 'lazy depositors' and not receiving actual services from their Bank. Sub-Saharan Africa suffers from a serious lack of financial inclusion.

As a result, it renders SMEs 'opaque' closing banks off from the crucial understanding required to get to the core of SME business activities which is largely Trading – the buying and selling of goods, to meet the ever growing consumer appetites of Africa's expanding population.

Mapping and accessing the elements of supply and value chains is where Banks need to focus their analysis. Banks need to be able to see, access and finance the inventory needs of the goods to be traded. Inventory trading is at the very bottom of the ecosystem and is an area that Banks truly need to understand.

Mastering the risks involved in the performance, execution and financing of this activity will give Banks the comfort they need to lend to SMEs and will 'fix' the broken Credit Channel, thereby giving visibility to the 'bottom' and 'last mile' of SME business ecosystems. With this visibility the Central Bank can then adjust their Monetary Policy accordingly, an appropriate response to the market's natural ebbs and flows.

We might ask, how could this possibly work given that banks are not allowed to hold inventory as assets on their balance sheet? Has anyone ever attempted to understand SMEs from this perspective and depth or initiated transactions with them that yield consistent success?

TradeTech As A Solution

Tackling high NPLs requires a different approach. This approach requires that inventory be the central tenet to capturing the SME market. Trade transactions give an entirely new and different view into the activities of businesses – even those in the informal sector that financial institutions find the hardest to serve. Commercial banks and Central Banks are viewing SMEs through the lens of conventional finance and this has been proven to be inefficient and ineffective.

Ovamba Solutions Inc., a US-based company took a different approach to solving high NPLs while simultaneously promoting SME growth. By putting the inventory at the centre of their model, Ovamba leaned towards Islamic Finance for proof of concept. Islamic finance allows only Non-Interest-Bearing (NIB) transactions whose core principles are founded in the ethical sharing of risk and profit. As such, Ovamba built solutions that were designed to reveal as much information as possible relating to SME risk (coined the 'micro risk').

Micro risk makes up the core of SME activities and includes insights into 'how turnover is being generated.' In other words, how is the inventory trading? Being able to answer this key question helped Ovamba to build a flexible 'inventory repurchase' (a digitized Murabaha) program for each SME, thus getting high NPLs under control. When Ovamba completed its deep Beta Testing phase which ended in the last quarter of 2018, the rate of the unsuccessful transaction (defaults*) was roughly 8%, which is 3.87% below the average NPL rate of Sub-Saharan economies (World Bank Database on World development indicators).

Ovamba's NIB solution is based on three pillars:

* With the Ovamba model, a default is defined as a customer being late or slow to buy inventory back, OR inventory being slow to liquidate on the market after a customer has not been able to buy goods back as per the contractual obligation

AML / KYC

These are extensive checks carried out by Ovamba using traditional and alternative sources of data and measuring parameters. It involves checking that the SME is genuine (as per the company statutes, the identity of the business owner, and/or the general manager), running background checks on owners and general managers and even the supplier. It must be understood that since inventory is being traded, Ovamba has the duty of cross-checking information regarding the supplier provided by the SME (country, experience, history with customer etc.).

Once this has been completed, Ovamba gets to understand the SME inventory cycle from order(s) origination at the supplier level through to shipping and off-taker sales and final buyer/customer. Factors relating to the customers' trading approach are also reviewed. The KYC process includes understanding:

- How the SME gets and receives payments – Is this on credit terms or cash?
- What proportion of payment represents the credit/cash?
- What is the nature of the SMEs' customer base? Who are the SMEs best customers?
- What are the pending orders from customers?
- How fast does the inventory sell (turnover)?
- What outstanding obligations does the SME have with financial institutions?
- Is the SME in compliance with the government? Which is important to know to avoid potential shut down mid-way through a transaction due to unpaid taxes
- How is the SMEs business location affected by customer traffic?

All of these checks are designed to assess the SME growth potential. This information when aggregated can provide Central Banks with deep data for policy development. Due to the nature of "emerging market realities", blending technology with field checks to ensure accuracy is an important aspect of combining alternative data and available information with traditional data.

Inventory Risk

The previous section took the approach of assessing the broad risks associated with SMEs. This approach is specialized in assessing the risk of the underlying inventory that will be traded. A year into this Beta testing phase, Ovamba understood quite clearly that inventory is at the heart of successfully financing SMEs who are involved in trading. Without a sustainable financing mechanism to ensure inventory, the SME cannot operate.

Given these findings, Ovamba decided to specialize in transactions backed mainly by inventory and from there, inventory risk assessment became crucial, in fact, it was and is vital. The inventory risk assessment spans from logistics to inventory 'behavior', tracking shipments, deciding on the type of inventory to finance, at what point in the market cycle it should be financed, how it should be stored to minimize damages and even its impact on portfolio performance is considered; and most importantly, deep understanding of how the inventory is trading.

Regarding this latter aspect, inventory behaviour is deciphered to the 'SKU' (Stock Keeping Unit) level. Everything is taken into consideration: categories, sub-categories, models/sizes, market behaviour, (price fluctuations on the market), country of origin, seasonality if any, best versus worst-selling months etc.

This depth of detail allows Ovamba to advise the SME on which products and even brands they should specialize in, and which they should cease to trade. Ovamba's system uses AI to predict and automate how and when SMEs should place their orders from one month to the next in response to inventory sales and market conditions.

Moreover, Inventory risk does not focus only on inventory traded, but also the intersections of this trading with other items that can appear complementary or substitutive, and how it influences these trades and market conditions as well. Ovamba also has full visibility into these SMEs and the price at which items are being resold in the market (their pricing strategy). This full market pricing review is a powerful tool in assessing the impact of these businesses (especially the informal sector) on capital markets and GDP.

Decoding inventory risk can confirm or invalidate the growth potential assessed by the AML/KYC process, and adjust accordingly for other transactions if the SME wants to continue being an Ovamba customer. Continued trading partnerships with Ovamba supports progressive design innovation for a growth program that is specifically attuned to the SME in question.

Technology

Due to its specialized model, Ovamba had to develop a technology that could meet the nuanced and challenging realities of the African business ecosystem. This 'TradeTech' approach has been praised by a number of organizations such as the IMF (Ivory Coast), OPIC in the USA and the CDC in the U.K. In 2018, Aaron Gregg reported on the World Economic Forum, recognition of Ovamba's work when they were selected as Global Technology Pioneers and Ambassadors. The World Economic Forum described Ovamba's technology as 'culturally sensitive' and 'attuned to Africa's realities'. Staying attuned to these realities implies developing a cut-through technology that will increase speed of execution, precision and security.

An Examination of Ovamba's Technology

Ovamba Plus™ Mobile Application
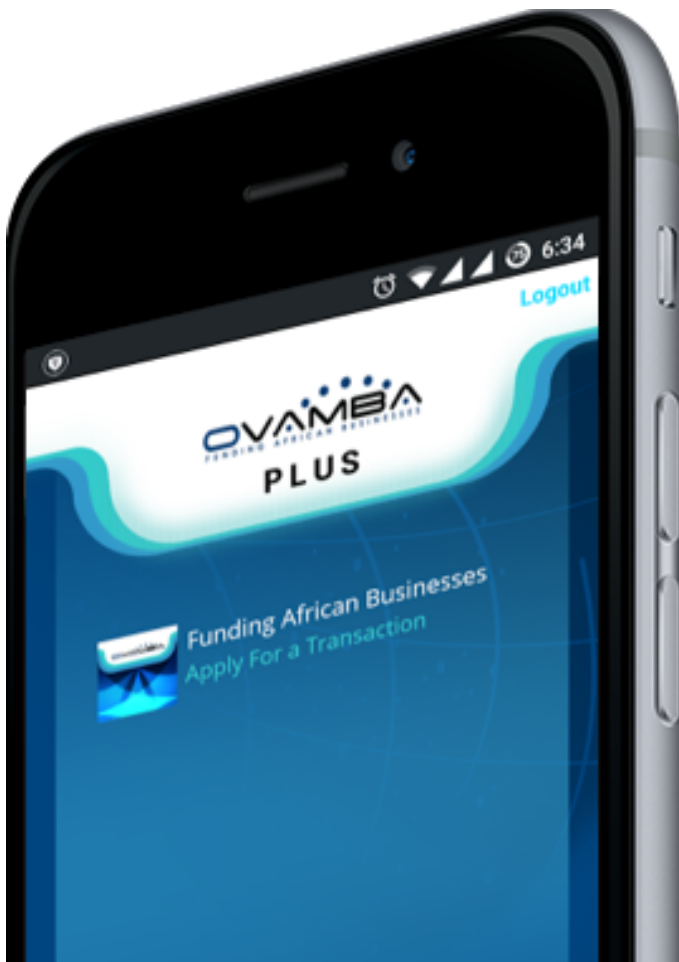
A handheld app designed for the customer to get quick pre-qualification. The old adage that 'Time is money' is very real, and Ovamba understands that SMEs do not have weeks to wait to get an approval of finance. Waiting for weeks usually results in increased cost of capital, lost customers who cannot be serviced, cash flow mismatches and losing discount advantages with suppliers. Especially expensive for the SME is having goods awaiting clearance at the seaport which will incur demurrage fees and will certainly increase the selling price of their inventory in a bid to recoup losses which diminishes their competitive advantage. With the Ovamba Plus™ app, the SME will know if they have been pre-qualified or rejected for trade support from Ovamba within sixty seconds.

Ovamba Proprietary Risk Management System™	This is a 'Lego' system. It combines 4 primary systems that interlock together to ensure an unbiased risk analysis for transactions that are being processed as 'NIB' (Non-Interest Bearing) transactions. Being 'unbiased' the system has been built to prevent internal and external fraud, and autonomously checks and verifies that information entered into the system meets Sharia compliance. The Machine Learning algorithms allow for information that is continuously collected to continuously improve risk assessment.
Inventory Management System and Scanner Application	This application has been built to address the particular needs of SMEs within the context of Africa's infrastructure challenges. Challenges such as no standardized documentation, lack of comprehensive registries or other business support infrastructure. Ovamba's system collects and centralizes inventory information from across all SMEs. This allows Ovamba's Inventory Management System to carry out extensive cross-analysis, to have visibility and analytics on the inventory from the unit level to its place within the broader market (town, region, country, continent). This system, as it is currently rolling out, is proving to be the perfect fit for the AfCFTA (Africa Continental Free Trade Agreement) as it will give Central Banks throughout Sub-Saharan Africa an unprecedented view of trade across the entire Continent.
Ovamba Finance System	This System is similar in architecture to the Ovamba Proprietary Risk Management System™. It resides on multiple connected systems. Given the uniqueness of Ovamba's model, no conventional finance system is programmed or calibrated to handle the complexities of simultaneous collections, transactions, origination, funding and portfolio management that needs to be managed in real-time. This system tracks every single flow of payment made: dates, amounts, method of payment, customer sales, and the inventory it is linked to. All these systems feed into and from each other for a seamless view of customer, inventory and financial position. Hence, information is updated in real-time, and strategies to reduce possibilities of unsuccessful transactions are adjusted in real-time.

Discussion

Ovamba's model reached maturity after an intensive and successful two year Beta Testing period (2017-2018). During this time, Ovamba experimented quite deliberately with an assortment of inventory and collateral combinations, seasonal stress tests, transaction duration, transaction size, domestic and international suppliers, and a variety of geographic regions, customers, cultural/ethnic groups and demographic blends.

Ovamba funded approximately 100 transactions for 44 SMEs of which 63% (28 SMEs) were mainly inventory trading. These were short-term transactions (4-6 months in duration). Ovamba 'cycled' $7.1 Million multiple times over that 2 year Beta period and financed inventory valued at approximately $17.9 Million mainly in Cameroon. $7.1 Million represents 0.003% of the financing gap in Sub-Saharan Africa. The World Bank reports a staggering $245 Billion SME financing gap in Africa. Ovamba's approach produced a default rate of 8%. The performance of these 28 trading SMEs alone provides a promising glimpse into what Central Banks and Commercial Banks could achieve using Ovamba's model. The impact to NPLs if this model were to be deployed at full scale would be significant to both treasury stability and financial inclusion.

Some of the best performing transactions in Ovamba's portfolio have seen customers experience as much as 450% growth over a 36-month period, with some customers already on the 7th transaction with Ovamba. The growth of these SMEs was possible solely because the model was built around the specific understanding of each SMEs business activities, while the information collected and subsequently shared allowed these SMEs the opportunity to specialize in fast-turning products that they could master and build a stable business with.

Ovamba's model (branded and marketed as 'Growth-As-A-Service™') does not stop there. Growth-As-A-Service™ provides easier access to capital and therefore promotes financial inclusion, and it is this that has shown indications of being able to foster Financial Depth. SMEs that grew with GaaS™ opened more sales outlets, wholesale customers grew more retail customers and businesses were led to hire more employees throughout the value chain.

In late 2019, The Founder Institute of Palo Alto, California reported that Ovamba had taken the next step in making GaaS™ available to Banks. Ovamba signed a partnership agreement with United Bank of Africa's (UBA) Cameroon subsidiary in September 2019, and a month later announced a partnership with Union Bank of Cameroon (UBC). Both banks integrated Ovamba's 'BankPartner Lite™' approach which is designed to help Banks grow their SME portfolios, increase onboarding, reduce 'churn' (bank-hopping) and foster financial inclusion through trade finance.

Commercial banks who integrate Ovamba's BankPartner™ systems will have an effective tool and strategies to unlock a market that has been difficult to understand and expensive to serve. With BankPartner™ banks will be able to understand and serve SMEs with greater confidence. Take the example of a business that sells a seasonal product like fans. The Ovamba Inventory Management System™ which is a core process within BankPartner™ will indicate the best period for selling this product to consumers – it happens to be during the dry season and sales typically peak in February, the hottest month of the dry season. Hence, if an SME is requesting a loan in August to purchase fans, the Systems will direct the Bank RM (Relationship Manager) or Credit Department to red-flag this application because logically very few consumers purchase fans during the rainy season when the weather is less hot and this could be a point of failure for such a transaction

At the same time, Commercial Banks might be mistakenly rejecting SMEs with high success potential because they do not have visibility into the business sales volume. By analyzing sales volume, Ovamba's Proprietary Risk System™, (another core process within BankPartner™) is able to use this metric as an additional transaction evaluation point, especially for the informal sector who might not keep audited accounts.

With this model, goods are purchased by Ovamba on behalf of the SME and remain physically and legally in Ovamba's possession and control. As such, the SME 'pays' to access the goods and satisfy their customer orders/demand. This pre-payment before delivery of goods significantly reduces the risk of non-payment. Therefore, a Commercial bank operating the entire model will effectively be reducing their NPLs. No payment, no goods – these are 'self-collateralizing' transactions.

The distinct advantage for the Central Bank is that the Ovamba 'TradeTech' model unfolds the entire spectrum of solutions that the Central Bank's needs:

- Ability to track flows of money that so far have remained hidden because capital is not flowing through formal bank channels
- Linking the flow of goods to capital especially for SMEs who are multi-banked.

This in itself is a good head-start for the Central Bank as they will be able to get a strong sense of what is really happening at the far reaches of the ecosystem. With these data points the Central Banks will be able to assess which sectors show prominent growth and which sectors are struggling. The Central Bank may even go further and assign SMEs with a unique identification that is embedded with biometrics. This is a viable solution that is already available in Ovamba's systems to prevent fraud and strengthen KYC. A unique ID will make the Central Banks task of capital market management and business growth more effective as it will be able to tailor monetary policies to improve sectors individually and specifically. This will be a winning strategy to bring about the Financial Depth required to produce sustainable growth.

Conclusion

The intent of this White Paper was to show that there is a different yet effective approach for Central Banks to achieve sustainable growth. Highlighting the problems that Central Banks face, makes it clear that the failure to achieve sustainable growth is due to the absence of financial depth. We demonstrated why financial depth is necessary to conduct an effective Monetary Policy and why it is failing in Sub-Saharan Africa. We have shown that Financial depth could not be achieved because commercial banks would not comply with Central Bank mandates. Commercial Bank non-compliance was for two reasons: high NPLs caused by loans to SMEs and the poor understanding of the SME market.

Following that, we showcased a proven solution that Ovamba Beta tested for two years and was praised for by various economic experts. The solution works as a combination of Islamic finance: a Murabaha that has been digitized, and financial services delivered to customers via technology. The Murabaha model ensures that at the heart of transactions is inventory trading which SMEs build their businesses upon, while Ovamba's technology captures AML/KYC and Inventory risk information. This combination is what produced a default rate (8%) during the Beta testing period which is 3.87% lower than Sub-Saharan Africa average for NPLs during the same period.

We conclude here by suggesting that this model is a viable solution for Commercial Banks and Central Banks throughout Sub-Saharan Africa. The advantages are two-fold: On the one hand, Ovamba's Model and technology will allow commercial banks to quickly red-flag what could potentially become an NPL while gaining a better understanding of the SME market and control of repayments which in turn increases available treasury and bank liquidity to extend loans towards other SMEs.

On the other hand, Central Banks will truly be able to see what is happening in the real economy at the base of the ecosystem. This is an insight that has been difficult to achieve with any accuracy given that this part of the business ecosystem is highly populated by the informal sector. Being able to accurately assess market realities will allow the Central Bank to design more effective Monetary Policies that are sector-appropriate and focused on the regions of economy that need to be boosted.

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