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SOVEREIGN DEBT MANAGEMENT & CLIMATE CHANGE: THE CASE OF CLIMATE RESILIENCE DEBT CLAUSES.

di Luca MENEGHINI*.

There is substantial momentum around the technicalities underpinning sovereign debt and climate change. The paper sheds more light on the newest innovation in the "green" sovereign debt management toolkit, the so-called climate resilience debt clauses (CRDCs), formally emerged from COP 27. The aim of the present work is to critically discuss, inter alia, their scope of application, triggering mechanisms and pricing implications.

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Abstract

There is substantial momentum around the technicalities underpinning sovereign debt and climate change. The paper sheds more light on the newest innovation in the "green" sovereign debt management toolkit, the so-called climate resilience debt clauses (CRDCs), formally emerged from COP 27. The aim of the present work is to critically discuss, inter alia, their scope of application, triggering mechanisms and pricing implications.

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Recentemente, notevole attenzione viene riservata agli aspetti tecnici alla base dei rapporti tra debito sovrano e cambiamento climatico. Il presente lavoro cerca di approfondire la più recente innovazione tra gli strumenti di gestione "green" del debito sovrano, le cosiddette climate resilience debt clauses (CRDCs), formalmente adottate dalla COP 27. Il presente lavoro analizza da un punto di vista critico, inter alia, il loro ambito di applicazione, i meccanismi di attivazione e gli impatti sul pricing dei titoli.

Sovereign debt management & climate change: the case of climate resilience debt clauses.

1. Introduction.

Climate change-related risks call for massive financing efforts to meet adaptation and mitigation targets. The climate and environmental objectives set forth in the Paris Agreement and in the United Nations Sustainable Development Goals require a projected annual investment turnaround in the range of 2.2% of the world GDP in order to be achieved.[1] According to the latest IPCC report, some 3 billion people populate "highly vulnerable" parts of the planet, prone to experiencing irreversible human displacements, including Africa, Asia and the South Pacific area.[2] Against this backdrop, lower-income countries are particularly exposed to climate shocks and an estimated $800 billion commitment every year would be needed to implement tailored climate adaptation plans.[3]

To this end, the market for green and sustainable bonds - issued to finance environmental projects - has been growing in the past decade.[4] Yet, the role of sustainable finance in addressing the climate breakdown has been so far mostly scrutinized through the lenses of private finance, and lesser attention has been given to the sovereign debt domain, which represents the majority of the $133 trillion global bond market.[5] Soaring debt levels,

[1] See WORLD ECONOMIC FORUM, 5 Ways to Align Debt with Climate and Development Goals, 9 June 2021, https://www.weforum.org/agenda/2021/06/5-ways-align-debt-climate-development-goals/.
[2] See INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, Sixth Assessment Report, 20 March 2023, https://www.ipcc.ch/assessment-report/ar6/.
[3] WORLD ECONOMIC FORUM, 5 Ways to Align Debt with Climate and Development Goals.
[4] See https://www.climatebonds.net/2022/11/green-bond-market-hits-usd2tn-milestone-end-q3-2022.
[5] See https://www.weforum.org/agenda/2023/04/ranked-the-largest-bond-markets-in-the-world/#:~:text=In%202022%2C%20the%20global%20bond,major%20economies%20and%20emerging%20markets..

compounded by geographically-driven exposures of climate-vulnerable countries, requires us to further explore ways to employ sovereign debt issuances to mitigate climate externalities.[6]

In this paper, we seek to shed more light on sovereign climate debt instruments. Specifically, we survey the newest innovation in the sovereign debt management toolkit, the so-called climate resilience debt clauses (CRDCs), formally emerged from the 2022 Sharm el-Sheikh Climate Change Conference (COP 27).[7]

2. Sovereign debt and climate change.

While the paper merely offers a critical assessment of CRDCs, the stage is set by first understanding the links between climate change and its impacts on sovereign debt markets, as well as illustrating a few examples of previously issued sovereign climate debt instruments.

There is new empirical evidence proving that climate-related risks can have direct and indirect impacts on public finances and that climate vulnerability adversely affect sovereign risk.[8] For instance, recent studies show that government bond yields, spreads and sovereign credit ratings are influenced by a country's capability to build climate resilience, and that climate shocks can be correlated to sovereign defaults, especially in developing countries.[9]

For a thing, the cost of sovereign borrowing is particularly higher for those countries that struggle the most to mitigate the consequences of climate change, whereas countries that are financially able to invest in transition planning tend to have lower sovereign bond yields.[10]

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[6] The total global debt in 2021 was over $300 trillion, see https://www.ssdh.net/about.

[7] An agenda and overview of the work conducted at COP 27 can be found at https://unfccc.int/event/cop-27.

[8] See, inter alia, S. CEVIK, J. T. JALLES, Feeling the Heat: Climate Shocks and Credit Ratings, IMF Working Paper No. 2020/286, 18 December 2020, https://www.imf.org/en/Publications/WP/Issues/2020/12/18/Feeling-the-Heat-Climate-Shocks-and-Credit-Ratings-49945; S. A. ZENIOS, The Risks from Climate Change to Sovereign Debt, Climatic Change Vol. 172(30), https://link.springer.com/article/10.1007/s10584-022-03373-4; U. VOLZ, J. BEIRNE, N. AMBROSIO PREUDHOMME, A. FENTON, E. MAZZACURATI, N. RENZHI; J. STAMPE, Climate Change and Sovereign Risk, SOAS University of London, Asian Development Bank Institute, World Wide Fund for Nature Singapore, and Four Twenty Seven, October 2020, https://eprints.soas.ac.uk/33524/.

[9] See S. CEVIK, J. JALLES, This Changes Everything: Climate Shocks and Sovereign Bonds, IMF Working Paper No. 20/79, 5 June 2020, https://www.imf.org/en/Publications/WP/Issues/2020/06/05/This-Changes-Everything-Climate-Shocks-and-Sovereign-Bonds-49476. The paper analyzes the impact of climate change vulnerability on sovereign bond yields and spreads in 98 countries over 22 years. Also see S. CEVIK, J. JALLES, An Apocalypse Foretold: Climate Shocks and Sovereign Defaults, IMF Working Paper No. 20/231, 8 November 2020, https://www.imf.org/en/Publications/WP/Issues/2020/11/08/An-Apocalypse-Foretold-Climate-Shocks-and-Sovereign-Defaults-49784.

[10] IBIDEM.

Similarly, lower-income countries are more likely to experience default events on their sovereign debt exposure.[11] As an example, countries frequently hit by hurricanes generally face worse borrowing conditions, because the financial consequences of extreme natural hazards restrict governments' access to international financial markets and thus their capability to raise debt financing.[12]

In addition, sovereign debt markets are intuitively impacted by the fiscal and macroeconomic performances underpinning a country's economic system. Both these dimensions can be equally shaped by climate shocks. For instance, physical and transition risk drivers - novel risk categories coined to describe climate-related risks such as extreme weather events and the costs from transitioning to a lower-carbon economy - can cause aggregate supply and demand shocks.[13] Harm caused to productive capacity, reduced capital stock, and lower private consumption can further impair economic growth, and thus reflect onto public finances and debt sustainability.[14] Even worse, when climate risks simultaneously materialize in the financial sector, a likely outcome seems to be some form of climate-debt doom loop - echoing the terminology used to described the well-known, vicious sovereign-bank nexus.[15] In fact, the latter appears to be already priced into the risk premia of several sovereign bonds.[16]

The fragile dynamics characterizing the linkages between climate change and sovereign debt have been recently exacerbated by the Covid-19 pandemic. Fiscal deterioration and massive government spending to keep world economies afloat in the past few years, the

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[11] IBIDEM.

[12] E. MALLUCCI, Natural Disasters, Climate Change and Sovereign Risk, International Finance Discussion Papers No. 1291, July 2020, https://www.federalreserve.gov/econres/ifdp/natural-disasters-climate-change-and-sovereign-risk.htm. Examples include countries like Suriname, Ecuador, Grenada, Antigua y Barbuda and other Caribbean countries.

[13] U. VOLZ, J. BEIRNE, N. AMBROSIO PREUDHOMME, A. FENTON, E. MAZZACURATI, N. RENZHI; J. STAMPE, Climate Change and Sovereign Risk, pp. 25 ff. For an overview of physical and transition risks, see Basel Committee on Banking Supervision, Climate-related Risk Drivers and Their Transmission Channels, April 2021, https://www.bis.org/bcbs/publ/d517.pdf.

[14] IBIDEM, p. 27. Sovereign debt is sustainable as long as a country can continue servicing it without unrealistic corrections in its balance of income and expenditures, see M. MEGLIANI, Sovereign Debt. Genesis – Restructuring – Litigation, Springer, 2015.

[15] See S. ZENIOS, Climate Change Risks to Sovereign Debt: How Integrated Assessment Models Inform Our Understanding, VOX EU, 13 July 2022, https://www.preventionweb.net/news/climate-change-risks-sovereign-debt-how-integrated-assessment-models-inform-our-understanding. For an overview of the debate on the banks-sovereigns doom loop, see S. ALOGOSKOUFIS, S. LANGFIELD, Regulating the Doom Loop, European Central Bank Working Paper No. 2313, September 2019, https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2313~1dd5617151.en.pdf.

[16] IBIDEM and S. CEVIK, J. JALLES, This Changes Everything: Climate Shocks and Sovereign Bonds.

persisting inflationary cycle, coupled with increasing natural disasters, catalyzed the perfect storm for a looming climate sovereign debt crisis.[17] The IMF estimates that 30% of developing countries and 60% of lower-income sovereigns will struggle to honor their debts.[18]

In an effort to mitigate the effects of soaring debt distress levels in the world's poorest countries, sovereign debt relief initiatives have been implemented. A notable example is the Debt Service Suspension Initiative (DSSI) - sponsored by the G20, the World Bank and the International Monetary Fund (IMF), and supported by the Paris Club - under which forty-eight eligible countries were granted official bilateral suspension of an estimated $12.9 billion in debt-service payments, from May 2020 to December 2021.[19] When the DSSI ended, the G20 launched a new multilateral platform for forgiving and restructuring sovereign debt, named the Common Framework for Debt Treatment.[20]

In light of the above, the law of sovereign debt has evolved to contractually strike a balance between the need for financial relief of sovereigns experiencing fiscal distress, while preserving the rights and remedies afforded to private creditors. To pre-empt the need or minimize the cost of complex and lengthy debt restructurings, climate-aligned instruments have become a feature of several sovereign debt issuances around the world.

Their legal design varies, and we do not claim to enumerate all of them. One prominent policy option is structuring the bond issuance to mitigate the fiscal risks resulting from extreme weather events. The other legal pathway is embedding debt maturity extension provisions in the bond, through clauses intended to automatically suspend principal and/or

[17] See U. VOLZ, The Pandemic is Only a Prelude to a Looming Climate Crisis, International Monetary Fund, September 2020, https://www.imf.org/en/Publications/fandd/issues/2020/09/investing-in-a-green-recovery-volz. Also see M. AYHAN KOSE, F. OHNSORGE, N. SUGAWARA, Navigating the Debt Legacy of the Pandemic, Brookings, 20 October 2021, https://www.brookings.edu/blog/future-development/2021/10/20/navigating-the-debt-legacy-of-the-pandemic/.

[18] K. GEORGIEVA, Facing a Darkening Economic Outlook: How the G20 Can Respond, IMF Blog, 13 July 2020, https://www.imf.org/en/Blogs/Articles/2022/07/13/blog-how-g20-can-respond.

[19] For an overview of the DSSI and a list of participating countries, see https://www.worldbank.org/en/topic/debt/brief/debt-service-suspension-initiative-qas. The Paris Club is an informal group of creditors representing developed countries aimed at coordinating solutions to help borrower countries experiencing repayment difficulties, see https://clubdeparis.org/en.

[20] See https://www.imf.org/en/Blogs/Articles/2021/12/02/blog120221the-g20-common-framework-for-debt-treatments-must-be-stepped-up.

interest repayments, in the event of a quantifiable economic shock categorized according to pre-determined thresholds.[21]

As for the former category, the debt instruments - referred to as catastrophe bonds or catbonds - are legally structured to minimize counterparty risk and economically designed to insure the issuer against losses arising from catastrophic perils by shifting some risks to the bondholders, who will instead bet on the non-occurrence of such events.[22] A catastrophe bond requires the creation of a special purpose vehicle - mostly for credit rating purposes - that enters into an insurance agreement with the issuer, which will pay premiums and will receive a reimbursement should the catastrophic event occurs.[23] The SPV then issues the bonds to investors in exchange for cash and pays principal and interests as long as non-occurrence of the event persists.[24] Examples of catastrophe bonds issuers include a vast array of sovereigns, such as the US, Mexico and Colombia, but also local and state agencies, such as the California Earthquake Authority.[25]

With regard to the latter legal structure, perhaps the most notable example are natural disaster clauses - also called hurricane clauses. Embedding such clauses into the contractual terms of a sovereign bond allows the sovereign issuer to claim payment deferral for principal and/or interest in the event of a natural catastrophe.[26] These debt relief clauses have been built into the terms of several Caribbean states issuances as a result of the financial damage caused by hurricanes in the region, including Grenada in the context of its 2015 debt restructuring and Barbados in its 2018 and 2019 restructurings of domestic and foreign bonds.[27]

To illustrate the mechanics, let us briefly analyze the ones adopted by Grenada. In restructuring its debt stock, the country embedded the clauses into its US dollar denominated bonds due 2030, which allows the issuer to defer principal and the next semi-annual payment

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[21] S. J. HO, S. FONTANA, Sovereign Debt Evolution: the Natural Disaster Clauses, Emerging Markets Restructuring Journal Vol. 11, Cleary Gottlieb, 2021, p. 4, https://www.clearygottlieb.com/-/media/files/emrj-materials/issue-11-spring-2021/article_natural_disaster_clause_v3-pdf.pdf.

[22] S. ANDO, C. FU, F. ROCH, U. WIRIADINATA, Sovereign Climate Debt Instruments: An Overview of the Green and Catastrophe Bond Markets, IMF Staff Climate Note No. 004/2022, p. 9, https://www.elibrary.imf.org/view/journals/066/2022/004/article-A001-en.xml.

[23] IBIDEM.

[24] IBIDEM.

[25] IBIDEM, p. 11.

[26] S. J. HO, S. FONTANA, Sovereign Debt Evolution: the Natural Disaster Clauses, p. 5.

[27] IBIDEM, p. 6. See R. WIGGLESWORTH, C. SMITH, Hurricane Clause in Bonds Helps Countries Struck by Disaster, Financial Times, 4 June 2019, https://www.ft.com/content/4917e73a-8305-11e9-b592-5fe435b57a3b.

date (i.e. twelve months) if a tropical hurricane would cause damages between $15 million and $30 million, and defer both principal and interests on the next two semi-annual payments if losses would exceed $30 million.[28] To determine whether the natural catastrophe would qualify for debt relief, parametric insurance policies underwritten by the Caribbean Catastrophe Risk Insurance Facility were adopted as externally verifiable benchmarks.[29]

The ones adopted by Barbados are similarly designed, but wider in scope, as they also encompass additional triggering events such as earthquakes and excess rainfalls and provide for lower damages thresholds.[30] In addition, if losses exceed $5 million, Barbados could defer principal and interest payments for two years, but note that they can elect to defer payments only three times, and a majority of bondholders have a right of veto to block the deferral to prevent opportunistic behaviors.[31] The case of Barbados is emblematic as it shows the financial power underpinning natural disaster clauses: should they be triggered, the country would be able to free-up some $700 million (i.e. 15% of its GDP) in cash flow for reparations.[32] However, for reference, it should also be noted that in 2004 Hurricane Ivan inflicted to Grenada an amount of damages equal to 200% of the country's GDP.[33]

Building on these precedents, in 2018 the International Capital Markets Association (ICMA) published standardized "hurricane-linked extendible features" model clauses.[34] Moreover, clauses that grant debt suspensions have been advocated by other international fora, including the United Nations Development Program, the United Nations Economic Commission for Africa and the Bridgetown Initiative.[35]

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[28] IBIDEM, p. 7.
[29] IBIDEM.
[30] IBIDEM, p. 2. Also see M. Jones, Barbados Issues 1st Pandemic-Protected Bond, Which Also Covers Natural Disasters, Reuters, 22 September 2022, https://www.insurancejournal.com/news/international/2022/09/22/686174.htm.
[31] IBIDEM, pp. 8-9.
[32] IBIDEM, p. 9.
[33] See T. ZHANG, Building Resilience to Natural Disasters and Climate Change in Grenada and the Caribbean, IMF Speech, 13 February 2019, https://www.imf.org/en/News/Articles/2019/02/13/sp021319-building-resilience-to-natural-disasters-and-climate-change-in-grenada-and-the-caribbean.
[34] See https://www.icmagroup.org/assets/documents/Resources/Indicative-Heads-of-Terms-for-Hurricane-Bonds---Bullet-271118.pdf,
[35] For details on the United Nations Development Program, see https://www.undp.org. For the United Nations Economic Commission for Africa see https://www.google.com/search?client=safari&rls=en&q=United+Nations+Economic+Commission+for+Africa&ie=UTF-8&oe=UTF-8. The Bridgetown Initiative is a proposal to reform development and sovereign finance set out by Barbados, see https://www.foreign.gov.bb/the-2022-barbados-agenda/ and https://www.weforum.org/agenda/2023/01/barbados-bridgetown-initiative-climate-change/.

3. Climate resilience debt clauses.

The CRDCs assessed in this paper were first proposed in the context of the 27th session of the Conference of the Parties of the United Nations Framework Convention on Climate Change (UNFCCC) - known as COP 27 - held in November 2022 in Sharm El-Sheikh, Egypt. They are a product of the UK-convened Private Sector Working Group (PSWG), established in 2021 and chaired by HM Treasury and comprising the IMF, the World Bank, G7 and borrowing countries, academics, private investors and financial institutions on both sides of the Atlantic that are active in the sovereign debt market.[36] An overview of the clauses' structure and a standardized term sheet were published by ICMA.[37] The documents acknowledged that "in a world where there are increasingly frequent and severe climate shocks alongside high and growing debt levels, there is a growing case for CRDCs to be included in debt instruments by the most vulnerable countries".[38]

Sovereign bonds that include CRDCs in their terms belong to the broader category of state-contingent debt instruments.[39] These kind of bonds are intended to promote debt sustainability and long-term resilience by linking debt service obligations to a pre-defined state variable - e.g. GDP, commodity prices, natural disasters - and by ensuring a favorable monetary treatment of creditors in good times, while providing debt relief to the issuer in bad ones.[40] Intuitively, SCDIs can play a pivotal role in ensuring rapid and orderly debt restructuring procedures and avert holdouts, because they mitigate certain disputes between the sovereign borrower and its creditors in the case of a negative shock.[41]

Specifically, CRDCs are legally designed to embed a liquidity relief mechanism into a sovereign bond, when private credit is being borrowed by a sovereign issuer, and in the event

[36] M. JONES, Natural Disaster-hit Countries Get Automatic Debt Freeze Option, Reuters, 9 November 2022, https://www.reuters.com/business/cop/natural-disaster-hit-countries-get-automatic-debt-freeze-option-2022-11-09/.

[37] See https://www.icmagroup.org/News/news-in-brief/icma-publishes-new-climate-resilient-debt-clauses-to-facilitate-sovereign-debt-relief-and-financial-stability/.

[38] https://www.icmagroup.org/assets/Chairs-Summary-UK-Chaired-Private-Sector-Working-Group-Sub-Group-on-CRDCs.pdf.

[39] See C. COHEN, S. ALI ABBAS, M. ANTHONY, T. BEST, P. BREUER, H. MIAO, A. MYRVODA, E. TOGO, The Role of State-Contingent Debt Instruments in Sovereign Debt Restructurings, IMF Staff Discussion Note 20/06, November 2020, https://www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2020/11/13/The-Role-of-State-Contingent-Debt-Instruments-in-Sovereign-Debt-Restructurings-49732.

[40] IBIDEM, p. 6.

[41] IBIDEM, p. 7.

of a pre-defined, qualifying exogenous natural shock that causes severe financial losses.[42] In essence, CRDCs function effectively as disaster insurance contracts, granting automatic debt suspension for a pre-agreed period of time should an exceptional force majeure make the sovereign issuer unable to perform its obligations.[43]

Under CRDCs, both capital and interest repayments are deferred.[44] The rationale is freeing up cash flow that shall be redirected to disaster relief expenses. This means that CRDCs-bonds are not meant to raise new funds, but rather ensure that existing resources are employed towards the emergency. During the life of the debt instrument, a sovereign choosing to adopt CRDCs would be able to claim up to three deferrals, provided that creditors agree and taking into consideration other circumstances, such as the original maturity of the bond.[45]

The appropriate length of the deferral has been debated, but eventually the preferred design choice provides for a standard one-year deferral, and a two-years maximum deferral in certain special circumstances, as CRDCs are intended to provide short-term liquidity relief, rather than longer-term financial support.[46] In any case, they are not meant to mitigate any underpinning solvency issues, therefore if a country's debt ratio is already too high it is unlikely that any partial debt deferral would make a tangible difference.[47] Nor they are meant to raise funds to be invested to prevent the climate shock from happening in the first place.

For reference, CRDCs are arguably similar to the abovementioned hurricane clauses – and one could rightfully encompass hurricane clauses in the realm of CRDCs. But as we will see, the ones envisaged by the PSWG are wider in scope and enjoy a novel framework that deserves particular attention. In the next sections, we will endeavor to break down every key element of these clauses.

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[42] See C. LANDERS, R. ABONEAAJ, Should MDBs Be Leading the Adoption of Debt Pause Clauses?, Center for Global Development, 13 April 2023, https://www.cgdev.org/blog/should-mdbs-be-leading-adoption-debt-pause-clauses.

[43] See M. BUTLER, I. CLARK, O. FEDOSOVA, S. MATTY, D. BABYAK, Climate Resilience as a Proposed New Feature of Sovereign Debt Instruments, White & Case, 9 February 2023, https://www.whitecase.com/insight-alert/climate-resilience-proposed-new-feature-sovereign-debt-instruments.

[44] ICMA, Private Sector Working Group – Climate Resilience Debt Clauses (CRDCs) Chair's Summary, 9 November 2022, p. 4, https://www.icmagroup.org/News/news-in-brief/icma-publishes-new-climate-resilient-debt-clauses-to-facilitate-sovereign-debt-relief-and-financial-stability/.

[45] IBIDEM.

[46] IBIDEM.

[47] See C. LANDERS, R. ABONEAAJ, Should MDBs Be Leading the Adoption of Debt Pause Clauses?.

3.1. Scope of application.

Existing natural disaster clauses have been traditionally limited in scope to a subset of geographical applications - namely, climate-vulnerable Caribbean countries and small islands developing states. On the contrary, CRDCs are drafted for the benefit of a larger plethora of lower-income sovereign issuers in Africa, the Pacific region, Central and South America and all across Asia, and generally by all those developing countries particularly exposed to climate shocks and extreme natural disasters, and who discount weaker financial power to respond.[48]

However, extending CRDCs to all countries eligible for debt relief under the G20 Common Framework raises the question of whether sovereign debt investors would in fact accept to include the clauses into bond terms of countries that are not generally perceived to be vulnerable to climate shocks or are regarded as more financially resilient.[49] After all, CRDCs are mostly beneficial to countries with significant levels of debt, whereas climate-vulnerable sovereigns with lower levels of indebtedness will either issue more bonds to raise liquidity or will simply manage the aftermath of a natural disaster employing their own resources.[50]

Besides, one could even question whether widespread adoption of CRDCs is feasible in the first place. In fact, it has been already noted that state-contingent debt instruments that embed value recovery tools such as CRDCs might be constrained by implementation challenges related to investor preferences.[51] This is because a number of sovereign creditors

[48] ICMA, Private Sector Working Group – Climate Resilience Debt Clauses (CRDCs) Chair's Summary, p. 3. An indicative list of countries is included in "Annex B – In Scope Countries": Afghanistan, Angola, Antigua & Barbuda, Bahamas, Bahrain, Bangladesh, Barbados, Belize, Benin, Bhutan, Burkina Faso, Burundi, Cabo Verde, Cambodia, Cameroon, Central African Republic, Chad, Chile, Comoros, Democratic Republic of the Congo, Republic of the Congo, Costa Rica, Côte d'Ivoire, Cuba, Djibouti, Dominica, Dominican Republic, El Salvador, Ethiopia, Fiji, Gambia, Ghana, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Indonesia, Jamaica, Kenya, Kosovo, Kyrgyz Republic, Lao PDR, Lebanon, Lesotho, Liberia, Madagascar, Malawi, Maldives, Mali, Marshall Islands, Mauritania, Mauritius, Micronesia, Moldova, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Nauru, Nepal, Nicaragua, Niger, Nigeria, Pakistan, Palau, Palestine, Papua New Guinea, Philippines, Rwanda, Samoa, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Singapore, Solomon Islands, Somalia, South Sudan, Sri Lanka, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Swaziland, Tajikistan, Tanzania, Timor-Leste, Togo, Tonga, Trinidad and Tobago, Tunisia, Tuvalu, Uganda, Uzbekistan, Vanuatu, Vietnam, Yemen, Zambia.

[49] M. BUTLER, I. CLARK, O. FEDOSOVA, S. MATTY, D. BABYAK, Climate Resilience as a Proposed New Feature of Sovereign Debt Instruments.

[50] C. LANDERS, R. ABONEAAJ, Should MDBs Be Leading the Adoption of Debt Pause Clauses?. To this end, also see the analysis conducted by the IMF after consultation with The Bahamas, https://www.imf.org/en/Publications/CR/Issues/2022/05/06/The-Bahamas-2022-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-517631.

[51] C. COHEN, S. ALI ABBAS, M. ANTHONY, T. BEST, P. BREUER, H. MIAO, A. MYRVODA, E. TOGO, The Role of State-Contingent Debt Instruments in Sovereign Debt Restructurings, p. 9..

who invest in sovereign bonds to safeguard their portfolios - like institutional investors, pension funds and fixed-income mutual funds - tend to prefer plain vanilla issuances with standard contract terms, liquid and easier to price, rather than exotic instruments with limited marketability.[52] And at this time, CRDCs-bonds would likely fit into the latter category. In turn, bonds with CRDCs terms might rather attract macro hedge funds investors, causing potential downward pricing pressure.[53]

CRDCs are also wider in scope compared to hurricane clauses in that they potentially encompass all sorts of climate disasters, provided that they are exogenous in nature and fall outside government control.[54] For instance - besides tropical cyclones and hurricanes - the type of events covered include tsunamis, drought, earthquakes, floods and excess rainfalls.[55] But framing up a list of specific events can be challenging in this space. Climate change risks do not evolve according to the standard risk distribution patterns and their occurrence and magnitude evolves asymmetrically over time.[56] Therefore it is very much possible that CRDCs simply cannot be drafted to cover all foreseeable climate shocks.

At the time of writing, human-induced disasters (e.g. wars) are not included, but the policy rationale underpinning the clauses could be extended to such factors.[57] Several countries cited by ICMA do in fact face risks arising from military conflicts. However, existing war risk insurance mostly apply to specific sectors, such as shipping or aviation, whereas war exclusion clauses that limit damages payouts arising from warlike events are quite common.[58] One could then wonder if realistically war clauses will end up being included in sovereign bonds if their use in the insurance industry itself is sporadic. Interestingly, epidemics and pandemics could also be encompassed in the terms of CRDCs-bonds to assist countries in their financial response to health crises. While there are examples of pandemic bonds that afford fresh funding - the most notable being the World Bank's Pandemic Emergency Financing bonds used for the 2014 Ebola outbreak and during the Covid-19

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[52] IBIDEM.
[53] IBIDEM.
[54] ICMA, Private Sector Working Group – Climate Resilience Debt Clauses (CRDCs) Chair's Summary, 9 November 2022, p. 3,
[55] IBIDEM.
[56] See NGFS, The Macroeconomic and Financial Stability Impacts of Climate Change, June 2020, https://www.ngfs.net/sites/default/files/medias/documents/ngfs_research_priorities_final.pdf.
[57] See M. BUTLER, I. CLARK, O. FEDOSOVA, S. MATTY, D. BABYAK, Climate Resilience as a Proposed New Feature of Sovereign Debt Instruments.
[58] See for instance https://axaxl.com/insurance/products/political-violence-insurance and https://www.policygenius.com/homeowners-insurance/news/war-risk-insurance/

pandemic - pandemic clauses that trigger an automatic deferral of payments do not yet exist.[59] What makes pandemic-related CRDCs difficult to design is probably defining appropriate triggers to activate the debt suspension, in light of the challenges in assessing when a health event is actually turning into a pandemic and quantitatively determine the country-specific impacts.

In addition, while CRDCs are intended for sovereign issuers and their private creditors, they could theoretically be included in a vast array of financing contracts with both official and multilateral creditors, as well as in loans granted by private investors.[60] For instance, the UK Export Finance recently became the first export credit agency in the world to introduce CRDCs into its loan agreements, as well as in previously restructured sovereign transactions with eligible counterparties.[61] In addition, the Inter-American Development Bank is currently the only multilateral development bank to offer a principal payment option for eligible loans that allows for a deferral of principal repayment for two years in the aftermath of a natural disaster, subject to certain conditions.[62]

3.2. Triggering mechanisms.

A legally sound CRDC requires a robust and independently verifiable trigger mechanism to assess whether the magnitude of the climate-related event is sufficient to grant debt relief.[63] Arguably, deciding what the trigger for the clause should be is likely the most important choice a sovereign can make, because it will effectively determine to which risks is the country mostly exposed, and a too narrow or too broad condition can render the CRDC useless. According to the ICMA notice summary, triggers should be designed to be timely and reliable, with little need for post-event calculations, and independently and consistently verified to avoid bias when determining the occurrence of a trigger, in order not

[59] S. J. HO, S. FONTANA, Sovereign Debt Evolution: the Natural Disaster Clauses, pp. 10-11.
[60] See M. BUTLER, I. CLARK, O. FEDOSOVA, S. MATTY, D. BABYAK, Climate Resilience as a Proposed New Feature of Sovereign Debt Instruments.
[61] UK EXPORT FINANCE, UK Export Finance Launches New Debt Solution to Help Developing Countries With Climate Shocks, Press Release, 8 November 2022, https://www.gov.uk/government/news/uk-export-finance-launches-new-debt-solution-to-help-developing-countries-with-climate-shocks.
[62] See https://www.iadb.org/en/idb-finance/operational-guidelines.
[63] See M. BUTLER, I. CLARK, O. FEDOSOVA, S. MATTY, D. BABYAK, Climate Resilience as a Proposed New Feature of Sovereign Debt Instruments.

to place creditors at financial disadvantage.[64] Further, they should be mutually agreed between sovereigns and investors, and should be country-specific and individualized for any given natural hazard, so as to tailor the clauses to the degree of climate reliance the issuer wishes to safeguard.[65]

Specifically, the PSWG analyzed two technical options, namely proxy triggers and parametric triggers. The former would include "soft" triggers, such as a self-declaration of the sovereign issuer in a commercially reasonable fashion that a calamity has happened, or an official statement by a supranational authority to that effect.[66] On the contrary, parametric triggers are "hard" qualitative and/or quantitative conditions that once met become automatically operational.[67] They are backed up by solid evidence, such as physical measurements and scientific data that can measure accurately the severity of a climate event.[68] The latter type of trigger is more credible and has been selected for the CRDCs' design.

Parametric triggers mechanisms can either be based on preexisting regional risk pools or can be structured as bespoke metrics tailored for each individual issuer, or be construed as a mix of the two.[69] Existing regional disaster risk pools carry the obvious benefit of being in operation and already used in previous hurricane debt issuances.[70] The abovementioned Caribbean Catastrophe Risk Insurance Facility (CCRIF) - a multi-country risk pool that develops parametric insurance policies for Caribbean governments - is a notable example. As an independent third party, it maintains quantitative track of valuable metrics such as wind pressure and rainfall levels, so that these calculations can feed into its parametric

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64 ICMA, Private Sector Working Group – Climate Resilience Debt Clauses (CRDCs) Chair's Summary, p. 5.
65 IBIDEM, p. 6.
66 IBIDEM.
67 C. LANDERS, R. ABONEAAJ, Should MDBs Be Leading the Adoption of Debt Pause Clauses?.
68 See V. UNNAVA, Understanding Parametric Triggers in Catastrophe Insurance, Yale School of Management, 17 June 2020, https://som.yale.edu/blog/understanding-parametric-triggers-in-catastrophe-insurance. Also see https://www.instech.co/newsletter/parametric-triggers-governments'-disaster-risk-financing-parametric-post-issue-37.
69 M. BUTLER, I. CLARK, O. FEDOSOVA, S. MATTY, D. BABYAK, Climate Resilience as a Proposed New Feature of Sovereign Debt Instruments.
70 ICMA, Private Sector Working Group – Climate Resilience Debt Clauses (CRDCs) Chair's Summary, p. 6. "Annex A – Indicative list of pre-existing triggers from the regional risk-pools/other organizations" contains a list of available triggers based on type of natural disaster. For tropical cyclones and hurricanes, the African Risk Capacity (ARC), the Pacific Catastrophic Risk Insurance Company (PCRIC), the Caribbean Catastrophic Risk Insurance Facility (CCRIF). For earthquakes, once again the PCRIC and the CCRIF. For tsunami, the PCRIC. For droughts, the ARC and the PCRIC, whereas for floods the ARC, the PCRIC, the CCRIF and the Southeast Asia Disaster Risk Insurance Facility (SEADRIF). In case of epidemics or pandemics, the ARC and the World Health Organization are indicated as applicable risk pools.

triggers.[71] But besides the well-established CCRIF, that develop policies for the specific risks menacing the Caribbean region, the challenge lies in framing or stepping up other risk pool policies that are apt to cover other types of risks underpinning different regions of the world.[72] Therefore, going forward certain countries might prefer to craft more suitable and bespoke triggers.

The challenge in marketing parametric triggers as the best design choice to creditors lies in the fact that they are based on scientific factors, but do not take into account the amount of actual losses incurred by a country in the wake of a natural hazard.[73] A simple parametric trigger makes the CRDCs operational as soon as certain parameters exceed a given threshold, but if very little damage is incurred a CRDCs should probably not be activated. The PSWG and ICMA seems to leave this issue up to the investors' negotiation endeavors, so that it would be more appropriate to speak about parametric index triggers, which grant debt suspension on the grounds of both the intensity of an event and the losses correlated to it.[74]

Interestingly, it has been noted that sovereigns need to be careful in choosing their preferred triggers and integrating CRDCs into their legacy debt arrangements, as debt relief mechanisms could unintentionally trigger an event of default under existing bond or loan terms.[75] This is because there are cases when an event of default clause is characterized as any situation in which the issuer discontinues its payment obligations or seeks debt relief.[76]

3.3. Pricing and credit rating.

The pricing dynamics of CRDCs are not yet fully understood, nor predictable[77] In theory, the PSWG and ICMA consider that CRDCs should have little to no pricing impact

[71] C. LANDERS, R. ABONEAAJ, Should MDBs Be Leading the Adoption of Debt Pause Clauses?.
[72] ICMA, Private Sector Working Group – Climate Resilience Debt Clauses (CRDCs) Chair's Summary, p. 6.
[73] M. ROBINSON, Introducing Hurricane Clauses. Lessons from Grenada's recent experience, The Commonwealth, 2016, p. 14, https://production-new-commonwealth-files.s3.eu-west-2.amazonaws.com/migrated/inline/Introducing%20Hurricance%20Clauses.PDF.
[74] IBIDEM.
[75] M. BUTLER, I. CLARK, O. FEDOSOVA, S. MATTY, D. BABYAK, Climate Resilience as a Proposed New Feature of Sovereign Debt Instruments, p. 8
[76] IBIDEM.
[77] C. LANDERS, R. ABONEAAJ, Should MDBs Be Leading the Adoption of Debt Pause Clauses?.

on the embedding bonds, since they are designed to be neutral in Net Present Value (NPV) terms.[78]

Economically, NPV is the difference between the present value of cash inflows and outflows over a period of time and is a measure of the profitability of an investment project.[79] NPV neutrality means that inflows and outflows are balanced (i.e. equal to 0), therefore investors should be driven by non-monetary factors if they decide to allocate their monies into a bond with CRDCs features (e.g. boosting the debt's climate resilience).[80] It also means that over the life of the bond, an investor should not expect to experience any debt write off.[81]

The assumption is that the creditors already price the risk of natural shocks into the sovereign bond at the outset, because they know what kind of climate risks can impact a given issuer and they should therefore take the environmental factors into account when pricing the issuance.[82] This argument also maintains that because CRDCs improve climate resiliency and thus lower the chances of sovereign default in the aftermath of an exogenous shock, investors could even end up reducing the price compared to other plain vanilla debt instruments, knowing that through proactive risk management their returns are protected.[83] In other words, creditors would be pricing a reduced counterparty credit risk into the interest rate.[84] A recent survey conducted by the IMF even suggests that countries with significant levels of debt might benefit from lower financing costs when negotiating CRDCs.[85]

But the above scenario might not be a realistic assumption. Investors might actually expect a price premium from the introduction of CRDCs, which would translate into a higher

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[78] M. BUTLER, I. CLARK, O. FEDOSOVA, S. MATTY, D. BABYAK, Climate Resilience as a Proposed New Feature of Sovereign Debt Instruments, p. 5.
[79] See J. PROBASCO, J. SUAREZ, Net Present Value: One way to Determine the Viability of an Investment, Business Insider, 26 July 2022, https://www.businessinsider.com/personal-finance/npv.
[80] IBIDEM.
[81] C. LANDERS, R. ABONEAAJ, Should MDBs Be Leading the Adoption of Debt Pause Clauses?.
[82] M. BUTLER, I. CLARK, O. FEDOSOVA, S. MATTY, D. BABYAK, Climate Resilience as a Proposed New Feature of Sovereign Debt Instruments, p. 5
[83] ICMA, Private Sector Working Group – Climate Resilience Debt Clauses (CRDCs) Chair's Summary, p. 7.
[84] See T. TALBOT, Prime Time for the Pause Clause? Making Climate Resilient Debt Work, Center for Disaster Protection, 28 September 2022, https://www.disasterprotection.org/blogs/prime-time-for-the-pause-clause-making-climate-resilient-debt-work.
[85] IMF, The Bahamas: 2022 Article IV Consultation Press Release; Staff Report; and Statement by the Executive Director for the Bahamas, 9 May 2022, p. 59, https://www.imf.org/en/Publications/CR/Issues/2022/05/06/The-Bahamas-2022-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-517631.

interest rate costs to the sovereign borrower.[86] Intuitively, while appreciating a reduced risk of defaults, a rational investor also expects to be rewarded slightly more for granting the flexibility to defer payments. It is arduous to predict ex-ante which factors will feed into the investment decision and there is currently not enough anecdotal evidence of the NPV neutrality of natural disaster clauses, with the exception of the recent Grenada's and Barbados' issuances embedding hurricane clauses that seemingly left the bond spreads unaffected when compared to their peers.[87] But what would happen in larger issuances is probably more nuanced, and what would happen should a multiple series of CRDCs-bonds be triggered is empirically uncertain.[88]

Besides, it is also unclear whether additional costs related to the development of tailored triggers and the less liquid nature of debt with CRDCs features will result in a market premium for the bonds.[89] As a matter of fact, creditors might want to be compensated for the expected losses following the debt deferral and the delayed repayments - an amount roughly equal to the discounted value of the maturing debt once repayments are resumed - causing bond yields to rise to compensate for the higher risk and liquidity premia.[90]

Pricing of CRDCs-bonds will ultimately be the result of a value tradeoff between costs and risk shifting dynamics, where one can imagine sovereigns sometimes prevailing and sometimes yielding to the creditors' financial power. In any case, the pricing is of utmost importance, because if a premium shall be in fact demanded, then CRDCs will burden issuers with additional costs that need to be carefully assessed against the potential benefits associated with increased macro-stability and liquidity.[91] In this regard, diverging price dynamics could especially become apparent if a country decides to replace its entire debt stock with CRDCs-bonds.[92] Implementation of CRDCs would then become a case-by-case cost benefit analysis, rather than an industry-wide revolution. Future issuances will tell us whether these costs - if any - outweighs the benefits.

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[86] M. BUTLER, I. CLARK, O. FEDOSOVA, S. MATTY, D. BABYAK, Climate Resilience as a Proposed New Feature of Sovereign Debt Instruments, p. 5.
[87] IBIDEM.
[88] IBIDEM, p. 4.
[89] ICMA, Private Sector Working Group – Climate Resilience Debt Clauses (CRDCs) Chair's Summary, p. 7.
[90] See IMF, The Bahamas: 2022 Article IV Consultation Press Release; Staff Report; and Statement by the Executive Director for the Bahamas, pp 59-60
[91] IBIDEM.
[92] See https://www.imf.org/en/Publications/CR/Issues/2022/05/06/The-Bahamas-2022-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-517631.

Pricing considerations are closely associated with credit ratings of the instruments. Rating of natural disaster bonds is a fairly recent phenomenon. While Fitch did rate for the first time the Barbados's US dollar-denominated global bonds in 2022, they also stated that "Fitch's ability to rate future bond issues with natural disaster clauses will depend on their specific provisions. We would not expect to rate such bonds from highly rated issuers".[93]

When conducting preparatory work, the PSWG confirmed with accredited credit rating agencies that they would be generally able to rate CRDCs-instruments and that sovereign climate resilience is likely to be positively assessed compared to other bonds without CRDCs, provided they are structured as NPV neutral.[94] But as we have just proved, the NPV neutrality might not always be the case, so that other factors will govern the rating process, including the sovereign outlook and debt maturity. In any case, this could change in the future as climate resilience ratings metrics are being conceptually developed and could end up feeding into sovereign ratings.[95]

3.4. Repayment options.

CRDCs give an issuer time and fiscal space to remediate the financial consequences of a natural disaster, but do not exempt it from repayment obligations after the moratorium period has ended. As such, a number of options were discussed by the PSWG to structure the repayment modalities and it was determined that the term sheet shall provide for optionality, leaving the issuer, its arranging banks and investors plenty of discretion to choose from range of design options that are considered fitting.[96]

A first option is to capitalize the amount of debt standstill into the principal of a bullet structured bond instrument to be repaid or refinanced in full at maturity.[97] In a bullet bond, the entire principal is paid as a lump sum at maturity, rather than amortizing payments throughout maturity.[98] Specifically, the deferred amounts would be characterized as interest

[93] See https://www.fitchratings.com/research/sovereigns/fitch-rates-its-first-natural-disaster-clause-sovereign-bond-24-10-2022.
[94] ICMA, Private Sector Working Group – Climate Resilience Debt Clauses (CRDCs) Chair's Summary, p. 7.
[95] See for instance https://www.worldbank.org/en/news/feature/2021/01/25/what-you-need-to-know-about-the-climate-change-resilience-rating-system.
[96] ICMA, Private Sector Working Group – Climate Resilience Debt Clauses (CRDCs) Chair's Summary, p. 5.
[97] IBIDEM.
[98] See https://corporatefinanceinstitute.com/resources/fixed-income/bullet-bond-portfolio/

payments, thus accruing higher interests for the remaining life of the bond.[99] A second one is to amortize the deferred amount on a pro-rata basis over the remaining term of the bond, following capitalization of the suspended obligations into the principal.[100] Finally, the third option is repayment over a three-years period following the triggering even, provided that the original debt maturity is sufficiently long.[101]

In all the three above set-ups, it is unclear at what rate interest payments would accrue. As we have mentioned, the PSWG and ICMA expects the deferrals to be NPV neutral, and one can simply assume interest will accrue at contractual rates on all deferred amounts, that is both principal and interests.[102] But what happens in a scenario where multiple CRDCs bonds are activated is not clear, and it would also depend on whether the NPV calculations are determined at the issuance or when the deferral is triggered.[103]

If the remaining debt term is less than three years, the use of CRDCs should be prohibited if the latter repayment modality were to be elected.[104] This is because if the triggering event occurs towards the end of the bond maturity or in the year of maturity, the monetary magnitude of payments due immediately after the climate shocks would be substantial, thus undermining the operability and benefits of the clauses.[105]

In any case, extending maturities was deemed an unattractive option overall, both in terms of investor preferences and credit ratings implications, but it was noted that an issuer might be able to negotiate individualized exceptions if there is enough market acceptance.[106]

4. Regulatory and commercial issues.

Next, we shall analyze a number of regulatory and commercially relevant issues, including whether CRDCs-embedding bonds are senior to instruments without CRDCs and whether this would impact the equality of treatment of bondholders.

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[99] ICMA, Private Sector Working Group – Climate Resilience Debt Clauses (CRDCs) Chair's Summary, p. 5.
[100] IBIDEM.
[101] IBIDEM.
[102] M. BUTLER, I. CLARK, O. FEDOSOVA, S. MATTY, D. BABYAK, Climate Resilience as a Proposed New Feature of Sovereign Debt Instruments, p. 4.
[103] IBIDEM.
[104] ICMA, Private Sector Working Group – Climate Resilience Debt Clauses (CRDCs) Chair's Summary, p. 5.
[105] IBIDEM.
[106] M. BUTLER, I. CLARK, O. FEDOSOVA, S. MATTY, D. BABYAK, Climate Resilience as a Proposed New Feature of Sovereign Debt Instruments, p. 4.

For a thing, CRDCs would not be included retroactively into legacy debt instruments.[107] Amending the terms of outstanding bonds by way of consent solicitation is a costly and complex procedure, especially in terms of building consensus around pricing.[108] Therefore, CRDCs will be likely only negotiated for new sovereign issuances, at maturity when refinancing or ex novo in the context of a debt restructuring.[109] This means that until a country's existing debt stock is fully replaced with CRDCs-carrying debt, some bondholders will hold debt with CRDCs provisions, and some will carry legacy non-CRDCs bonds, leading to inequality of creditor treatment in the event of a triggering natural calamity.[110] In other words, certain bondholders would be paid on the original schedule, whereas others would be repaid once the debt deferral has expired, according to whichever repayment schedule was chosen among the abovementioned alternatives.[111]

As such, in a pre-restructuring scenario and once a triggering event has occurred, the issuer can only rely on the limited liquidity support provided by CRDCs bondholders, because it would need to honor the payment schedule to legacy instruments.[112] This could further limit CRDCs effectiveness and the financial support available to the issuer, especially if compounded by the fact that practically speaking the debt suspension may not align with the timing of the triggering event, as principal and debt payments may only come due months after the natural disaster.[113]

On the other hand, CRDCs are heralded as a tool to disarm creditor holdouts during calamities, as one would expect large consensus over an instrument that operates contingently to restore fiscal space in the wake of natural hazards.[114] But if legacy instruments without CRDCs are still the majority of the outstanding debt stock, a sovereign will likely need to consider initiating restructuring procedures - depending on the severity of the natural disaster - as it cannot benefit from a large enough stall of debt deferrals.[115] In this scenario,

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[107] ICMA, Private Sector Working Group – Climate Resilience Debt Clauses (CRDCs) Chair's Summary, p. 2.
[108] M. BUTLER, I. CLARK, O. FEDOSOVA, S. MATTY, D. BABYAK, Climate Resilience as a Proposed New Feature of Sovereign Debt Instruments, p. 6.
[109] IBIDEM, p. 7.
[110] ICMA, Private Sector Working Group – Climate Resilience Debt Clauses (CRDCs) Chair's Summary, p. 2.
[111] IBIDEM.
[112] M. BUTLER, I. CLARK, O. FEDOSOVA, S. MATTY, D. BABYAK, Climate Resilience as a Proposed New Feature of Sovereign Debt Instruments, p. 7.
[113] ICMA, Private Sector Working Group – Climate Resilience Debt Clauses (CRDCs) Chair's Summary, p. 2.
[114] For an overview of issues related to creditors' holdouts, see R. M. LASTRA, L. BUCHHEIT, Sovereign Debt Management, Oxford University Press, 2014.
[115] M. BUTLER, I. CLARK, O. FEDOSOVA, S. MATTY, D. BABYAK, Climate Resilience as a Proposed New Feature of Sovereign Debt Instruments, p. 7.

non-CRDCs would the largest part of the debt outstanding, and non-performance on these bonds' obligations would likely constitute cross-default on CRDCs-bonds as well, forcing both classes of bondholders into long-lasting negotiation procedures.[116]

The question is then whether CRDCs-bonds are to be treated as senior to debt without CRDCs. To this end, the PSWG explained that debt with CRDCs should not generally benefit from contractual seniority over non-CRDC instruments, but it should rather be up to private creditors to negotiate with the sovereign issuer on a case-by-case basis to agree upon the debt legal treatment.[117] However, if the restructuring is initiated after the CRDCs have been triggered but within the time boundaries of the deferral, CRDCs-bondholders will reasonably push for special treatment during negotiations, although in reality they might end up being treated pari passu with other bondholders.[118] Thus, if the majority of country's outstanding bonds does not include CRDCs, the chances of creditors agreeing on a limited introduction of the clauses are opportunistically low.[119] This dynamic could be exacerbated if some of the non-CRDCs bondholders belong to the category of so called "vulture funds", i.e. commercial investors that purchase distressed debt on the secondary market in order to subsequently recover the full amount through litigation.[120] This type of creditors can seriously hinder the success of a debt restructuring as they are not willing to accept its terms.[121] In the present hypothetical, if they would hold a high-enough percentage of the issue, one could argue that distressed debt investors will oppose the introduction of debt suspension mechanisms, because it would not serve their financial interest, thus causing a costly standoff.

Finally, from a regulatory perspective, some have noted that CRDCs-bonds might have prudential repercussions when held by credit institutions, as they could impact capital requirements when deferrals are triggered.[122] But according to ICMA, since the deferral is by definition temporary and the bonds are in theory NPV neutral, CRDCs debt should not be treated differently from other instruments for capital purposes.[123]

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116 IBIDEM.
117 ICMA, Private Sector Working Group – Climate Resilience Debt Clauses (CRDCs) Chair's Summary, p. 8.
118 M. BUTLER, I. CLARK, O. FEDOSOVA, S. MATTY, D. BABYAK, Climate Resilience as a Proposed New Feature of Sovereign Debt Instruments, p. 7.
119 IBIDEM.
120 D. SOOKUN, Stop Vulture Fund Lawsuits. A Handbook, Commonwealth, 2010, p. 7, https://production-new-commonwealth-files.s3.eu-west-2.amazonaws.com/migrated/key_reform_pdfs/Stop%20Vulture%20Fund%20Lawsuits%20EB.pdf.
121 IBIDEM.
122 ICMA, Private Sector Working Group – Climate Resilience Debt Clauses (CRDCs) Chair's Summary, p. 8.
123 IBIDEM.

5. Concluding remarks.

CRDCs have institutionalized climate resilience, but there are implementation challenges and design issues to address before they can become part of the sovereign debt management toolkit. We contend that the regulatory and commercial success of CRDCs will largely depend on whether they will gain enough traction and whether major sovereign debt actors, especially the US, will endorse their widespread adoption. Before we can expect the clauses to be introduced across entire countries' debt stock, they will need to prove their value outside small Caribbean restructurings. Whether creditors will see enough incentives in accepting CRDCs remains to be seen and, if so, it will surely happen on a case-by-case basis. Recent developments in sovereign debt management suggest that widespread adoption of new standardized clauses can be a fruitful endeavor. The precedent of adopting collective actions clauses - whereby a majority of bondholders can bind the minority to the terms of a restructuring - in almost all of international sovereign issuances of the past decade bodes well for the success of CRDCs as a new market standard.

The PSWG and ICMA are promoting a standardized legal design for CRDCs. However, more realistically, CRDCs will be drafted somehow differently across issuances, and features will diverge based on the sovereign's debt size, climate vulnerability and types of investors. Arguably, a well-designed parametric trigger based on precise parameters and tailored to a given country climate exposure could be the key to make CRDCs attractive to a large plethora of creditors. Besides, the proposed one-year deferral and several repayment options are robust incentives to reassure investors that the debt relief is limited in time and should not impair a sovereign's ability to resume payments.

In our view, the biggest issue remains the almost naïve assumption around pricing and seemingly certain NPV neutrality in the eyes of the CRDCs proponents. Existing evidence for this argument is based on sparse and small issuances, and appears to ignore that most investors might in fact expect a premium for boosting climate resiliency.