ALSF SOVEREIGN DEBT KNOWLEDGE PRODUCT AND CAPACITY BUILDING PROJECT: STATE CONTINGENT DEBT INSTRUMENTS DEBT GUIDE

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AFRICAN LEGAL SUPPORT FACILITY | FACILITÉ AFRICAINE DE SOUTIEN JURIDIQUE

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Acronyms	Meaning Relevant
ADF	Agence Française de Développement
AfDB	African Development Bank
CAC	Collective Action Clause
Cat Bonds	Catastrophe risk bond
CCF	Contingent Credit Facility for Natural Disaster Emergencies
CPI	Consumer Price Index
CCRIF	Caribbean Catastrophe Risk Insurance Facility
ESG	Environmental, Social and Governance
GDP	Gross Domestic Product
IADB	Inter-American Development Bank
ICMA	International Capital Market Association
IFC	International Finance Corporation
IMF	International Monetary Fund
KPIs	Key Performance Indicators
KRG	Kurdistan Regional Government
KYC	“Know-your-customer”
NDCs	Natural Disaster Clauses
PEFF	Pandemic Emergency Financing Facility
PSWG	Private Sector Working Group
PTC	Prêt Très Concessionnel
PTCC	Prêt Très Concessionnel Contracyclique
RfP	Request for proposal
SCDIs	State Contingent Debt Instrument
VRIs	Value Recovery Instruments

Executive Summary

Alsf Sovereign Debt Knowledge Product and Capacity Building Project:
State Contingent Debt Instruments Debt Guide

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Sovereign state-contingent debt instruments (SCDIs) have been a feature of the sovereign debt landscape for many years. Operating as a means for a debtor to alleviate its financing costs by linking its debt servicing to the occurrence of a certain event or variable, SCDIs have grown in significance in recent years as sovereign debtors seek to expand their toolbox of financing options in the wake of difficult market conditions. From what consisted initially of a small range of instruments, the taxonomy of SCDIs has expanded to cover a plethora of different financing options. Much of this development has been led by the specific financing concerns of lower-income countries, as well as innovations by practitioners in designing and marketing such instruments to potential investors.

Recent political initiatives have further enhanced the prominence of SCDIs as a means to promote sustainable financing, tackle problems of systemic sovereign indebtedness or their use as restructuring tools. Yet, despite once again featuring in the political discourse surrounding sovereign debt initiatives, SCDIs have only seen a limited uptake within Africa.

This comparatively limited use underlines the importance of promoting a better understanding of SCDIs in Africa and the need for capacity building on the subject in order to enhance their potential role in the African sovereign financing context.

This handbook seeks to offer a practical guide to decision-makers in evaluating whether an SCDI may be a suitable tool for use in their own sovereign toolkits. This handbook seeks to enhance comprehension and awareness of SCDIs by firstly introducing readers to the wide spectrum of different financing options that are encompassed by these instruments. Whilst surveying the expanding range of different types of SCDIs, however, it is equally important to keep in mind that on many levels they bear a strong resemblance to conventional debt instruments (and in some cases, may form part of a conventional debt issuance). By comparing the process of a hypothetical SCDI issuance (which has been structured as a conventional bond) to the steps involved in a conventional bond issuance, for instance, this handbook seeks to set out an indicative step-by-step breakdown of what decision-makers may broadly expect when issuing such an instrument.

This seeks to demystify what can appear on the face of them to be quite complex or novel instruments. Equally important to demystifying SCDIs is an examination of their real-world application. Through the exploration of a number of historical case studies, this handbook seeks to demonstrate potential uses of SCDIs to African issuers based on examples from other emerging market sovereign issuers. For instance, commodity exports form a substantial portion of gross domestic product for several African economies.

By studying Mexico's experience with commodity-linked bonds, it offers a possible insight into the potential upside of including SCDIs as a means to mitigate the risk of a sovereign's dependency on commodity-driven revenue (as well as the importance of robust contract design in implementing the use of such instruments). Equally, the recent inclusion of pandemic and natural disaster clauses in the finance documents of a number of Caribbean countries highlights the potential for SCDIs to play an important role in sustainable and climate-resilient financing within an African context.

The consideration and understanding of the specific issues facing African sovereigns also aids the understanding of SCDIs for decision-makers and helps to illustrate their particular benefits.

Besides their role in supporting a climate- and pandemic-proof debt stock, SCDIs also have several other advantages that may be of interest to decision-makers in Africa. The promotion of better public debt management, for instance, could be furthered by SCDIs which have counter-cyclical attributes. This can help decision- makers and sovereign debt managers smoothen economic rough patches by taking advantage of in-built debt relief features in response to deteriorating economic conditions. Alongside this, SCDIs can feature prominently in protracted debt restructurings, as an instrument that sweetens the deal on the table to creditors and helps bring an end to prolonged negotiations.

By linking the returns of investors with the long-term economic health of the sovereign, SCDIs can help to ensure long-term buy-in from investors and to align incentives amongst the sovereign and creditors in the throes, and emerging out, of a restructuring. As with any sovereign financing tool, however, it is equally important to be clearsighted about the potential limitations in utilizing SCDIs. Such limitations can range from the structural and market challenges associated with the novelty or potential complexity of these instruments and the difficulties this presents for some investors, to the more technical problems of measuring the variable linked to the SCDI and ensuring that such instruments are adequately managed as part of the sovereign's overall pool of debt instruments. Overcoming these obstacles will also involve buy-in not just from sovereign issuers, but from international institutions, industry bodies, public and private sector creditors and legal and financial advisors. It is hoped that the discussion of these advantages and challenges will further assist in enhancing an understanding of SCDIs amongst decision-makers and allow for a more comprehensive evaluation of the suitability of SCDIs for individual sovereign use-cases. Much has already been written about SCDIs and this handbook seeks to build upon this existing body of knowhow. In particular, this handbook seeks to apply this knowledge for use in the African context, with the ultimate objective of assisting decision-makers in unlocking the potential benefits an increased uptake of SCDIs may have as part of the increasingly robust African sovereign debt toolbox.

I. INTRODUCTION

The International Monetary Fund (IMF) defines sovereign state-contingent debt instruments (SCDIs) as instruments that (i) bear contractual debt service obligations tied to a pre-defined state variable and (ii) are designed to alleviate pressure on sovereign indebtedness and/or financing needs in a bad state of the world (Abbas et al. 2017).

SCDIs are designed as countercyclical instruments that serve a purpose of providing creditors additional remuneration in good macroeconomic times and debtors relief in bad macroeconomic times or in response to negative shocks. For example, during an economic downturn following a natural disaster, there may be an automatic reduction in the sovereign's debt service burden (subject to the type of SCDI chosen). This reduction can then help preserve the sovereign's fiscal policy space, allowing them to undertake countercyclical and stabilisation policies to better deal with the immediate crisis at hand.

In this guide, as an introduction to the topic we will first outline the types and taxonomy of SCDIs, including taking a brief look at past historical examples of SCDIs both in Africa and elsewhere. We will then offer a more in-depth comparison of SCDIs to standard bond issuances, including highlighting similarities in legal structure, process and documentation that decisionmakers ought to be aware of. To better illustrate these key features of SCDIs, we provide three case studies of SCDIs that may be of most relevance to African issuers - GDP-linked bonds, commodity-linked bonds and bonds with natural disaster clauses (NDCs).

We will then explore in greater detail the overall benefits of SCDIs to issuers including their benefits in circumstances where a state has experienced climate-induced or other natural disasters or other exogenous shocks including the recent COVID-19 pandemic. We will conclude by outlining and addressing key challenges linked to SCDIs for African sovereign issuers.

I. WHAT ARE THE DIFFERENT TYPES OF SCDIS ?

As mentioned above, the defining feature of SCDIs is that they are linked to a pre-defined state variable. SCDIs can be differentiated by the type of variables they are linked to, as well as how the debt.

service obligations may change during the lifetime of the instrument in response to changes in those variables. Outlined below is a taxonomy that helps to categorise the different types of SCDIs based on these features

	Continuous adjustment instruments	**Discrete adjustment instruments**
Debt instruments linked to macroeconomic and price variables	- GDP-linked instruments - Commodity price-linked instruments - Inflation-linked bonds - Wage-indexed bonds - Value recovery instruments	
Debt instruments linked to the occurrence of specified events		- Debt instruments with natural disaster or pandemic clauses - Risk-linked securities (e.g., pandemic bonds)
Debt instruments linked to sustainability outcomes		Sustainability-linked bonds

(Volz, 2022)

We now examine each of the categorisations from the chart above in further detail.

Continuous adjustment instruments

With continuous adjustment instruments, the debt service payment is linked to a nominal value of the chosen state variable. Therefore. the issuer's debt obligations can fluctuate in line with the changes in the underlying state variable. For example, in GDP-linked bonds, as GDP (usually nominal GDP measured annually) fluctuates over the lifetime of the bonds, the debt service levels and capital payments the issuer is obliged to make may vary in line with such fluctuations.

Discrete adjustment instruments

With discrete adjustment instruments, changes to the debt service obligations are in response to the occurrence of a specific pre-defined event. For example, in bonds with a natural disaster clause, typically the occurrence of a number of trigger events would permit the issuer to defer its payment obligations for a specified period of time. If the trigger events do not occur, the issuer does not have the ability to make the corresponding adjustments.

Debt instruments linked to macroeconomic and price variables

For instruments falling within this categorisation, the adjustment of debt service payments and principal of the instrument is linked to specific macroeconomic changes or price variables. The purpose is to accommodate the macroeconomic and price changes that sovereigns face as a result of market changes and macroeconomic forces. They are designed to allow for efficient debt management without exposing the public debt burden to sudden shocks which may put a sovereign at the risk of a default.

Within the taxonomy of SCDIs, continuous adjustment instruments will usually fall within this category. This includes, for example, GDP and inflation-linked bonds. For African issuers who are heavily exposed to fluctuations in commodity prices, commodity price-linked instruments may be of particular interest, with debt service payments and/or other capital payments linked to changing prices of a specified commodity, such as oil or copper prices.

Debt instruments linked to the occurrence of specified events

As the classification suggests, these are debt instruments that are linked to the occurrence of an event that has been

specified at the outset of the loan or bond. These instruments are almost always discrete adjustment instruments, and it is the occurrence of a pre-defined trigger that determines whether a discrete adjustment can take place or not. Typically, the discrete adjustment provides for a deferral of principal or other payment obligations for a certain period of time, with the rationale being it provides fiscal space for the issuer to grapple with the specified events during that time period. For example, a pandemic clause allows the issuer space to re-allocate resources that would be spent on debt service towards pandemic mitigation measures. The pandemic clause may require that the issuer must show it has committed to contribute or has contributed resources to such measures as a condition to requesting a deferral under the relevant clause.

Debt instruments linked to sustainability outcomes

As further elaborated below and in the ALSF Debt Guide on Sustainability Financing, these are debt instruments that may adjust depending on whether the issuer achieves predefined sustainability or ESG objectives, usually measured by reference to the achievement of specific key performance indicators (KPIs).

Having outlined the main categorisations of SCDI, we now offer a brief summary of the more commonly encountered instruments within each categorisation.

GDP-linked instruments

The underlying premise of GDP-linked bonds is that the issuer's debt obligations grow and shrink in line with its economic growth. Key considerations for structuring such instruments relate to how economic growth or GDP is measured. There have been examples of instruments where both the coupon and principal are indexed to the level of nominal GDP. Other instruments use the real GDP growth rate averaged over a specified period of time as the metric for determining whether adjustments to coupon or principal levels will occur. GDP-linked "warrants" have also featured in several sovereign restructurings, where holders of restructured instruments are given such warrants as additional "sweeteners" to facilitate their cooperation in the restructuring. Usually, such warrants are separately tradeable and indexed to GDP or the growth rate and provide holders with an additional pay-out or higher coupon if GDP or the growth rate exceeds a certain threshold level.

We consider GDP-linked instruments in greater detail in *Section 5 – Case Studies and Examples - Continuous Adjustment Instruments – GDP-Linked Instruments*.

Commodity price-linked instruments

Commodity price-linked instruments are debt instruments where coupon and/or principal payments are directly linked to the price of an underlying commodity. Typically, issuers whose revenue streams are closely tied to the prices of specific commodities may choose to issue such instruments in order to hedge against fluctuations in the price of such commodities. In other words, the price of the relevant commodity is seen as a proxy for the level of revenue that the country may receive. If the price of the commodity decreases, the debt service obligations of the instrument may adjust downwards, helping to counterbalance a likely fall in state revenues or worsening balance of payments brought about from depressed commodity prices. There is not currently a developed market for commodity price-linked instruments and each issuance tends to be bespoke.

We consider commodity price-linked instruments in greater detail in *Section 5 – Case Studies and Examples - Continuous Adjustment Instruments – Commodity Price-Linked Instruments*.

Inflation-linked bonds

Inflation-linked bonds (sometimes known as "linkers") are debt instruments whose principal and coupons are linked to inflation through a price index. They are designed to eliminate the risk of unexpected inflation or to hedge against long-run inflation risk to the holders of the bonds.

Inflation-linked bonds are some of the most commonly encountered SCDIs, particularly amongst higher income countries who regularly issue such SCDIs as part of their ongoing debt management. Notably, the US Treasury Inflation-Protected Securities is the largest component of the global inflation-linked bond market. There has been some uptake of such instruments by African sovereign issuers, notably South Africa (see *Section 3 - What examples of SCDIs have there been in Africa? – South Africa's inflation-linked bonds* for further detail).

Governments are incentivised to issue such instruments because of the lower coupon payments they can command by reducing the inflation-risk premium. These instruments also appeal to a broader investor base such as pension funds and other "real-money" investors who may be more sensitive to inflation risks over the longer term.

Wage-indexed bonds

Although less common than GDP-linked bonds, wage-indexed bonds follow a similar structure as GDP-linked bonds, with capital or coupon payments adjusted in response to fluctuations in nominal wages. Changes in nominal wages are sometimes seen as a better measure of the health of the economy and are argued to provide a better hedge against output shocks that affect tax revenues. In 2014, Uruguay issued a USD 1 billion bond with both principal and coupon payments indexed to nominal wages.

Value recovery instruments

Value recovery instruments (VRIs) have typically played a role in debt restructurings as a means to "sweeten" the deal for private creditors and provide upside pay-outs to creditors under positive scenarios (Cohen, 2020). These are usually structured as derivative securities that contain pay-outs linked to a state variable, such as GDP, exports or commodity prices. Essentially VRIs function as call options on an improved economic outlook and they allow investors to share in the "upside" of a sovereign's economic recovery. VRIs can therefore be seen as a means to compensate

investors in a restructuring and they have been proposed as a means to break the increasingly protracted nature of debt restructurings (Lazard, 2023). VRIs can, however, suffer from several implementation challenges, such as issues with specifying the data to use for pay-out triggers and the difficulty of adequately pricing these instruments. Consequently, while they have played a role in a number of debt restructurings in the past, VRIs have only been included sporadically (Cohen, 2020).

Natural Disaster and Pandemic Clauses

A natural disaster clause (NDC) included in a debt instrument is designed to provide a form of cash flow relief following a natural disaster event, when state expenditures may be higher in an effort to deal with the effects of the natural disaster, and growth (and in turn future government revenue) may be impacted by the devastation wrought by the natural disaster in question. Usually, such clauses provide for a payment deferral (either of interest or principal or both) in the event of specified conditions relating to the natural disaster being triggered.

A variant of NDC is the pandemic clause. Pandemic clauses provide cash flow relief in response to certain pandemic-related triggers occurring, such as a declaration of a "pandemic" or a "public health emergency of international concern" by the World Health Organisation (WHO). Such clauses are examples of instruments with discrete adjustment features.

These types of clauses feature so-called "soft triggers" which provide the sovereign issuer with a degree of discretion as to when the events which lead to relief occur. For instance, the government issuer would have the discretion whether to declare a public health emergency event, or not, in order to trigger the clause. These contrast with the so-called "hard triggers" such as parametric clauses where the trigger is tied to an objectively verifiable event, such as a payment under an insurance policy. While "soft trigger" clauses provide a sovereign with greater flexibility, investors may prefer "hard trigger" instruments given the lack of discretion given to sovereign borrowers and objective trigger events. Typically, the NDC would include both "soft triggers" and "hard triggers".

We discuss "hard triggers" and "soft triggers" and their relative benefits in more detail in *Section 6 - Climate- and pandemic proofing public finances* and in *Section 7 – Measurement Challenges*.

We consider NDCs in greater detail in *Section 5 – Case Studies and Examples - Discrete Adjustment Instruments - Natural disaster clauses*.

Risk-linked securities

Risk-linked securities are a type of security where the capital raised is earmarked for responding to certain projects or measures to contain identifiable risks. One example is the catastrophe risk bond (Cat Bonds). These types of instruments were initially developed by insurance companies to transfer insurance risks, such as those related to severe thunderstorms or hurricanes, off of their balance sheets and across to investors. They have since been utilised in the sovereign debt market. Cat Bonds are fully collateralised instruments that pay-out to the issuer upon a certain trigger event occurring, typically linked to the occurrence of a natural disaster. Sovereign issuers will upon issuance of a Cat Bond receive the cash proceeds equivalent to the principal amount of the bond from investors that the sovereign will then be obliged to invest in highly rated and liquid collateral assets. The returns from these assets are then passed on to investors, alongside a risk premium that is paid by the Cat Bond issuer. If the Cat Bond's trigger event occurs during the lifetime of the bond, then all, or a part of, the principal amount will be transferred over to the issuer. Provided that no such trigger event occurs during the lifetime of the Cat Bond, then the collateral assets would be liquidated and the principal amount passed back to the investors at maturity (Braun, 2021). The World Bank typically supports sovereigns by issuing Cat Bonds on their behalf, as it did in 2021 with Jamaica's US$185 million bond due December 2023, which provided protection from losses related to named storms for three Atlantic tropical cyclone seasons (World Bank, 2021).

Another prominent example was the pandemic bond issued by the World Bank in 2017. As with conventional bonds, investors in pandemic bonds receive regular coupons. However, in the event of a pandemic outbreak, investors will lose part or all of their principal investments, which are to be used to finance the response to the outbreak in the issuing countries. Investors are prepared to risk the loss of part or all of their capital in return for receiving a higher return than on conventional bonds. For example, the World Bank pandemic bonds paid a 6.9% coupon rate for Tranche A bonds (which covered the risk of a flu or coronavirus outbreak) and 11.9% for Tranche B bonds (which covered filovirus, coronavirus, Crimean Congo, Rift Valley, and Lassa Fever), in each case a notably higher return than conventional bonds in a low interest environment.

Ultimately, the pandemic bonds came under criticism for their perceived lack of impact during the early stages of the COVID-19 pandemic, where the complexity and rigidity of the trigger conditions slowed the release of funds to the World Bank's Pandemic Emergency Financing Facility (PEFF). The bonds contained waiting periods of 12 weeks after the declaration of a pandemic by the WHO and a determination by an arbitrator that the exponential growth rate of the pandemic was positive before funds could be unlocked, which meant that funds were not disbursed to developing countries until 15 May 2020, more than two months after the declaration of a pandemic by the WHO on 11 March 2020. In light of these shortcomings and given heavy losses reportedly incurred on behalf of investors (which included asset management firms, pension funds and other institutional "real money" investors), it remains to be seen whether there could be investor appetite for such bonds in the future notwithstanding the higher rates of return on offer versus conventional debt. If the process for unlocking funds was improved upon with better contract design based on the historical experience of the World Bank pandemic bonds, such instruments could potentially resurface (although plans for a second round of PEFF-linked pandemic bonds by the World Bank with structural alterations was scrapped in mid-2020 in response to criticism over the initial round).

Sustainability-linked bonds

According to the International Capital Market Association (ICMA) , sustainability-linked bonds are "any type of bond instrument for which the financial and/or structural characteristics can vary depending on whether the issuer achieves predefined sustainability / ESG objectives" (ICMA 2020). Although we consider sustainability-linked bonds to be a form of SCDI, we refer readers to the ALSF Debt Guide on Sustainability Financing for a more detailed discussion of sustainability-linked bonds.

The above taxonomy is not an exhaustive outline of the types and universe of SCDIs in existence or that may be issued, but it provides an introduction to, and summary of, the most commonly encountered SCDIs in the market and that African issuers are more likely to contemplate adding to their overall debt stock depending on the objectives to be realised.

Below is a table of some selected historical examples of the SCDIs highlighted above (Abbas et al. 2017)(PR Newswire 2023):

Type of Instrument	Issuer	Currency	State / Trigger variable	Payout / Deferral type
GDP-linked instruments	Portugal (2013-)	Local currency	Real GDP growth	Coupon linked to GDP growth (in final 2 years only)
Commodity-price linked bonds (oil)	Mexico (1977-1980)	Local currency	Export price of oil	Principal linked to local currency price of oil
Inflation-linked bonds	South Africa (2000-)	Local currency	South African Consumer Price Index (CPI)	Principal and interest linked to general increase in prices as measured by the South African CPI
Wage-indexed bonds	Uruguay (2014)	Local currency	Nominal wage index	Principal linked to the level of nominal wage index
Natural Disaster and Pandemic Clauses	Barbados (2018, 2022)	USD	"Modelled" natural disaster damage	24-month deferral of principal payments if conditions met
Risk-linked securities	World Bank pandemic bonds (2017)	USD	Pandemic contagion thresholds	Pandemic emergency financing facility unlocked when pandemic contagion thresholds reached by participating countries
Sustainability-linked bonds	Uruguay (2022)	USD	Sustainability key performance indicators (KPIs)	Coupon step-down if KPI targets exceeded by certain threshold
Value recovery instrument	Suriname (2023)	USD	Government oil royalties	Payment of 30% of Government oil royalties subject to a "one-off" floor and a cap.

We discuss some of the examples above in greater detail in Section 5 – Case Studies and Examples and in the next section of this Guide, Section 3 - What examples of SCDIs have there been in Africa?

II. WHAT EXAMPLES OF SCDIS HAVE THERE BEEN IN AFRICA ?

Following, and in many cases, as a result of, the COVID-19 crisis, African countries are facing a growing financing gap. Debt has risen to historical levels as states borrowed to finance mitigating measures to address the effects of the virus. Against the backdrop of a worsening global economic situation, with spiralling inflation and increasing borrowing costs, there are fears that African issuers will face a string of defaults and difficult debt restructurings in the coming years. The space may be opening for African issuers to seek alternative financing sources to conventional debt, as well as debt instruments that can help increase resilience during worsening economic conditions. It is thought that this is a gap that SCDIs may help to fill. Indeed, following Barbados's announcement of the Bridgetown initiative in September 2023 (as discussed further below in *Section 5 – Discrete Adjustment Instruments - Natural Disaster Clauses - Grenada vs Barbados vs ICMA – Pandemic clauses)*, there is growing political momentum behind the use of SCDIs. The Accra-Marrakech Agenda in April 2023 specifically called for greater used of trigger-based design in public financial instruments, while the Paris Summit for a New Global Financing Pact in June 2023 featured a discussion on "Innovating with instruments and financing to address new vulnerabilities".

There are limited examples of African countries issuing publicly-traded SCDIs, although some examples exist in the official and private sector loan contexts. One prominent example of an African issuer issuing SCDIs is South Africa's issuance of locally denominated inflation-linked bonds indexed to the local inflation rate.

A potentially promising avenue is SCDIs linked to commodity prices as many African countries are reliant on exports of raw commodities and as a result are exposed to fluctuations in commodity prices. A sharp decrease in commodity prices combined with increasing interest rates can cause particular financial difficulties as balance of payments and export revenues of the countries fall. Commodity-price linked instruments could potentially provide a stabilising force in such scenarios by decreasing debt service levels at a time of deteriorating financial conditions, falling revenues and depletion of foreign reserves. This can help to hedge against such fluctuations and help reduce resource allocation away from other areas towards debt service. It may also reduce the risk of the sovereign defaulting under their conventional debt instruments by reducing their overall debt load. However, the main challenges here are the lack of a developed market for such products and the resulting lack of uniformity as to how such products should be structured and documented. This challenge can be less pronounced when offering SCDIs as a sweetener within a restructuring context (i.e., not in a new money issuance), or when used in bilateral lending (because the borrower is only dealing with one lender).

South Africa's inflation-linked bonds

As mentioned above, South Africa issued a series of inflation-linked savings bonds targeted at domestic retail investors starting in 2000. These are available in 3-year, 5-year and 10-year tranches as well as longer dated maturities (e.g., 2046 and 2050). As a form of a continuous adjustment SCDI, these bonds are index linked to the general increase in prices as measured by the Consumer Price Index (CPI) announced by Statistics South Africa. Because interest is paid on the inflation-adjusted principal value, investors will find that their capital investment in such bonds will increase in value every six months in line with inflation as measured by the CPI. More specifically, although the interest rate is fixed, the principal value rises (or falls in the case of deflation) with inflation. Moreover, interest is payable at a six-month fixed real interest rate (being the difference between the nominal interest rate and the CPI rate), as derived from the South African government's inflation-linked bonds yield curve, as traded on the Johannesburg Stock Exchange and calculated separately by the National Treasury for the various maturities.

Although South Africa's inflation-linked bonds have offered mixed returns for investors as compared to conventional fixed income investments, the rationale for continuing to issue such instruments from the perspective of the sovereign issuer remains strong: they signal the government's commitment to managing inflation as well as prudent macroeconomic policies. They have also allowed the government to save the risk premium associated with conventional debt that is unlinked to inflation. The result has been a large uptake of such instruments by pension funds and "real-money investors" and inflation-linked bonds now make up approximately 20% of the South African government's fixed rate debt stock (Matsemela 2018).

Countercyclical loans to Burkina Faso, Mali, Mozambique, Senegal and Tanzania

In addition to South Africa's inflation-linked bonds, there are prominent examples of "countercyclical loans" that have been made by *Agence Française de Développement* (AFD) to five different African sovereign borrowers, namely Burkina Faso, Mali, Mozambique, Senegal and Tanzania (Ebrahim and Tavakoli 2016). These countercyclical loans are Euro-denominated

loans that have been issued on concessional terms under AFD's concessional project financing facility (*Prêt Très Concessionnel Contracyclique*) (PTCC) with the following key features:

Debtors	Continuous or discrete adjustment instrument?	Term (years)	State variable	Payout/deferral type	Type of instrument
Burkina Faso, Mali, Mozambique, Senegal, Tanzania	Discrete adjustment instrument	25 years (with 5-year grace period)	Fall in export earnings	Maturity and grace period extendable up to a further 5 years	Official sector loan (non-tradeable)

Since these loan instruments were introduced by AFD in 2007, based on public reports AFD has made 16 countercyclical loans to the five African countries listed above, with a total commitment of EUR 344 million. These loans offer a right to defer up to ten semi-annual principal repayment instalments (whether consecutive or not) upon the occurrence of a "triggering event". A triggering event occurs if the borrower's nominal exports (in EUR) for the "current year" are less than 95% of the annual average for the preceding five-year period.[1] To enable an objective assessment of export performance patterns, the loan documentation identifies the Global Trade Atlas (compiled by Global Trade Information Services or "GTIS") as the data source to be used by both borrower and lender when seeking to establish whether a triggering event has occurred (although an alternative data source can be used subject to the mutual agreement of both parties). The election to defer upon the occurrence of a "triggering event" defers the principal due for the relevant repayment instalment to the end of the amortisation period, and therefore can extend the total maturity of the loan for up to a further five years beyond the scheduled term if all 10 deferrals are elected. The right to defer applies only to principal repayments, with interest having to be paid in full when due by the borrower, even if a triggering event has occurred. To date, no triggering event has been publicly reported to have occurred under any of the AFD countercyclical loans.

There has generally been a lukewarm response from borrower countries to the AFD's countercyclical loans under the PTCC facility, which is due to several different factors. There has been some criticism levelled at the design of the instruments, for instance, with the definition of "triggering event" in the countercyclical loans being unclear whether the term "current year" is used to mean the last calendar year for which trade data is available, or the last rolling 12-month period for which trade data is available when the determination of a triggering event is being attempted. Moreover, "exports" is undefined and therefore it is uncertain whether this relates just to exports of goods or of both goods and services. All calculations in respect of determining whether a triggering event has occurred are in euros, whereas many of the key exports of the five African countries are measured in USD, therefore causing some potential distortions in measurement simply as a result of fluctuations in the USD/EUR exchange rate (Espinosa and Nagoski 2016). However, from the perspective of the borrower countries, it is reasoned that the key factor explaining why demand for the product may have been weak is that the AFD's *Prêt Très Concessionnel* (PTC) loan facility offers an automatic 10-year grace period for payment of principal. For debt managers therefore, it is harder to justify borrowing under the PTCC facility with its 5-year automatic grace period, and extra 5-year deferral and grace period only triggered in response to an exogenous fall in exports, when the country could reap the benefit of the 10-year grace period under the PTC from the outset of the loan.

It remains to be seen whether, in light of the current macroeconomic climate, the triggering events under the existing PTCC countercyclical loans may occur in the future and therefore whether the current borrowers decide to make the election to defer principal. If conditions worsen, there may be an uptake in demand by lower-income borrowers of the PTCC facility (although such borrowers may still choose to borrower under AFD's other non-countercyclical alternative facilities with a greater automatic grace period at the outset of the loan). AFD may consider expanding the triggering event definitions in its documentation to cover a wider array of variables, although we are not aware at the time of writing that any such development of the PTCC facility is being considered by the AFD.

1 • The triggering event definition is uniform across all PTCC countercyclical loan documentation

III. COMPARISON OF SCDIS TO STANDARD BOND STRUCTURES – KEY STEPS AND DOCUMENTATION FOR AN INDICATIVE ISSUANCE

Having provided an overview of the taxonomy of the most common forms of SCDIs, we now move to the similarities and differences in structure to standard sovereign bond issuances, with a particular focus on the steps and key documentation that may apply to SCDIs that are similar in design to conventional bonds.

Of course, the key difference between a conventional debt instrument and an SCDI is that the contractual debt service obligations in SCDIs are tied to pre-defined state variables rather than fixed debt service levels. However, in terms of process, the steps and key documentation can be very similar between issuing an SCDI and a standard sovereign bond assuming that, structurally, the SCDI is a bond instrument with price adjustment features linked to certain variables (e.g., inflation in inflation-linked bonds, GDP in GDP-linked bonds or exogenous natural disaster shocks in bonds with NDCs). Although the contractual debt service may be more variable than in a fixed or even floating rate bond, this may not necessarily impact upon the documentation and process for issuance.

What should decisionmakers do if they are considering an SCDI issuance?

Before the decision is made to proceed with an SCDI issuance, decisionmakers may be contemplating whether an SCDI issuance is right for them. As an initial step, decisionmakers should carefully weigh up the pros and cons of an SCDI issuance (see *Section 6 - The potential benefits of SCDIs for African sovereign issuers* and *Section 7 - Challenges Linked to SCDIs for African Issuers*) to determine whether an SCDI issuance would fit within the longer-term debt management strategy of the country. It may be important for the potential issuer to consult with its trusted legal and financial advisors already at this stage, to consider the feasibility and economic rationale for proceeding with an issuance. Such advisors could provide further clarity on what to expect from an issuance based on their experience with other similar issuances, as well as provide an opinion on whether an SCDI issuance is right for the issuer at this point in time depending on market factors and any other legal or economic hurdles to commencing the issuance process in earnest. The potential structuring of the SCDI could also be considered at this stage, notably whether to structure the SCDI as a bond or as a loan or other debt instrument depending on the specific objectives of the sovereign. For example, an SCDI issued as, or embedded in, a bond may have the advantage of spreading borrowing costs across a wider pool of investors (as well as being more easily tradeable), therefore potentially commanding a lower interest rate than would be the case under an SCDI loan borrowed from private lenders. Sovereign bonds also generally contain fewer restrictive covenants than sovereign loans, and therefore this may be a consideration of the sovereign borrower depending on their general debt strategy and tolerance for provisions constraining their behaviour. The concentration of risk in a smaller number of lenders may also necessitate an SCDI loan being secured, which may not be feasible or desirable from the sovereign borrower's point of view. One potential disadvantage of issuing an SCDI as a bond rather than another form of debt instrument, is that a bond typically provides less flexibility than a loan, which may provide for different types of facilities to be utilised (e.g., a revolving credit type facility that allows for multiple draws and repayments over time depending on liquidity needs). Depending on the target investor audience, a bond will also usually require a higher level of public disclosure both on the issuer and the SCDI itself versus a private loan. If the sovereign issuer has not issued a Eurobond before, arranging an SCDI via a private loan may be a quicker and more sure-fire way of accessing funds than attempting to bring a bond (especially with SCDI features which investors may not be as familiar with) to market for the first time.

Indicative SCDI Issuance Timeline

We now consider the key steps in the issuance process once decisionmakers have consulted with advisors and decided to proceed with an SCDI issuance as a bond. It

is important to note that SCDIs can be made as bespoke as the issuer and arrangers desire in order to reflect key structural or economic considerations in implementing the transaction. They need not be structured as a bond and may take the form of a loan (e.g., the AFD loans described above) or a hedging instrument. Moreover, timelines, process and documentation may be different from one transaction to the next, in much the same way that such items can be different for conventional sovereign bond issuances. As such, there is no "one-size fits all" process or structure for how to issue an SCDI. That being said, for an SCDI that closely resembles or is a bond we would expect the main steps to broadly be as follows:

Indicative SCDI Issuance Timeline

Timeline includes three basic phases:

- **Preparation** - selection of parties, determination of markets and listing venues (if any), preparation of documents, due diligence
- **Marketing** - providing prospectus or other disclosure document to investors, roadshow (investor presentation), bookbuilding (receiving and evaluating orders from investors), pricing
- **Closing** - issuance of the SCDIs and receipt of proceeds

In order to help guide decisionmakers on what they may expect in issuing such an SCDI, we look at each of these stages in more detail.

Preparation Phase

The preparation phase for issuing our example SCDI can be further split into the "pre-kickoff", the "documentation and due diligence" and the "launch" phases.

Pre-kickoff

During this phase, the issuer will need to determine whether any authorisations are required for the issuance of the SCDI. Existing debt management legislation may allow for SCDIs to be issued under a general category of debt instruments, and/or further legislation or government authorisations may need to be passed to allow for a specific SCDI issuance.

At this phase, the issuer would likely be engaging with and selecting the legal counsel and financial institutions to act as managers in overseeing the issuance. If the SCDIs are to be listed, there may be a consideration of any listing venues and markets. Finally, in consultation with advisors, the issuer may prepare a timetable and any planned road shows for marketing the SCDI to potential investors during the issuance process.

Documentation and Due Diligence

The suite of documentation for an SCDI issuance structured as a bond would typically closely resemble the usual documents that are prepared for a conventional bond. This would usually involve, at a minimum:

- A **prospectus/offering memorandum** or some other form of disclosure document that can be made available to investors (and, if necessary, any listing authorities) in connection with the issuance. This document would typically be the same as for a conventional bond issuance with the exception of any specific risks relating to the SCDI being highlighted as risk factors, as well as the description of the notes section highlighting the SCDI-specific features and payment terms. The prospectus for Chile's $2bn sustainability-linked bond, for instance, (discussed below in *Section 6 – The potential benefits of SCDIs for African sovereign issuers – Enhancing sustainability outcomes for the economy*) features a risk factor warning investors that Chile may not be able to meet the sustainability linked KPIs and also that the bonds themselves may not satisfy all investors' requirements for assets with sustainability characteristics. There may also be a general risk factor that the value of the instrument may go up or down depending on the fluctuations in the relevant state contingent variable (which ultimately is completely outside of investor control). Risk factors relating to the reliability of data and measurement of indicators in the country issuing the SCDI may also

be more material to investors than such a risk factor in a conventional bond, given that inaccuracies or unreliability in measurements can directly impact upon the economics and performance of the instrument in question. Depending on the disclosure rules applicable to the relevant target market or listing venue, there may be additional disclosure requirements relating to the structure of the SCDI. As mentioned above under the heading *What should decisionmakers do if they are considering an SCDI issuance?*, we would typically expect an SCDI structured as a bond to have a higher level of disclosure that is required than an SCDI structured as a private loan, particularly if the SCDI is targeted towards international investors which may implicate bond disclosure and other regulatory requirements in multiple jurisdictions. The prospectus can be a lengthy document and, particularly if the sovereign issuer has not published a prospectus before with a level of disclosure that international investors and regulators may expect or require, can be a time-intensive and costly document to prepare. Sovereign issuers should consult with their advisors and ensure that the advisors selected have the requisite level of experience and knowledge to advise on such multi-jurisdictional issuances if necessary;

- Depending on whether a fiscal agency or trust structure is chosen, a document that creates the contractual nexus between the issuer and the investors in the SCDI, such as a **fiscal agency agreement** and a **deed of covenant** or **trust deed** (or **indenture** for New York law governed instruments). As with the prospectus or offering memorandum, this document would typically differ from a standard fiscal agency agreement or trust deed only in the specific mechanical and technical terms related to how the SCDI operated. It may be the case that a separate calculation agency agreement is required if the structure contemplates the inclusion of a calculation agent;

- A document where the managers agree to subscribe for or underwrite the instruments, such as an **underwriting agreement** or **subscription agreement**, to be entered into between the issuer and the managers/underwriters. This would closely resemble an underwriting agreement or subscription agreement for a regular bond issuance, with the exception of any specific representations or undertakings the managers would require from the issuer in connection with the SCDI (for example, the issuer may need to represent as to the accuracy of any information or reports provided that relate to the trigger variables).

Other documents may include standard conditions precedent documents such as legal opinions issued on the capacity and authority of the issuer to enter into the SCDI documents (given by either a local law firm involved in the issuance or oftentimes the attorney general or other senior legal official of the sovereign issuer), as well as a legal opinion on the enforceability of the SCDI documents (which may be given by external legal counsel if the governing law of the instruments is different from the local law). There may be other "know-your-customer" (KYC) and authorisation documents (such as ministerial decrees), depending on the requirements of the managers involved in the issuance.

The terms and conditions of the SCDI will typically be set out in the trust deed (indenture) or fiscal agency agreement, as applicable. A summary or description of the terms will also be made available in the prospectus for investors to read before making a decision to invest in the SCDIs. As with any conventional debt instrument, it is important that the prospectus offers a complete and accurate summary of the risks of investing in the SCDIs, including any risks that may be specific to the types of instrument (for example, that the liquidity of the instruments may be more limited than a conventional debt instrument. See also *Section 7 - Challenges Linked to SCDIs for African Issuers – Novelty and Liquidity Premia*). Any inaccurate or misleading disclosure can open up the issuer to liability for misrepresentation or other claims by investors. As in a usual bond offering, there will be due diligence meetings and questionnaires to ensure that the managers have a level of comfort in underwriting and managing the offering, and such due diligence process will help to inform the drafting of the disclosure document. In an SCDI issuance, the due diligence process will likely have an increased focus on the state contingent variable that is the focus of the debt instrument. In the case of a GDP-linked instrument for instance, due diligence will be heavily focused on the relevant country's economic policy and performance, and its future prospects and strategies for growth. Whereas in a conventional bond issuance such questions are to assess the general credit risk and ability of the issuer to meet its financial obligations over time, with a GDP-linked instrument, the intrinsic value of the instrument is inexorably linked with the issuer's general level of economic performance. An SCDI with an NDC may have increased due diligence in relation to the country's preparedness for disaster mitigation and relief, and a sustainability-linked SCDI is likely to have enhanced due diligence in relation to an issuer's ability to meet KPIs and sustainability initiatives, and so on. Potential issuers of SCDIs should therefore anticipate and expect to have increased scrutiny in these areas depending on the specific state contingent variable that is the subject of the issuance.

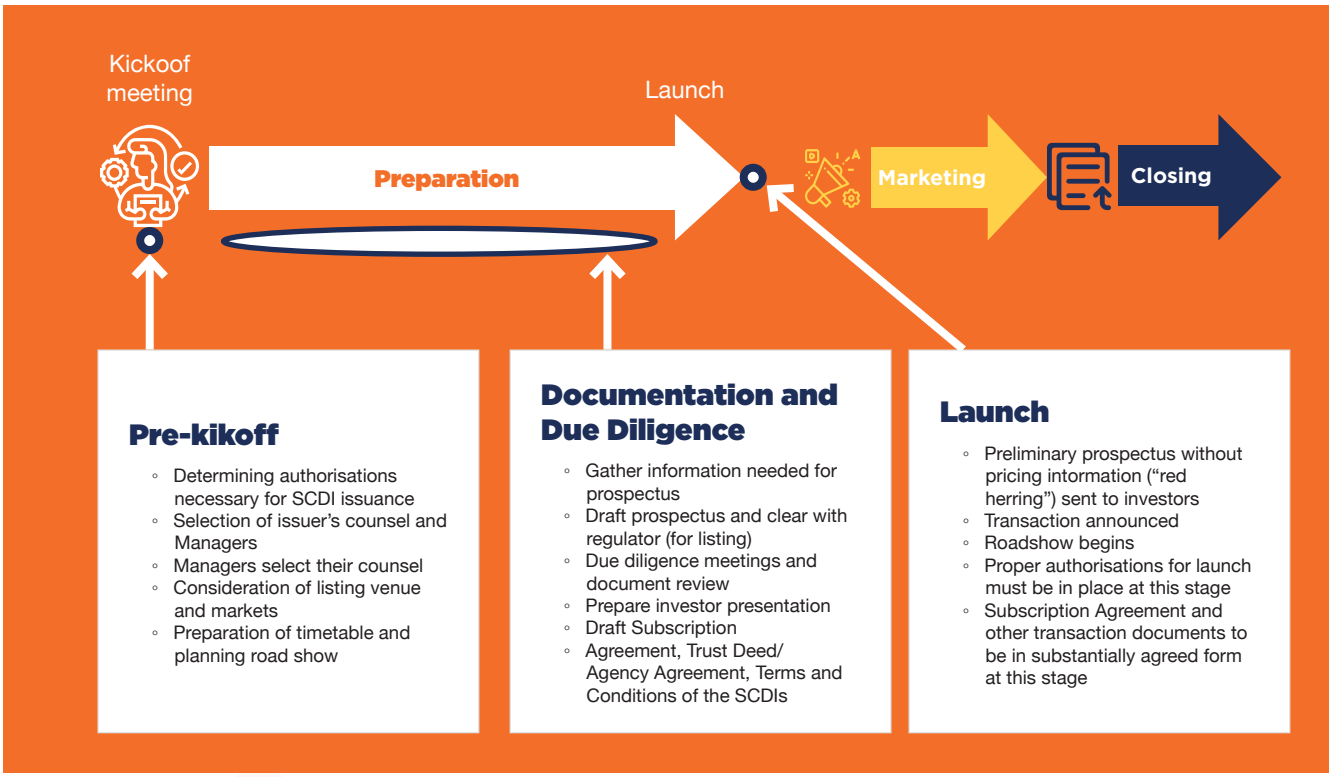
Depending on the type of SCDI issuance, the issuer may need to consider what other third-party providers would need to be onboarded to assist with the issuance. For example, for sustainability linked bonds, a third-party opinion provider may need to be engaged. For NDCs, a third-party insurance organisation (e.g., Caribbean Catastrophe Risk Insurance Facility) may need to be consulted. The issuer and arrangers may also consider whether a calculation agent should be appointed for determining or calculating any variation to payouts depending on changes to the linked variables. This could be one of the arranging banks (or an affiliate) or a third party.

Launch

The launch of an SCDI offering structured as a bond will typically closely resemble the launch of a conventional bond issuance. A preliminary prospectus without pricing information will be sent to investors, the transaction will be announced and the roadshow/marketing phase of the transaction will commence. As with conventional bond issuances, the

key transaction documentation and authorisations will be substantially agreed or in place at this stage of the issuance timeline. A summary diagram of the preparation phase of our example SCDI issuance is included below:

Indicative SCDI Preparation Phase



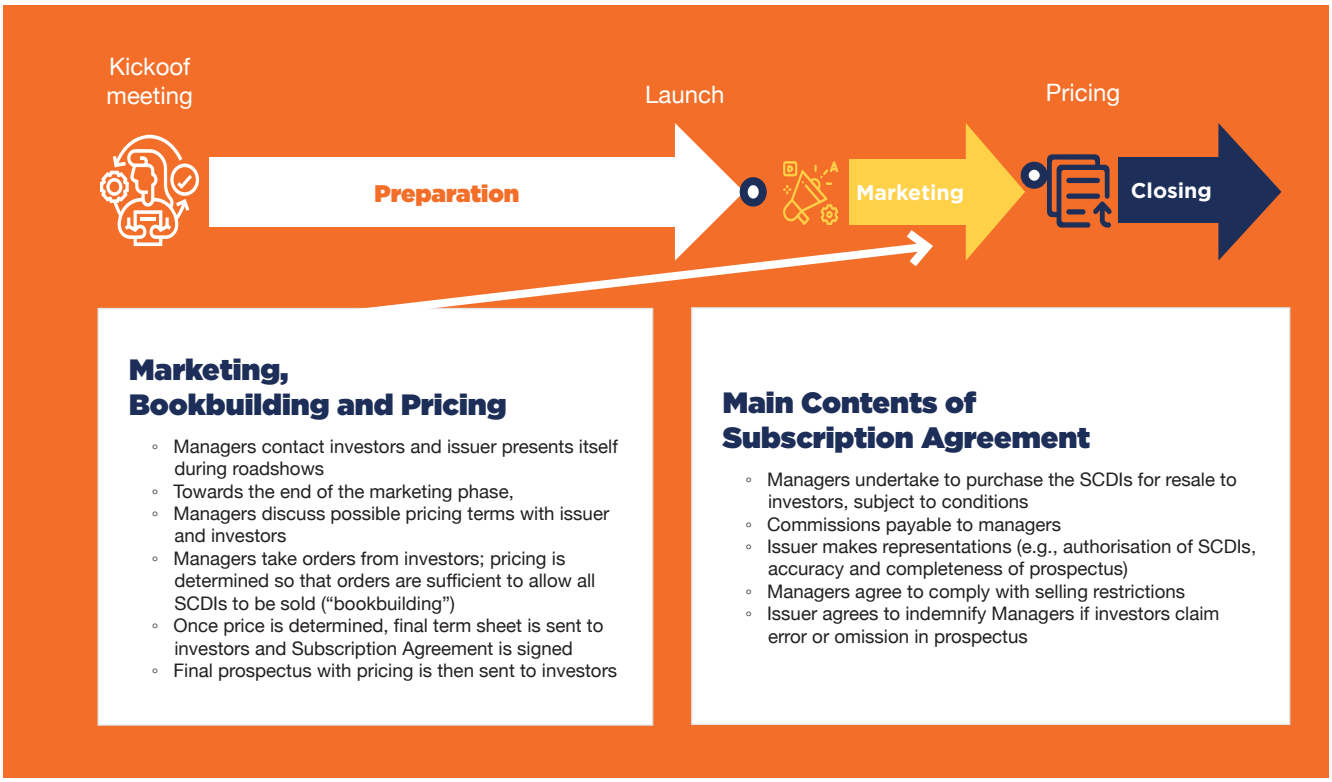
Marketing Phase

Following the launch of the SCDI issuance, the issuer and the managers will typically embark upon a marketing exercise in order to build a book of interested investors ahead of pricing of the SCDI issuance.

As with any offering of debt instruments, the issuer should consult with its advisors to ensure the offering is structured in a way that allows it to market to those persons whom the issuer has identified as target investors. Consideration will need to be given to the securities laws of jurisdictions where the SCDIs may be marketed, and any restrictions on marketing, advertising or disseminating materials in connection with the SCDIs should be adhered to. It is important for the issuer to engage legal counsel that are experienced in navigating the securities laws of jurisdictions where the offering may be publicised. Given the bespoke nature of SCDIs, one threshold question is whether the issuance would be treated as a derivative product and therefore subject to a different regulatory regime compared with plain vanilla fixed income investments. Under U.S. law, a derivative product is broadly defined to include futures, options and swap contracts. If an SCDI is structured as or embeds any such features, then trading of the product will carry certain additional regulatory requirements. For example, the instrument may need to be cleared through a central counterparty and additional reporting requirements to a trade repository could be required. In the United Kingdom and the European Union, derivatives are similarly broadly defined to include options, futures and swaps and instruments containing such features. As in the U.S., classification as a derivative product can bring additional regulatory requirements to clear trading through a central counterparty and additional reporting and portfolio reconciliation requirements with counterparties and trade repositories. Depending on the issuer and the counterparties' regulatory classifications, there may also be certain margin requirements and additional risk mitigation measures that the issuer must ensure it complies with. It is prudent for an SCDI issuer to consult with its legal advisors as to regulatory treatment of the instrument in question, as well as any specific regulatory compliance requirements depending on the classification of the instrument.

As with conventional debt instruments, an important milestone for any SCDI issuance will be the pricing of the instruments. Once the managers and issuer are satisfied that the SCDIs have received sufficient orders from investors to allow the SCDIs to be sold in the required amount for a successful issuance, pricing terms will be agreed between the issuer and investors/managers. Once the pricing terms are determined, a final term sheet may be sent to investors and the subscription agreement will be signed. A final prospectus reflecting the pricing terms of the SCDIs will be sent to investors and, if applicable, any listing authorities. A summary diagram of key considerations in connection with the marketing phase is included below:

Indicative SCDI Marketing Phase



Closing of SCDI issuance

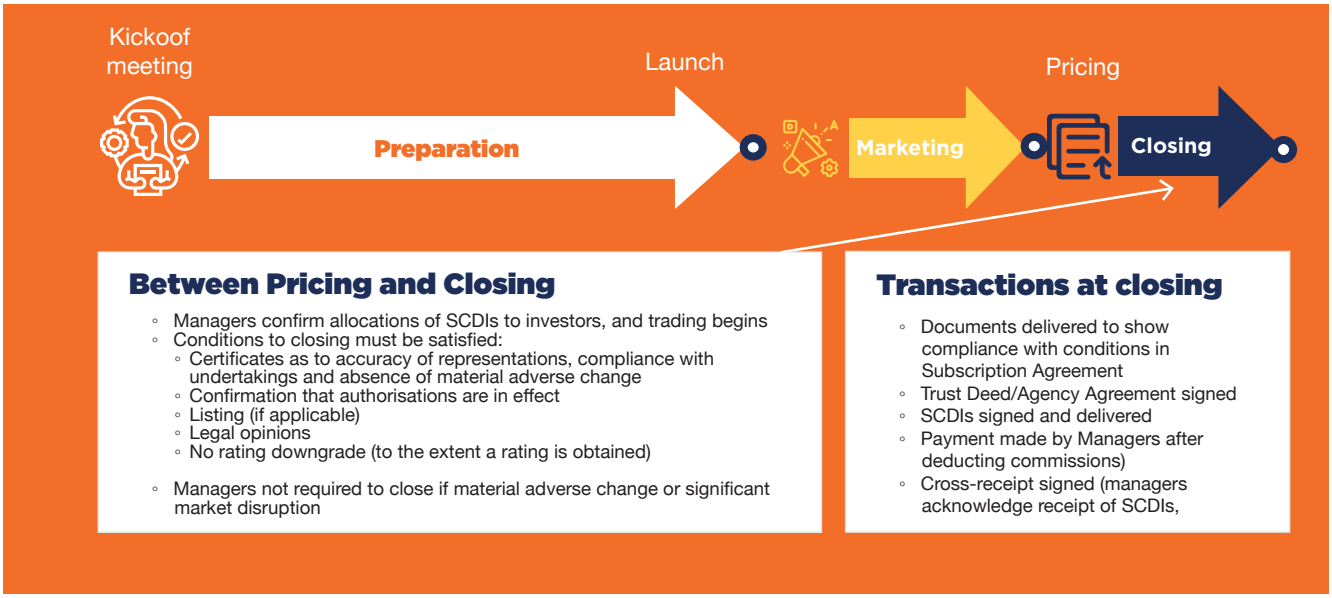
Once pricing has occurred, the managers will confirm allocations of the SCDIs. Any conditions to closing will need to be satisfied by the issuer ahead of settlement. This may include the listing of the SCDI.

On the closing date, all required signed documents will be delivered to the managers and their legal counsel to confirm satisfaction of closing conditions. The trust deed (indenture) or fiscal agency agreement will be signed by the issuer. As mentioned above, issuers should note that the transaction documentation will likely contain a set of representations that are specific to the SCDI which may relate, for example, to the accuracy of information or data underlying trigger variables and measurement.

Settlement of the SCDIs will then take place in accordance with the settlement procedures agreed between the parties, and the SCDIs will be delivered to investors (or to the trustee to hold on behalf of all holders if a global note/certificate structure is utilised). Payment of the proceeds of the issuance will be delivered to the issuer (after deducting any payments or commissions due to the managers).

Below is a summary diagram of the closing phase of our example SCDI issuance:

Indicative SCDI Closing Phase



Post-Closing

Following settlement of the SCDIs and the closing date of the transaction, the issuer will need to comply with the ongoing obligations of the instruments, as well as any ongoing listing and disclosure requirements if required by any exchange (if applicable). SCDIs may have additional ongoing obligations versus conventional bond instruments. For example, the issuer may need to provide regular growth statistics to the calculation agent under its GDP-linked instruments, or it may need to provide ongoing compliance reports in connection with any sustainability-linked KPIs.

As mentioned at the outset, the above steps and process closely resemble the steps and process for issuing a conventional bond. In practice, an SCDI issuance may not resemble the above at all. As discussed under the heading *What should decisionmakers do if they are considering an SCDI issuance?*, an SCDI can also take the form of a loan which can have certain advantages or disadvantages to the sovereign versus structuring an SCDI as a bond. There are examples of SCDIs in both contexts. The countercyclical loans borrowed under the PTCC discussed above in *Section 3 – What examples of SCDIs have there been in Africa? – Countercyclical loans to Burkina Faso, Mali, Mozambique, Senegal and Tanzania*, are examples of SCDIs structured as loan instruments. Barbados' 2022 NDC was contained in a private loan versus the 2018/2019 NDCs which were introduced in its bond instruments. Sustainability and ESG-linked KPIs are becoming a more commonly included feature in loan facilities. As such, the above summary is not intended to be a comprehensive overview of the issuance process for every SCDI. Rather, it can provide a starting point to guide discussion and consideration of what an SCDI issuance may look like for decisionmakers who may already be familiar with this process in their regular government bond issuances. Consultation with advisors should be undertaken to ensure that the structure of the SCDI reflects the intended commercial and economic use of the specific SCDI in question. However, as further discussed in Section *7 - Challenges Linked to SCDIs for African Issuers – Novelty and Liquidity Premia*, the more bespoke or complex an SCDI is designed, the more illiquid such an instrument may be for investors. In return, investors may therefore demand a higher premium than they would for a more standardised SCDI issuance akin to what we have described above.

Having outlined the most common types of SCDIs and given a summary of what the key steps and documentation may be for an SCDI in the form of a sovereign bond issuance, we now consider in more detail three case studies of certain types of SCDIs: (1) GDP-linked bonds structured under the London Term Sheet; (2) Commodity-linked debt instruments, with a particular focus on Mexico's "petrobonds"; and (3) the history and latest development of the NDC.

IV. CASE STUDIES AND EXAMPLES

Continuous adjustment instrument - GDP-linked bonds – London Term Sheet – How it works and key features

A common theme that emerges in a discussion of SCDIs is the need for standardisation in design, structure and documentation. This is both to facilitate the ease with which such instruments may be issued as well as to reduce perceived or actual complexity that may increase investor scepticism towards these instruments.

The London Term Sheet for GDP-linked bonds attempts to address the desire for standardisation in GDP-linked instruments. The London Term Sheet was drafted by a Bank of England-led working group which brought together lawyers, investors and trade body representatives to formulate a set of standard terms for a GDP-linked bond suitable for both advanced and emerging market economies.

The London Term Sheet adopts some basic assumptions for the sovereign that is contemplating issuing a GDP-linked bond using the Term Sheet. It assumes the sovereign:

- has a Euroclearable local currency, which is required for Euroclear settlement of the GDP-linked bond;
- subscribes to the IMF's Special Data Dissemination Standard (SDDS), which ensures a recognised minimum standard of data quality;
- publishes quarterly GDP statistics, which allows for adequate GDP measurements to support semi-annual coupon payments; and
- has an economy that will grow in the long term but may be exposed to growth risks or shocks during the lifetime of the instrument.

Guided by the principle of aligning the sovereign issuer's payment obligations (both coupon and principal) with its ability to pay, in order to reduce or avoid the need for costly sovereign defaults and debt restructurings when fiscal conditions for the sovereign worsen, the London Term Sheet provides for an instrument that has the following key characteristics:

- it is denominated in domestic currency;
- it has coupon and principal repayments indexed to the level of domestic GDP at current prices, measures in the domestic currency over a specified period of time;
- it has a long maturity, which allows for a longer-term view to be taken by investors as to the economic performance of the sovereign issuer and helps to smooth out payments over a number of economic cycles;
- it has a symmetrical payout profile (with optional principal protection), which allows for risk sharing between the investors and the sovereign issuer;
- it provides the issuer with debt and cash flow relief in the event of an economic downturn; and
- it allows the investor to participate in the benefits of an economic upturn by receiving a higher coupon and principal payment in times of strong GDP growth.

In contrast to many other GDP-linked instruments that have been issued historically, the London Term Sheet GDP-linked bond is structured as a bond rather than a GDP warrant, which tend to be highly bespoke instruments and often issued in a restructuring context to provide a "sweetener" to sovereign creditors. By contrast, the London Term Sheet GDP-linked bond is designed to be a rather plain vanilla instrument with most of the usual characteristics and provisions that investors would expect from a sovereign Eurobond.
What follows is a summary of the key terms from the London Term Sheet. For the full indicative London Term Sheet (English Law Version) as it was published by the Bank of England, please see *Appendix A (Indicative Term Sheet – GDP Bonds)*.

Summary of the London Term Sheet for GDP-linked bonds

Payment terms	Semi-annual coupon with a bullet repayment at a specified maturity date. Coupon and principal repayments are indexed to the level of domestic GDP at current prices, measured in domestic currency, over a specified period of time. This indexation methodology is designed to be simple and modelled on inflation-linked bonds.
Maturity date	With regard to the maturity date, it is noted in the London Term Sheet that this should be long enough to provide for a smoothing of payments over a number of economic cycles, for example 10 or more years.
Governing law	The default choice is that the GDP-linked bond will be governed by the laws of England and Wales, although it is noted in the London Term Sheet that this could also be such other law as customarily governs the sovereign issuer's international debt issuances.
Ranking and status	The GDP-linked bonds shall rank equally with all the sovereign issuer's borrowed money obligations, thus ensuring investors no worse legal treatment than other borrowed money claims. It is noted in the London Term Sheet that the ranking and status of the GDP-linked bonds should be drafted to meet the requirements of individual issuers.
Collective action clause	It is contemplated that the GDP-linked bonds shall have the ICMA standard single-limb provision for cross-series modification of payment terms. This allows for a single vote across all series of GDP-linked bonds to bind all holders if the vote is passed with the qualified majority (75% by value of all outstanding GDP-linked bonds). Sovereign holdings are disenfranchised from counting towards the qualified majority. The GDP-linked bonds are contemplated to aggregate only over the universe of the sovereign's GDP-linked securities and not with its other bonds or warrants, which allows a sovereign to keep the GDP-linked bond and its other GDP-linked securities outside of a restructuring of fixed rate government bonds, loans or other borrowed money.
Cross-default	Cross-defaults only with the sovereign's other GDP-linked securities. A default under the sovereign's fixed rate government bonds, loans or other borrowed money would not cause a default under the GDP-linked bonds. This gives the issuer a possibility of remaining current on the GDP-linked bonds whilst restructuring conventional debt. The rationale for this is that in a downturn, the issuer is more likely to stay current on its GDP-linked obligations, due to the payments on them declining as growth decreases.[2]
Measurement of GDP	GDP is defined, in respect of a reference quarter for measurement, as the sovereign's seasonally-adjusted nominal gross domestic product in local currency for that reference quarter as published by the relevant "Publishing Entity". The Publishing Entity is defined as the sovereign's nationally recognised statistical institute, or, if such statistical institute fails to publish the relevant statistics, the central bank of the issuer. It is also noted that for issues with annual coupons and depending on the issuer, the IMF and its relevant statistics in the most recent issue of the World Economic Outlook could also be a further fallback.
Security	Unsecured and standard negative pledge language[3] included (although it is noted the inclusion and /or scope of the negative pledge is to be determined by individual issuers).

2 • Concern has been raised by market participants that limiting the cross-default provisions in this manner, as well as an ex ante separate voting pool for CAC purposes, could be perceived as affording de facto seniority to these instruments.
3 • This language is typically used in lending instruments to prevent a borrower from granting as security certain of its assets.

As noted in *Section 7 - Challenges linked to SCDIs for African issuers*, a key investor concern with respect to GDP-linked bonds is the reliability of GDP data available and the potential for the sovereign to manipulate the data in its favour. Given that

the amount the sovereign must pay out under its GDP-linked bond is directly correlated to GDP measure, the London Term Sheet GDP-linked bond could also be subject to the same concern by investors.

However, the London Term Sheet responds to this concern by including several additional features:

- the GDP bond incorporates put options which allow investors to demand early repayment of principal and accrued interest if (1) the issuer and/or the central bank fails to publish GDP data by the agreed date and in the manner agreed; (2) an IMF Article IV report for the issuer has not been published for two consecutive calendar years prior to any Calculation Date; (3) the issuer's subscription to the IMF's SDDS ceases for any reason howsoever described; (4) the IMF's Executive Board finds that the issuer fails to provide information required under Article VIII, Section 5 of the IMF's Articles of Agreement and specified in Annex A to the IMF's "Decision on Strengthening the Effectiveness of Article VIII, Section 5;" and (5) the issuer ceases to be a member of the IMF;

- a fallback calculation mechanism for GDP statistics is provided; and

- a penalty early redemption amount if reliable GDP statistics are unavailable in a timely manner.

According to the London Term Sheet working group, consultations with industry suggest that for some investors, particular those based in the U.S., there would be particular value attached to there being a floor on the GDP-linked bond that ensures the final bullet repayment is at least as great as the stated principal amount at issue. Some inflation-linked debt (e.g., US and continental European issues) incorporates such a floor, though other issues do not (e.g., Australian, Canadian and U.K. issues). The latest version of the London Term Sheet published includes one option without a floor and one option with a floor. Including a floor still allows for some debt relief during periods of weak GDP growth but places a limit on the degree of that relief, particularly where the maturity of the GDP-linked bond is short and/or the baseline, trend rate of nominal GDP growth for the issuer is low.[4]

These features were chosen to design an instrument that more closely resembled a plain vanilla bond, which can easily be valued and traded, with a low GDP risk premium over benchmark fixed rate government bonds by the same issuer.

- In terms of documentation, it is envisioned that the GDP-linked bond would employ the same documentation as in a standard fixed rate bond, depending on whether a trustee structure or fiscal agency structure is chosen as a matter of preference and policy for the sovereign issuer. The steps to issuance would therefore closely resemble the steps for a standard fixed rate issuance.

- Ultimately, it is caveated on the front cover of the London Term Sheet that the terms included therein are intended to generate discussion and debate on the usefulness of GDP-linked bonds. It was not prepared for use for any particular transaction for a sovereign issuer, nor is it a ready-made template that sovereign issuers can simply adopt for use in issuing a GDP-linked bond. However, it does provide a model that could in theory form the basis for a GDP-linked bond issuance by a sovereign, after necessary adaptation to suit the commercial objectives and realities on the ground for a particular sovereign issuance. It can help decisionmakers and others involved in the issuance focus on key features of the instrument, whilst facilitating standardisation in order to help entrench some degree of common market practice in the design and legal structure of these instruments.

Continuous adjustment instrument – Commodity-linked debt instruments – Mexico's petrobonds

As noted, countries' debt servicing capacity, in particular those that are highly reliant on commodity exports for revenue, can be greatly impacted by fluctuations in commodity prices. Given that many of its countries are exporters of raw commodities, this vulnerability is prevalent on the African continent. While commodity-linked SCDIs have been promoted as a risk reduction tool for African countries, there are no current African cases where this type of instrument has been used.

Mexico became the first country to issue oil-linked bonds in 1977 (referred to as "petrobonds"), a type of commodity-linked debt instrument (with a second issuance taking place in 1980). These were domestic issuances "aimed at stimulating domestic savings and providing more domestic credit for investment" (EIR 1977). The petrobonds were issued through National Financiere S.A. (NAFINSA), a public development bank. The first issuance was for two billion pesos (approx. USD 90 million) and had a maturity value pegged to the international price of Mexican oil. The bonds had a nominal value of 1,000 pesos, held an interest rate of 7% and were payable in 3 years. They were backed by 6.5 billion barrels of crude oil which acted as collateral for the bonds. Investors could purchase a maximum of 1 million pesos while institutions could purchase a maximum of 5 million pesos.

The overriding objective of the petrobonds was to entice

4 • Despite these well designed features, a greater practical constraint in the issuance of such instruments by sovereigns with long-standing sluggish growth is whether there would be sufficient investor appetite in such instruments given the uncertainty as to the possibility of an increased return.

money back into the country following the 45% devaluation of the peso in 1976.

The instrument was set up such that if there were a rise in the price of Mexican oil above 30% from the price of Mexican oil at issuance, this would be reflected in the payment at maturity. Upon redemption, bondholders received their principal plus a return calculated as the current export price of Mexican oil in dollars multiplied by the exchange rate. Thus, in theory, this structure provided downside protection to the issuer and upside benefit to the investor. In terms of structure, the petrobonds were issued as certificates of participation issued by a trust where NAFINSA was trustee.

Despite an increase in the price of oil during the period that the petrobonds were in place (from USD 22.60 per barrel to USD 32.50), investors ended up making a net loss on the instruments. This was due to the payouts under the petrobonds being calculated on the basis of the local Mexdollar official exchange rate of 4,553 Mexican pesos for a 1,000-peso bond and amounts remained convertible into U.S. dollars at this official rate (Riding 1982). As the peso deteriorated further against the U.S. dollar at the international rate, the Mexdollar rate remained fixed and investors received less than they would have had the contract specified that the exchange rate to be used was to be the international rate. This serves as a good example of how important the chosen variable measurement can be in influencing the ultimate economics of SCDIs. For any future commodity-linked instrument issuances, investors are likely to insist, as a feature of the contract design, that payouts be linked to an international rate rather than an official or pegged rate. See *Section 7 - Challenges Linked to SCDIs for African Issuers – Measurement Challenges* for a further discussion of the importance of measurement choices and how standardisation can help to boost investor confidence.

In practice, the use of hedging instruments to protect against commodity price risk has been far more utilised by sovereigns than commodity-linked bonds. The market for commodity hedges is well-developed and active, with sufficient hedging counterparties that hedging products can be offered to issuers for fairly cheap. However, the advantage of commodity-linked bonds over hedging instruments (depending on the issuer's ultimate objective) is that it can allow for the raising of new money at a fairly low nominal cost (if the bonds are collateralised on export revenues of the commodity in question, for example), whilst at the same time also hedging a portion of the issuer's commodity exports against a fall in prices. In Mexico's case, for example, it also served the purpose of attracting foreign currency in an attempt to rectify Mexico's deteriorating balance of payments, by offering investors the possibility to participate in an upswing in the price of oil (something that would not be available to the majority of such investors if Mexico had only used hedging instruments to protect against a drop in oil prices) and the relative comfort of collateral on the instruments. As mentioned above, the ultimate net loss to investors on the instrument was more to do with the exchange rate measurements used than on the underlying state contingent variable itself.

Discrete Adjustment Instruments - Natural Disaster Clauses - Grenada vs Barbados vs ICMA

- NDCs embed within the debt instrument the ability of an issuer to defer payments of interest, principal or both in the event of a qualifying natural disaster. The built-in debt relief buffer helps a sovereign absorb some of the financial impact of a natural disaster, mitigating the already severe financial damage that may be caused by such disaster and allowing financial resources to be re-allocated towards relief measures.
- The ability for deferral if the issuer so elects eliminates the need for bondholder consent, which can also reduce the risk of a formal restructuring process.

What follows is an examination of the NDC through three instances: (1) the first ever NDC which was included as part of Grenada's debt restructuring in 2015; (2) a variation of the clause utilised by Barbados in its 2018/2019 debt restructuring; and (3) the ICMA model climate resilient debt clause. We also discuss the pandemic clause variant of the NDC which was adopted by Barbados as part of a debt-for-nature conversion transaction in 2022.

Grenada's "Hurricane Clause"

Following the widespread devastation brought about by Hurricane Ivan in 2004 (which destroyed or severely damaged almost 90% of the houses in Grenada, and caused total damage to the island of more than 200% of its nominal GDP), Grenada took proactive steps in its 2015 debt restructuring to incorporate the first-ever NDC into its USD bonds due 2030, as well as certain other debt instruments owed to Paris Club and other official creditors.

The Grenada NDC allowed the issuer to defer the principal and interest payment due on the next semi-annual payment date if it experienced a tropical cyclone triggering a payout under Grenada's parametric insurance policy from the Caribbean Catastrophic Risk Insurance Facility (CCRIF), a risk pool that provides coverage for catastrophic hurricanes, earthquakes and excess rainfall events to Caribbean and Central American countries, between USD 15 million and USD 30 million. This CCRIF payout was used as a proxy for the losses caused by the natural disaster in question. The Grenada NDC further allowed Grenada to defer the principal and interest payments due on the next two semi-annual payment dates if it experienced a tropical cyclone causing USD 30 million or more in losses also calculated by reference to payouts under the CCRIF. The determination of whether a qualifying tropical cyclone had occurred was also linked to the definition of the relevant loss event under the CCRIF.

In the event Grenada receives a policy payout under its CCRIF policy for a loss greater than USD 15 million, it can then elect under the NDC to make a deferral by delivering to the bond trustee a certificate describing the tropical cyclone and confirming that it

meets the requirements for the deferral and a written report from CCRIF confirming that the cyclone was an insured event and the amount of loss. Grenada must also deliver a notice to bondholders describing the cyclone and keep the trustee informed from time to time on the progress of relief, recovery and reconstruction programs.

Once Grenada has elected for the deferral, all deferred interest amounts are capitalised into principal and the remaining principal amortisations are increased pro rata to take into account the interest capitalisation and the deferred principal payments. There is a limit for making a deferral to three times over the lifetime of the bond.

Barbados

Although to date Barbados has fortunately been spared a devastating natural disaster that has befallen many of its neighbours, the decision was taken in the 2018/2019 restructuring to incorporate a variant of the NDC that had first been implemented in Grenada. An NDC was incorporated into most of the debt instruments issued in exchange for Barbados dollar-denominated domestic-law governed debt instruments, as well as USD-denominated English, New York and domestic law debt.

For the Barbados dollar instruments, the NDC allowed Barbados to defer principal and interest payments when it receives a policy payout under its CCRIF policy in connection with a qualifying natural disaster. The NDC incorporated into these instruments expanded upon the NDC included in Grenada's 2015 restructuring by including additional trigger events for earthquakes and excess rainfall, in addition to tropical cyclones. The NDC has a lower loss threshold of USD 5 million versus the USD 15 million to USD 30 million threshold included in Grenada's NDC.

Provided, therefore, that Barbados receives a CCRIF policy payout related to a tropical cyclone, earthquake or excess rainfall event with losses greater than USD 5 million, it can elect to defer interest and principal payments for two years, provided that a deferral request cannot be made in the final two years prior to maturity of the instruments. All deferred interest amounts are capitalised into principal as they would have come due and the remaining principal amortisations are increased pro rata to take into account the interest capitalisation and the deferred principal payments. As with Grenada, Barbados must also deliver a notice to bondholders describing the cyclone, earthquake or excess rainfall event, but there is no requirement to provide a certificate from Barbados, a written report from CCRIF or summary reports to the bond trustee. As with Grenada, there is a limit on deferring payments for a total of three times.

For the NDC that was incorporated into the USD-denominated instruments (the restructuring of which took place roughly a year after the Barbados dollar-denominated instruments), further changes to the NDC were made. Firstly, the loss threshold was kept at USD 5 million for earthquakes and floods, but increased to USD 7.5 million for hurricanes. Secondly, the limit for deferrals remains at three, but Barbados cannot make a deferral in the final two years prior to the maturity of the bonds, in order to prevent a deferral from extending the final maturity of the bonds. Thirdly, in what was probably the greatest departure from the Grenada NDC, a blocking mechanism was included that allows holders of 50% or more of the principal amount of the bonds, upon receiving notice from Barbados that it has experienced a natural disaster and intends to defer payments, to block Barbados' deferral. The requisite bondholders must block the deferral within 15 days of the notice of deferral. This blocking right was included to address bondholders' concern regarding potential opportunistic triggering of the clause on the part of Barbados. However, this could create a form of basis risk for the borrower (i.e., the chance that the contract will not provide liquidity relief when expected or needed).

It is estimated that the incorporation of the NDC into Barbados' post-restructuring debt stock will be able to free up at least USD 700 million, or almost 15% of total GDP, in debt service payments, which can be spent instead on emergency relief, mitigation and rebuilding measures in response to the qualifying natural disaster.

ICMA Model Clause

In 2018, ICMA published a model "hurricane-linked extendible feature" for sovereign bonds and loans (the ICMA model clauses are included in Appendix C). The ICMA model clause allows the issuer to defer principal and interest payments if a qualifying tropical cyclone strikes, and, as with Barbados and Grenada, the determination of what constitutes a qualifying tropical cyclone and the dollar amount of loss experienced are tied to the issuer's CCRIF insurance policy. The ICMA model clause also included the possibility of incorporating earthquakes and excess rainfall events as triggers. There is no suggested loss threshold in the ICMA model clause.

In terms of practical steps for electing a deferral, the hurricane-linked extendible feature requires the issuer to deliver to the trustee a certificate describing the tropical cyclone and confirming that it meets the requirements for the deferral and a written report from CCRIF confirming that the cyclone was an insured event and the amount of the loss. The issuer must also deliver periodic reports to keep the trustee informed from time to time on the progress of relief, recovery and reconstruction programs. In terms of these features, the hurricane-linked extendible feature more closely resembles the Grenada NDC. However, departing from both Grenada and Barbados, this model clause pushes all payments back by three years (rather than increasing the remaining scheduled principal amounts pro rata as with Grenada and Barbados), which extends the final maturity of the bond by three years. There is also no limit on the number of deferrals that can be made under the ICMA "hurricane-linked extendible feature".

In November 2022, ICMA published a new variant of the clause entitled "climate resilient debt clauses". In an effort to expand the applicability of the NDC, a "Drought Event" is included as a trigger alongside the usual earthquake, excess water and hurricane/ cyclone triggers. The procedure for electing a deferral and the requirements for the issuer to deliver notice to the bondholders, trustee and ongoing summary reports remain in place, but the climate resilient debt clauses give more flexibility for issuers to define any bespoke deferred payment features, suggesting as examples that the deferred amounts could be repaid over a specified period (e.g., three years) following the end of the deferral period (as was the case with the existing ICMA clauses) or repaid pro rata over the remaining life of the bond (as is the case with the Grenada and Barbados NDCs).

The Private Sector Working Group (PSWG) which developed and presented the ICMA climate resilient debt clause set out several principles and guidance in connection with the ICMA climate resilient debt clause. Notably, they highlight the notion that deferrals should be net present value (NPV) neutral. This means that the value of all future cash flows of the investment are unchanged and the investors are no worse off for having accepted the deferrals than they would be if there were no deferrals. This of course is more palatable to investors than having to take an inflation-adjusted loss because they are accepting the same level of payments at a later date when such amounts could have been reinvested in other return generating assets if received as scheduled. If this is the case, and deferrals can be designed to be NPV neutral, PSWG believes that the incorporation of such clauses will likely have no or minimal pricing impact (as investors will have already priced in the relevant climate risks at the outset of purchasing the SCDI). However, the PSWG does not elaborate on how to ensure ICMA's climate resilient debt clause is NPV neutral, and this may prove complex for multi-series issuances that may all have such provisions triggered at the same time in the event of a natural disaster.

Also significantly, the ICMA climate resilient debt clauses include an annex for "Additional Pandemic Event Resilient Debt Clauses". This follows the development of the "pandemic clause" as a variant of the NDC, which was first included in Barbados' 2022 debt conversion for nature transaction.

Pandemic clauses

The COVID-19 pandemic invigorated the expansion of the NDC to incorporate a "pandemic event" as a qualifying trigger. Barbados' debt conversion for nature transaction in 2022 is the first ever use of such a pandemic clause, which incorporated the standard features of the Barbados variant of the NDC (e.g., payment deferrals which are deferred and capitalised pro rata against remaining principal repayments, notice to the trustee and bondholder blocking rights) but included various pandemic-specific conditions before a deferral could be elected. Chief among these conditions is the declaration by the WHO of a "pandemic" or Public Health Emergency of International Concern, a declaration by the sovereign of a public health emergency and certain increased spending thresholds in response to the pandemic or GDP contraction over a defined period of time. (With respect to the latter, we will address concerns related to the reliability of GDP data as well as potential sovereign manipulation of such data in Section 7 - Challenges Linked to SCDIs for African Issuers – Measurement Challenges).

As with the original NDCs, the rationale for expanding the clauses to include pandemics is to offer debt relief at a time when sovereign issuers may be facing increased fiscal pressure as a result of pandemic mitigation and relief measures, as well as a corresponding drop in GDP as a result of lockdowns, restrictions and other reduced business activity (which will have a concomitant impact on tax revenues).

The use of the pandemic clause (and the NDC more widely) in Barbados' debt conversion for nature transaction is the first such use by a sovereign in a new-money transaction outside of the restructuring context.

Following the incorporation of the pandemic clause in Barbados' debt conversion for nature transaction, ICMA also released its own model clause as part of its 2022 model climate resilient debt clause. The ICMA model pandemic clause incorporates several of the same trigger events as in the Barbados pandemic clause. There needs to be a declaration by the WHO of a Public Health Emergency of International Concern that grants such disease phase 6 status, or any other categorisation as the WHO may use to describe an active ongoing pandemic from time to time (the continuation of the COVID-19 pandemic in the form of current variants existing as of the hypothetical issuance date is expressly excluded). The sovereign, or any other competent political or regulatory sub-division of the sovereign must declare a state of public health emergency. Finally, there must either be (i) an occurrence of Real GDP contraction over two consecutive quarters which results in a contraction of at least a certain percentage (to be defined by the parties) of Real GDP relative to the same two quarters in the previous fiscal year, or (ii) the pandemic declared by the WHO and the sovereign must result in an increase in governmental spending (that is not rescindable) directly relating to the relevant pandemic at least equal to a certain USD amount (to be defined by the parties).

It remains to be seen how widely adopted such a pandemic clause will become in coming years. From the single Barbados example, early anecdotal evidence suggested that the inclusion of the pandemic clause did not impact pricing nor widen the spread between similar debt instruments without such a clause included (PSWG 2022). As with NDCs as a whole, the PSWG views the pricing impact of such provisions as minimal if the provisions are drafted to be net neutral. That being said, there is little evidence as of yet to go on other than the Barbados example. If this does remain the case for future issuances, this may spur on more sovereign issuers and borrowers to utilise such instruments. Conversely, if there does turn out to be a major pricing impact, then this will reduce sovereign issuer demand for such instruments. Prime Minister of Barbados, Mia Mottley, has called on sovereign issuers to incorporate pandemic clauses into their debt instruments as part of the Bridgetown Initiative launched

in September 2022.[5] Some commentators estimate that if all developing countries had pandemic clauses in their sovereign debt instruments during the COVID-19 pandemic, it would have released USD 1 trillion in liquidity (Persaud 2022). There is a strong case to be made for the wider proliferation of such clauses, and it will be telling whether this momentum will gain traction by a larger body of developing economy issuers.

5 • The Bridgetown Initiative is a climate and development plan to reform development finance founded by PM Mia Mottley and introduced at the COP27 conference.

V. THE POTENTIAL BENEFITS OF SCDIS FOR AFRICAN SOVEREIGN ISSUERS

In this section of the handbook, we will explore the overall benefits of SCDIs for sovereign issuers, with a particular focus on the benefits for African sovereign issuers.

SCDIs have the potential to contribute to better public debt management

As a counter-cyclical tool, SCDIs can help to temper boom and bust cycles. Reduced spending on debt service during depressed economic periods can free up resources for the sovereign to increase productive spending, whether on measures designed to kick-start economic output or for relief measures for those entities and individuals suffering from the worst effects of the downturn. It is hoped that this could help to lessen the duration and intensity of a down cycle. The overall goal is to embed longer-term resilience in debt structures by building in downside protection. In the boom phase of the economic cycle, the increased payouts can help to reallocate resources to debt service rather than large public spending projects that may be unsustainable when the cycle turns once more. In particular, increased payouts of principal in response to good times help to take the place of "rainy day reserve funds" which may be useful for sovereigns that may otherwise struggle to pay down debt when they receive a larger influx of state revenue. By making increased debt service automatic and impersonal, linked to the underlying terms of the contract rather than the voluntary choice of a decisionmaker, this may help to contribute to more prudent fiscal management during such boom times.

As discussed in detail in *Section 5 – Case Studies and Examples - Continuous adjustment instrument – Commodity-linked debt instruments – Mexico*, an important type of SCDI is the commodity-linked debt instrument. Commodity exporters tend to experience greater volatility in their balance of payments and growth rates due to substantial exposure to the price of commodities. Commodity-linked debt instruments can therefore help to hedge against these exposures and volatility by decreasing cash outflows of foreign reserves when the price of commodities decreases. This therefore acts as a form of automatic foreign reserve buffer which can potentially help stave off the need to restructure and allow the commodity exporter to weather the storm until commodity prices stabilise or go in the opposite direction.

Climate and pandemic proofing public finances

We detailed the development of the NDC and the pandemic clause in *Section 5 – Case Studies and Examples - Discrete adjustment instrument - Natural disaster clause – Grenada vs Barbados vs ICMA*.

The International Finance Corporation (IFC) has identified Africa as the most vulnerable continent to climate change-induced natural disasters such as droughts and floods (Bari and Dessus 2022). It is thought that since 1990, droughts and floods have respectively lowered African countries' GDP by 0.7% and 0.4%. Between 1990 and 2019, Africa suffered 1,107 floods and droughts, leading to 43,625 deaths and at least $14 billion in damages to crops, livestock, and property. In the 1980s, droughts in Ethiopia, Sudan and Mozambique caused deaths in the hundreds of thousands. Although these two climate change-induced natural disasters are the most frequent and economically damaging to infrastructure and livelihoods, certain African nations are also particularly prone to wildfires, landslides, storm surges and cyclones (for example, in the Horn of Africa).

The African region was estimated to have had a similar number of COVID-19 infections to that of the rest of the world, but with fewer deaths although this could be the result of underreporting (Cabore et al. 2022). Despite many African countries receiving praise for their pandemic response despite a reputation for having fragile health systems, the economic impact of COVID-19 is still estimated to have had a substantial economic impact, with the African Development Bank estimating that Africa will need at least USD 432 billion to address the effects of COVID-19 on its economies and people, resources which are simply not available (AfDB 2022).

Africa is sadly no stranger to historical pandemics and epidemics, with memories of the devastating 2014-2016 Ebola crisis still fresh at the advent of the COVID-19 pandemic. Weaknesses in local health systems can also exacerbate health crises and the corresponding economic impact (ARC).

It therefore stands to reason that African countries could benefit in particular from movements to climate- and pandemic-proof their public finances. If NDCs and pandemic clauses can be introduced in the manner adopted in Barbados (either through restructurings of existing debt

instruments or in new money issuances), it may help to ameliorate some of the economic devastation wrought by such natural disasters. Moreover, these clauses should be seen as one element in a broader suite of tools to raise resilience and are likely to be geared towards disaster events that are low probability and medium to high impact. They can facilitate disaster response if they are paired with a strategy to disburse funding quickly and effectively in the wake of crises. But robust financial preparedness requires countries to have a range of instruments, including some that provide new liquidity such as contingent credit at short notice.

The PWSG Group sub-group on Climate Resilient Debt Clauses, which consulted on the development of the model climate resilient debt clauses and pandemic clause, identified a number of indicative in-scope countries, which included a substantial number of African countries.[6] Although the list is not designed to be exclusive, the countries specifically listed as in-scope were identified as most suitable for incorporation of climate resilient debt clauses given the high potential impact of severe climate shocks or natural disasters on these countries relative to their ability to respond. Moreover, as the IMF has noted, the liquidity of the instrument for holders of the debt of this type of country may
be a less significant consideration than for holders of debt of larger countries where
liquidity concerns may be more considerable (Cohen et al. 2020).

In particular, Africa may stand to benefit from the wider proliferation of NDCs as initiatives for a regional parametric insurance model and risk pooling develop. The African Risk Capacity (ARC), a specialised agency of the African Union, has been piloting parametric insurance projects and, since its inception in 2014, has made payouts of USD 124.3m in claims from eight risk pools covering more than 100 million people and transferring USD 1bn of risk (Maslo 2018). The PSWG considered the different types of triggers for NDCs and pandemic clauses, and they considered that investors would typically want more independently verifiable triggers with high reliability. The existence of parametric insurance and associated loss claims via policies put in place by ARC could therefore provide such a ready "hard trigger" for use by African countries in their NDCs. This may increase investor confidence in African NDCs and ease their adoption in their debt instruments.

It is hoped that if NDCs become more normalised, and if investors perceive that the inclusion of such clauses reduce the risks of defaults during climate or public health crises, that having a more climate and pandemic resilient debt portfolio will actually lead to credit enhancement for the sovereign and have a concomitant impact on borrowing costs. There is little research to confirm whether there is a meaningful upward or downward pricing impact of such clauses being incorporated in a country's debt instrument.

The role of SCDIs in debt restructurings

An in-depth discussion of the debt restructuring process is included in the ALSF Debt Guide on Pre-crisis and Crisis Management. However, in this section we outline the key benefits SCDIs can bring in a restructuring scenario.

The IMF has highlighted the role that SCDIs could play in improving the outcomes of sovereign debt restructurings (Cohen et al. 2020). Indeed, SCDIs as a component of sovereign debt restructurings go back to the use of "Brady bonds" beginning in 1989. These instruments offered contingent upside payments to investors, tied to a specific economic variable, but did not foresee any fall in payments in the event of a downside scenario. Some Brady bonds also included "value recovery rights", wherein if the debtor's terms of trade or economic conditions improved, creditors could also benefit by receiving additional debt service payments. Brady bonds linked to GDP were used in Honduras in 1989, Costa Rica in 1990, Bulgaria in 1993 and Côte d'Ivoire in 1997. Brady bonds linked to commodity prices were used in Venezuela, Nigeria, Mexico and Bolivia. Uruguay, in 1991, issued a Brady bond linked to its terms of trade.

6 Angola, Benin, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Democratic Republic of Congo, Republic of Congo, Côte d'Ivoire, Djibouti, Ethiopia, The Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Sudan, Swaziland, Tanzania, Togo, Tunisia, Uganda and Zambia were all identified as in-scope countries

SCDIs Issued During Recent Sovereign Debt Restructurings (Cohen et al. 2020)

Type of instrument	Sovereign Issuer	Currency of denomination	Period	Trigger	Formula for payout/ deferral	Caps/limits
GDP-linked warrant	Argentina (2005 and 2010)	Local currency	20 years	Real GDP level	Pays out 5% of real GDP in excess of a reference level	Total payments capped at 48% of notional principal
GDP-linked warrant	Greece (2012)	Local currency	27 years	Real GDP growth	Pays out 150% of real GDP growth rate in excess of reference growth rate	Annual cap at 1%
GDP-linked warrant	Ukraine (2015)	Foreign currency (USD)	20 years	Real GDP Growth, level of GDP in USD	Pays out 15% of real GDP growth where real GDP growth is between 3-4% Pays out 40% of real GDP growth where real GDP growth is in excess of 4% There are no payments unless nominal GDP is higher than USD 125.4bn	Annual cap at 1% of GDP from 2021-2025; uncapped from 2026-2040
CBI revenue-linked payments in 2030 bond	Grenada (2015)	Local and foreign currency	15 years	CBI[7] revenues	Pays out 25% of CBI proceeds between USD 15m-50m Pays out 35% of CBI revenues in excess of USD50m	Discounted[8] value of total payments capped at 35% of outstanding principal value
NDC in 2030 bond	Grenada (2015)	Local and foreign currency	13 years	Hurricane damage	6-month deferral if modelled loss is greater than USD 15m but less than USD 30m 12-month deferral is modelled loss is greater than USD 30m	Can be triggered a maximum of 3 times
NDC in domestic-currency long term bonds	Barbados (2018)	Local currency	15-35	Natural disaster damage	24-month deferral if modelled loss is greater than USD 5m	Can be triggered a maximum of 3 times

7 This refers to Grenada's "citizenship by investment" programme
8 Payments to be discounted back to May 2015 using average yield on the 2030 bond in the year in which they occur.

Type of instrument	Sovereign Issuer	Currency of denomination	Period	Trigger	Formula for payout/ deferral	Caps/limits
NDC in 2029 bond	Barbados (2018)	Foreign currency (USD)	8	Natural disaster damage	24-month deferral if modelled loss is greater than USD 5m 24-month deferral if modelled loss is greater than UDS 7.5m	Can be triggered a maximum of 3 times over the period of the bond.
VRI alongside 2033 Bond	Suriname (2023)	Foreign Currency (USD)	27 years	Government oil royalties	After a reaching a one-off floor of US$100m, the issuer pays 30% of further annual oil royalties from one field.	Up to the lower of (i) a hard cap of US$689m, or (ii), a soft cap calculated on capitalised interest under the VRI and payments already made.

Much energy and time can be devoted to negotiations between a sovereign debtor and its creditors as to current valuations of the debt instruments that are being restructured. However, if SCDIs are issued in exchange or as part of the package of consideration received in exchange for agreeing to restructure existing debt, the linkages between these instruments and future outcomes can divert the focus from conflicts over present valuations. In a typical restructuring, investors are very focused on the NPV calculations that come with extending the maturity of the debt or the impact of potential haircuts and coupon readjustments. If an SCDI is introduced as part of the restructuring or reprofiling package on offer, this can provide a potential upside or sweetener to the investors that can help to counteract NPV losses and assist with investor buy-in to the longer-term horizon of an issuer's recovery. Attention is shifted from arguments over the perceived fairness or unfairness of present value losses and instead on conversations around how long-term economic growth and recovery can be ensured, as well as how a sovereign intends to achieve SCDI-linked objectives. It has been shown that the longer the duration of a restructuring process, the worse the effects on the country's GDP and growth rate in the years that follow, as well as the longer it will take for the sovereign to regain access to international markets. If SCDIs can help to speed up negotiations in this manner, then they may help to mitigate the worst effects of the restructuring. Moreover, if the sovereign already has a sizeable portion of SCDIs in its debt stock, then the automatic relief triggers inbuilt in such instruments can avoid the need to agree forbearance and waivers from a potentially large number of bondholders or lenders. This bypasses the time that would otherwise be spent corralling support for debt forbearance or rescheduling amongst creditor groups and avoids the need for consent fees and other sweeteners to be provided to creditors in exchange for such consent. Of course, not every restructuring would benefit from introducing SCDIs as part of a restructuring package. Where a reprofiling or payment suspension of, for example, a single instrument or series of bonds may be the most straightforward path forward for the issuer's recovery, introducing an SCDI may complicate discussions or commit an issuer to potential future payouts unnecessarily. This could have the effect of lengthening the course of negotiations and having an overall negative impact on the restructuring. Whether to consider an SCDI issuance as part of a restructuring should be determined on a case-by-case basis by an issuer in consultation with its financial and legal restructuring advisors.

Related to the above, the automatic payment standstills that can be provided by SCDIs also help to facilitate private sector participation in the debt restructuring process and can help to ensure more equitable burden sharing amongst private and official sector creditors, especially when combined with official sector standstills. Given that the creditor hold-out problem experienced in a number of sovereign restructurings is historically largely driven by private sector creditors, it can help to mitigate the risk of such a problem materialising and complicating the restructuring process.

SCDIs can also serve as a potential carrot or sweetener to be provided to creditors to obtain their support in the restructuring process. GDP-linked warrants have been utilised in a number of recent sovereign restructurings, including in Argentina, Greece and Ukraine. Although the ultimate benefits of such GDP-linked warrants have been disputed in the foregoing cases (which, for example, required Argentina to make payouts beyond what it had anticipated as the country experienced high growth rates in the early 2010s), they still serve as a potentially useful sweetener to facilitate investor cooperation. Importantly, they also link the fortunes of investors to the long-term recovery and growth of the issuing country. The value of such instruments to investors will be at their highest when GDP growth in the country is at its most rapid, thus providing long-term incentives for investors in seeing the country recover and experience

sustained growth in the years post-restructuring.

As the prior discussion in this handbook on NDCs and pandemic clauses has outlined, the use of instruments containing such provisions can help stave off a more costly restructuring and provide cash relief in times when resources would be better diverted elsewhere by the sovereign state. By relying on automatic independent triggers, NDCs can help to free up resources quickly to be mobilized for mitigation and recovery measures. This may help to reduce the severity and duration of the devastation caused by the natural disaster, facilitating a quicker return to growth. Although, as the challenges experienced in the World Bank pandemic bonds have shown, robust and efficient contract design is important in ensuring that deferrals can be unlocked in a timely manner and resources mobilised quickly in response to the natural disasters in question.

Enhancing sustainability outcomes for the economy

SCDIs can be powerful tools for furthering a country's environmental and sustainability agenda. By offering a reduction in coupon and potential for principal adjustment on delivery of targeted nature and climate outcomes, such instruments can incentivise nature performance and the achievement of those KPIs. Moreover, by requiring frequent monitoring and measurement of progress towards sustainability KPIs, the use of such SCDIs enables greater climate transparency and tracking of key indicators in the sovereign in question. The use of independent third-party verifiers can further enhance accountability and measurement towards achieving climate goals.

Empirical evidence has shown that accelerating global climate change and environmental degradation are associated with increased macrofinancial risks. Research indicates that climate vulnerability is already increasing the costs of sovereign borrowing and further impacts of climate change could lead to sovereign credit downgrades by credit rating agencies. Sustainability-linked SCDIs can therefore have the triple effect of furthering environmental objectives, signalling to the market that the sovereign is serious about taking control over its climate risk and therefore hopefully driving down or maintaining borrowing costs at a sustainable level.

Sovereign Sustainability-Linked Bonds (Addleshaw Goddard 2022)

Issuer	Base coupon level	KPIs	Consequences of not meeting KPIs
Chile US$2bn sustainability-linked bond (2022)	4.346%	Achieve absolute Greenhouse Gas (GHG) emissions of 95 metric tons of CO_2 or less by December 2030	If the KPIs are not achieved by the dates set, interest will ratchet up from and including 7 March 2034 until maturity in 2042. The rate will increase by 12.5 basis points (bps) if the GHG or electricity generation KPIs are not met, or 25 bps if both GHG and electricity generation KPIs are not met.
		Achieve a maximum absolute GHG emission of 1,100 metric tons over the decade from 2020 – 2030	
		Generate 60% of total electricity in Chile from renewables in the year ending 31 December 2032	
Uruguay US$1.5bn sustainability-linked bond (2022)	5.75%	Achieve at least 50% reduction in GHG emissions by 2025 from 1990 baseline	If KPIs are not achieved, then the interest ratchets up by 15 bps per missed KPI. If Uruguay overperforms on its KPIs (greater than 52% reduction in GHG and more than 103% of native forest area) the interest rate falls by 15 bps for each KPI it overperforms on.
		Maintain at least 100% of the native forest area by 2025 compared to 2012 level	

Overall, given the demonstrated linkages between climate change, depletion of natural capital and debt sustainability, climate and sustainability focused SCDIs can help to focus and further the sovereign's climate and sustainability agenda. By helping to preserve and protect a country's natural resources, this may help to enhance the country's credit and debt sustainability in the long-term.
Sustainable financing and sustainability-linked instruments are covered in further detail in the ALSF Debt Guide on Sustainability Financing.

VI. CHALLENGES LINKED TO SCDIS FOR AFRICAN ISSUERS

Having discussed the potential benefits of SCDIs for African issuers, it is worth considering some of the challenges that may be linked to SCDIs for African issuers. Although most of these challenges can be mitigated in some manner, decisionmakers should consider these challenges as a whole (including their combined effect) and whether the particular sovereign has the systems and capabilities to adequately address these challenges.

The challenges can be split between three broad headings, namely *structural and market challenges, management challenges* and *measurement challenges*.

Structural and market challenges

Many of the challenges grouped under this heading are applicable to SCDIs as a debt class as a whole rather than being unique to a particular issuer. Arguably the greatest challenge to the increased uptake of SCDIs is the novelty and liquidity premia that investors may demand in return for investing in these instruments.

Novelty and liquidity premia

As we have previously described in this handbook, SCDIs are comparatively uncommon versus more traditional sources of debt (whether plain vanilla government bonds or sovereign loans). In particular in Africa, to date SCDIs are fairly rare. Therefore, investors simply do not have the familiarity with these instruments that they have with typical fixed or floating rate debt instruments and require a higher rate of return to set up the necessary operational arrangements and additional research to understand the risk profile of what such instruments entail. Pricing may be a sticking point, as investors may not have ready-made models to price such instruments, particularly looking far into the future when large degrees of uncertainty abound regarding payouts and the net present value of cashflows that are, by design, linked to unknowable or unpredictable events.

The fairly limited pool of SCDIs and their small number relative to benchmark issuances also creates questions and investor concern around the liquidity of such instruments. Outside of "vanilla" SCDIs such as inflation-linked bonds, there is not currently a robust and long-established secondary market for trading SCDIs. Investors will therefore demand higher returns in exchange for the risk that they cannot quickly offload such instruments to ready buyers in the same way as fixed income government bonds. The more complex and bespoke SCDIs are designed, the greater both the novelty and liquidity premia will be - both because of difficulties in modelling and pricing more complicated instruments, as well as decreasing the pool of potential investors that may be willing or have the operational or regulatory capabilities to buy highly bespoke instruments.

An argument is sometimes made that incorporating debt deferral features in an SCDI functions as a form of temporal subordination for investors in such instruments, and that this will be reflected in the coupon that investors demand for taking on the risk of such subordination being triggered. However, in a distressed or default scenario SCDIs usually can be accelerated to be due and payable on demand as with regular debt instruments, notwithstanding that a debt deferral may have been triggered. As such, concerns over temporal subordination may be overblown and inapplicable in a situation where an issuer fails to remain current on payments including on non-deferred debt (due to the incorporation of cross-default or cross-acceleration clauses in SCDIs).

It is hoped that as SCDIs become more commonplace globally and in Africa, the novelty premia will fall. Investors will become more familiar with the instrument as an asset class and will refine their models to take into account the greater data that is generated as to how these instruments perform over time. For repeat issuers, investors can benchmark against prior issuances of the same instrument and as against other SCDI issuers in the same region or globally. As the adoption of these instruments spreads, it is also anticipated that more active trading markets will develop. This should translate to increased liquidity as there is a build-up of supply and therefore lead to a decrease in the liquidity premia.

Crucial to the more widespread adoption of these instruments and the lowering of associated premia is the standardisation of key terms and features. If investors can come to expect fairly standardised provisions and mechanics from one issuance to the next, this will substantially lower the novelty premia associated with each individual transaction. It should also lower general transaction costs and streamline the issuance process which may create a positive feedback loop of greater issuances and therefore higher volume and proliferation of SCDIs, which in turn then may lead to deeper markets, increased liquidity and investor familiarity.

It is the aim of their developers that the publication of model term sheets and clauses (for example the London Term Sheet with respect to GDP-linked instruments that was discussed in *Section 5 – Case Studies and Examples*

- *Continuous adjustment instrument - GDP-linked bonds – London Term Sheet* of this handbook, or the ICMA model climate resilient debt clauses and pandemic clause that was detailed in *Section 5 – Case Studies and Examples - Discrete adjustment instrument - Natural disaster clause – Grenada vs Barbados vs ICMA*) will assist in the development of market and contract standardisation across the relevant SCDIs. Even if issuers do not incorporate such model features verbatim, they are designed to distil common features and prompt discussion of the types of provisions that may be standardised across SCDIs.

Closely linked to standardisation is robust and deliberate contract design for SCDIs. Although we anticipate there will always be scope for bespoke tailoring of SCDIs, particularly as key risks/exposures will vary from issuer to issuer, certain elements should benefit from tried and tested approaches. Formulas for calculating GDP-linked payouts may be an example.

Further standardisation and normalisation of SCDIs in the market will rely on coordinated efforts between issuers and international institutions and organisations. International institutions were pivotal to the widespread adoption of collective action clauses (CACs) by sovereign issuers over the past two decades. There is certainly a role for organisations like ICMA, the Loan Market Association[9], the IFC, the AFD and other official sector and development bank lenders and regional parametric insurance providers to play in actively encouraging and promoting SCDIs as well as assisting first time or less frequent sovereign issuers in tapping into and utilising the potential for SCDIs. Regional African banks such as the African Development Bank (AfDB) and Afreximbank, as well as local lenders, can play an important part in underwriting or participating in SCDI financings by leveraging existing local relationships and regional market know-how with African sovereign issuers. It is hoped that organisations such as the African Legal Support Facility can utilise existing local knowledge to promote capacity building projects on SCDIs for African sovereigns, raising awareness and building technical know-how for interested issuers.

Adverse selection and investor perception

It is sometimes proposed that investors will perceive that countries issuing SCDIs are those most in need of debt relief or most exposed to exogenous shocks and therefore in need of effective hedging instruments. Consequently, investors may demand a higher premium from such issuers than from issuers who are not issuing SCDIs and therefore perceived as potentially less exposed or more resilient to fluctuations in state variables. In counter to this line of reasoning, no data has been produced as of yet to indicate that such perceptions are actually influencing investor risk assessments of SCDIs or influencing pricing. Although just one example, as previously noted there is evidence of little spread between Barbados debt instruments that do not include pandemic clauses and those that do (PSWG 2022). This is despite the fact that Barbados is known to be potentially more vulnerable to natural disasters by virtue of its geographical location and as an island nation.

Indeed, it may be precisely because Barbados is known to be potentially exposed to natural disasters that the spread is immaterial since this risk is potentially already priced in. Transparency as to vulnerabilities and general fiscal and macroeconomic data should lower the spread between the sovereign's benchmark debt instruments and its SCDIs, as the risk and potential impact of a natural disaster or a dependence on certain exports for state revenue are already known and priced into regular debt instruments. Potentially, SCDIs decrease the risk of a restructuring and are less likely to be restructured, reducing the likelihood of haircuts or other losses in value that investors may otherwise have no choice but to accept if the sovereign finds itself no longer able to pay its debts as they fall due. This can help to counter any negative pricing impacts of perceived adverse selection. Moreover, climate-vulnerable countries could use natural disaster clauses as part of a larger risk layering approach (that includes other solutions) to signal its commitment to building its fiscal resilience. Creating a credible narrative of fiscal resilience may help to offset the impact disaster risks have on a country's borrowing costs.

The benefits of fiscal transparency and good governance generally are discussed further in the ALSF Debt Guide on Governance and Transparency.

Adverse effects on conventional debt markets

There is some concern that if too many SCDIs are issued, they could "squeeze out" the sovereign issuer's conventional debt issuances. They may reduce investor demand for or the liquidity of conventional debt instruments, as investors may chase higher returns on SCDIs or perceived seniority if SCDIs contain provisions for restructuring or amendments separate from the rest of the sovereign's debt stock. This could increase the premium on conventional debt. Key to managing this risk on the part of the sovereign issuer is to ensure that SCDIs remain a conservative portion of the issuer's overall debt stock (and this ties into the need for talented debt managers who are capable of independently assessing the right balance of SCDIs as part of the sovereign's overall debt portfolio – see *Management challenges* below). It is not the aim that SCDIs should replace conventional fixed rate debt instruments as the linchpin of the sovereign issuer's debt issuance stock. Moreover, effective contract design can ensure that SCDIs are not given a senior status over conventional debt instruments if that is not the intention of the issuer.

Management challenges

SCDIs, like any form of sovereign debt instrument, require continual management by responsible debt managers during the lifetime of the instruments. However, in contrast to conventional debt instruments, the additional and unique features of SCDIs may require more active management by debt managers and potentially other government agencies, whether to achieve sustainability and environmental KPIs, or to find the right balance of such instruments as part of the sovereign's overall debt stock. Moreover, the benefits of many SCDIs only manifest themselves over a longer-term time horizon or in response to potentially unlikely scenarios (such as a natural disaster severe enough to trigger debt

9 • The Loan Market Association is a market-led body whose stated objective is to act as the voice of the syndicated loan market in Europe and Africa.

deferrals under the NDC). Therefore, decisionmakers must forego shorter time calculus (with conventional debt that may be priced cheaper than the SCDI alternative or be easier to market to potential investors) for consideration of the longer term strategic rationale for issuing SCDIs. It is hoped that the appointment of independent debt managers with clear and separate mandates to elected officials (i.e., career civil servants or finance professionals who are not aligned to any particular political party) can help to ameliorate this challenge. Such managers can take a longer-sighted view of the sovereign's debt management strategy beyond the next election cycle and without the pressure of campaign promises although, it is important to acknowledge that in reality, these civil servants will still likely operate within a political context and may therefore be subject to pressures from politicians. Equally, it will be critical for public debt managers to work and coordinate with international organisations, such that they can build on the political momentum developing behind SCDIs as embodied in initiatives like the Accra-Marrakech agenda.

The moral hazard argument is also sometimes used in connection with SCDIs. Critics argue that if an issuer knows that it will receive automatic debt relief in bad times, it is less incentivised to keep bad times at bay. There are several counters to this argument. Firstly, SCDIs are unlikely to become a substantial portion of a country's debt stock in the foreseeable future. Therefore, they will not have the benefit of automatic relief for the majority of their debt instruments and are unlikely to have their behaviour influenced by the existence of the SCDIs. Secondly, there are numerous other political and policy incentives and pressures to avoid the circumstances in which automatic debt relief would apply. The argument seems stretched that decisionmakers would knowingly allow for a lack of policy discipline and a slowing down of GDP growth simply because they have the assurance that debt payment on the SCDIs in their debt stock will decrease. Moreover, this is less applicable to SCDIs that are linked to independent variables such as commodity prices, natural disasters or sustainability objectives. Contract design can also ameliorate negative incentives and investor scepticism, with the imposition of certain floors giving investors comfort that they will still obtain some form of payment even if conditions more within the sovereign issuer's control deteriorate.

Measurement challenges

Due to the measured variable forming a critical component in the SCDI, the data integrity and reliability is a hugely important factor in investor confidence in SCDIs and the general utility of such instruments in serving their intended effect of being a countercyclical stabilising tool in the sovereign's debt management toolbox. The concern for investors is that if the sovereign issuer is able to manipulate the measurement in their favour, they can avoid potentially costly payouts that would otherwise be due under the terms of the relevant contracts.

Robust contract design can help to ensure there is no ambiguity as to the source of measurement and variable calculation. For example, Bulgaria issued GDP-linked instruments in the 1990s, but the documentation did not specify the exact GDP index to be used, which allowed Bulgaria to choose a local currency constant price GDP to calculate payouts. Had the GDP measure been defined in current-value U.S. dollar or Bulgarian leva terms, payments would have been triggered. Instead, the use of constant-value local currency units meant the GDP-linked payments never triggered (Miyajima 2006). The source and methodology for variable measurement will need to be agreed by the parties at the outset to avoid any potential for conflict or ambiguity further down the line. Historical examples such as the Bulgaria GDP-linked instruments already serve as a valuable tool for considering what measures may be preferable for investors. It is hoped that as SCDIs become more widespread, a stronger consensus will build amongst the investor-issuer community as to what source of GDP measurement best allocates risk fairly amongst the issuer and investors in the instruments, as well as best captures the economic reality that the SCDIs are intended to ameliorate against.

Relatedly, the push towards standardisation of contract design and features may help to increase investor confidence in the reliability of the methodologies and measurements used for calculating GDP growth. As discussed above in *Section 5 – Case Studies and Examples - Continuous adjustment instrument - GDP-linked bonds_– London Term Sheet*, the London Term Sheet employs a number of fallbacks for GDP measurement (e.g., to the most recently published IMF World Economic Outlook) and other rights for investors (e.g., put options for investors if the issuer fails to meet a number of statistics-related obligations)/penalties to the issuer (e.g., penalty early redemption amounts) for failing to publish timely GDP statistics. It is hoped that such features will help to keep the sovereign issuer accountable for well-disciplined GDP reporting, as well as ensure investors still have access to alternative sources of information (e.g., the IMF Article IV reports) to double check against and verify issuer-published statistics. Various other information undertakings on the issuer can also help to ensure continuous information flow to investors that will aid in transparency.

Commodity price-linked instruments may be less prone to data manipulation or reliability concerns, if the price source used is an independent and widely-trusted market index or metric for tracking commodity prices (e.g., ICE Brent Crude Oil prices for oil prices or any other indices that are agreed between the parties).

For sustainability-linked SCDIs and discrete adjustment SCDIs, measurement challenges can be mitigated by utilising independent sources of data, monitoring, reporting and verification. For example, many sustainability-linked SCDIs entrust such functions to independent third-party organisations that specialise in the monitoring and reporting on compliance with climate and nature metrics. Although a point of negotiation between the sovereign issuer and the KPI monitoring agency, it may be agreed to allow the monitoring agency a certain number of site visits and other fact finding/verification missions per year. By removing a large element of self-verification, the ability for any manipulation of KPI targets is reduced. Similarly, with NDCs, linking any deferrals or other relief under the SCDI to objectively verifiable triggers such as pay-outs under parametric risk pooling insurance policies or the declaration of a specified event (e.g., a pandemic) by a third-party organisation, may increase investor confidence that the sovereign issuer has less ability to manipulate the triggers for its own gain.

One difficulty that can arise relates to the time it may take to collect the necessary economic data that forms the basis of the variable being measured. Indexation lags can mitigate against the intended countercyclical properties of the SCDIs if it leads to high payouts in years when the issuer's economy may actually be in recession. This occurred in relation to Argentina's GDP warrants, when the lag time in indexing GDP growth meant that there were some high payments due on the warrants in years which were later shown (as measurements for those years became available) to have experienced negative growth. Despite being contrary to the intended effect of SCDIs, this outcome also proved politically unpopular which may disincentivise future decisionmakers from utilising such instruments. As with many of the measurement challenges highlighted above, key to ameliorating concerns associated with indexation lags is to agree the source of GDP measurement at the outset, which will hopefully develop towards a market consensus for the standard measure for GDP-linked instruments. This may be politically easier to justify than bespoke GDP measurement sources that ultimately lead to an unfavourable outcome for the issuer.

Another potential difficulty with parametric or so-called "hard triggers" is an element of negative basis risk, where the clause itself is not triggered, but the events it seeks to protect against have taken place. For example, if a natural disaster has occurred but the technical parameters of the relevant event fell below pre-defined thresholds in the Cat Bonds. Although the standardisation and verifiability of parametric triggers offer investors reassurance that the issuer will not manipulate the instrument to their advantage, these triggers could be imperfect given the inherent difficulty with assessing events such as natural disasters, and setting and calibrating inflexible parameters for something as fundamentally uncertain as a natural disaster and its attendant consequences.

A potential solution to this predicament is to allow for the greater use of so-called "soft triggers", which provide the issuer with more discretion as to when trigger events take place. An example of this is the World Bank's Catastrophe Deferred Drawdown Option, a contingent financing line with a drawdown tigger linked to a sovereign's declaration of a national state of emergency.

The danger of this type of moral hazard is easy to overstate, however, given that sovereign issuers will be keen to preserve good standing in the markets and with rating agencies by not being seen to exploit these "soft triggers". The risk can also be limited by including mechanisms such as creditor blocking rights or limiting the number of triggering events (Mustapha, 2023). Moreover, it is possible that a combination of hard and soft triggers could be used, with hard triggers set at a lower threshold than might otherwise be the case if only hard triggers were used, but still providing a degree of objectivity that may be absent where only a soft trigger has been incorporated.

VII. INFORMATION FOR AFRICAN GOVERNMENTS CONSIDERING SCDIS

For decisionmakers considering whether an SCDI is right for their country, the benefits and challenges of such instruments as set out in *Section 6 - The potential benefits of SCDIs for African sovereign issuers* and *Section 7 - Challenges Linked to SCDIs for African Issuers* of this Guide should be carefully considered. In particular, an assessment of the country's particular debt situation and long-term debt management strategy should be carefully considered to determine whether an SCDI may further such objectives. For example, if a country is currently undergoing a debt restructuring or exchange, it may be a particularly opportune moment to embed certain SCDI features in the debt exchange instruments in order to climate- or pandemic-proof future debt stocks. The use of a GDP-linked feature may provide an additional incentive to investors to support the restructuring and the long-term economic recovery of the country.

For countries considering whether to incorporate an NDC into their new debt issuances or as part of a restructuring of existing debt, particular attention should be paid to the climate and weather risks the country may be exposed to. Thought should also be given as to the availability of parametric insurance risk pooling schemes (such as ARC) that may serve as a suitable "hard trigger" for embedding in NDCs.

One important consideration for a country contemplating whether to utilise an SCDI is to undertake a review, possibly in conjunction with external legal counsel, of the sovereign's existing debt contracts. This is particularly acute where a payment deferral under an NDC could unintentionally trigger cross-default clauses or other moratoria or debt pause events of default in other debt instruments. In order to ensure requesting a deferral would not lead to an unintended default under other instruments, a review prior to utilising such an instrument can provide information on the level of this risk.

African governments considering the use of SCDIs are strongly encouraged to reach out to trusted international financial and legal advisors to consult with them on the practicability and potential benefits of utilising an SCDI. Such advisors may be working on or have experience working on other SCDIs and can advise generally on the market appetite for such instruments and offer insight as to how the use of such instruments may further the sovereign's short to medium and long-term debt management objectives. They can also provide further clarity on the issuance timeline, whether it resembles the indicative timeline set out in *Section 4 - Comparison of SCDIs to standard bond structures – key steps and documentation for an indicative issuance* of this Guide, or is more bespoke in terms of timing, key steps and documentation.

For governments that are not regular capital market issuers, SCDIs may be integrated into borrowings in other ways. For example, Barbados has incorporated NDCs including pandemic clauses in their private borrowing with commercial lenders. As NDCs become more normalised, a greater variety of commercial and private lenders may be open to utilising such clauses. Moreover, the Inter-American Development Bank (IADB) has incorporated a variant of the NDC into their debt documentation for countries with an active Contingent Credit Facility for Natural Disaster Emergencies (CCF) with the IADB. It is possible other multilateral development banks could follow the same example and incorporate variants of the NDC into their standard form debt documentation and that the use of such clauses at the IADB may also expand beyond the CCF. As mentioned in *Section 3 - What examples of SCDIs have there been in Africa?*, the AFD has offered through its PTCC facility a form of concessional lending with SCDI features. International advisors can assist in recommending alternative routes for utilising SCDIs where capital market access is not guaranteed or practicable.

Readers of this Guide should also refer to *Appendix A (Indicative Term Sheet – GDP Bonds)* and *Appendix B (Example extracts from an SCDI prospectus)* of this Guide for examples of what certain of the documentation involved in an SCDI issuance may look like. Please note these are indicative examples only, but they can help to highlight several of the key features of SCDIs and how they are embedded in bond documentation.

Decisionmakers are also encouraged to explore the various case studies and historical examples of SCDIs in greater detail in case parallels can be drawn with the sovereign contemplating issuing a similar instrument. Please also see the list of resources in the *Further Reading* section of this Guide from which many of the case studies were drawn and for more information on the SCDIs generally.

VIII.CONCLUSION

This handbook has sought to offer an introduction and guide to the various different types of SCDIs that are found in the market. As was clear from the taxonomy, each SCDI can serve a different purpose depending on an issuer's desired outcomes and unique circumstances.

There is a lot of potential for SCDIs to be used in Africa. Although to date, the adoption by African issuers of SCDIs has been limited, there are a few examples that demonstrate SCDIs can be successfully utilised and accepted by the international and domestic investment community. Certain challenges faced by African sovereigns, whether it is the tightening of liquidity in conventional debt markets in response to global economic urmoil and a worsening economic outlook which may necessitate African countries looking to alternative sources of funding, or the devastating increase in natural disasters in response to rising global temperatures and climate change, means that there may be fertile ground for SCDIs to be tried and tested
as part of the African sovereign's armoury of debt management tools and overall debt stock. There is also growing political demand for these instruments as part of initiatives like the Accra-Marrakech Agenda and the Bridgetown Initiative launched in 2023 and 2022 respectively.

It is hoped that a more widespread adoption of SCDIs in Africa would take place in parallel
to a greater proliferation of SCDIs globally. As SCDIs become more commonplace, many of the challenges of such instruments that we have highlighted in this handbook can be mitigated and managed. Greater standardisation and normalisation of SCDIs can help to boost investor familiarity and confidence in such instruments. This should have a knock-on effect in terms of reducing certain premia that issuers may currently
encounter in attempting to bring an SCDI to market.

Although issuers should remain cognisant of the other challenges identified in this handbook, there is reason to believe that such challenges can also be managed and/or mitigated with prudent fiscal management and necessary safeguards to ensure the independence of the sovereign debt managers and any other institutions involved in monitoring and verifying KPI-linked targets.

We have also sought to give a brief outline of how an SCDI issuance may proceed, in terms of process and key documentation, in order to highlight the similarities with a conventional sovereign bond issuance that decisionmakers may be more familiar with. In any event, the structure and details of any issuance will need to be discussed with advisors knowledgeable
in the area, but an SCDI issuance need not be an overly complex or bespoke transaction.

As was highlighted in the case study on the London Term Sheet, steps are being taken to further normalise and standardise GDP-linked instrument terms. As was shown in the case study on NDCs, industry bodies are working towards producing widely accepted standard language for such provisions based on how these provisions are developing in practice.

Ultimately, for the full potential of SCDIs to be realised, there will be a key role for the international community to play, supported by key financial and development institutions and industry groups. Together, these participants can make a concerted effort to promote the wider adoption of SCDIs to support public debt management, climate and disaster-proof public finances, and to strive towards the achievement of more ambitious sustainability outcomes.

GLOSSARY

Bilateral Swap – a swap between two (sets of) parties, i.e. the debtor and the creditor (or a group of creditors)

Bonds – a tradable financial instrument representing a debt, issued by sovereigns, state-owned enterprises or corporates in the capital markets.

Call Option - an option to buy assets at an agreed price on or before a particular date, which can be included in the terms of a bond.

Carbon Trading - the buying and selling of credits that allow companies or other parties to emit a certain amount of carbon dioxide.

Debt for Education Swap – a project-based swap where the agreed projects / commitments are related to the provision of education or educational infrastructure.

Debt for Health Swap – a project-based swap where the agreed projects / commitments are related to healthcare, vaccines or similar fields.

Debt for Nature Swap – a project-based swap where the agreed projects / commitments are related to conservation or protection of natural or animal life.

DFC – the Development Finance Corporation, a US governmental development finance organisation that has provided support for project-based swaps.
Discounted – debt trading in the secondary market for less than its par value (e.g. 80 cents on the dollar represents a discount of 20 per cent.)

Distressed Debt – the debt of a company or sovereign that may be unable to fulfil its financial obligations.

Intermediary – the "middle" entity in a trilateral swap, a role often performed by an SPV.

Liability Management - a variety of procedures and techniques used by bond issuers for the purposes of buying back, exchanging or altering the terms of bonds

NPV – net present value, meaning the value in the present of a sum of money, in contrast to the future value it will have when it has been invested for a period of time (e.g. if interest rates are 10 per cent., 110 due in 12 months' time has a present value of 100 today).

OFC – Ocean Finance Corporation, a project manager for debt swaps.

Open Market Purchase - the purchase and sale of securities in the open market, as opposed to via tender offer.

Project-Based Swap – a debt swap which includes as a condition for debt relief the performance of specific projects such as sustainability commitments.

Project Manager – entity which arranges and supervises the performance of commitments for project-based swaps.

SPV – special purpose vehicle, meaning a new company incorporated for one specific task in a transaction structure (often used as the intermediary in a trilateral swap)

Sustainability Commitment – the commitments in a debt for nature swap which the debtor agrees to perform in exchange for the debt relief provided.

Tender Offer – a public offer to buy securities (e.g. bonds) from every holder at a certain price at a certain time.

TNC – The Nature Conservancy, a global environmental organisation involved in project managing debt for nature swaps since the 1980s.

Trilateral Swap – a structure of project-based swaps whereby an intermediary buys outstanding debt on a secondary market at discounted rates, funded by an issuance of new guaranteed or insured debt at par value.

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