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ROLE OF CENTRAL BANKS IN THE ERA OF CLIMATE CHANGE: LESSONS FOR COMESA MEMBER CENTRAL BANKS

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Abstract

Climate change impact is being manifested through increased frequency and severity of acute weather events like floods, droughts, extreme temperatures, windstorms, etc. leaving behind a trail of significant destruction. Central banks are especially concerned, when the adverse effects of climate change (in form of physical and transition risks), are transmitted to the financial system and/or to the economy through inflation, and or when climate change affect financial stability, resulting into huge damage, causing financial distress through significant financial liability costs and losses.

In this regard, there are compelling reasons for central banks to act and respond to climate change, especially because climate events interfere with the central bank mandate of price stability, a key mandate for most central in the COMESA region. Central banks regardless of their mandate may consider starting to incorporate climate adjusted analytical and risk exposure tools. Some of the key policy consideration for central banks in the COMESA region may include the need to: come up with classification of green activities and act as catalyst for more sustainable financial system; conduct moral suasion to encourage economic agents to speed up the green transition; and support analytical capacity in climate related macroeconomic modelling and forecasting, among others. However, when there exists a trade-off between the mandate of maintaining price stability and implementing measures to foster the green transition, central banks should stick to their primary objective and prioritized price stability (Simandan and Paun, 2021). Achieving price stability, in the foreseeable future, remains the most important contribution of monetary policy to the green transition. Price stability stimulates investment, contributes to sustained growth and high employment. Price stability also helps economic agents anchor inflation expectations which in turn support achieving price stability in the future when the impact of climate change on inflation may increase. Instead, Governments have the tools and instruments for addressing climate change, leaving only a limited role for monetary policy that dictates that central banks take up a supportive role in mitigating climate change.

Introduction

Climate change impact is being manifested through increased frequency and severity of acute weather events like flooding, extreme temperatures, and windstorms, and gradual or chronic changes in the climate, such as those associated with gradually rising temperatures and sea levels. The COMESA regional economies have witnessed intensification of extreme weather events such as devastating floods, cyclones and droughts affecting different countries at various times. For instance, in the first half of 2024, the Eastern African region experienced extreme floods. These weather events are leaving behind a trail of significant destruction on infrastructures, agriculture, human mortality, increase in the burden of diseases, reduced labour productivity and at times massive population migrations that have caused major demographic changes and spatial distribution of income and poverty. At the global stage, the World Economic Forum estimates that the global economy can lose up to 18 percent of GDP by 2050 due to climate change, which translates to between $1.7 trillion and $3.1 trillion per year by 2050. The loss reflects the estimated cost of damage to infrastructure, property, agriculture, and human health. The cost is expected to increase over time as the impacts of climate change become more severe, unless countries institute effective mitigation measures to dampen the impact (WEF, 2021). With this alarming potential loss, the need for collective action by countries is more urgent and paramount.

The timing and severity of the consequences of climate change depend increasingly on how fast and effective the policies implemented ensure transition to low carbon economies. According to the 27th United Nations Climate Change conference (COP27), this global transition will require investment of between USD 4 to USD 6 billion per year, whose delivery calls for a significant transformation of the entire financial system. Central banks, being the apex institutions mandated to regulate the financial system, are increasingly on the spotlight to play a more visible role to tackle the impact of climate change in their respective countries. The role of central banks in this process, including changes they can introduce in the allocative decisions of financial intermediaries, is still an area of active research and not yet well understood. At the global level, several central banks have been working together to address the impact of climate change including peer learning, exchange of good practice and knowhow under the "Network of Central Banks and Supervisors for Greening the Financial System (NGFS)." Formed in 2017, NGFS promotes best practices, analytical work on central banks climate action and currently is the key

global adaptation forum for central banks, which by June 2023 had 123 members across 85 countries[1] (NGFS, 2020). This special report examines the role that central banks can play in the era of climate change and draws important lessons for the central banks in the COMESA region.

Traditional Role of Central Banks

The primary objective of most central banks is price stability, with some having secondary objectives of supporting growth or employment and or financial stability. Central banks achieve price stability by managing short-term interest rates and thereby influencing the cost and availability of credit in the economy. By raising or lowering the policy rate – "the interest rate it charges banks for borrowing overnight", the central bank influences the interbank interest rate – "the interest rate that banks lend to each other", which in turn have effects that can spill over into market lending and deposit interest rates, affecting spending and investment decisions of economic agents. Most central banks are explicit that the secondary objectives should not prejudice the primary objective of price stability, and so argue that central banks only have a limited role in mitigating climate change. But does this mean that central banks have no role to play in addressing concerns about climate change?

Central banks across the globe seem to be divided as to the extent they need to get involved in addressing climate change. For instance, the European Central Bank (ECB) takes climate considerations in its conduct of monetary policy. It has entrenched analysis of the impact of climate change on inflation, financial stability, and related consequences for monetary policy without jeopardizing its primary objective of maintaining price stability (ECB, 2021). On the contrary, the Federal Reserve Board in the United States, while also monitoring the potential impact of climate change on output and inflation, remains reluctant to actively consider climate change in its monetary policy operations (Powell, 2023).

Whatever position a central bank take is being challenged and could have important impacts on the macroeconomic outcomes of emissions abatement policy and extreme whether events. For instance, if continuous rising prices from carbon pricing induce the central bank to raise interest rates to slow inflation, this would exacerbate the fall in overall economic activity from the carbon policy, thus

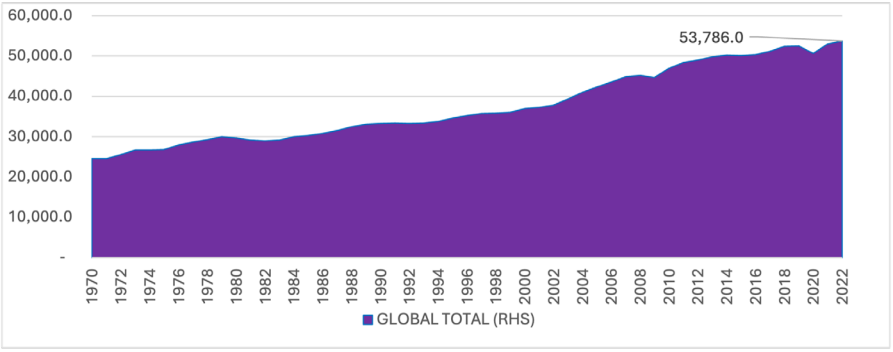
1 Nine COMESA member central banks namely, Egypt, Kenya, Libya, Mauritius, Rwanda, Seychelles, Tunisia, Uganda and Zimbabwe are members of NGFS.

lowering gross domestic product (GDP), employment and welfare relative to other ways a central bank could react. In addition, a sustained rise in relative prices of carbon could enter wage negotiations, where monetary policy response could lead to a wage-price spiral, negotiation for higher wages, leading to a costly long-lived inflationary process.

Effects of Climate Change Risks on Central Banks

Climate change has been attributed to increased emissions of Greenhouse Gases (GHG) and the associated global warming. As figure 1 below depicts, the global value in GHG expressed in Million Tonnes of carbon dioxide equivalent per year (Mt CO2eq/yr) have increased by about 120 percent from 24,497.5 Mt CO2eq/yr in 1970 to 53,786 Mt CO2eq/yr in 2022.

Figure 1: Values in GHG totals expressed in Mt CO2eq/yr



Source: website: https://edgar.jrc.ec.europa.eu/report_2023

Global warming in turn has resulted in increased frequency and severity of droughts, storms, cyclones, and other weather events, which affects macroeconomic outcomes via physical and transition risks. Physical risks are concerned with the physical damage to firms and assets from climate related shocks and stresses, such as rising temperatures, heavier rainfall or rising sea levels. The costs of these damages may be transmitted to a financial institution when they have an interest in a project, for example, if a bank provided a mortgage for a house that is swept by floods, or a bank financed road is damaged by a storm. Physical risks are expected to increase with the frequency in climate hazards and intensity if no action is taken to mitigate climate change. For central banks, these risks become even more critical

when damages are transmitted to the financial system or to the economy through inflation. Physical risks impact on headline inflation through higher energy and food prices in the short run by negatively affecting the supply via reduction of production capacities and disruption of supply chains. For instance, extreme drought leads to a decline in food supply leading to higher prices in the short run. Also, frequency of weather events means increased volatility in macroeconomic outcomes, making it difficult to identify the main drivers of macroeconomic developments and to assess the appropriate monetary policy response.

Transitional risks emanate from the potential loss resulting from changes in policies or regulations, technology developments or change in consumer preferences, as economic agents adjust to comply with low carbon emissions. The impact of transitional risks tends to have rebound effects that send shocks to the financial system. Transition risks stem from implementation of policies meant to reduce greenhouse gases (GHG) emissions in the transition to a green economy such as carbon pricing or regulatory measures towards this end. Carbon pricing or regulatory measures affect the economy in two ways. First, by raising the price, they increase production costs and relative prices of carbon-intensive goods and services. Second, they exacerbate the distortionary effects of existing taxes in the economy, particularly in the labour market. This occurs because existing taxes on labour income reduce the incentive to work by reducing the returns on labour. Both effects negatively affect real wages, consumption, investment and ultimately output.

The impact on inflation and output of transition risks is not obvious and depends on future policies, which may be adopted to foster the energy transition, meaning that transition risks can lead to an increase or a decrease in inflation or output depending on how transition policies affect the two in the long run. Transition to a carbon free economy requires policies that demand an increase in carbon prices to discourage use of fossil fuels, which will lead to upward pressure of energy prices. On the contrary, reducing the dependency on fossil fuels decreases the exposure to supply side shocks associated with fossil fuels and may dampen their impact on inflation. Imposing a price on carbon (carbon pricing) will impact energy and other prices differently, some would provide a stable and predictable price outcome, and others could be more volatile. More volatile prices pose greater challenges to central banks than more predictable prices, in part because they complicate the forecasting of inflation and other economic variables used by central banks to formulate and implement monetary policy. The overall impact on inflation depends

on whether the transition is orderly and hence leads to less volatility and inflation or the transition is disorderly and leads to excessive volatility and more inflation. Depending on the credibility of the central bank, inflation expectations may lead to higher inflation following a climate event. If the central bank is credible, inflation expectations will have a less impact on inflation following a climate event.

Climate change may affect financial stability if extreme weather events cause large damage, causing financial distress. The resultant liability risks refer to the financial costs and losses to financial institutions that may occur if parties seek compensation for the damages suffered from climate related impact and may be so huge that insurance firms are not able to fully diversify (Battiston *at el.* 2021). In some cases, banks own insurance companies which are already facing higher liabilities from climate related losses, causing systemic risks to the banking sector. Larger emitters may also face legal suits for climate impacts of their historical GHG emissions, sometimes with serious financial implications to the banking sector. Financial distress may also arise due to stranded assets or sudden adjustments in financial markets, following abrupt constraint on GHG emissions. An extremely ambitious climate policy could strand capital and weaken the profitability of firms. There is also the risk that transition towards a green economy can lead to boom-and-bust cycles of green assets as these resources are overexploited (Riahi, K *et. al,* 2021). Financial distress can have large effects on output and or inflation and is therefore relevant for central banks and can dampen the transmission of monetary policy (ECB, 2021). Another implied challenge for central banks that may arise is the implication of climate change on the natural rate of interest. The natural rate of interest tells whether monetary policy is tight or loose. It decreases in response to a climate event due to, among others, an increase in precautionary savings in response to uncertainty regarding physical and transition risks. However, this negative impact on the natural rate of interest could be dampened if the green transition leads to higher demand for investment (Baudino and Svoronos, 2021).

Most economies in the COMESA region are particularly exposed to physical risks since they are highly dependent on climate vulnerable sectors such as agriculture, forestry and fisheries. They also lack the required financial muscle to bounce back from climate hazard, implying that climate shocks can lead to lower economic growth, higher unemployment, and higher inflation. Climate shocks can also lead to climate induced capital outflows, which can increase the cost of borrowing for both the government and the private sector (Kling *et al.* 2021) and can also cause

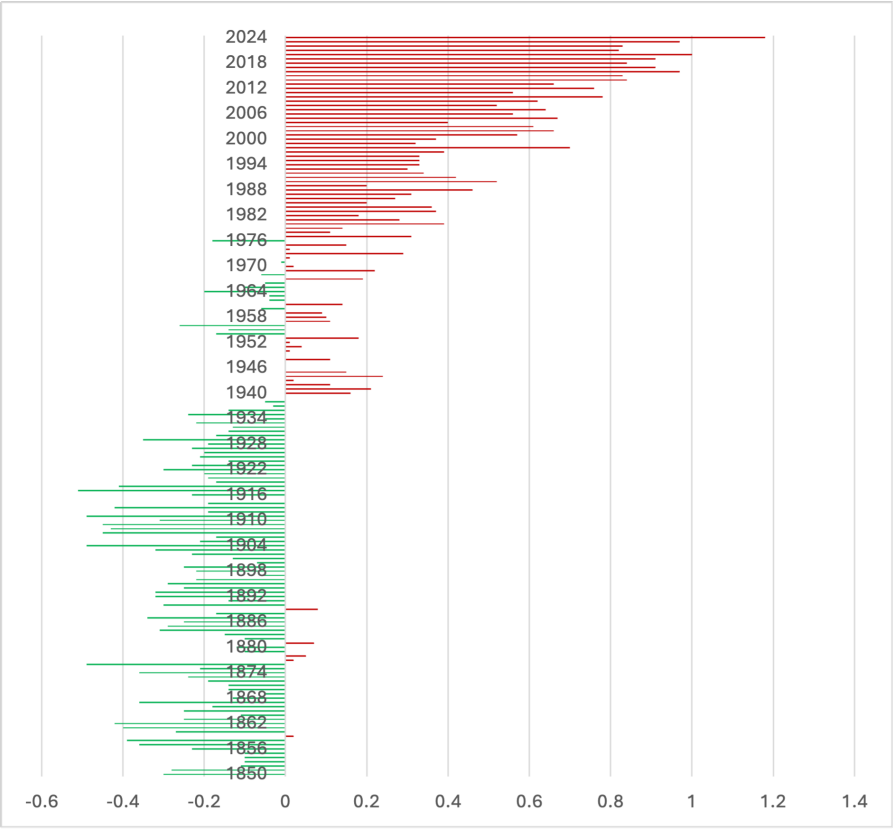
exchange rate volatility. Transitional risks impact economic agents through, among other channels, loan defaults, changes in asset values from physical losses from climate environmental regulations, impact or losses from technological innovations required to respond to climate shocks. Similarly, transitional cost through, for instance, mitigation policies such as carbon taxation, can lead to inflation or increased unemployment in carbon intensive sectors. On the contrary, for countries that export minerals or metals required for green investment, climate mitigation can have a positive economic outcome as export revenues rise and boost economic growth but can also lead to more intensive resources and labour exploitation (UNCTAD, 2022).

Changing Role for Central Banks

In many countries, central banks' mandate is to implement monetary policy to achieve price stability. This mandate is however being interrogated a fresh since climate change matters for effective monetary policy implementation. Central banks are being challenged to ensure that the financial system supports efforts to meet the temperature goals of the Paris agreement and efforts towards achieving a just global transition to low-carbon economies[2]. The Paris agreement aims at holding "the increase in the global average temperature to well below 2°C above pre-industrial levels" and pursue efforts "to limit the temperature increase to 1.5°C above pre-industrial levels." As depicted in figure 2, the global annual departure from the 20th century (1901 to 2000) average was consistently negative, meaning limited effects of global warming while the picture changes after 1980s where the annual temperature departure from average has been consistently positive, depicting increased global warming.

2 "Just transition" refers to a strategy to ensure that the greening of the economies generates positive economic, social and environmental impacts with a fair distribution of the benefits for all (UNFCCC, 2020).

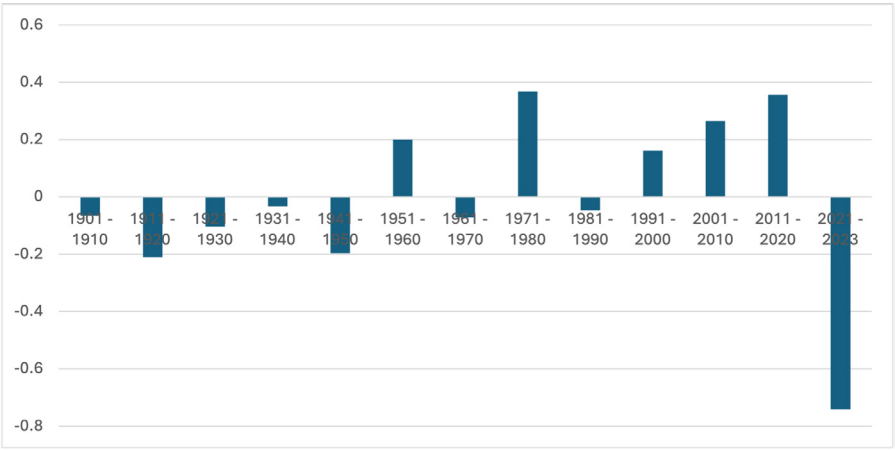
Figure 2: Global Annual Average Temperature Anomalies



Source: https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/global/time-series

The change in annual temperatures is also consistent with the change in worldwide precipitation. Figure 3 below shows how the total annual amount of precipitation over land worldwide has changed since 1901. This figure uses the 1901–2000 average as a baseline for depicting change, and then gets the average for every 10 years period except for 2021 to 2023. It indicates the annual anomalies, or differences, compared with the average precipitation from 1901 to 2000.

Figure 3: Average Anomaly in worldwide Precipitation, 1901 - 2023



Source: www.epa.gov/climate-indicators

Precipitation affects humans and the ecosystem by affecting the amount of surface water and groundwater available for drinking, irrigation, and industry, which in turn influence extent of flooding and can determine what types of animals and plants survives over time depending on how they are able to adapt to the change in climate. Increase in temperatures means more evaporation and transpiration, adding more moisture to the air, which in turn increases overall precipitation. As figure 3 indicates, in recent decades, climate change through global warming is leading to an increase in precipitation in many parts of the world.

A serious challenge facing central banks as they support the green transition is that the choice of measures and instruments inevitably entails wide-ranging policy trade-offs and distributional effects. The policy trade-offs and distributional effects tend to be more amplified, harsher and larger for less developing countries (LDCs), including COMESA member countries due to, among others, the structural impediments such as underdeveloped capital and financial markets, economies are largely agricultural/fisheries based, the financial systems typically dominated by banks that have significant foreign presence, access to credit is fragmented and reliance on informal money lenders rampant, and the domestic financial system holds a significant proportion of national sovereign debt (Christensen Upper, 2017).

Central banks have a unique position to enact financial policies, to supervise and enforce financial regulations towards green transition. Towards this end, several

central banks currently incorporate climate related risks into their risks frameworks with the objective of protecting their balance sheets and preserving their ability to deliver on price stability mandate. These frameworks include measures to de-risk their own international foreign reserves that may be exposed to both physical and transitional risks associated with climate change. Central banks are also, enhancing their analytical toolkits to better understand the long-term impact of climate change, raising awareness on climate risks, disclosing the carbon footprints of their own balance sheets, and promoting disclosure of climate related financial risks in the financial system. Other central banks are persuasively encouraging investment in sectors that incorporate climate risks by influencing lending criteria and practices including promoting bank lending to green projects and or implementing credit allocation policies that ration the flow of credit to high carbon activities in favor of green projects (Campiglio, 2016). Application of differentiated lending facilities has also been implemented without violating the central bank objective of price stability, thereby promote a transition away from the fossil fuels that have caused inflationary cycles in many countries (Boneva L, *et al.* 2022).

However, although mandates differ across jurisdictions, there is no consensus as to whether central banks should incorporate climate risks in their operational frameworks. Some agree that central banks cannot ignore climate change risk (e.g. European central banks) and argue that central banks are mandated to support government's policy priorities, and to the extent that such policy objectives include climate change mitigation or adaptation, a broad interpretation of their mandates could be used to justify their taking action to align their policies to accommodate climate change without the need to change their current mandates. On the contrary, others (e.g., US Federal Reserve Bank) think incorporating climate risks could lead to overstepping the core mandates of central banks. They argue that central banks have no mandate to incorporate climate risks in their operations and look at this as a way for central banks to gain more power by taking on additional responsibilities (Boneva *et al.* 2022). They observe that climate risk is a subset of a wider nature related risk and biodiversity loss landscape, and hence is not part of the conventional business of central banks, nor is it within their competence. Accommodating climate risk is seen to perpetually drift central bank mandates, further compromising central bank independence. Central bank independence advocates for a well-defined objective of price stability with the understanding that low and stable inflation is a necessary precondition for growth and development to take place (Dikau and Volz, 2021).

Even for countries whose mandates are to maintain price and financial stability, use of mitigation and adaptation tools may be controversial since it may result in conflicting with the twin mandate. Secondary objectives may be supported without prejudice to the primary objective of price stability and hence central banks should only take up a supportive role in mitigating climate change. Achieving price stability, in the foreseeable future, remains the most important contribution of monetary policy to the green transition. Price stability stimulates investment, contributes to sustained growth and high employment. Price stability also helps economic agents anchor inflation expectations which in turn support achieving price stability in the future when the impact of climate change on inflation may increase.

Lessons for COMESA Central Banks

There are compelling reasons for central banks to act and respond to climate change, especially because climate events interfere with the central bank mandate of price stability, a key mandate for most central in the COMESA region, in several ways. First, climate change impairs the transmission of central banks' monetary policy measures. Financial institutions balance sheets weighed by losses from materializing physical risks or stranded assets[3] will result in reduced flow of credit to the real economy. Also, there are implied higher credit risk premiums for not taking action in time for green transition, resulting in higher cost of doing business and hence lower investment and economic growth. Second, climate change has unambiguous implications on the real interest rates. On one hand, climate events shock may impair labour productivity or increase rates of morbidity and mortality. This may lead to reallocation of resources towards supporting adaptation measures, while climate related uncertainty may increase precautionary savings and reduce incentives to invest. These factors together can reduce the real interest rate and hence boost economic growth. On the other hand, investing in technological innovation and production of renewable energy is expensive, with implied prohibitive cost to finance investments in such projects putting upward pressure on equilibrium interest rates. In either case, the central bank policy rate becomes ineffective in determining monetary policy stance. Finally, climate change directly impacts inflation when a greater incidence of physical risks causes short-term fluctuations in output and inflation, which can amplify long-term macroeconomic volatility. Also, mitigation policies such as carbon pricing programs can affect price stability, sustaining large and long-term differences in relative prices and inflation,

3 There are assets that are abandoned such as fossil fuels as the economy transition to clean energy.

thereby affecting the conduct and implementation of monetary policy. These factors, among others, are forcing central banks to rethink and start considering whether climate-related risks are significantly affecting monetary policy implementation (Campiglio *et al.* 2018).

Some of the steps that COMESA member central banks can take without compromising on their mandate of price stability include coming up with classification of green activities and act as catalyst for a more sustainable financial system. They can also make pronouncements to encourage economic agents to speed up the green transition. Central banks can also support analytical capacity in climate related macroeconomic modelling and forecasting, since they already have an edge with their current skills set in forecasting. Central banks may consider developing a systematic analytical framework to better understand what climate change and net zero transition and the role of central banks, will entail, including improving their policy toolkits to accommodate climate change, without prejudice to the primary objective and developing advanced climate modelling capabilities. They can also support the development of new climate related statistical indicators say regarding classification of green instruments, carbon footprint of financial institutions and the exposure of these institutions to climate -related physical risks (BIS, 2021). COMESA member central banks can also consider conducting climate related stress tests for the financial system and support economy wide climate stress tests. They can also consider reviewing and determining the extent to which the credit rating and collateral assets valuation frameworks can reflect climate related risk exposures and contribute to accelerating the transition to a carbon neutral economy. Incorporating such policy options will be a testimony that central banks acknowledge that climate change is a global challenge that requires urgent policy response from all.

There are opportunities for learning and knowledge sharing, as regional central banks put their best foot forward and play a role that does not conflict with their mandates. For those whose mandate include financial stability, they may consider using climate risk exposure tools to protect the financial system from the impacts of climate change and make such tools an integral part of their macroprudential frameworks (Dafermos, 2021). Such a framework should entail climate mitigation and adaptation tools that can help improve climate resilience of the financial system. For instance, the tools can safeguard economic agent from climate related events by ensuring that they are less likely to default on their loans through expertly

crafted climate insurance products, thereby cushioning the entire financial system against physical risks. Similarly, central bank policies that encourage flow of more money to decarbonization projects through use of bank's climate mitigation tools could make domestic industries less vulnerable to climate policies implemented elsewhere, making the domestic financial system less exposed to physical risks associated with green transition.

Conclusion

As climate shocks become more frequent, they are having serious macroeconomic consequences, not only affecting the short to medium term horizon that monetary policy focuses on but also the long term, that is outside the influence of monetary policy. Of cardinal importance to central banks are the direct effects of climate change on inflation through the increase in food prices via physical risks and on energy prices via transition risks. Climate change also affects other prices through effects on output, productivity and/or trade and hence influences inflation through the second-round effects of energy price fluctuations. Climate change therefore lead to transitory increase in inflation, higher volatility in inflation and other macroeconomic variables, and higher uncertainty. Climate change could also lead to inflation if energy prices are increasing strongly in the transition towards carbon free economy. As such, central banks need to distinguish between transitory and persistent effects of climate change events. Transitory effects on inflation would require less effort to deal with from the central bank because the effects fade away, the same way monetary policy transmission requires time to be impactful. However, since it is difficult to differentiate between transitory and persistent drivers of inflation after a climate event, central banks need to deal with persistent upward pressure on inflation to ensure it anchors inflation expectations and stabilize inflation over time. Central banks also need to address financial market volatility and systemic risks to ensure financial stability.

In sum, central banks regardless of their mandate may consider starting to incorporate climate adjusted analytical and risk exposure tools. This will allow a better understanding of the increasingly uncertain climate affected macroeconomic environment, prone to physical and transitional risks. In this regard, three types of tools can be used. First are the climate adjusted analytical tools used to perform climate adjusted macroeconomic projections to assist in the analysis of the impact of climate change on monetary policy and on the economy. Central banks in the

COMESA region could consider developing climate adjusted analytical frameworks, for instance by developing forward looking macroeconomic projections that capture macro-financial risks and opportunities that may arise from global transition to low carbon technologies. Second are the climate risk exposure tools that include climate stress tests and climate risks analytics, aimed at reducing the exposure of the financial system to climate risks. Stress testing tools could be intertwined with macroeconomic projections that can be used to better understand climate change risks exposures. This requires developing institutional capacity at individual central bank level.

Third, depending on whether the level of financial sector development allows, COMESA member central banks could consider climate mitigation and adaptation tools which may include climate adjusted instruments like capital requirements and reserve ratios aimed at contributing to the reduction of greenhouse gases (GHG) emissions and helps with the financing of climate adaptation investment. Given the region's economies high vulnerability to climate change against very low contribution to global cumulative emissions imply that the region could consider focusing more on climate adaptation. For instance, COMESA member central banks could encourage flow of credit to climate adaptation projects, or reserve requirements could be lowered for banks that increase their financing of climate adaptation investments. It is not yet clear to what extent a central bank can contribute to mitigate climate change and how large the impact of climate change on inflation in future will be, because inflation is driven by different factors such as technological change, which are complex to disentangle. Central banks do not have instruments to influence such long-term factors, which only governments can influence. Even for central banks that have secondary objectives such as supporting economic growth and full employment, care should be taken to ensure that central banks priority is to the primary objective of price stability. Central banks should limit the extent to which they engage in the green transition or other policies to avoid possible tradeoffs. When there exists a trade-off between stabilizing current prices and implementing measures to foster the green transition, central banks should stick to their primary objective and prioritized price stability. This would ensure that a central bank do not tolerate large deviations from its target, does not undermine its credibility with respect to its primary objective and anchors inflation expectations. This is especially the case because monetary policy attempts to achieve and maintain price stability in the short term to medium term, while climate change is a long-term phenomenon and any measures to mitigate climate change

tend to impact mainly beyond the medium term.

It is important to note that achieving price stability is and will continue to be the most important contribution of monetary policy to the green transition. This is because when central banks achieve price stability, price become a perfect signal to allocate resources, thereby promote investment in the most efficient sectors or activities and in turn promote economic growth and development. Price stability also helps economic agents anchor inflation expectations which in turn ensures and supports achieving price stability in the future when the impact of climate change on inflation may increase. This means that the supportive role of central banks remains minimum and should always consider the unwarranted side effects. This is because central banks have efficient instruments for achieving price stability but may not have such instruments that are efficient in targeting other objectives. Ultimately central banks can contribute to the green transition by efficiently achieving their primary objective. By achieving and maintaining price stability, central banks can boost their credibility and anchor inflation expectations thereby mitigate the impact of climate related economic shocks on inflation. Credible monetary policy also helps support well-functioning financial markets while ensuring effective monetary policy transmission which in turn supports the green transition.

On the contrary, governments have the tools and instruments for addressing climate change, leaving only a limited role for monetary policy. The allocative and distributional roles of fiscal policy can increase the price for and or support technologies that reduce carbon emissions to ensure the green transition. Central banks have no explicit mandates or tools to engage in such policies. Governments have effective tools to mitigate climate change including carbon pricing and regulatory measures for green transition independently of monetary policy. Overall, the economies in the COMESA region need to increase investments in climate adaptation, ensuring coherence between climate change adaptation and disaster risk reduction. This may entail embarking on a structural transformation that will shift production structures towards activities and sectors that contribute to energy and resource security, low-carbon agriculture, climate resilience, food security and lower income inequality. This requires implementing a complementary industrial policy that safeguards employment during the low-carbon transition. Similarly, cost considerations may call for a progressive social protection practices to cushion the most vulnerable in society. With governments taking the lead and central banks playing only a supportive role.

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