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Sovereign Risk Ceilings: Rethinking Methodology Through Risk Disaggregation

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Led by Igor Zelezetskii

With contributions from: Robert Ginsburg, Waide Warner, Perrine Toledano, Ana M. Camelo Vega, and Tom Mitro

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This briefing paper examines the conditions under which sovereign risk ceilings are applied to non-sovereign debt issuers in emerging markets and developing economies (EMDEs). The analysis proposes a structured framework to disaggregate "sovereign risk" into explicit, identifiable transmission channels, evaluating how contractual, legal, and structural mitigants modify default risk. The findings are intended to inform a more precise, channel-based approach to credit assessment rather than repeating existing macroeconomic critiques of proxy-based rating ceilings.

Executive Summary

This paper examines how sovereign ceilings are used in project and issuer-level credit assessment. It asks a straightforward question: Should sovereign risk automatically cap a rating once contractual, legal, and structural mitigants are in place? We look closely at how sovereign ceilings are constructed and applied in practice, whether that logic still holds in light of modern financing structures and risk mitigation tools, and whether proxy-based ceilings add insight once specific interference channels are explicitly analyzed.

The paper first revisits why sovereign ceilings were introduced, what problem they were meant to solve, and how they operate today as a broad proxy for the risk of government interference. It then proposes a structured framework to disaggregate "sovereign risk" into identifiable transmission channels. Finally, it examines how explicit mitigation mechanisms, whether contractual, institutional, or structural, change the relevance of those channels for default risk, and whether a sovereign ceiling meaningfully adds information at the project or issuer level once that analysis is done.

The paper focuses on non-sovereign debt issuers in EMDEs, especially domestic revenue, capital-intensive sectors such as power and digital infrastructure, where ceilings often have the most distortionary effects. Export-oriented projects are included mainly as a contrast case. The paper does not attempt to re-rate sovereigns, quantify default probabilities, or design a new ratings model. Nor does it dismiss macro financial risk. The argument is methodological: sovereign ceilings should not function as an automatic constraint inferred solely from sovereign characteristics when the actual channels of interference and their mitigants can be assessed directly at the instrument and issuer levels. Moody's own data on EM corporate defaults during sovereign crises show that the majority of rated entities — over three-quarters of all EM corporates and sub-sovereigns, and over 83% of utilities and 94% of banks — did not default during the four-year crisis windows reviewed.

Thus, a more effective framework would assess credit risk at the level of the individual transaction or issuer, taking into account both exposure to sovereign-related risks and the effectiveness of mitigation measures. The paper proposes a four-step architecture:

Step 1 — Standalone credit assessment: evaluate intrinsic creditworthiness on the basis of issuer fundamentals, financial structure, and counterparty quality, without reference to the sovereign ceiling.

Step 2 — Transmission channel mapping: for each of the eight channels, assess (a) whether it is structurally active for the instrument; (b) the probability it becomes binding under stress; and (c) the credibility and enforceability of available mitigants.

Step 3 — Reposition the sovereign as a contextual factor: where channels are identifiable, and mitigants credibly address them, the sovereign's influence is captured within

the channel analysis as a factor informing channel activation, binding probability, and mitigant strengthh, not applied as a ceiling that overrides the channel-level analysis. The output is a graduated uplift calibrated to the cumulative decoupling observed across channels. Current methodologies achieve this gradient only for issuers that pass a structural-template gate; the framework proposed here achieves it through channel-level assessment.

Step 4 — Retain a conservative bound where warranted: where channels cannot be observed, regulatory discretion is opaque, or mitigants are untested, a sovereign-level proxy retains a prudential purpose. It is applied selectively, not universally.

The implications extend beyond pricing and access to finance. Where ratings systematically misprice the risk of well-structured EMDE infrastructure, banks, insurers, and pension funds carry portfolio risks that diverge from what their internal models and external ratings imply — a financial-stability question alongside a cost-of-capital one.

Contents

Abbreviations & Terms

AA / BBB / BB / CCC — Credit rating symbols (investment-grade to speculative-grade bands, depending on agency scale).

AfDB — African Development Bank.

AREAER — IMF Annual Report on Exchange Arrangements and Exchange Restrictions.

AWS — Amazon Web Services.

Ba2 / Baa1 / etc. — Moody's alphanumeric rating symbols (agency-specific scale).

BDT — Bangladeshi taka (currency code).

BIT / BITs — Bilateral Investment Treaty / treaties.

CCSI — Columbia Center on Sustainable Investment (Columbia University).

CFA (franc) — Currency used in the CFA franc zones (pegged to the euro).

CFR — Corporate Family Rating (Moody's).

CRA / CRAs — Credit Rating Agency / agencies.

DBSA — Development Bank of Southern Africa.

DFC — U.S. International Development Finance Corporation.

DFI — Development Finance Institution.

DSCR — Debt Service Coverage Ratio (cashflow available for debt service ÷ debt service due).

EBRD — European Bank for Reconstruction and Development.

EGP — Egyptian pound (currency code).

EIB — European Investment Bank.

EMDE / EMDEs — Emerging Market and Developing Economy / economies.

FC — Foreign currency.

FX — Foreign exchange.

GEMs — Global Emerging Markets Risk Database / GEMs Consortium dataset.

GFC — Global Financial Crisis (2008–2009).

ICC — International Chamber of Commerce (arbitration institution/rules).

ICSID — International Centre for Settlement of Investment Disputes.

ICT — Information and communications technology.

IDA — International Development Association (World Bank Group).

IDR — Issuer Default Rating (Fitch).

Abbreviations & Terms

IFC — International Finance Corporation (World Bank Group).

IG — Investment grade.

IMF — International Monetary Fund.

IPP / IPPs — Independent Power Producer(s).

LC — Local currency.

MDB — Multilateral Development Bank.

MIGA — Multilateral Investment Guarantee Agency (World Bank Group).

NHFO — Non-Honoring of Financial Obligations (political risk insurance/guarantee terminology in MDB/insurer usage).

NHSO — Non-Honoring of Sovereign Obligations (political risk insurance/guarantee terminology in MDB/insurer usage).

PIDG — Private Infrastructure Development Group.

PPA / PPAs — Power Purchase Agreement(s).

PRG — Partial Risk Guarantee (typically World Bank Group instrument).

PRI — Political Risk Insurance.

REIPPP / REIPPPP — Renewable Energy Independent Power Producer Procurement Programme (South Africa).

S&P — S&P Global Ratings.

SA — South Africa.

SCP — Standalone Credit Profile (Fitch terminology).

SPV / SPVs — Special Purpose Vehicle(s).

T&C — Transfer & Convertibility (risk of restricting FX conversion and cross-border transfers).

WBG — World Bank Group.

ZAR — South African rand (currency code).

I. Sovereign Ceilings as a Methodological Construct

For most investors in emerging markets and developing economies (EMDEs), access to international capital markets is shaped by a main threshold question: What rating has their sovereign earned? Under the sovereign ceiling practice, non-sovereign credit ratings are capped at the sovereign's own rating. As a result, a domestic borrower, however strong its standalone fundamentals, can rarely be rated above its government. That constraint materially affects the cost, tenor, and availability of external financing across EMDEs.

The sovereign ceiling began as a conservative crisis-era heuristic and became embedded in formal ratings frameworks; the narrow conditions under which it can be pierced reveal the specific channels of sovereign interference it is meant to proxy.

This paper does not dismiss the relevance of sovereign risk in credit assessment. The sovereign remains a material input, and the frameworks developed by credit rating agencies, export credit agencies, development finance institutions, and commercial banks reflect legitimate concerns about macro-level creditworthiness. The paper questions whether prevailing country-level risk frameworks, particularly sovereign ceilings as operationalized by rating agencies, provide a sufficiently granular and analytically rigorous basis for assessing individual transactions and issuers. Sovereign ceilings function as a proxy for government interference risk, but they operate at a level of aggregation that does not distinguish how those risks transmit, or fail to transmit, through specific project structures, currency regimes, and contractual protections. The argument is therefore directed not at the principle that sovereign risk matters, but at the methodology through which it is applied to project- and issuer-level credit assessment.

A. Origin and Rationale

Investors and regulators need methods to evaluate and compare the credit quality of cross-border debt obligations. The current international credit ratings system has evolved to meet that need, but not without significant criticisms and concerns.

The three major credit rating agencies, Standard and Poor's (S&P), Moody's, and Fitch, grew alongside the development of modern debt capital markets. For ease of reference, this report refers to them collectively as the 'Big Three'. By the early twentieth century, these agencies were assessing both U.S. and non-U.S. government bonds, as well as corporate issuances, particularly in the railroad sector.[1]

The Big Three demonstrated the utility of publishing systematic, rigorous analyses of the risks to the timely payment of credit obligations. Shorthand credit rankings provided simple investor guides to relative value in the debt capital markets. Regulators adopted credit-ratings-based criteria for banks, pension funds, insurance companies, investment funds, and other fiduciary investors to assess portfolio risk, set capital requirements, control systemic risk, and protect investors. While regulators have recently discouraged over-reliance on

credit ratings after serious lapses by CRAs (e.g., Enron's fraud, the sub-prime mortgage meltdown, and the Euro crisis), a significant number of institutional and other investors continue to mandate portfolios of "investment grade" securities (at least BBB-) and to avoid lower-rated, "speculative" securities.[2] As a result, the deepest pool of international debt capital (and the best pricing for borrowers) is available only for investment-grade issuances. Relatedly, rating agency actions that signal a possible downgrade to below investment grade can result in sudden sell-offs and steep increases in a borrower's cost of debt capital.

EMDEs have historically had a turbulent relationship with international capital markets. International capital markets were effectively closed to EMDE issuers after multiple sovereign defaults during the Great Depression. Ironically, the international bond market reopened only for EMDE issuers following a solvency crisis among systemically important U.S. banks, triggered by the Federal Reserve's domestic interest-rate policies.[3]

The OPEC oil price shocks of the 1970s led to a substantial outflow of dollars from advanced economies to oil-exporting countries, which were recycled to oil-importing EMDEs through officially encouraged international bank lending at floating interest rates. The oil shocks also led to soaring U.S. inflation, which the Federal Reserve ultimately addressed by raising interest rates to record levels in the early 1980s. The Fed's action hit EMDEs sovereign debtors concurrently with a global recession, higher floating interest rates, and lower exchange rates against a stronger dollar, resulting in a series of defaults on their dollar-denominated bank loans. The defaults caused substantial loan losses among the major, money-center U.S. banks, prompting action by regulators and the U.S Treasury. By the early 1990s, the defaulted sovereign debt had been restructured and securitized via "Brady bonds" (named after the U.S. Treasury Secretary), which reopened the international bond markets to EMDEs. Because international banks, particularly in the U.S., had largely retreated from lending to EMDEs, international bond markets became the principal source of external debt financing for EMDEs. To appeal to the broadest segment of that market, EMDE bond issuers sought investment-grade credit ratings.[4]

With this background of instability and loss, it is perhaps not surprising that the rating agencies adopted a conservative "sovereign ceiling" policy as EMDEs' non-sovereign financings came to the international debt capital markets. That practice limits the rating of the international debt obligations of any country's non-sovereign borrowers to the highest rating available for their sovereign's obligations. Though convenient, the sovereign ceiling reflects numerous assumptions about the collateral effects of a sovereign debt crisis, particularly the likelihood that a sovereign at risk of defaulting on its international debt would hoard foreign currency reserves by interfering with the ability of domestic non-sovereign borrowers to service foreign-currency obligations.

By the end of 1996, faced with analyses that challenged their assumptions about the consequences of sovereign debt crises, the rating agencies began to shift away from a strict sovereign ceiling policy.[5] For example, exceptions were made for large oil and gas export project financings in Qatar and Venezuela.[6] Each project was highly structured, both legally and in terms of sovereign incentives, to assure a continuous stream of dollar export revenues to fund offshore reserve accounts and service international debt obligations. While these projects demonstrated that the sovereign ceiling could be "pierced" and investment-grade ratings achieved, exceptions to the sovereign ceiling policy were limited.

By the late 1990s, the ceiling was no longer treated as an absolute rule, but the conditions for piercing it were narrow and revealing. Exceptions clustered around structures that reduced exposure to transfer and convertibility constraints, usually through offshore cash-flow capture, hard-currency earnings outside the jurisdiction, or legal and institutional separation. Those exceptions did not eliminate sovereign risk. They clarified which channels of sovereign interference the agencies were trying to control for. The considerable cost and effort needed to address rating agencies' concerns further limited the number of EMDE non-sovereign borrowers that could benefit from these sovereign ceiling exceptions.

That logic is now embedded in ratings methodology. Instead of a blanket ceiling, agencies apply eligibility tests and country-ceiling frameworks designed to answer a specific question: can the issuer continue paying under sovereign stress that includes default and foreign-exchange restrictions?

B. How sovereign ceilings are implemented today

Under S&P's methodology, above-sovereign eligibility is determined by a sovereign stress test that simultaneously models debt service capacity under sovereign default, transfer restrictions, and currency inconvertibility. Moody's and Fitch apply conceptually similar assessments through their country ceiling frameworks and sector-specific methodologies, though the terminology differs.

The stress test is binary in practice: entities either pass (and are eligible for above-sovereign rating, subject to other constraints) or do not. This creates a sharp discontinuity in the rating distribution around the sovereign level, observable in the data and contributing to the "clustering" of EMDE entity ratings at or near the sovereign level. This "clustering" point is conceptual; observed distributions also reflect rating coverage, sector mix, and the fact that many stronger credits remain unrated.

Above-sovereign ratings are not random deviations. They follow a structural logic. Annex I analyzes five EMDE precedents between 2016 and 2026 where the ceiling was pierced: 1) Akbank T.A.Ş. A.R.T.S. Ltd., 2) Coca Cola İçecek A.Ş. , 3) Coca Cola FEMSA, 4) Hong Kong SAR, 5) Sura Asset Management S.A., showing that the common denominator is insulation from sovereign interference channels, not simply strong standalone credit metrics. These five cases are illustrative rather than exhaustive. They were selected under the following criteria (i) the rating differential above the sovereign/country ceiling is explicitly documented in a public rating action, regulatory announcement, or issuer disclosure, (ii) the mechanism is clearly stated (e.g., offshore cash flows/structures, legal insulation, or a strong non-domestic operating base), and (iii) they span distinct transaction/issuer types relevant to infrastructure-style financing. The absence of an identified precedent does not preclude unlisted or paywalled examples.

In the Akbank T.A.Ş. A.R.T.S. Ltd. future flow securitization program, separation from sovereign risk is structural. An offshore special purpose vehicle (SPV) captures payment rights before they enter the domestic banking system, thereby placing cash flows outside the sovereign's immediate reach. In the corporate cases of Coca Cola İçecek A.Ş. and Coca Cola FEMSA, insulation stems from diversified international operations that generate hard-currency earnings and support offshore liquidity. In Hong Kong, the separation is

constitutional, anchored in a distinct monetary, fiscal, and legal system. In Sura Asset Management, it stems from the business model itself, with mandatory pension management across multiple Latin American jurisdictions and locally ring-fenced subsidiary assets.

The Akbank structure represents the clearest form of insulation because cash flow isolation is contractual, structural, and jurisdictional. By contrast, the corporate precedents rely on diversification rather than legal segregation. Domestic operations, regulatory obligations, and tax exposure remain, leaving residual sensitivity to sovereign stress. This difference helps explain why structured finance transactions have achieved greater uplift above the sovereign than corporate issuer ratings, and why rating methodologies distinguish between them.

The precedent review underscores how limited the pathway above the sovereign remains. Confirmed cases fall into only three categories: future flow securitizations, large corporates with majority international revenue, and a regionally diversified non-bank financial institution. Eight additional asset classes were examined, including banking, typical sub-sovereigns, infrastructure operators, domestic insurers, leasing and factoring companies, small corporates, and domestically focused EMDE issuers. None produced a verified above-sovereign outcome. The Hong Kong case reflects a constitutionally distinct arrangement that is not replicable in most EMDE settings.

Maximum uplift is bounded and typically modest

Even where ceiling piercing is achieved, the uplift is modest in absolute terms. The observed range across the five precedents is +2 to +3 notches. This is consistent with the published rating agencies' parameters: S&P permits a maximum differential above the sovereign, Transfer and Convertibility (T&C) assessment that varies by entity type (typically 1–4 notches for corporates, wider for structured finance);[7] Moody's country ceiling methodology[8] sets the foreign currency (FC) ceiling at 0–3 notches above the sovereign, creating a hard upper bound; Fitch's structured finance criteria[9] permit wider uplift for future-flow transactions but cap corporate/NBFI ratings at the country ceiling unless specific diversification conditions are met.

The implication is that entities whose standalone profiles would place them across a range of rating categories are instead clustered at or near the sovereign level, reducing the granularity of credit differentiation available to investors and potentially mispricing credit risk at both the entity and portfolio levels. This compression effect is most acute in EMDE jurisdictions where the sovereign rating is in the B or BB range, because the ceiling constrains entities whose standalone profiles span several rating categories into a narrow band of 1–2 notches.

EMDE Underrepresentation in Above-Sovereign Precedents

The five precedents identified are concentrated in a small number of EMDE jurisdictions (Turkey, Colombia, Mexico, and the Hong Kong/China special case). Large portions of the EMDE universe — Sub-Saharan Africa, South Asia (beyond Pakistan, as a CCI operating territory), Southeast Asia, and most of the Middle East and North Africa — are entirely absent from the above-sovereign precedent.

CRAs identify several factors that, in their assessment, prevent entities in EMDE jurisdictions from qualifying for above-sovereign treatment:[10]

- Legal and institutional framework development. The CRA methodologies require that structural isolation mechanisms (offshore SPVs, true-sale opinions,[11] foreign-law enforceability) be legally robust and practically enforceable. In jurisdictions where commercial law, insolvency frameworks, or contract enforcement mechanisms are assessed as insufficiently developed, CRAs conclude that structural protections may not withstand sovereign stress scenarios. This assessment affects both structured finance (where the legal opinion on true sale is critical) and corporate/ projects ratings (where the enforceability of offshore collection arrangements[12] is relevant).
- Risk concentration. Many EMDE entities derive the overwhelming majority of their revenue from a single domestic market. The CRA methodologies treat domestic revenue concentration as a binding constraint because it creates direct exposure to sovereign-correlated macroeconomic shocks (recession, currency depreciation, banking-system disruption) that cannot be diversified away. For banking specifically, S&P notes[13] that domestic sovereign bond holdings, reliance on the central bank, and a domestic deposit base create multiple transmission channels that prevent above-sovereign treatment regardless of standalone capital strength.
- Counterparty and support-provider ratings. Structured finance transactions and credit-enhanced obligations require support providers (hedging counterparties, liquidity facility providers, guarantors) that are rated sufficiently highly to sustain the target above-sovereign rating. In many EMDE markets, the available domestic counterparties are themselves capped at the sovereign level, creating a circular constraint. As a result, support providers typically include the multilateral development banks (MDBs) and, in some cases, international commercial banks with credit worthiness tied to the non-EMDE jurisdiction, which can serve as counterparties or credit-substitution providers.
- Limited rating coverage. Many EMDE entities, including large banks and corporates that may have standalone credit profiles that are materially stronger than their sovereigns, are simply not rated by the Big Three. The above-sovereign precedent set is by definition limited to the universe of rated entities, which is itself a subset of EMDE economic activity. This coverage gap means that the empirical evidence on ceiling piercing is structurally incomplete: entities that might qualify for above-sovereign treatment under the methodologies may never be tested because they do not seek or maintain international ratings. For them, absence from the rated universe is not a worse outcome than ceiling-capping, but the same constraint expressed differently. Taken together, these factors create a reinforcing constraint: EMDE entities lack the structural, operational, or counterparty conditions to qualify for above-sovereign treatment under the CRA methodologies, while the limited range of qualifying conditions itself reflects assumptions about EMDE institutional environments that may not apply uniformly across all jurisdictions or entity types.

Similarly, the ceiling framework creates an asymmetry between EMDE and Advanced Economies (AEs) entities. An A-rated European bank or corporate, for instance, faces no comparable constraint from its sovereign rating, even after the eurozone sovereign crises demonstrated that sovereign-corporate transmission channels exist in advanced economies as well.[14,15] Section 3 compares renewable IPP projects in Spain and South Africa to illustrate this asymmetry.

The GEMs data confirm this at scale[16]

The GEMs data provide some of the strongest empirical evidence of the gap between ceiling methodology and observed performance. MDB and DFI structured infrastructure projects in EMDEs exhibit default rates consistent with investment-grade credit quality and recovery rates that exceed not only EMDE benchmarks but also global corporate averages. These outcomes reflect the presence of meaningful risk mitigants associated with MDB and DFI participation, including preferred creditor status (PCS), sustained government engagement, and long-term institutional relationships. Where such features materially reduce risk, they should be reflected in the rating. A ceiling framework that does not incorporate them fails to capture the instrument's actual risk profile. The comparison below addresses the two dimensions of credit risk separately rather than collapsing them into a single expected-loss figure: the default-rate rows speak to the probability of default observed over the cycle; the recovery-rate rows speak to loss given default; and the crisis-period rows test the macro-contagion premise that underlies both. A ceiling that absorbs domestic infrastructure into the sovereign's expected loss compresses these distinctions; the observed record does not.

Metric	MDB/DFI infrastructure loans in EMDEs[17]	What the ceiling-imposed rating implies (Moody's Idealized Cumulative Default Rate tables)
Average default rate (energy)	Approximately 3.6% over 30 years	Moody's idealized 30-year cumulative default rate at Aa3 is 4.07%, at A1 it is 5.94%. The observed GEMs energy-sector default rate is consistent with Aa2–Aa3 credit quality. By contrast, a Ba2 ceiling implies a 30-year cumulative rate of 32.30%; B1 implies 43.38%. The gap between observed performance and ceiling-implied risk is approximately 9–12x.
Average default rate (utilities)	Approximately 3% over 30 years	Moody's idealized 30-year cumulative at Aa2 is 2.20%, at Aa3 it is 4.07%. The observed GEMs utilities sector default rate of approximately 3% falls squarely within the Aa2–Aa3 range. A Ba2 ceiling implies 32.30%; B2 implies 48.92%.
Median recovery rate (private lending)	91.1%; more than half of defaulted contracts recovered above 90%	Moody's EM corporate recovery rates average approximately 30–40%. The GEMs median recovery of 91.1% is more than double the EM corporate benchmark.
Local currency (LC) lending recovery rate	Average 80.7%; median 98.1%	Not separately tracked by CRAs at this level of granularity. The near-full median LC recovery (98.1%) suggests that LC-denominated MDB/DFI infrastructure lending experiences minimal ultimate loss.
Default rate during the 2008 Global Financial Crisis (GFC)	Less pronounced than for comparable advanced-economy corporate benchmarks	GFC stress is a key test for the "macro contagion" channel. Moody's idealized B1 1-year default rate is 4.68%; B2 is 7.16%. The observed GEMs GFC-period performance fell below these benchmarks despite the severity of the global shock.[18,19]
Default rate during 2020 COVID	Approximately 5.4%	The 2020 spike to approximately 5.4% is consistent with a single-year B1 idealized rate (4.68%), but this was the peak of a once-in-a-century shock. The 30-year average remained in the low single digits, consistent with Aa–A territory, not the sustained elevation implied by a BB/B ceiling.

C. The Empirical Contradiction: Sovereign Default Does Not Imply Universal Corporate Default

CRAs often argue that, in EMDEs, the absence of a reserve-currency backstop means macroeconomic shocks can overwhelm project- or firm-level fundamentals during sovereign distress. On that basis, macro financial risk is weighted more heavily than issuer-specific characteristics when determining credit outcomes. Whether that assumption holds is an empirical question — one that turns on what actually occurs to domestic corporates and banks during episodes of sovereign default.

Moody's own published research provides the most comprehensive dataset. The 2009 special comment by Duggar[20] examined 100 Moody 's-rated emerging market defaults and found the following:

- During sovereign crisis episodes, the 4-year cumulative default rate for industrial corporates rose from 14.4% (non-crisis) to 38.8% (crisis). This means that approximately 61% of industrial corporates survived the 4-year crisis window without defaulting.
- For banking and financial companies, the 4-year default rate rose from 4.0% (non-crisis) to only 5.8% (crisis). Approximately 94% of banks survived sovereign crisis episodes without defaulting.
- For public utilities, the 4-year default rate rose from 4.1% to 16.9%, meaning over 83% survived.

Overall, the 4-year cumulative default rate for all EM corporates and sub-sovereigns was 23.65% during crisis years vs 9.57% in non-crisis years. Even during sovereign crises, over three quarters of rated entities did not default. The empirical evidence creates a genuine tension with the sovereign ceiling framework. On one hand, sovereign distress can elevate corporate default risk materially, and the transmission channels (capital controls, banking-system disruption, recession, currency collapse) are real and well-documented.

The Duggar data show that the 4-year corporate default rate nearly triples during sovereign crises (from approximately 10% to approximately 24%), and for industrial corporates the increase is nearly threefold (from 14% to 39%). These are not negligible effects.[21]

On the other hand, ceiling methodology implicitly treats sovereign and corporate default risk as tightly coupled for rating purposes, capping domestic entities at or near the sovereign level regardless of issuer-specific resilience. The embedded assumption is that sovereign distress transmits broadly and predictably across the domestic credit spectrum. The empirical data suggest a more differentiated outcome. Even during severe sovereign crises in Argentina (2001–2002), Russia (1998), and Indonesia (1997–1998), the majority of rated entities did not default. Four-year survival rates exceeded 60% for industrial corporates, 83% for utilities, and 94% for banks. These figures are derived from Duggar (Moody's, February 2009), which reports four-year cumulative default rates during sovereign crises of 38.8% for industrial corporates, 16.9% for public utilities, and 5.8% for banks.

This means that the ceiling, as currently applied, may compress the ratings of entities at the stronger end of the domestic credit spectrum more than the empirical default data would justify. An entity that has a 5–10% conditional probability of default given a sovereign default event is treated, for rating purposes, substantially the same as an entity with a 40–50% conditional probability. The ceiling framework does not readily permit this differentiation, and the gap to observed performance, as shown in the GEMs comparison above, is on the order of magnitude. Annex V covers a broader empirical literature and evidence on sovereign-to-corporate transmission, even though it is less relevant to a direct study of EMDE domestic revenue infrastructure survivorship. The direction of the empirical inference, therefore, matters. To borrow, as a methodological metaphor, from the language of legal presumption, the published criteria treat every domestic revenue issuer as presumptively constrained by its sovereign unless the issuer can establish that its cash flows are externalized from the domestic jurisdiction. The observed record reverses that presumption: in the dataset reviewed above the majority of rated entities continue to perform through sovereign default, and the analytical burden of justifying ceiling application should therefore rest with the agency asserting that the relevant channels are active and unmitigated for the specific issuer, not with the issuer asserting that it has externalized its cash flows from the sovereign environment.

II. Sovereign Interference Risk and Disaggregated Transmission Channels

The cases reviewed in Section I showed that above-sovereign outcomes are associated with a narrow set of insulating conditions, typically offshore cash flow capture or substantial earnings and liquidity outside the sovereign's effective reach. For most domestic revenue issuers, especially infrastructure operators, those pathways are not available.[22] As a result, ceiling practice often becomes a binding constraint even where the underlying project has contracted revenues, robust security, and protections that would support investment-grade treatment in other contexts. Annex IV reviews the complementary evidence from domestic infrastructure and essential-service issuers operating during their own sovereign's default or restructuring period, where outcomes turn on which transmission channels become binding and which mitigants are available, rather than on insulation from the sovereign environment.

The sovereign ceiling methodology is justified by reference to the risk of sovereign interference.[23] CRAs argue that in a sovereign stress event, governments can restrict foreign exchange, impede cross-border payments, impose moratoria, intervene through regulation, or transmit stress through the domestic banking system. The practical effect is to treat these risks as a package that can overwhelm project and firm level fundamentals.

Sovereign conditions affect a domestic issuer only through specific mechanisms that impair cash flow availability or the ability to transfer funds for debt service. The analytical task is to explicitly identify those mechanisms, test how they operate, and assess whether each can be mitigated through contractual terms, institutional arrangements, or structural features.[24] Once the channels are specified, it becomes possible to evaluate when a ceiling adds information and when it substitutes for analysis. The core analytical question is therefore: through which specific, identifiable mechanisms does sovereign distress translate into default risk for a domestic power utility or digital infrastructure operator? If we can identify these channels precisely, we can assess whether each one is mitigable — and if so, whether a ceiling that assumes all channels bind simultaneously is analytically justified.

Two terms recur throughout the discussion that follows. Channel mitigation means that contractual, structural, operational, legal, institutional, or counterparty features reduce the probability, timing, severity, or loss allocation associated with a specific transmission channel, while the issuer's own cash flow remains the primary source of debt service. Credit substitution, by contrast, means that a stronger third party legally replaces the issuer's own credit risk through an unconditional guarantee or equivalent payment undertaking. The two are analytically distinct, and the channel-by-channel taxonomy below addresses mitigation rather than substitution.

A. Channel-by-channel taxonomy

Transmission channel	Mechanism	Relevance to domestic power or ICT	Mitigable?
1. Transfer and convertibility	Government restricts FX conversion or cross border transfers in crisis	Relevant for FC debt, often secured for financing the construction costs, at a minimum. Depends on currency regime for LC debt. For floating LC projects, often irrelevant for LC debt because cash flows do not need to cross a border. For pegged regimes, low in normal times but tail risk is severe if peg defense triggers controls or the peg breaks. For soft pegs or managed floats, moderate, restrictions are most likely when the currency is under pressure.	LC debt, yes. For FC debt, partially, via offshore escrow, political risk insurance for transfer and convertibility, and liquidity facilities,[25] but residual tail risk remains. Pegged regimes remain structurally difficult because the key risk is regime break.
2. Payments moratorium	Government declares moratorium on private sector external debt	Low for LC debt and domestically paid obligations, moratoria historically targeted external FC obligations.[26]	Yes, in most LC structures. LC denomination plus domestic law contracts typically sit outside moratorium scope.
3. Regulatory and contract interference	Government changes tariff framework, revokes licenses, or forces renegotiation of PPAs	High. This is often the binding channel for domestic infrastructure. It affects cash flow level, timing, and enforceability. This risk is not unique to EMDEs, but the distribution of outcomes, the credibility of institutions, and the ability to enforce contracts differ. Also note the framing matters, this is not always illegitimate interference, it can be lawful regulation that still reallocates value.	Partially. Arbitration clauses, carefully drafted change in law provisions, and stabilization or indexation features can reduce risk, but they are not a complete hedge. MDB co-lending and government engagement can deter opportunistic shifts and support renegotiation discipline. Stabilization should be used selectively and narrowly, aligned with OECD guidance, with clear scope and time limits.
4. Offtaker default	State utility or government agency fails to pay	High. For IPPs and contracted networks, offtaker payment performance is often the primary driver of cash flow risk. Severity depends on whether the offtaker is fiscally supported, tariff funded, or both.	Partially. Escrow and debt service reserve accounts, LC coverage accounts, liquidity reserves, and guarantees on offtaker obligations can help. Effectiveness depends on the offtaker revenue model and the political economy of tariff adjustment and subsidy transfer.

5. Currency devaluation	Sharp LC depreciation increases cost of imported inputs, erodes real revenue value, and raises debt burden where costs or debt are in FC	Moderate and phase dependent. For floating regimes, pressure is often gradual, but stress episodes can be discontinuous. For pegged regimes, probability may be lower in normal times, but break scenarios can be catastrophic (CFA franc devaluation of Jan 1994 (50% overnight))[27]. For renewables, imported input exposure is concentrated in construction, operational exposure is usually lower, but the offtaker's own cost base may be import sensitive.	Largely yes for construction risk, within limits. Fixed price or capped price EPC contracts can contain construction cost escalation, supplemented by indexed allowances, explicit contingency budgets, FX split procurement, and sponsor support undertakings[28,29]. In operations, indexation and cost pass through provisions in PPAs can reduce real revenue erosion, but the remaining risk may reappear through the offtaker channel if tariffs do not adjust. [30,31] For pegs, mitigability remains limited because a regime break can dominate.
6. Banking system collapse	Domestic banks fail, liquidity dries up, refinancing and working capital channels break	Moderate. Long term contracted infrastructure can have limited working capital needs, but refinancing risk becomes material when maturities do not match contract tenors, or where local banking links are central to liquidity management.	Partially. Tenor matched debt and MDB participation reduce reliance on domestic rollover. Offshore banking arrangements can break circular dependence. External support counts as mitigation only when legally committed and independently enforceable, not when it is based on implied relationship support.
7. Expropriation or confiscation	Government seizes project assets	Low in practice for contracted infrastructure relative to regulatory and payment interference, but consequences are high when it occurs. For lenders, the more common pattern is not outright seizure but adverse regulatory action that impairs value while assets remain in place.[32]	Partially. PRI can be relevant, especially where it provides creditor friendly cover for expropriation and breach of contract. For equity holders, BIT protections and investor state arbitration can matter, but they are slow, uncertain, and not a substitute for credit mitigation. In most settings, domestic legal protections exist on paper, but enforceability is what drives credit relevance.
8. Macroeconomic contagion	Recession reduces demand or industrial activity, weakens counterparties, compresses fiscal space	Moderate but often structurally limited for contracted assets. Take-or-pay and availability structures reduce volume risk, but exposure can re-enter through the offtaker and fiscal channels. For ICT, subscription demand can soften, but essential services are more resilient than discretionary consumption.	Largely yes for contracted assets with strong payment structures. Residual exposure remains where the offtaker's solvency is itself sovereign linked, or where tariff adjustment and subsidy transfer are politically constrained.

In practice, the ceiling operates as if all eight transmission channels were jointly and near-deterministically binding, irrespective of the currency regime or project structure. This is not a stated methodological assumption but a practical effect: because the ceiling caps the rating identically regardless of which channels are relevant to the specific issuer, the outcome is equivalent to assuming that all channels bind simultaneously.[33]

A disaggregated approach yields a more differentiated result. For a well-structured **domestic revenue power project in a floating local currency regime**, two channels typically dominate in the operational phase: regulatory and contract interference, and offtaker payment risk. The remaining channels are either structurally limited or mitigable under standard project finance arrangements. **In pegged currency regimes**, transfer and convertibility constraints, along with abrupt devaluation, introduce additional tail risk that is not present in the same form under floating regimes (as explained below).

The construction phase presents a different exposure profile. In floating local-currency settings, foreign exchange risk arises primarily from imported equipment and contractor pass-through. This is commonly addressed through fixed-price or capped-price EPC contracts, contingency buffers, and sponsor completion support. Once the project reaches operation, imported input exposure falls significantly for assets with limited foreign currency operating costs. Renewable generation is the clearest case, since fuel is not imported, whereas thermal generation retains residual exposure through imported fuel. At that stage, regulatory stability and offtaker performance remain the principal constraints on credit quality.

Domestic infrastructure projects in EMDEs are not always financed in pure local currency. A material share carries foreign-currency tranches alongside LC debt — typically DFI co-loans, hard-currency commercial debt, or export credit facilities — and the framework set out here treats pure-LC and mixed-LC/FC structures as separate cases rather than collapsing them. Where the capital structure is purely LC in a floating regime, the T&C and devaluation channels operate as discussed above, and most are mitigable or structurally limited.

For a mixed local- and foreign-currency capital structure, the analysis is more complex. The FC tranche reintroduces transfer and convertibility risk as an active channel, not only during construction but potentially through the life of the project. If foreign exchange cannot be obtained for debt service, stress on the foreign-currency tranche can be transmitted to the wider transaction through reserve depletion, weaker coverage ratios, covenant breaches, refinancing constraints, and, where applicable, cross-default provisions. Standard mitigants, including offshore escrow, political risk insurance for transfer and convertibility, liquidity facilities, and DFI participation, can materially reduce this risk, but they do not eliminate residual tail risk.

The ceiling does not distinguish between a pure LC structure in a floating regime and a mixed LC/FC structure in a managed-float regime. It does not assess the quality of T&C mitigants on the FC tranche. It does not model spillover pathways or calibrate a conservative margin to the specific structure. It takes the sovereign rating, derives a ceiling, and applies it uniformly to all domestic-revenue issuers regardless of capital structure, currency regime, project phase, or contractual protections.

B. Focus on the currency regime as a risk factor in the LC setting (both revenues and debt)

The T&C and currency devaluation channels operate very differently depending on the currency regime. Approximately 63 EMDEs have currencies pegged to the US dollar

or euro — including 19 in Africa, of which 16 are CFA franc zone countries pegged to the euro.[34] For domestic infrastructure in these economies, the 'purely domestic LC' characterization is misleading.

Currency regime	Examples (African EMDEs)	T&C channel for domestic infrastructure	Key risk profile
Floating	South Africa (ZAR), Nigeria (NGN), Kenya (KES), Ghana (GHS)	Largely irrelevant for LC debt and LC revenue in normal operations, because cash flows and debt service are domestic and do not require cross border conversion. However, T & C can become relevant in construction where capex, equipment, and services have imported components or are priced in foreign currency, and where the project relies on FX availability for procurement or contractor payments.	Gradual depreciation is the baseline risk, which can be managed through inflation indexed tariffs and pass through mechanisms as discussed in Section 3. Continuous price discovery provides an adjustment mechanism. Construction phase exposure is the binding point where FX rationing or delays can interrupt procurement schedules and raise costs even when operating revenues are in LC.
Hard peg to USD or EUR	CFA franc zone: Senegal, Côte d'Ivoire, Cameroon, etc. (EUR peg); Djibouti (USD currency board); Eritrea (USD peg)	Low in normal times, since convertibility is effectively guaranteed by the peg mechanism (for the CFA franc, backed by the French Treasury guarantee). But tail risk is catastrophic.	Peg break implies sudden large devaluation, with the CFA franc devaluation of January 1994 (50% overnight) as the paradigmatic precedent. Capital controls during a peg defense can affect even domestic transactions. The local currency behaves as a synthetic foreign currency position, which blurs the LC and FC distinction in practice.
Soft peg or managed float	Egypt (EGP, pre 2022 float), Bangladesh (BDT), various crawling arrangements	Moderate. T & C restrictions are most likely precisely when the currency comes under pressure. In these regimes, governments often reach for capital controls as a first line defense.	Risk profile is episodic rather than continuous. Dual exchange rates can emerge, payments can be delayed, and FX can be rationed. For instance, since early 2022, Egypt shifted away from defending a tightly managed exchange rate, allowing the pound to weaken sharply so that by late 2023 it had lost around half of its value against the U.S. dollar as the central bank moved toward a more flexible regime under economic pressure.[35]

The distinction among currency regimes has three consequences. First, for floating regimes, transfer and convertibility risk is generally not binding for LC debt service in the operating phase, because revenues and payments remain domestic. It can still matter during construction where capex and procurement rely on imported components and FX availability. By contrast, in pegged and managed float regimes, T & C restrictions are more likely to bind precisely when currencies come under pressure.

Second, the CFA franc zone is particularly important because it includes several African EMDEs with active IPP programs, including Senegal and Côte d'Ivoire. The peg reduces day-to-day convertibility risk, but it creates tail risk. A peg defense can trigger controls, and a peg break can produce sudden devaluation that no contractual structure fully offsets.

Third, a blanket ceiling cannot capture the differences among a ZAR-denominated project in South Africa, a CFA franc project in Senegal, and an NGN project in Nigeria, even though all three are domestic-revenue and LC-denominated. The currency regime operates as a distinct risk factor that shapes when and how sovereign interference can affect project cash flows, and it should be analyzed explicitly rather than mechanically folded into the sovereign ceiling.

C. Interest-rate tightening as a distinct sub-channel

The currency devaluation channel operates not only through cost escalation for imported inputs, but also through a second, analytically distinct mechanism: domestic monetary tightening. In EMDE stress episodes, central banks often raise policy rates sharply to defend the currency or re-anchor inflation expectations. For projects carrying floating-rate local-currency debt, this creates a separate risk driver that is identifiable, assessable on its own terms, and mitigable using standard project finance tools. It is therefore a clear case where a ceiling framework can overstate risk for well-structured transactions.

The pattern is visible across recent EMDE stress episodes. Turkey raised its policy rate by 625 basis points in September 2018, bringing it to 24%. Egypt implemented cumulative increases of approximately 1,100 basis points starting in April 2022.[36] The credit question is not whether tightening episodes occur. They do, and with some regularity. The question is whether the project's debt structure is built to absorb them.

The mitigation toolkit for this channel is well established: fixed-rate local-currency debt, interest-rate caps or swaps, sculpted amortization profiles with DSCR headroom sized to rate-stress scenarios, and debt-service reserve accounts calibrated to cover rate-shock periods. Where domestic capital markets cannot provide fixed-rate project tenors, specialized hedging vehicles, most notably TCX (The Currency Exchange Fund), can provide long tenor fixed-rate local currency hedges across a wide range of EMDE currencies, with documented capacity to offer hedges of up to 25 years in frontier currencies.[37]

The methodological implication follows. The rate shock channel is distinct from the FX regime question. The argument that floating exchange rates can be credit-advantageous for domestic LC infrastructure concerns macro adjustment, not whether a given project carries fixed- or floating-rate debt. A project with fixed-rate debt and adequate DSCR headroom behaves very differently under tightening than a project with unhedged floating-rate exposure. A uniform ceiling cannot capture that difference; a channel specific assessment can. Because credible mitigants exist, including instruments designed for frontier markets, rate shock exposure should be treated as a candidate for structured mitigation rather than blanket penalization.

D. Correlation between channels

In normal conditions, regulatory interference, offtaker payment risk, currency depreciation, and transfer and convertibility restrictions arise through different institutional mechanisms and often operate separately. Under severe sovereign stress, however, correlations rise. Fiscal pressure, exchange-rate instability, political strain, and weakening payment

discipline can reinforce one another. The empirical record reviewed earlier nevertheless shows that sovereign stress does not translate into universal non-sovereign default. The appropriate analytical position is therefore neither mechanical separation nor automatic co-movement, but partial and stress-dependent interaction among channels.

This is not an unfamiliar problem in credit analysis. Rating methodologies in other contexts, including structured finance, routinely assess multiple risks affecting a single obligor or transaction without simply capping the whole structure at the level of the weakest input. The same logic is relevant here. Once the channels of sovereign transmission have been identified, the analytical task is to assess their likely interactions under stress, the durability of the mitigants in place, and the residual risk remaining after those mitigants are taken into account. Where that residual uncertainty warrants conservatism, the conservatism should be calibrated to the structure rather than imposed by rule. This is what Section III does in the context of the regulatory and offtaker risks.

III. Regulatory and Offtaker Risk as Binding Channels in LC settings

The common objection to differentiating ceilings for domestic revenue entities is straightforward: without offshore revenue, they cannot structurally isolate their cash flows from the sovereign. That observation is correct, but incomplete. The relevant question is not whether domestic revenue can be transformed into offshore revenue—it cannot— but whether the specific transmission channels through which sovereign stress affects the entity can be mitigated even when revenues remain domestic.

Two channels are both binding to domestic infrastructure and not easily mitigable under usual international project finance arrangements: regulatory and contractual interference, and offtaker default. This section takes each in turn. The distinction is fundamental: legally committed, clearly triggered, and operationally enforceable support counts as structural mitigation. Relationship-based expectations do not. Policy alignment, reputational concerns, or discretionary support from sovereigns, MDBs, DFIs, or other counterparties may still matter analytically, but they should be treated as qualitative context rather than credit protection equivalent to a binding guarantee, committed liquidity, or another independently enforceable support arrangement.

A. Regulatory interference

Certain stress conditions are consistently associated with regulatory intervention. Fiscal strain can suppress tariff adjustments, delay subsidy transfers, or shift quasi-fiscal losses onto utilities. External or currency shocks can produce similar effects when cost pass-through becomes politically constrained. Sector-level distress, particularly at state-owned utilities, can also trigger intervention once accumulated losses become fiscally or socially untenable.

Regulation becomes the adjustment mechanism because infrastructure tariffs are visible, politically sensitive, and administratively flexible. Regulatory changes can be implemented more quickly than fiscal reform, and utilities often sit at the interface between sovereign balance sheets and consumers. As a result, stress that originates at the macro level is frequently transmitted through tariff and contract frameworks rather than through explicit budgetary action.

Not all forms of regulatory intervention are relevant to default. The forms that matter for credit analysis are those that impair the predictability or sufficiency of project cash flows. These include sustained tariff freezes without compensatory transfers, denial of cost pass-through during prolonged increases in input prices, sudden prohibition of hard-currency-indexed pricing, forced contract renegotiation that alters payment timing, and administrative delays that disrupt scheduled revenue realization. Isolated policy adjustments may compress margins. Payment impairment arises when intervention reduces or delays cash inflows beyond available liquidity buffers or contractual protections.

Government intervention can also alter project economics through forced procurement choices or local-content mandates that increase costs or degrade execution quality.

Cost-side mitigation is necessary but not sufficient; the revenue-side pass-through requirement is needed as well. A critical distinction — relevant both here and in the devaluation channel — is that cost-side mitigants address only the input cost dimension of financial stress. They do not protect project revenue. If a project's costs rise due to sovereign-driven inflation, devaluation, or procurement interference, but its offtake revenue is denominated in the same currency and is not adjusted for inflation or input cost movements, debt service capacity can erode even where construction cost is contractually ring-fenced and regulatory interference has not directly impaired the tariff level.

Revenue-side protection, therefore, requires a separate, independently designed mechanism: inflation-indexed tariff or availability payments, fuel-cost adjustment clauses embedded in the PPA, or regulated cost-pass-through formulas with automatic triggering. Nigeria's Multi-Year Tariff Order (MYTO) provides a concrete example of **formalized revenue-side pass-through:** it includes explicit provisions for periodic tariff adjustments that reflect both inflation dynamics and input cost movements, including fuel price changes, which are activated through a defined regulatory formula rather than administrative discretion.[38] Cross-country RISE data confirm that inflation-indexation of PPA tariffs is a standard design feature in a significant number of EMDE power sector frameworks, reflecting lenders' and investors' requirements to manage the revenue-erosion dimension of devaluation and inflation stress. Where this feature is absent, cost-side mitigants alone leave the project exposed to real revenue erosion that no amount of construction contingency or EPC fixed-price discipline can address. A complete credit assessment of the devaluation and regulatory interference channels, therefore, requires two separate analytical steps: whether cost-side exposure is contractually contained, and whether revenue is sufficiently indexed to preserve real debt-service capacity.

Mitigants in the regulatory channel do not prevent the exercise of sovereign authority. Rather, they operate by reducing the likelihood that intervention occurs in a form adverse to creditors, by limiting the impact of intervention on project cash flows if it does occur, or by delaying the point at which intervention becomes default-relevant.

Certain structural features primarily affect the likelihood by constraining discretionary adjustment. Formula-based tariff regimes with automatic cost pass-through and FX-indexation pricing mechanisms reduce political flexibility during periods of fiscal or affordability pressure by embedding adjustments within pre-specified rules. Where tariff revisions are rule-bound rather than administratively discretionary, the likelihood that regulatory stress leads to abrupt or retroactive intervention declines. When it comes to local content requirements, project contracts that ensure transparent and competitive procurement with clear performance criteria, independent technical oversight to verify execution, and a step-in right by the lender in case of underperformance, reduce the risk that legitimate policy objectives hurt project execution economics. Although none of these structures eliminates exposure to sovereign stress altogether, taken together, they narrow the range of feasible intervention paths.

Political risk tools such as arbitration clauses, treaty protections, and stabilization provisions may raise the cost of unilateral regulatory change and, in turn, affect sovereign incentives. But their role as mitigants should not be overstated. They do not eliminate the underlying regulatory risk, and they can constrain legitimate public-interest action, especially where

tariff reform or regulatory adjustment is needed to address affordability, distributional concerns, or social unrest. In those cases, raising the cost of intervention may delay necessary policy correction and increase the likelihood of more abrupt or disorderly action later. These instruments are at best limited mitigants and should not substitute for sound regulation, credible institutions, and contract design that preserves policy space.

MDB and DFI participation can be a more effective political risk mitigant because it embeds the project within broader sovereign, multilateral, and policy relationships. These arrangements do not remove the state's legal ability to intervene, but they can raise the political and economic cost of doing so. Other mitigants work mainly on impact rather than likelihood. Escrowed subsidy flows, ring-fenced revenue accounts, and defined payment waterfalls can preserve cash flow continuity when tariff adjustments are delayed or only partially implemented. Liquidity reserves and DSCR buffers extend the period over which revenue disruption can be absorbed without impairing debt service. In these cases, intervention may still occur, but its immediate transmission to creditors is weakened.

The effectiveness of these tools varies materially across jurisdictions and regulatory settings. Arbitration and treaty protections may deter overt expropriatory acts, but they are less effective against gradual regulatory erosion and can even prove counterproductive where reform is justified to preserve long-term project viability. Structural tariff protections may reduce discretion on paper, yet remain fragile where political authorities can override regulators in practice. What matters, then, is not whether mitigants exist on paper, but whether the package as a whole lowers the probability that regulatory stress becomes binding, limits the severity of cash flow disruption if it does, or merely shifts losses after impairment has already occurred.

Where mitigants materially change either the likelihood or the impact of transmission, the regulatory channel cannot be assumed to bind uniformly across projects operating under the same sovereign conditions. Explicit assessment of these modifiers provides a more precise basis for differentiating default-relevant risk than reliance on sovereign-level proxies alone.

Regulatory interference as a bundle: tariff, procurement, and licensing sub-channels. Regulatory interference is not a single transmission mechanism. The forms of regulatory action that become default-relevant for an infrastructure project are those that impair the predictability or sufficiency of project cash flows, and these operate through at least three analytically distinguishable sub-channels.

The first, and most extensively studied, is tariff-level interference: sustained freezes, retroactive resets, or denial of cost pass-through that directly reduce or eliminate the contracted revenue stream. The Spanish experience is the standard reference for the severity this channel can reach, even in investment-grade jurisdictions.[39]

The second is licensing and permitting interference. This includes delays in approvals, non-renewal of operating licenses, or the imposition of data-localization, spectrum allocation, or content-restriction requirements. In digital infrastructure, these measures can play a role similar to tariff interference by creating administrative uncertainty around revenue continuity without formally changing the tariff itself.

The third, often underweighted in credit analysis yet frequently emphasized by practitioners, is procurement and local-content distortion. Where local content

requirements are applied transparently and with competitive selection criteria, they may raise costs at the margin without undermining viability. When applied arbitrarily or used to extract rents, they can push costs beyond contingency buffers and compromise construction quality. This also complicates the idea that infrastructure is uniformly defensive. Government reliance on infrastructure may reduce the likelihood of outright abandonment, but it can also increase the political incentive to shape who benefits from the project. A ceiling cannot capture that distinction. A channel-based assessment can ask whether the concession framework credibly protects cash flows under political as well as operational stress.

The mitigants for procurement-related interference are also different from those relevant to tariff risk. They include procurement governance provisions embedded in project agreements, independent engineering oversight with clear technical acceptance criteria, change-in-law clauses that allocate regulatory cost increases to the concession grantor, and lender step-in rights. A complete mitigant assessment, therefore, needs to examine each sub-channel separately, which is precisely the kind of differentiation a blanket ceiling does not allow.

In that regard, two cases are instructive.

- *South Africa (REIPPP suspension 2015–2019).* The REIPPP program was suspended for new bid windows between 2015 and 2019, widely attributed to political dynamics within the ruling ANC and opposition from the incumbent state utility, Eskom.[40] However, existing PPAs for already-contracted projects were honored throughout the suspension period. The distinction matters: regulatory interference with new procurement is qualitatively different from retroactive interference with existing contracts. As a result, project-level cash flows servicing debt were not impaired. Regulatory stress was present, but it did not cross the threshold into default relevant transmission.
- *Spain (retroactive solar tariff cuts 2010–2014).* Between 2010 and 2014, the Spanish government enacted a series of retroactive changes to its solar photovoltaic feed-in tariff framework, culminating in Royal Decree-Law 9/2013 and Law 24/2013, which abolished the fixed feed-in tariff entirely. The Spanish Photovoltaic Union estimated that approximately 30% of solar PV projects suffered income cuts of around 40%, rendering many unable to service their debt.[41]

Implications: Spain was rated Baa1 to Baa3 (investment grade) when it enacted retroactive changes to its solar support regime. Spanish solar projects were therefore not constrained by a sovereign ceiling. Yet the regulatory intervention was more severe than anything observed under South Africa's REIPPP program, where existing PPAs were honored throughout the procurement suspension. The contrast is straightforward. Investment-grade status did not prevent retroactive interference in Spain, whereas sub-investment-grade status did not result in impairment of contracted projects in South Africa. This suggests that regulatory risk cannot be inferred from the sovereign rating alone, but must be assessed at the level of the specific project and contract structure.

An EMDE project faces identical or lesser regulatory risk but is ceiling-constrained. The ceiling methodology does not assess the probability or severity of regulatory interference; it uses the sovereign rating as a proxy. This proxy fails in both directions: it understates the risk in investment-grade jurisdictions where governments have demonstrably interfered, and overstates it in EMDE jurisdictions where contractual protections have held.

Mitigating regulatory interference risk

To address these risks, various structural mitigants can be employed, as summarized in the following table.

Mechanism	How it works	Effectiveness	Available today
International arbitration clauses in treaties and contracts	The PPA or concession includes international dispute resolution (for example ICSID, ICC, LCIA). If government action impairs contractual rights, the investor can seek an award that imposes financial consequences on the state.	Moderate, mainly through deterrence and back-end remedy. Arbitration can raise the expected cost of adverse action and may support negotiated settlement. It does not prevent regulatory change, and it does not guarantee timely cash flow protection for lenders during the dispute. Enforcement can be slow and political. Empirically, arbitration has not stopped governments from implementing policy changes, including where those changes were later challenged. Spain's experience illustrates that lawful policy shifts can proceed even while claims are pursued, and even where compensation is later ordered for some claimants. Use with care as a credit mitigant.[42]	Yes. Common in many EMDE IPP and infrastructure contracts, but treaty coverage and practical enforceability vary widely by jurisdiction and counterparty.
Stabilization agreements	The state contractually commits to maintain certain fiscal or regulatory terms for a defined period, or to compensate if changes adversely affect project economics.	Moderate at best and highly context dependent. Stabilization can reduce exposure to targeted, narrowly defined changes, but it is not a blanket shield against legitimate regulation. Overbroad clauses can be politically fragile and are increasingly discouraged. OECD guidance emphasizes that stabilization should be limited, time bound, and compatible with the state's right to regulate in the public interest. In practice, enforceability often depends on dispute resolution, political will, and the design of the clause itself. This tool can also be counterproductive if it becomes a focal point for backlash or is perceived as constraining legitimate reform.[43]	Yes, but uneven. Historically common in extractives and still used in some power and digital infrastructure. Increasingly scrutinized by governments, DFIs, and civil society, especially where drafted broadly.
MDB or DFI co- lending and participation	MDB or DFI involvement changes incentives. The government may be less willing to trigger a dispute that affects broader institutional relationships, future pipeline, or cross sector engagement.	This is the strongest deterrence-based mitigant available, but it works through relationships and incentives, not legal compulsion. Governments think twice before actions that jeopardize MDB pipeline, cross-sector engagement, and policy support. GEMs performance data are consistent with that. Still, it does not bind the sovereign legally, and it cannot prevent regulatory change. that the government considers legitimate or necessary.[44]	Yes, but constrained. Limited by MDB capital, eligibility rules, and project pipeline.
MIGA political risk insurance	MIGA cover can address specific government related risks, including breach of contract, expropriation, transfer and convertibility restrictions, and war or civil disturbance, depending on the policy.	High for covered risks, with important limits. PRI can be material where triggers and claims process align with the cash flow profile and creditor needs. Coverage scope, waiting periods, exclusions, and claims resolution timelines matter for credit. Access may be limited for the most vulnerable sovereigns depending on product and platform, and coverage often needs to be paired with other features to address residual risks.[45]	Yes, with constraints. Capacity, pricing, and eligibility vary by country and product. Some offerings may require minimum sovereign credit quality or other conditions, and take up can be limited by transaction costs.

B. Offtake interference

In EMDE power sectors, the offtaker is most commonly a state-owned utility — the counterparty structure most strongly correlated with sovereign credit quality, and therefore the most challenging case for above-ceiling arguments.[46] A second principal pathway through which sovereign or sector stress becomes payment relevant is financial stress at the level of the public offtaker or utility. Unlike regulatory intervention, which operates through formal modification of tariffs or contractual terms, offtaker stress typically affects projects through deterioration in payment timing and reliability. The relevant analytical question is when counterparty stress shifts from liquidity pressure to payment impairment, potentially triggering default.[47]

Offtaker stress often arises from a combination of tariff suppression, input cost shocks, foreign-exchange mismatches in utility liabilities or fuel procurement, and arrears accumulation within the broader public sector. Many utilities operate with structurally thin margins and depend on a combination of tariff revenue, government transfers, and short-term financing. When these components weaken simultaneously, liquidity stress can emerge quickly.[48]

The transmission of offtaker stress to project payment impairment often follows a predictable sequence. Reduced operating margins constrain internal cash generation. Payment delays to suppliers and independent producers are lengthening. Project-level reserves or working capital facilities are drawn to cover shortfalls. If stress persists and external support is delayed or withdrawn, payment interruptions or partial payments may follow. The progression is often gradual, but the threshold between delay and impairment can be crossed rapidly when liquidity buffers are thin. Even where ultimate loss is avoided, payment delays can still create lender stress (DSRA drawdowns, covenant pressure, refinancing risk), which is why payment-security structures target liquidity and timing as well as ultimate recovery.[49]

Not all offtaker stress is default relevant. Utilities frequently operate under financial strain while continuing to prioritize payments to generation and network assets. Payment impairment becomes likely only when liquidity pressure exceeds available buffers, arrears extend beyond contractual grace periods, or sovereign support weakens. System-wide liquidity crises can accelerate this shift by forcing reprioritization across counterparties.[50]

The key distinction is between stress absorbed on the utility's balance sheet and stress that disrupts the project's cash flow. If delays remain within contractual protections and reserves are adequate, debt service can continue despite deteriorating utility metrics. Once delays exceed those protections or liquidity buffers are depleted, the channel becomes binding.[51]

Mitigants in the offtaker channel do not remove counterparty risk. They influence whether stress reaches the project, how severe the impact is, and how quickly it becomes relevant. Structural payment security tools such as debt service reserve accounts, letters of credit, escrow arrangements, and defined payment waterfalls primarily affect the impact and timing of payments. They extend the period during which delayed payments can be absorbed, but they do not prevent underlying stress.[52]

Revenue insulation mechanisms, such as availability payments or take-or-pay provisions, also require careful scrutiny. Their effectiveness depends on the source of the offtaker's payment capacity. When the utility is funded largely through government transfers rather

than tariff revenue, these structures are, in economic terms, "fiscal commitments." They may delay or condition transmission, but they do not eliminate sovereign exposure.[53] A rigorous assessment should therefore differentiate between: (a) offtakers with self-funding tariff revenue and commercial discipline; (b) offtakers reliant on government transfers but operating with contractual ring-fencing and liquidity buffers; and (c) offtakers that function effectively as extensions of the sovereign balance sheet.[54]

Credit enhancements may operate on both likelihood and impact. Sovereign guarantees, partial risk guarantees, and multilateral credit support can reduce the likelihood that a utility allows payment arrears to accumulate by increasing the financial, reputational, or political consequences of non-payment. They also modify potential impact by transferring the ultimate payment obligation to a higher credit counterparty.[55]

The effectiveness of these mitigants depends critically on their design and enforceability. A guarantee subject to prolonged procedural disputes may reduce the severity of ultimate losses without preventing interim liquidity stress. A reserve sized to cover several months of payments may preserve payment continuity in a short-lived liquidity squeeze but provide limited protection in a prolonged fiscal crisis.[56]

As in the regulatory channel, the relevant analytical inquiry is not the presence of mitigants in isolation, but whether they meaningfully change the probability that offtaker stress becomes binding, limit the severity of cash flow disruption if it does, or merely reallocate losses after impairment occurs.[57]

A methodology that does not disaggregate these transmission mechanics risks treating counterparty stress as a homogeneous sovereign constraint. By focusing on the conditions under which offtaker stress actually disrupts project cash flow, rather than on sovereign deterioration alone, a transmission-based approach provides a more precise method for differentiating between default risk across domestic infrastructure credits.[58]

Eskom is an instructive case. As of early 2026, Eskom remains in a fragile financial position: Moody's rates its corporate family rating at B2 (upgraded from B3 in September 2024), Fitch rates it B with a standalone credit profile of ccc+ (affirmed May 2025), and S&P rates it B with a positive outlook (upgraded from CCC+ in November 2024).[59] The South African government has provided debt relief, originally announced at R254 billion under the Eskom Debt Relief Act (2023), which was subsequently reduced to R230 billion under the Eskom Debt Relief Amendment Act (2025), reflecting Eskom's improved financial position. Municipal arrears had grown to over R100 billion by August 2025.[60] Eskom is improving but remains several notches below investment grade on a standalone basis.[61]

Yet REIPPP IPPs have continued to receive payments because: (a) the Implementation Agreement includes a sovereign guarantee backstopping Eskom's PPA obligations; (b) payment waterfall provisions prioritize IPP payments; and (c) the government's political commitment to the renewable energy transition creates a powerful incentive to honor these obligations.[62]

The Eskom REIPPP experience underscores the aforementioned analytical distinction. While Eskom's financial condition clearly signals elevated counterparty risk, the channel through which that risk would impair project-level debt service (namely, sustained interruption or delay of contracted PPA payments[63]) has remained inactive. Liquidity

stress has instead been absorbed within the utility and, where necessary, the sovereign balance sheet. Offtaker stress is present, but not binding for project debt service.

The same logic applies across EMDE IPP programs: offtaker default risk is real but structurally distinct from sovereign default risk, and in modern project finance transactions, it is typically mitigated through guarantee frameworks, payment waterfall prioritization, and liquidity coverage mechanisms.[64]

The implications for sovereign ceiling methodology mirror those observed in the regulatory channel. Ceiling-based approaches tend to treat weakness at a state-owned utility as a uniform extension of sovereign credit quality, implicitly assuming mechanical transmission to project payment impairment.[65] The Eskom case demonstrates that this assumption is overly coarse: even projects selling to the same distressed utility may face materially different default risk depending on how payment obligations are structured, prioritized, and backstopped.[66]

Mitigating the offtaker default risk

Mechanism	How it works	Effectiveness	Available today?
Sovereign guarantee on offtaker obligations	Government provides explicit guarantee of state utility's PPA payment obligations. SA REIPPP model: Implementation Agreement between DOE, Eskom, and IPP includes sovereign backstop.	Moderate, subject to circularity. The guarantee has empirically worked (zero REIPPP defaults despite Eskom's deep distress). But if the sovereign itself defaults, the guarantee is only as strong as the sovereign's willingness and ability to honour it. Actual protection comes from the incentive structure (e.g.: the government needs electricity, it also needs MDB relationships) rather than the guarantee's legal enforceability in a sovereign default scenario.	Yes — standard in most EMDE IPP programs.
LC coverage / escrow accounts	Dedicated reserve accounts funded from project revenues, held in domestic commercial banks, sized to cover 3–6 months of debt service.	Moderate: provides liquidity buffer against payment delays. Does not protect against sustained offtaker non-payment but covers the most likely scenario (temporary delays during fiscal stress).	Yes — standard project finance structuring.
MDB guarantee of offtaker payment	World Bank PRG, IDA guarantee, or MIGA NHFO covering specific payment obligations of the state utility under the PPA.	High: converts offtaker credit risk into MDB credit risk for the covered portion. This is the mechanism that most directly breaks the circularity between sovereign and offtaker credit quality.	Yes but limited: WBG guarantee capacity constrained; requires government counter-guarantee, tightening fiscal space through contingent liabilities..
Payment waterfall priority	Project finance payment waterfall prioritizes senior debt service over distributions to equity.	Moderate: effective for payment timing but does not address fundamental offtaker insolvency.	Yes — standard.
Partial credit guarantee from DFI	GuarantCo, PIDG, or similar provides partial credit guarantee on project bonds.	High for the guaranteed portion. GuarantCo's AA- (Fitch)/ A1 (Moody's) rating allows bond issuance at significantly lower spread.[67]	Yes, but limited scale of the facilities.

This analysis focuses on mitigants that operate within the off-taker relationship — reducing the probability or impact of selective non-payment while the off-taker remains the sole revenue source. It does not address the separate case of credit substitution, where a partial credit guarantee from a DFI or political risk insurance covering non-honoring of financial obligations introduces an independent payment source that replaces, rather than mitigates, the off-taker's credit risk on the covered portion. Credit substitution raises distinct analytical questions — including the degree of coverage, the enforceability of the guarantee, and the guarantor's credit quality— that merit separate treatment.

C. Bringing it all together through illustrative examples: Transmission channels, mitigation strategies and expected rating

The value of disaggregation is more than theoretical. Once the channels are specified, it becomes possible to evaluate a transaction on its actual exposure rather than its jurisdiction alone. The following examples illustrate how this approach changes the credit picture in practice. By mapping binding channels, assessing mitigation strength, and comparing outcomes with observed performance, we can derive an expected rating range that differs meaningfully from a ceiling-driven cap.

Power sector

A REIPPP solar IPP structured with the strongest available mitigants — including IFC co-lending and MIGA cover (PRI for equity investors, NHFO for lenders), features present in several but not all REIPPP transactions — faces two partially binding channels out of eight (regulatory interference and offtaker default), both structurally mitigated. Its actual default performance (zero defaults across 92 IPPs in Bid Windows 1–4 since 2011,[68] including through Eskom's ccc+ standalone distress and South Africa's multi-notch downgrade) is consistent with investment-grade risk. For debt providers, the most direct MIGA instrument is typically Non-Honouring of Financial Obligations cover (NHFO/NHSO), where "the primary beneficiaries… are commercial lenders"; PRI primarily covers equity investors against expropriation, transfer restrictions, and related political risks, though it can be structured for lenders as well. For project-financed infrastructure, NHFO is typically the primary credit enhancement from the lender perspective.

Under a methodology that assessed these channels explicitly, such a project could reasonably warrant a rating 2–4 notches above the sovereign. We cannot know with certainty how a CRA would treat the specific structural features because individual REIPPP SPVs do not carry public ratings; but the methodology's conditions for above-sovereign ratings, as published, would cap the rating at Ba2 at best.

Channel	Binding?	Mitigation assessment
T and C risk	No	Revenue and debt are in ZAR (floating currency). Cash flows do not need to cross borders, so transfer and convertibility risk is not binding in normal operations. Note: this assessment would differ for a CFA franc country IPP, where the peg can create latent T and C tail risk (see Section II.B).
Payments moratorium	No	LC obligations under domestic contract. Historical moratoria have primarily targeted foreign currency external debt.
Regulatory and contract interference	Partially	The REIPPP program was suspended for new bid windows between 2015 and 2019, yet existing PPAs were honored throughout. This is the key distinction: procurement freeze is not contract breach. MDB and DFI participation can strengthen deterrence, but no mitigant eliminates the sovereign's right to regulate.
Offtaker default (Eskom)	Partially. Multiple MDB and DFI participants (IFC, AfDB, DBSA, DFC, EIB)	Eskom rated B2 (Moody's), B (Fitch and S&P). However, the payment stack for IPPs includes a sovereign guarantee backstop plus an Implementation Agreement and payment waterfall priority for IPPs. IPP payment defaults have been avoided even during Eskom's severe financial distress, which supports the view that this channel is partially mitigated in practice.
Currency devaluation	Low	Revenue and debt both in ZAR, creating a natural hedge. Inflation indexed tariffs protect real revenue. Construction phase import exposure may still matter, but operating phase devaluation is not a primary driver under LC revenues and LC debt.
Banking system collapse	Low	Project finance structure with long term debt matched to PPA tenor reduces refinancing dependence on domestic banks.
Expropriation	Very low	Outright seizure of operating power assets is rare — governments need the electricity. The more common risk is adverse regulatory action that erodes value while assets remain in place. MIGA coverage can help, but the instrument matters: NHFO protects lenders against payment interruption; PRI covers equity against expropriation. BIT protections are back-end remedies, not cash flow shields.
Macro contagion (demand)	No	For availability based PPAs, IPP revenues are independent of actual dispatch volumes. For energy based PPAs with take or pay, IPP revenues are contractually protected against curtailment and demand weakness, though a sustained macro downturn can still transmit indirectly through the offtaker's fiscal position and willingness to honor obligations. REIPPP contracts are more commonly energy based rather than availability based, so the take or pay structure is the more relevant reference point here.

IT sector

The following illustrative case draws on the profile of EMDE data center and fiber-optic network investments currently attracting DFI participation in Sub-Saharan Africa and Southeast Asia — including IFC-backed digital infrastructure platforms supporting data-center expansion in Kenya and Nigeria, and DFI-supported fiber networks across multiple African jurisdictions.[69] While no specific project is individually rated, the structural features are representative of a growing asset class. Revenues are in LC from a mix of corporate and government contracts (multi-year service agreements with

hyperscalers, telecoms, and government agencies). The debt is in LC with a partial FC tranche covered by DFI co-lending.

Digital infrastructure combines several credit-positive features that the current methodology does not recognize as differentiating: diversified revenue streams (no single offtaker); partial natural hedge through USD-denominated hyperscaler contracts — the credit quality and contractual strength of those hyperscaler offtakers (typically AA/A-rated global entities) should itself support a higher assessment; structural demand growth independent of domestic macro cycles; and essential-service status.

These features do not isolate the entity from the sovereign in the geographic sense required by the methodology, but they substantially mitigate the specific transmission channels through which sovereign stress could impair debt service.

Channel	Binding?	Mitigation Assessment
T&C risk	Partially	FC debt tranche: T&C relevant. LC tranche: unaffected. Mitigable via DFI co-lending and offshore escrow for FC portion.
Regulatory interference	Moderate	Digital infrastructure has less direct government price-setting than the power sector. Main risk: data localization rules, spectrum/licensing.
Offtaker default	Low-to-Moderate	Revenue diversified across multiple corporate and government contracts. No single counterparty concentration. The credit quality of contracted hyperscaler offtakers (e.g., AWS, Microsoft Azure, Google Cloud — typically AA/A–rated) is a material credit-positive that the methodology should assess on its merits.
Currency devaluation	Moderate	Equipment imports in FC; some revenue contracts in USD provide partial natural hedge.
Banking system collapse	Low	International equity sponsors. Limited domestic banking dependence.
Expropriation	Very low	Government depends on the infrastructure for its own digital services.
Macro contagion	Moderate	Demand for data/connectivity is structurally growing and relatively inelastic.

IV. Implications for rating methodologies

For domestic power and information and communications technology (ICT) projects, an important question remains: Why do CRA methodologies treat a contracted-cashflow power project like a speculative-grade corporate? A 20-year contracted solar IPP with take-or-pay energy purchase commitments, inflation indexation, and MDB support has a fundamentally different risk profile from a speculative-grade corporate with cyclical revenues, competitive exposure, and execution risk. Yet the CRA methodologies produce equivalent rating outcomes. In REIPPPP specifically, revenue protection operates through take-or-pay/deemed-energy mechanics rather than a standalone availability-payment model.[70]

A. Methodology architecture

The answer lies in how the ceiling interacts with the project finance methodology in practice. Moody's June 2019 cross-sector methodology[71] is explicit: "Non-financial corporates, infrastructure and project finance issuers are rated more than two notches above the sovereign only in very rare cases where we consider there is minimal likelihood they would default as a consequence of sovereign credit stress or default."

The methodology specifies the conditions for rating above the sovereign:

1. For 1–2 notches above: The issuer is "highly unlikely to default" as a consequence of sovereign default (approximately 75%+ survival probability through a sovereign default event). Credit positive criteria: geographic or revenue diversification, hard-currency revenues, strong standalone fundamentals, and limited dependence on the domestic economy, banking system, or regulatory framework.
2. For 3+ notches above: "Minimal likelihood" of default as a consequence of sovereign stress or default. Credit positive criteria: a substantial majority of operating assets and cash flows outside the country, essentially no reliance on domestic funding sources, and absence of a firm credit linkage to a single country.[72]

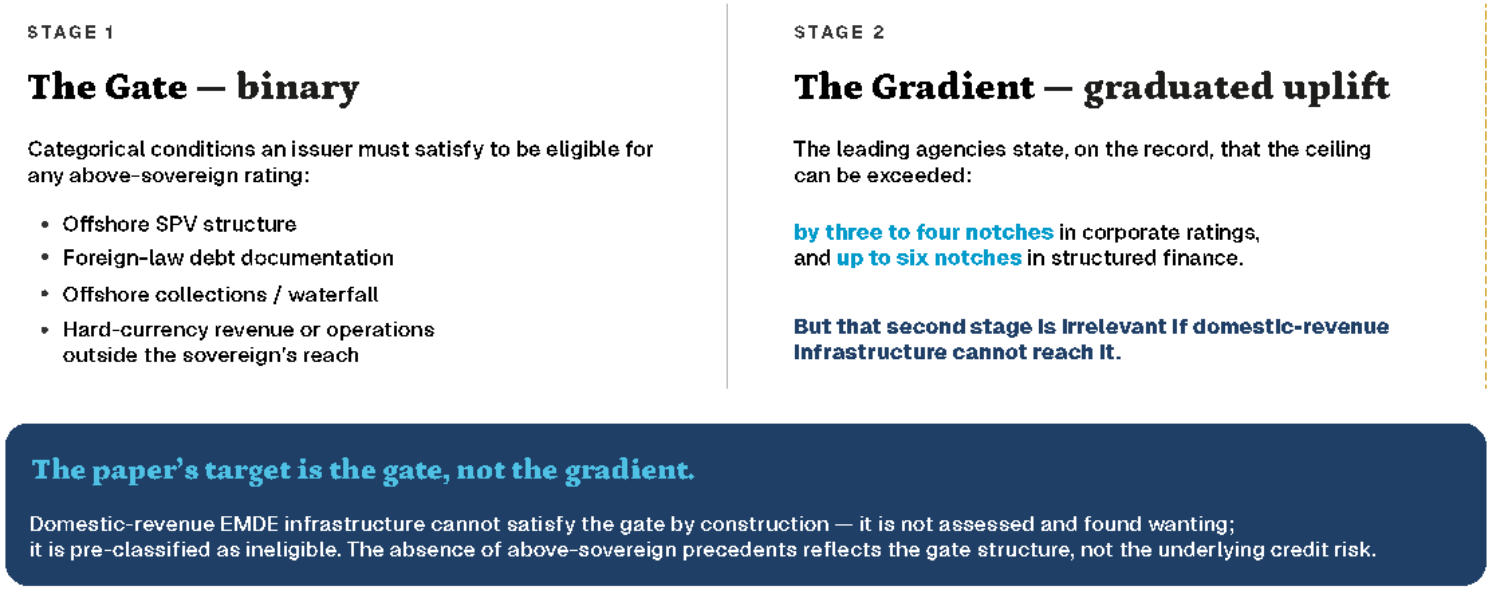
Critically, footnote 6 of the country ceiling methodology (Dec 2020) states: "For a primarily domestic issuer, cash flow, assets, and sources of financing outside of the country of domicile are unlikely to be sufficient to allow the issuer's ratings to pierce the country ceiling."[73]

Indeed, a domestic-revenue power IPP would fail every one of these conditions by definition:

- Revenue diversification > 100% domestic revenue > Fails.
- Hard-currency revenues > Revenue in local currency > Fails.
- Majority of assets outside the country > Physical plant is in the country > Fails.
- Limited dependence on domestic economy > Sells to a domestic state utility > Fails.
- Limited dependence on regulatory framework: Operates under domestic energy regulation > Fails.

The criteria foreclose domestic-revenue infrastructure by construction — and this matters both for rating outcomes and for how the absence of precedents should be interpreted. The published conditions for above-sovereign or above-ceiling ratings are defined primarily in terms of insulation from the domestic jurisdiction: hard-currency revenues, majority assets and cash flows located outside the country, minimal dependence on the domestic banking system, regulatory framework, and economy. A domestic-revenue power or digital infrastructure project fails every one of these conditions by definition — its revenues are in local currency, its physical assets are in-country, it sells to a domestic offtaker, and it operates under domestic energy or telecommunications regulation. A 20-year contracted solar IPP with a 1.35x DSCR, mature and well-understood technology risk, inflation-indexed revenues, MDB support, and a strong operating track record would be rated identically to a speculative corporate with cyclical revenues and no structural protections, because both fail the same geographic and revenue tests. The above-sovereign criteria are not poorly matched to this asset class; they are logically inapplicable to it.

The consequence is significant for how the evidentiary record should be read: the absence of verified above-sovereign precedents in domestic-revenue EMDE infrastructure reflects, at least in part, methodological foreclosure — the criteria do not provide a pathway to assess the risk on its own structural terms; instead, they pre-classify it as non-qualifying. The image below exemplifies this dynamic. Treating that absence as empirical confirmation of the necessity of a ceiling would be circular reasoning: it confuses the effect of the methodology with evidence about the underlying credit risk. The appropriate inference is that the methodology has not been tested against this asset class on its own terms, not that the asset class has failed the test.



Source: Prepared by Authors

This pattern is not unique to EMDE infrastructure. The mechanism by which a methodology cap binds without producing a public record of failed transactions is well documented for structured finance more generally. The Bank for International Settlements' Committee on the Global Financial System, in its 2005 report on the role of ratings in structured finance, observed that arrangers routinely drop or restructure proposed tranches when CRA models cannot support the target rating without uneconomic credit enhancement, and that the resulting non-completions are seldom announced; the public record reflects criteria, not casualties.[74] Recent developments in shipping securitization illustrate the same dynamic in another asset class. Standardized treatment under Basel 3.1 risk-weights unrated shipping exposures at 100%, while securitization with appropriate diversification and credit enhancement could deliver risk weights of 65% to 90% for investment-grade ratings.[75] ARC Ratings' 2025 framework was developed explicitly to enable such transactions, based on the analysis that the sector's prior absence from the rated securitization universe reflected methodological treatment as much as underlying credit quality.[76] The same logic applies to EMDE domestic-revenue infrastructure: the asset class is structurally absent from the rated public market for reasons that include, but are not limited to, the methodology cap, and methodology change is one of the necessary (though not sufficient) conditions for it to enter that market in scale.

B. What the methodology does not assess

The current methodology asks: "Is the entity isolated from the sovereign?" It does not ask:

1. Which specific transmission channels connect this entity to sovereign default risk?
2. Are those channels mitigated by contractual, structural, or institutional protections?
3. What is the residual probability that sovereign distress would actually cause this entity to default, given the mitigants in place?
4. Does the empirical default record support the implied default probability at the capped rating level?

These are the questions that a modular, that is, granular, channel-cognizant, and instrument-specific methodology would ask.

C. A simple alternative framework

A more effective framework would assess credit risk at the level of the individual transaction or issuer, taking into account both exposure to sovereign-related risks and the effectiveness of mitigation measures. The paper proposes a four-step architecture:

Step 1 — Standalone credit assessment: evaluate intrinsic creditworthiness based on project fundamentals, financial structure, and counterparty quality, without reference to the sovereign ceiling.

Step 2 — Transmission channel mapping: for each of the eight channels, assess (a) whether it is structurally active for this instrument; (b) the probability it becomes binding under stress; and (c) the credibility and enforceability of available mitigants.

Step 3 — Reposition the sovereign as a contextual factor: where channels are identifiable, and mitigants credibly address them, the sovereign's influence is captured within the channel analysis as a factor informing channel activation, binding probability, and mitigant strength, not applied as a ceiling that overrides the channel-level analysis. The output is a graduated uplift calibrated to the cumulative decoupling observed across channels. Current methodologies achieve this gradient only for issuers that pass a structural-template gate; the framework proposed here achieves it through channel-level assessment.

Step 4 — Retain a conservative bound where warranted: where channels cannot be observed, regulatory discretion is opaque, or mitigants are untested, a sovereign-level proxy retains a prudential purpose. It is applied selectively, not universally.

The methodological change above affects capital flows only through the channels through which ratings are used, and different investor classes use the sovereign ceiling differently. For capital markets investors, the ceiling serves as a benchmark: bonds are priced and tracked against comparably rated peers, and inclusion in flagship indices follows from index providers' rating-based eligibility rules. For institutional debt investors operating under fiduciary or fund-mandate rules, the ceiling functions as a hard gate at the investment-grade threshold, excluding sub-investment-grade exposures from the eligible universe regardless of structure. For banks, the rating is a direct capital-allocation input under the Basel standardized approach; the 3.1 output floor makes the standardized treatment binding for many internationally active institutions even where internal models would otherwise assign a lower risk weight.

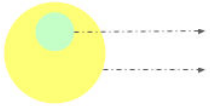
A methodology that reaches investment-grade outcomes for instruments whose disaggregated risk profile supports them can, in principle, relax each of these constraints — index eligibility, mandate eligibility, and risk-weighted capital — without legislative or supervisory change. Methodology reform on its own does not move capital. It does, however, remove the principal rating constraint on which each of these levers presently operates.

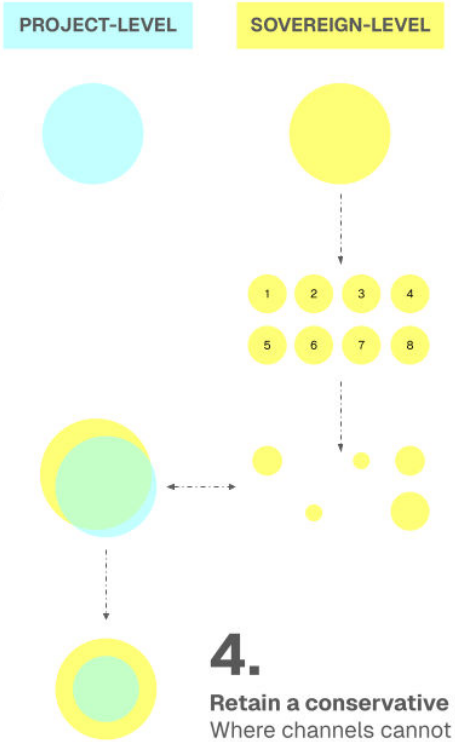
Assessing Credit Risk

Toward a more granular and modular approach to assess credit risk at the level of the individual transaction or issuer, taking into account both exposure to sovereign-related risks and the effectiveness of mitigation measures.

Historic Context

In the 1980s and 1990s, defaults were often accompanied by broad economic dislocation, including currency collapse, capital controls, and disruptions to domestic financial systems. In this context, it was reasonable to assume that corporate and project-level borrowers would be unable to meet external obligations if the sovereign itself was in distress.





1.

Standalone credit assessment
Evaluate intrinsic creditworthiness on the basis of **project fundamentals, financial structure, and counterparty quality**, without reference to the sovereign ceiling.

2.

Transmission channel mapping
1. Restrictions on foreign exchange conversion and transfers **2.** Government-imposed payment moratoria **3.** Regulatory and contractual intervention **4.** Default or delayed payment by state-controlled counterparties **5.** Currency depreciation and inflation **6.** Banking system disruption **7.** Expropriation or asset seizure **8.** Broader macroeconomic downturns

For each of the eight channels, assess:
✓ whether it is structurally active for this instrument
✓ the probability it becomes binding under stress
✓ the credibility and enforceability of available mitigants

3.

Reposition the sovereign as a contextual factor
Where channels are identifiable and mitigants credibly address them, the sovereign operates as a residual risk overlay — a **source of unmodelled tail risk** that is reflected in the assessment, not a ceiling that overrides the channel-level analysis.

4.

Retain a conservative bound where warranted
Where channels cannot be observed, regulatory discretion is opaque, or mitigants are untested, a sovereign-level proxy retains a prudential purpose. It is applied **selectively, not universally.**

Conclusion

The sovereign ceiling was a reasonable heuristic for a world in which sovereign interference risk could not be assessed directly. That world has changed. Modern project finance structures, transmission channel analysis, and a deeper empirical record of EMDE infrastructure performance now make it possible to ask a more precise question than the ceiling allows: through which specific mechanisms does sovereign stress become payment-relevant, and have those mechanisms been credibly mitigated?

The analysis in this paper shows that, for domestic infrastructure, the answer is more differentiated than ceiling methodologies assume. Disaggregating sovereign risk into distinct transmission channels reveals that several of the risks the ceiling is designed to capture are often not binding for floating local currency projects in operation, while the channels that do bind, principally regulatory and contract interference and offtaker payment risk, can in many cases be materially reduced through contractual design, payment security, institutional arrangements, and MDB or DFI involvement. The currency regime sharpens this further: floating, pegged, and managed float systems create materially different transmission dynamics, yet blanket sovereign ceilings do not distinguish between them in a way that matches how risk actually reaches project cash flows.

This leads to a methodological problem. As demonstrated above, the sovereign ceiling framework's conditions are logically inapplicable to domestic-revenue infrastructure, and the absence of above-sovereign precedents in this asset class reflects methodological foreclosure at least as much as underlying credit weakness. The implication is not that the sovereign ceases to matter. It remains a relevant credit input and a residual source of extreme stress. But it should operate as a contextual factor, a residual source of unmodelled tail risk that is reflected in the assessment without overriding instrument-level analysis. Where the relevant transmission channels cannot be observed, where regulatory discretion is opaque, or where mitigants are weak, untested, or unenforceable, a sovereign-level proxy may still serve a prudential purpose. Where the channels are identifiable, and the mitigants materially reduce the likelihood, timing, or impact of payment disruption, the ceiling adds no independent analytical value beyond what transaction-specific analysis has already produced, and the methodological default should therefore be the channel-level analysis, with the ceiling reserved for cases in which that analysis cannot be performed.

Even in the extreme case where sovereign default triggers simultaneous failure of the guarantee framework, exhaustion of liquidity reserves, and offtaker insolvency, the methodological response should be differentiated residual risk assessment, not mechanical ceiling compression that treats a well-structured project with multiple layers of protection identically to an unstructured entity with none.

The stakes are practical. If a ceiling cannot be pierced regardless of project quality, the market has less reason to pay for stronger structuring, better counterparties, more

credible contractual protections, and more robust mitigation packages. In that sense, the ceiling may weaken the incentive to build the very features that would improve bankability and resilience. The key question is not whether sovereign stress can affect domestic infrastructure. It can. The question is whether the pathways through which it does so can be contained to a degree that warrants differentiation above the sovereign. Where the answer is yes, methodology should be able to recognize it.

The reach of this question extends beyond issuers and rating agencies. To the extent that ratings systematically misprice the risk of well-structured EMDE infrastructure exposures, banks under the standardized approach, insurers under risk-based capital regimes, and pension funds under fiduciary mandates carry portfolio risks that diverge from those implied by their internal models and external ratings. Methodological accuracy in this asset class is therefore not only a development or cost-of-capital question, but a prudential one, with a natural constituency among regulators and financial-stability authorities.

Annex I - Five Verified Above-Sovereign Precedents (2016–2026)

The following notes describe the five verified above-sovereign precedents identified for 2016–2026, covering the core features of each asset class, the structural or operational mitigants that enable the uplift, and the magnitude of the rating differential achieved. Explanations on non-piercing precedents per sector.

1. Akbank T.A.Ş. – A.R.T.S. Ltd. DPR Program (Fitch BBB; +4 notches vs Turkey BB–)[77]

- Asset class: Future-flow / diversified payment rights (DPR) securitization — a structured finance instrument, not a bank rating.
- Structure: Akbank, a major Turkish bank, originates international payment flows (remittances, trade payments, correspondent banking flows) which are routed through an offshore special purpose vehicle, A.R.T.S. Ltd., incorporated outside Turkey. The SPV issues notes to capital market investors. Eligible payment rights are assigned to the SPV via a true sale under foreign law (English/New York),[78] and collections are captured in offshore accounts before any funds enter the Turkish banking system. This creates a structural barrier between the rated notes and Turkish sovereign or banking-system stress.
- Mitigants present: Offshore SPV with true sale (structural isolation from Turkish jurisdiction); foreign-law governed documentation; offshore collection mechanism trapping cash flows before entry to Turkey; over-collateralization and reserve accounts providing debt-service coverage cushion; revenue diversification (payment flows originate from multiple international correspondent banks in multiple jurisdictions); and contractual payment priority subordinating Akbank's residual interest to noteholders.
- Mitigants absent: No third-party guarantee or credit substitution; no standalone corporate credit profile (the rated object is the structure, not the bank); no loss-absorbing liability structure in the corporate sense.
- Uplift: 4 notches above Turkey's sovereign FC rating (BBB vs BB–). Notably, 4 notches above Akbank's own bank IDR (BB–), which is capped at the sovereign. The DPR program is the only instrument in Akbank's capital structure that achieves investment-grade status, illustrating the power of structural isolation.
- Significance: DPR securitizations are the most established ceiling-piercing mechanism and provide the clearest evidence that structural isolation from the sovereign jurisdiction, not the credit quality of the originator per se, is the key driver of above-sovereign ratings. Fitch's DPR methodology explicitly links the maximum uplift to the originator's Going Concern Assessment (GC) score[79] and the program's debt service coverage ratio.

2. Coca-Cola İçecek A.Ş. (CCI) — Issuer Credit Rating (S&P BB+; +2 notches vs Turkey BB)[80]

- Asset class: Large corporate — EMDE-domiciled beverage bottler with extensive international operations.
- Structure: CCI is not a structured instrument. It is a Turkish-incorporated operating company that achieves its above-sovereign rating on the basis of its operational and financial profile. CCI operates in 12 countries across Turkey, Central Asia, Pakistan, the Middle East, and Bangladesh, with approximately 55% of revenue generated outside Turkey. The company maintains large hard-currency cash balances (approximately $573 million as at June 2025, of which 34% in USD, mostly held in the Netherlands) and has no significant FC debt maturing within 24 months.
- Mitigants present: Extensive revenue diversification outside Turkey; strong standalone credit profile (S&P anchor of bbb–); prudent treasury policy with sizeable offshore hard-currency reserves. The Coca-Cola Company (TCCC, rated A+/Stable) is a 20.1% minority shareholder with contractual governance protections (voting rights on key decisions under bottling agreement), which S&P considers insulates CCI from potential negative intervention by its majority shareholder Anadolu Efes.
- Mitigants absent: No offshore SPV or structural isolation; no foreign-law governed debt (the $500 million senior notes are standard corporate unsecured); no offshore collection mechanism; no over-collateralization; no third-party guarantee.
- Uplift: 2 notches above Turkey's sovereign FC rating (BB+ vs BB–). S&P states explicitly (15 October 2025): "We continue to factor in CCI's successful pass of our ratings above the sovereign stress test, including transfer and convertibility (T&C) assessments, allowing us to rate it above the FC rating on the Turkish government."
- Significance: Demonstrates that a corporate can pierce the sovereign ceiling without structural finance mechanisms, provided it has sufficient geographic revenue diversification, offshore liquidity reserves, and a strong standalone profile. However, CCI's position remains constrained: S&P limits the maximum uplift to 3 notches above the majority shareholder (Anadolu Efes), illustrating that even qualifying corporates face multiple binding constraints beyond the sovereign ceiling itself.

3. Hong Kong SAR – Sovereign/Sub-Sovereign Rating (S&P AA+; +3 notches vs China A+)[81]

- Asset class: Sub-sovereign / special administrative region — a unique "one country, two systems" case.
- Structure: Hong Kong SAR is not a typical sub-sovereign entity. Under the Basic Law, it maintains its own monetary system (a Currency Board arrangement pegged to the US dollar), independent fiscal policy with large accumulated reserves (exceeding HK$900 billion), a separate legal framework (common law, independent judiciary), its own regulatory regime, and separate trade and customs arrangements. These features are constitutionally guaranteed until at least 2047.
- Mitigants present: Strong standalone credit profile is the sole relevant mitigant. The conventional structured finance or corporate mitigants (offshore SPV, foreign-

law debt, offshore collections) are not applicable; the rating rests entirely on Hong Kong's institutional autonomy, its independent fiscal and monetary capacity, and the demonstrated credibility of the "one country, two systems" framework.

- Uplift: 3 notches above S&P's China sovereign rating (AA+ vs A+). Cross-CRA confirmation: Moody's rates Hong Kong Aa3 vs China A1 (also 1 notch); Fitch rates Hong Kong AA– vs China A (2 notches).
- Significance: This case fills the sub-sovereign gap in the precedent set but is explicitly non-replicable for typical EMDE cities or provinces, which lack independent monetary systems, constitutionally guaranteed legal autonomy, or substantial fiscal reserves independent of the central government. The geopolitical sensitivity of the case is inherent: the differential could narrow if mainland–Hong Kong institutional convergence accelerates. Any presentation of this precedent should include that caveat.

4. Sura Asset Management S.A. – LT IDRs (Fitch BBB; +3 notches vs Colombia BB)[82]

- Asset class: Asset management — a non-bank financial institution with a regionally diversified platform.
- Structure: Sura Asset Management is the leading mandatory pension fund asset manager in Latin America, operating across six countries (Colombia, Chile, Peru, Mexico, El Salvador, Uruguay). The company generates approximately 85–90% of its EBITDA outside Colombia in jurisdictions with higher country ceilings (Chile, Peru, Mexico). Assets under management are ring-fenced at the subsidiary level by local regulatory requirements in each jurisdiction.
- Mitigants present: Extensive revenue diversification outside Colombia (the binding sovereign); strong standalone credit profile (Fitch SCP one notch above the blended sector risk operating environment score of bbb–); regulatory ring-fencing of subsidiary assets in higher-rated jurisdictions. Fitch's December 2025 commentary states that "the three-notch uplift above Colombia's sovereign rating reflects geographic diversification, operations in more favorable environments, and ring-fenced cash flows that strongly support the rated obligations." In an earlier cycle, Fitch stated the rating "is not considered to be constrained by the country ceiling."
- Mitigants absent: No offshore SPV; no foreign-law governed debt; no offshore collection mechanism; no over-collateralization; no third-party guarantee.
- Uplift: 3 notches above Colombia's sovereign FC rating (BBB vs BB) and 2 notches above the FC country ceiling (BBB vs BB+).
- Significance: Demonstrates that non-bank financial institutions can pierce the ceiling where the business model is inherently cross-border and the vast majority of earnings originate in higher-rated jurisdictions. The contrast with the parent company, Grupo SURA (capped at sovereign BB), illustrates that the holding company's concentration in Colombian financial-sector assets prevents it from benefiting from the subsidiary's diversification.

5. Coca-Cola FEMSA S.A.B. de C.V. (KOF) – Issuer Rating (Moody's A2; +2 notches vs Mexico Baa1)[83]

- Asset class: Large corporate — the largest Coca-Cola bottler in Latin America, with operations in 10 countries.
- Structure: Like CCI, KOF is an operating corporate, not a structured instrument. Its above-sovereign rating reflects the fundamental credit quality of a diversified, regionally dominant bottler with significant cash generation outside Mexico. The company's foreign-law debt (international senior unsecured notes, including sustainability-linked bonds) provides creditors with enforcement rights outside Mexico.
- Mitigants present: Revenue diversification outside Mexico (operations span Brazil, Colombia, Guatemala, Costa Rica, Panama, Nicaragua, Argentina, Uruguay, and others); strong standalone credit profile; foreign-law governed international notes; limited reliance on the Mexican domestic banking system; and ample liquidity reserves.
- Uplift: 2 notches above Mexico's sovereign rating at the time of the September 2021 rating action (A2 vs Baa1). Moody's stated explicitly: "KOF's rating is currently two notches above the Mexican sovereign rating…supported by strong credit metrics, ample liquidity, limited reliance on local banking system and meaningful cash generation outside of Mexico."
- Significance: Provides the Moody's perspective alongside S&P (CCI) and Fitch (Sura AM), confirming that above-sovereign corporate ratings follow a consistent cross-CRA logic. Also demonstrates that ceiling piercing is possible even in an upper-investment-grade sovereign jurisdiction (Mexico Baa1), not only in deep speculative-grade environments.

Annex II - Mechanisms Enabling Above-Sovereign Ratings: Comparative Evidence Across Five Precedents

Entity	Asset Class	Rating & Uplift	Offshore SPV	Foreign-law debt	Offshore collections	Revenue diversification outside sovereign	Strong standalone profile	Key Significance
Akbank ARTS Ltd. DPR Program	Future-flow / DPR securitization	Fitch BBB; +4 vs Turkey BB-	✓	✓	✓	✓	✗	The only case where all structural isolation mechanisms are present. The rated object is the structure, not the bank — Akbank's own IDR remains capped at the sovereign.
Coca-Cola İçecek (CCI)	Large corporate — EMDE-domiciled bottler	S&P BB+; +2 vs Turkey BB-	✗	✗	✗	✓ (~55% revenue outside Turkey, 12 countries)	✓	Demonstrates ceiling piercing with zero structural mechanisms, through geographic diversification and offshore liquidity alone. Uplift capped at 3 notches above majority shareholder Anadolu Efes.
Hong Kong SAR	Sub-sovereign / special administrative region	S&P AA+; +3 vs China A+. Moody's Aa3 vs A1 (+1 notch). Fitch AA- vs A (+2 notches)	✗	✗	✗	✗	✓ (institutional autonomy only)	The sole sub-sovereign precedent. Rests entirely on constitutional guarantees (monetary independence, fiscal reserves, common law framework until 2047). Non-replicable for typical EMDE sub-sovereigns.
Sura Asset Management S.A.	Asset management / non-bank financial institution	Fitch BBB; +3 vs Colombia BB; +2 vs FC ceiling BB+	✗	✗	✗	✓ (~85-90% EBITDA outside Colombia across 6 countries)	✓	The only non-bank financial institution case. Regulatory ring-fencing of subsidiary assets in higher-rated jurisdictions substitutes for structural isolation. Contrast with parent Grupo SURA, capped at sovereign BB due to Colombian asset concentration.
Coca-Cola FEMSA (KOF)	Large corporate — Latin American bottler	Moody's A2; +2 vs Mexico Baa1	✗	✓ (international senior unsecured notes)	✗	✓ (operations in 10 countries including Brazil, Colombia, Central America)	✓	Provides the Moody's perspective, confirming consistent cross-CRA logic. Also the only investment-grade sovereign case, demonstrating ceiling piercing is not limited to speculative-grade jurisdictions.

Annex III - Asset Classes Where No Verified Global-Scale Above-Sovereign Precedent Was Identified (2016-2026)

Based on review of publicly available CRA rating actions, methodologies, and issuer disclosures. Absence of identified precedent does not exclude the possibility that unlisted or paywalled examples may exist. For purposes of this Annex, "above-sovereign precedent" means an internationally comparable global-scale rating explicitly assigned above the relevant sovereign rating or country ceiling; national-scale ratings maintained above default during sovereign default, and payment survival without a comparable global-scale rating, are relevant survivorship evidence but are not counted here, and the cases of that kind reviewed for this article are addressed in Annex IV.

#	Asset Class Requested	Why verified (primary-link) above-sovereign precedents were not identified (2016-2026)
1	Banking	No verified above-sovereign bank deposit or Issuer Default Rating (IDR) was identified for 2016-2026 in CRA or public sources. S&P's practice is not to rate banks above the FC sovereign rating, given the direct and indirect impact sovereign distress has on domestic banks' operations[84] . Moody's methodology[85] allows baseline credit assessment (BCA)[86] above-sovereign in theory (1-2 notches with exceptional international diversification) but deposit ratings are typically constrained by the country ceiling. Key binding constraints include: (a) direct sovereign bond holdings on bank balance sheets; (b) reliance on central bank for liquidity provision and lender-of-last-resort; (c) domestic deposit base vulnerable to capital flight during sovereign stress; (d) regulatory and resolution framework set by sovereign; (e) susceptibility to capital controls and payment system disruption. Even internationally diversified EM banks (e.g. ICICI Bank India, Techcombank Vietnam) have deposit ratings capped at the sovereign level despite BCAs at or above sovereign. NOTE: DPR securitizations originated by banks (as explained in the first example above) DO pierce the ceiling, but these are structured finance instruments rated via an offshore SPV, not the bank's own deposit/IDR rating.
2	Sub-sovereign (typical EMDE cities/provinces)	No verified above-sovereign sub-sovereign precedent was identified for typical EMDE municipalities or provinces in 2016-2026. Moody's sub-sovereign methodology treats the sovereign rating as the starting point and derives sub-sovereign ratings via assessment of idiosyncratic factors within a matrix constrained by sovereign systemic risk. S&P's methodology[87] caps sub-sovereign ratings at the sovereign level absent extraordinary circumstances such as fiscal autonomy with own-source tax revenue in a federal system. Key binding constraints include: (a) fiscal transfers from central government typically constitute a major revenue source; (b) borrowing powers delegated by and subject to sovereign legislative control; (c) sub-sovereigns cannot independently issue FC debt or access international capital markets in most jurisdictions; (d) legal framework is set by the sovereign; (e) during sovereign default, sub-sovereigns have historically been swept into restructuring (e.g. Argentine provinces 2001-2005). EXCEPTION: Hong Kong SAR (see above) is a unique "one country, two systems" case with its own monetary system, fiscal reserves, and legal framework — this is not readily replicable for typical EMDE sub-sovereigns.

3	Small corporates/ SMEs	No verified above-sovereign precedent was identified for small corporates in any EMDE jurisdiction for 2016-2026. The Big Three methodologies require specific characteristics for above-sovereign ratings that small corporates structurally lack: (a) majority revenue/cash flow diversification outside the country — small corporates by definition operate primarily domestically; (b) access to international capital markets for foreign-law debt issuance — small corporates lack scale for international bonds; (c) independent treasury and offshore collection structures — cost-prohibitive for small entities; (d) a standalone credit profile materially stronger than sovereign — difficult without international scale; (e) limited analyst coverage and rating demand — small corporates rarely seek international ratings. Moody's 2019 cross-sector methodology[88] implicitly requires scale through its requirement for "extensive diversification" and "resilient business profile" for any above-sovereign rating.
4	Infrastructure operating companies (non-project finance)	No verified global-scale above-sovereign precedent was identified for domestically focused infrastructure corporates (utilities, toll roads, airports, ports) in 2016-2026. Key binding constraints: (a) tariffs regulated by government agencies, creating direct sovereign interference channel; (b) concession/licence terms set by government, with renewal risk and potential for unilateral amendment during sovereign stress; (c) domestic-currency revenue base subject to FX and inflation risk controlled by sovereign monetary policy; (d) essential service status creates political risk of government intervention (tariff freezes, nationalisation) during crises; (e) customer base is entirely domestic, making cash flows procyclical with the sovereign economy. Example: S&P downgraded Mexican toll roads RCO and Conmex in lockstep with the March 2020 Mexico sovereign downgrade, despite solid standalone metrics.[89] NOTE: Interconexión Eléctrica (ISA). (a Colombia-based multi-Latin American conglomerate focused on designing, constructing, operating, and maintaining energy transmission networks, road concessions, and telecommunications/ICT infrastructure across several countries in the Americas) is rated BBB- by Fitch with Colombia at BB, but Fitch frames this as a parent-subsidiary delinkage from Ecopetrol (its controlling owner), not as piercing Colombia's sovereign ceiling.[90]
5	Insurance (in EMDE sovereigns)	No verified above-sovereign precedent was identified for purely domestic EMDE insurers in 2016-2026. Key binding constraints: (a) insurance regulatory capital requirements often mandate holdings of domestic government securities; (b) policyholder liabilities denominated in local currency, creating asset-liability matching constraints tied to domestic markets; (c) in most EMDEs, the insurance supervisor is subordinate to central bank or finance ministry, creating regulatory contagion risk; (d) Moody's allows at most +1 notch for loss-absorbing liabilities but this remains anchored to the sovereign. EXCEPTION: Sura Asset Management (see above) pierces because ~85%+ of EBITDA comes from countries with higher ceilings (Chile, Mexico, Peru) and Fitch explicitly states the rating is "not considered to be constrained by the country ceiling".[91] Old Mutual Life Assurance (South Africa) was also rated 1 notch above SA sovereign by S&P (BB vs BB-, Nov 2024) on a loss-absorbing liability basis, though that represents a narrower uplift.[92]
6	Leasing	No verified above-sovereign precedent was identified for leasing companies in 2016-2026. Leasing companies are classified as non-bank financial institutions under Big Three methodologies and subject to similar sovereign constraints as banks. Key binding constraints: (a) leased asset base (equipment, vehicles, property) is domestic, with residual values tied to the domestic economy; (b) lessee/obligor base is domestic companies and consumers, correlated with sovereign economic performance; (c) funding typically sourced from the domestic banking system, creating additional sovereign transmission channel; (d) no structural mechanism exists to trap cash flows offshore or isolate them from sovereign interference, unlike securitization; (e) regulatory framework for lease contracts and asset recovery is domestic. Moody's rates leasing companies under its finance company methodology, where the sovereign is a key input.
7	Factoring[93]	No verified above-sovereign precedent was identified for factoring companies in 2016-2026. Factoring companies are classified as non-bank financial institutions. Domestic payment-chain disruption is a key sovereign-default transmission channel. Key binding constraints: (a) receivables portfolio consists of domestic trade receivables, with obligor credit quality correlated to sovereign economic performance; (b) collection risk tied to the domestic legal system, which weakens during sovereign stress; (c) funding from domestic banks creates additional sovereign contagion channel; (d) no structural mechanism to isolate factored receivables from sovereign jurisdiction — unlike DPR securitization where receivables originate from foreign obligors; (e) factoring companies lack the international diversification or offshore structural features that enable ceiling piercing. NOTE: Cross-border factoring of export receivables CAN be structured to achieve above-sovereign ratings via future flow securitization (see above), but this transforms the transaction into a structured finance instrument, not a factoring company rating.

Annex IV - Domestic Infrastructure and Essential-Service Issuers During Domiciled Sovereign Default

This Annex addresses a question the earlier annexes do not: how domestic infrastructure and essential-service issuers behaved during their own sovereign's default or restructuring window, when the assets, users, regulators, counterparties and political economy remained inside the sovereign-stress environment.

The cases below are not presented as proof of immunity. They are channel evidence. Some show survival or rating differentiation during sovereign default, others show liability management under binding stress, and one shows channel activation without clean debt-survival proof. The purpose is to distinguish automatic sovereign pass-through from identifiable transmission channels and observable mitigants, applying the distinction between channel mitigation and credit substitution introduced at the close of Section II.

Comparative summary

Case	Sovereign default window	Classification	Core channel evidence	Credit-substitution check	Relevance to paper
Copperbelt Energy Corporation, Zambia	Zambia defaulted in November 2020 and remained in restructuring through 2024	Non-rated corporate infrastructure survivor	KCM counterparty stress, regulatory and legal stress, continued covenant compliance and subsequent green-bond issuance	No reviewed public evidence that CEC's own debt service was replaced by a stronger third-party guarantee	Channel absorption and mitigation inside the domestic power-infrastructure environment
Dialog Axiata, Sri Lanka	Sri Lanka suspended external debt payments in April 2022 and defaulted in May 2022; Fitch moved the FC sovereign rating out of RD only in December 2024	National-scale rating-differentiation survivor	Fitch maintained AAA(lka) during the default window; parent guaranteed a minority, not all, of Dialog debt	Partial parent support, not full credit substitution	CRA practice can maintain issuer-level differentiation during sovereign default, but scale interpretation is critical
Pampa Energía, Argentina	Argentina defaulted on international sovereign bonds in May 2020	Rated corporate infrastructure liability-management survivor	2022 exchange offer followed by Fitch affirmation at B–; settlement with new notes plus cash consideration	No reviewed public evidence of full third-party credit substitution	Corporate infrastructure remains in scope and can manage stress without default-equivalent public treatment

Case	Sovereign default window	Classification	Core channel evidence	Credit-substitution check	Relevance to paper
Central Puerto, Argentina	Argentina defaulted in May 2020; BCRA FX refinancing restrictions applied to private-sector FC debt	Domestic power-infrastructure liability-management survivor	Brigadier López loan amended under BCRA rules; revised amortization and more restrictive covenants	No reviewed public evidence of full third-party credit substitution	Channel specificity inside the same sovereign and power-sector environment where other issuers defaulted
Quito Airport, Ecuador	Ecuador defaulted on its 2012 and 2030 Global bonds in late 2008	Channel-activation comparator	Concession, municipal, constitutional and dispute-resolution channels became active	Not treated as a clean debt-survival case	The framework must explain binding stress, not only survival

1. Copperbelt Energy Corporation, Zambia

Classification. Copperbelt Energy Corporation (CEC) is best treated as a non-rated corporate infrastructure survivor rather than a global-scale above-sovereign precedent. Its value is that it is a public-record case of a domestic corporate power-infrastructure issuer operating through a domiciled sovereign default and restructuring window while facing identifiable counterparty and regulatory stress.

Sovereign default window. Zambia defaulted on its international debt in November 2020 and the restructuring process continued for several years thereafter.[94]

Evidence and channels. CEC is a Zambian-incorporated power transmission, generation, distribution and supply company whose business is linked to Zambia's mining and power sectors, including supply and transmission services to mining customers in Zambia and the Democratic Republic of Congo.[95] Its assets, regulatory setting, operating relationships and political economy remained materially inside Zambia, which places it closer to the article's core case than export structures that remove cash flows from the domestic sovereign-risk environment. The dominant stress point was Konkola Copper Mines (KCM): KCM's unpaid obligations were trade receivables owed to CEC rather than CEC's own missed debt service, and CEC's response combining limitation of service provision from transmission-use, system-use to grid-connection services with legal and arbitral recovery.[96] The active channels were therefore counterparty payment stress, regulatory and legal uncertainty, mining-sector exposure, and liquidity absorption from unpaid receivables, rather than the transfer-and-convertibility channel that dominates conventional above-sovereign templates.

Mitigants and credit-substitution check. The mitigants were operational and legal: discontinuation of full power supply to KCM, restriction to system-use and connection services, recovery proceedings through legal and arbitral channels, and continued covenant compliance. CEC's 2024 Integrated Annual Report states that the company complied with the financial covenants of its borrowing facilities throughout the reporting period;[97] the same report describes the development of CEC Renewables' green-bond

programme, including a first tranche of approximately US$53.5 million in 2023 and a second tranche of approximately US$96.7 million in 2024 under a US$200 million medium-term note programme.[98] These features affected timing, severity and cash-flow absorption; they did not amount to credit substitution by a stronger third party.

Relevance and limits. CEC shows that sovereign-default-period stress can be mediated through identifiable channels and that issuer-level outcomes can differ from automatic sovereign pass-through. The limits are that CEC is not a global-scale rated above-sovereign precedent and that the conclusion rests on reviewed public disclosures rather than a complete private debt file. Absence of a global rating is not evidence of rating-agency error: it may reflect local or regional financing availability, the cost and limited market benefit of a global rating, customer concentration, and the fact that a domestic corporate infrastructure issuer may not seek international debt-market visibility unless a rated instrument is required.

2. Dialog Axiata, Sri Lanka

Classification. Dialog Axiata is a rated national-scale differentiation survivor with a partial parent-support caveat, not a global-scale above-sovereign precedent. Its significance is that Fitch maintained the top national-scale rating during Sri Lanka's foreign-currency sovereign default window, which shows that CRA practice can preserve issuer-level differentiation during sovereign default in at least one scale context.

Sovereign default window. Sri Lanka announced the suspension of external debt payments in April 2022 and default occurred in May 2022;[99] Fitch upgraded Sri Lanka's foreign-currency rating from Restricted Default only after approval of the 2024 debt restructuring.[100]

Evidence and channels. Dialog Axiata is a Sri Lankan telecommunications operator with domestic users, domestic operating assets, local regulation and domestic macro exposure. Fitch affirmed its National Long-Term Rating at AAA(lka) in February 2023 and again in March 2024, during the sovereign default window, and the 2024 report stated that Dialog sat at the highest end of Fitch's Sri Lankan national scale.[101] The point requires precision: this does not mean Dialog had global AAA-level credit risk, and the national-scale rating cannot be compared mechanically with the sovereign's foreign-currency default rating, since Fitch's national-scale criteria define national ratings as relative opinions within a single country or monetary union and not as internationally comparable ratings.[102] The narrower and stronger conceptual point is that the rating process itself recognized that sovereign default did not collapse all domestic issuer credit quality into a single default category. The relevant channels were macroeconomic contraction, currency depreciation, foreign-exchange scarcity, import-cost and network-investment pressure, banking-system conditions and sovereign-related operating constraints.

Mitigants and credit-substitution check. Fitch's rationale rested on Dialog's market position in mobile and related telecommunications services, essential-service characteristics, cash-flow resilience, financial profile and parent relationship.[103] Parent support is real but partial: Fitch identified Axiata guarantees for around 45% of Dialog's debt in 2023 and around 40% in 2024.[104] The remainder of the debt was unguaranteed

and the rating analysis assigned Dialog a standalone credit profile at or near the top of the national scale, which is analytically distinct from an unconditional guarantee replacing the issuer's entire debt-service risk.

Relevance and limits. Dialog exposes the ordinal character of national-scale ratings during sovereign default and qualifies any blanket statement that CRAs never differentiate issuers in defaulted sovereign environments. They sometimes do, but the differentiation may be scale-specific, domestically ordinal, and less visible on the global scale, where foreign-currency ratings interact with country ceilings and transfer-and-convertibility risk. A national-scale rating cannot be converted into a global-scale above-sovereign notch gap.

3. Pampa Energía, Argentina

Classification. Pampa Energía is a rated corporate infrastructure survivor and liability-management case. It is within scope precisely because the article's relevant category is domestic non-sovereign infrastructure and essential-service credit, not only non-recourse project finance.

Sovereign default window. Argentina defaulted on international sovereign bonds in May 2020; sovereign distress coincided with tariff, currency, regulatory and foreign-exchange restrictions directly relevant to domestic power and infrastructure issuers.[105]

Evidence and channels. Pampa is an integrated Argentine energy company with participation across electricity and gas value chains.[106] The relevant public event is the 2022 exchange offer for its 7.375% notes due 2023. Fitch affirmed Pampa's ratings at B– after the exchange offer announcement rather than moving the issuer to RD or D, (RD = Restricted Default and D = Default, the two Fitch designations applied to issuers that have failed to make payments on at least one financial obligation but have not yet entered the bankruptcy process),[107] and Pampa's settlement announcement reports issuance of approximately US$292.8 million of new notes and approximately US$122.1 million in cash consideration for validly tendered old notes.[108] The relevant channels were foreign-exchange access, refinancing risk, tariff and regulatory intervention, inflation, currency depreciation and sovereign-related capital-market disruption.

Mitigants and credit-substitution check. The mitigation was issuer-level liability management combined with scale, market access, asset and business diversification within Argentine energy, and negotiated settlement terms. These mechanisms do not eliminate sovereign stress, but they affected timing and severity and prevented a refinancing channel from becoming a default event on the reviewed public record. No reviewed public evidence indicates that the outcome depended on full credit substitution by a stronger third-party guarantor; the likely explanation for the rating treatment is that the transaction was assessed as a liability-management exercise rather than a distressed exchange under Fitch's default criteria, and that should remain phrased cautiously absent the specific criteria text and transaction rationale.

Relevance and limits. Pampa shows that corporate infrastructure can remain differentiated in a defaulted sovereign environment where the same broad sector is under stress. It is not a clean no-modification case: it is a case of managed refinancing pressure, which is what makes it analytically useful.

4. Central Puerto, Argentina

Classification. Central Puerto is a domestic power-infrastructure liability-management survivor, best presented as a channel-specific comparator inside the same sovereign-stress environment where other Argentine power issuers defaulted or completed distressed exchanges.

Sovereign default window. Argentina's 2020 sovereign default coincided with Banco Central de la República Argentina (BCRA) foreign-exchange refinancing restrictions on private-sector foreign-currency debt; Moody's infrastructure default study identifies three Argentine electricity power generators — Genneia, Generación Mediterránea and YPF Energía Eléctrica — as having completed distressed exchanges primarily because of the BCRA debt-moratorium or refinancing mandate.[109]

Evidence and channels. Central Puerto is an Argentine power generation company. Its disclosures indicate that the BCRA restrictions applied to the Brigadier López Thermal Power Plan loan and that the company amended the loan's repayment schedule: 2021 disclosures describe a June 2021 amendment that changed the amortization schedule, rescheduled 60% of installments with original maturities in June, September and December 2021, and extended the final term to January 2024,[110] and the 20-F describes the amended loan as containing a more restrictive covenant package than the original.[111] The active channels were foreign-exchange access and refinancing restrictions, sovereign-related capital-market stress, regulatory risk, tariff and contract risk, and sector payment risk; the binding constraint was a specific regulatory and FX refinancing channel rather than a generalized sovereign ceiling mechanism.

Mitigants and credit-substitution check. The mitigants were amendment of the repayment schedule, revised amortization, accepted covenant restrictions and continued reporting compliance. These features affected timing and liquidity pressure and appear to have prevented the FX refinancing channel from producing the same public default outcome observed elsewhere in the sector. No reviewed public evidence indicates full credit substitution by an external guarantor.

Relevance and limits. Central Puerto matters because it operated alongside other Argentine power-sector issuers that Moody's identifies as having completed distressed exchanges over the same period, and the contrast supports channel-specific analysis more strongly than a clean offshore or export case would. The limit is that the company did amend debt terms, which is why the correct label is liability-management survivor rather than no-stress survivor.

5. Quito Airport, Ecuador

Classification. Quito Airport is a channel-activation comparator, not a clean debt-survival case. It is included because the framework has to explain stress and channel activation as well as survival.

Sovereign default window. Ecuador defaulted on its 2012 and 2030 Global bonds in late 2008.[112]

Evidence and channels. The project was a domestic infrastructure concession involving an essential transport asset, municipal and national political actors, concession and constitutional issues, funding arrangements and dispute-resolution mechanisms. The assets and political economy were materially domestic, even where financing and sponsors had international features, and the project encountered concession, municipal, constitutional, political and dispute-resolution pressures during the Ecuador sovereign-default environment.[113] This is distinct from a pure transfer-and-convertibility case: it shows how sovereign stress or sovereign political choice can transmit through the legal and institutional framework governing an infrastructure asset.

Mitigants and credit-substitution check. The relevant mitigants — concession documentation, sponsor and lender engagement, dispute-resolution mechanisms and the essentiality of the asset — did not prevent channel activation. No reviewed evidence indicates credit substitution by an external guarantor.

Relevance and limits. Quito prevents the Annex from becoming a survivor-only exhibit and shows that the proposed framework can explain why sovereign-risk channels sometimes become binding. Without clean debt-service evidence, it should remain a channel-activation comparator rather than a survival precedent.

Annex V — Empirical Literature, Precedent Scarcity, and the Limits of Published Survivorship Evidence

The empirical literature on sovereign-to-corporate transmission supports a limited but real proposition: sovereign stress materially affects non-sovereign borrowers, and the effect is heterogeneous across sector, balance-sheet structure, bank dependence, government linkage, rating position, currency exposure and market conditions. What that literature, in the form reviewed for this article, does not provide is a direct test of the narrower question this paper asks. A direct test would require evidence on EMDE domestic-revenue infrastructure issuers or project-finance instruments through sovereign-default or sovereign-stress episodes, combined with channel-level disaggregation of which mitigants worked, which did not, and why — distinguishing transfer-and-convertibility, moratoria, offtaker default, regulatory interference, banking-system disruption, currency devaluation, expropriation and macroeconomic contagion, and identifying whether contractual, structural, legal, institutional or counterparty features changed the probability, timing, severity or loss allocation of each. No such study appears in the published academic literature reviewed for this article.

That gap is not incidental. It reflects the scarcity of rated precedents in the relevant asset class, the private nature of the project-level data, and the fact that the evidence which matters most is contractual and structural rather than visible in firm-level default datasets.

Three studies anchor what the literature does provide. Duggar and co-authors furnish the strongest broad empirical reference: their Moody's study of 431 emerging-market corporate and sub-sovereign defaults across 27 countries between 1995 and 2008, comprising 100 Moody's-rated and 331 unrated defaults, reports that 71% of EM defaults occurred during sovereign crises and that the four-year corporate and sub-sovereign default rate among rated issuers rose from 9.6% in non-crisis periods to 23.7% in crisis periods.[114] The same study also shows that the effect is uneven: financial-sector and sub-sovereign defaults concentrated at the start of crises while industrial-corporate defaults concentrated in the second crisis year, reflecting exposure to banking crises, currency crises and subsequent devaluations. Duggar therefore supports both halves of the article's premise — sovereign stress is real and it is not a universal default mechanism.

Almeida, Cunha, Ferreira and Restrepo offer a narrower point about the cost of ceiling methodology itself.[115] Studying firms affected by sovereign-ceiling policies and comparing firms at the sovereign bound with matched firms below it, they find that following a sovereign downgrade firms at the bound are more likely to be downgraded themselves and that they reduce investment and reliance on credit markets more than matched firms, with the investment effect a 6.4 percentage-point larger reduction relative to matched controls. The result is relevant because it identifies real economic costs arising from ceiling mechanics rather than from observed deterioration in firm-level fundamentals — it does not prove that project-finance mitigants justify above-sovereign ratings, but it shows why the design of ceiling methodology matters.

Augustin, Boustanifar, Breckenfelder and Schnitzler contribute market-spread evidence on sovereign-to-corporate spillovers.[116] Using CDS data around the first Greek bailout, they find that a 10% increase in sovereign credit risk was associated with a 1.1% increase in corporate credit risk after the bailout, with the spillover stronger in Eurozone countries, financially distressed countries, countries with weaker property rights, and stronger for firms with public ownership, firms more dependent on bank financing and firms whose borrowing costs were closer to the sovereign. The role of this evidence in this article is limited: it is European CDS evidence rather than EMDE domestic-revenue infrastructure or project-finance evidence, and it speaks to market-implied risk rather than to default outcomes through identifiable mitigants.

The absence of a direct EMDE infrastructure survivorship study is not surprising. The relevant transactions are often unrated, privately held, rated only locally, or embedded in MDB and DFI portfolios whose loan-level data are not publicly disclosed at the granularity needed for channel analysis. Sovereign-default episodes are rare, and the subset of domestic-revenue infrastructure projects with observable contractual mitigants, public payment history and identifiable creditor outcomes is smaller still. The evidence that matters including project documents, payment records, restructuring histories, guarantee wording, account structures, offtaker arrangements and rating reports, typically sits outside the firm-level datasets that drive published default research.

The article therefore does not rely on the empirical literature as direct proof of the above-sovereign infrastructure case. The literature confirms that sovereign transmission is real, heterogeneous and channel-sensitive, which is what the article needs from it. The affirmative case is built elsewhere: in the rating methodologies that already recognise transaction-level risk allocation and structural mitigants, in the precedents documented in Annex I and the asset-class scarcity recorded in Annex III, and in the channel-level case evidence in Annex IV. Once the empirical record shows heterogeneous transmission, the methodological question becomes unavoidable —which channels are active for the instrument being rated, and do the relevant contractual, structural, legal, institutional or counterparty mitigants change the probability, timing, severity or loss allocation of those channels?

Endnotes

1 *See* Lawrence J. White, *A Brief History of Credit Rating Agencies*, Mercatus Ctr. at George Mason Univ. 2–5 (2009); *see also John Moody, Moody's Analyses of Railroad Investments* iii–v (1909).

2 *See* U.S. Sec. & Exch. Comm'n, *Report to Congress on Assigned Credit Ratings* 3–7 (Dec. 2012); Dodd-Frank Wall Street Reform and Consumer Protection Act §§ 931–939H, Pub. L. No. 111-203, 124 Stat. 1376 (2010); U.S. Sec. & Exch. Comm'n, Release No. 34-72936 (Aug. 27, 2014) (adopting credit rating agency reform rules); Int'l Capital Mkt. Ass'n, *The Investment Grade Corporate Bond Market* (2019).

3 *See* Jessica Sims, *The Latin American Debt Crisis of the 1980s*, Fed. Reserve Hist. (2017); Carmen M. Reinhart & Kenneth S. Rogoff, *This Time Is Different: Eight Centuries of Financial Folly* 68–75 (2009); Barry Eichengreen, *Golden Fetters: The Gold Standard and the Great Depression*, 1919–1939 319–325 (1992).

4 *See* José Antonio Ocampo, *The Latin American Debt Crisis in Historical Perspective* 21–23 (Initiative for Pol'y Dialogue, Working Paper, 2024); David E. Spiro, *The Hidden Hand of American Hegemony: Petrodollar Recycling and International Markets* 36–45 (1999); Jeffrey D. Sachs, *New Approaches to the Latin American Debt Crisis*, Princeton Essays in Int'l Finance No. 174 (1989); Emerging Mkts. Traders Ass'n, *The Brady Plan*, https://www.emta.org/em-background/the-brady-plan/.

5 *See* Eduardo Borensztein, Kevin Cowan & Patricio Valenzuela, *Sovereign Ceilings "Lite"? The Impact of Sovereign Ratings on Corporate Ratings in Emerging Market Economies*, IMF Working Paper No. WP/07/75, at 6–8, 18–19 (2007), https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Sovereign-Ceilings-Lite-The-Impact-of-Sovereign-Ratings-on-Corporate-Ratings-in-Emerging-20615; T.S. Coleman, *Piercing the Sovereign Ceiling: Issues in Oil and Gas Project Financing*, Oil & Gas J., Feb. 23, 1998.

6 T.S. Coleman, *Piercing the Sovereign Ceiling: Issues in Oil and Gas Project Financing*, Oil & Gas J., Feb. 23, 1998, at 53–55.

7 *See* S&P Glob. *Ratings, Ratings Above the Sovereign — Corporate and Government Ratings: Methodology and Assumptions* ¶¶ 34–36 (Nov. 19, 2013).

8 *See* Moody's Invs. Serv., *Country Ceilings for Foreign and Local Currency Ratings* (Nov. 2020), https://www.moodys.com/research/Country-Ceilings-for-FC-and-LC-Ratings--PBC_1225594.

9 *See* Fitch Ratings, *Country Ceiling Criteria* ¶¶ 32–38 (July 24, 2023).

10 *See* S&P Glob. Ratings, *Ratings Above the Sovereign — Corporate and Government Ratings: Methodology and Assumptions* ¶¶ 8–12, 35–40 (Nov. 19, 2013); Moody's Invs. Serv., *Assessing the Impact of Sovereign Credit Quality on Other Ratings: Cross-Sector Rating Methodology*, ¶¶ 7–12, 35–41 (June 20, 2019), https://www.moodys.com/research/Assessing-the-Impact-of-Sovereign-Credit-Quality-on-Other-Ratings--PBC_1151175.

11 A true-sale opinion is a legal opinion — typically issued by external counsel — confirming that a transfer of assets from an originator to a special purpose vehicle constitutes a genuine sale rather than a disguised secured loan. *See* Fitch Ratings, *Global Structured Finance Rating Criteria* (Mar. 1, 2023), https://assets.fitchratings.com/downloadFile?reportType=report&sfReport=false&slug=structured-finance%2Fglobal-structured-finance-rating-criteria-01-03-2023.

12 Collection arrangements refer to the legal and operational mechanisms governing where, how, and by whom a borrower's revenues are collected before they reach the issuer's general accounts — and consequently how insulated those cash flows are from local insolvency or state interference.

13 *See* S&P Glob. Ratings, *Ratings Above the Sovereign — Corporate and Government Ratings: Methodology and Assumptions* ¶¶ 14–16 (Nov. 19, 2013); Fitch Ratings, *Country Ceiling Criteria* ¶¶ 7–11, 23–26 (July 24, 2023).

14 *See* Heitor Almeida, Igor Cunha, Miguel A. Ferreira & Felipe Restrepo, *The Real Effects of Credit Ratings: The Sovereign Ceiling Channel*, 71 J. Fin. 249 (2016), https://www.sciencedirect.com/science/article/abs/pii/S0929119915000516 (demonstrating through a natural experiment around sovereign rating changes that sovereign ceiling constraints cause real economic effects on firm-level investment).

15 *See* Viral V. Acharya, Itamar Drechsler & Philipp Schnabl, *A Pyrrhic Victory? Bank Bailouts and Sovereign Credit Risk*, 69 J. Fin. 2689 (2014) (documenting the sovereign–bank feedback loop in the Eurozone, 2010–2012); *see* also European Cent. Bank, *Euro Area Bank Lending Survey* (Q3 2012).

16 *See* Eur. Inv. Bank, *Default and Recovery Statistics: Private Lending*, 1994–2024 (2025), https://www.eib.org/en/publications/20250177-default-and-recovery-statistics-private-lending-1994-2024; IFC/GEMs Consortium, Research Note, https://www.gemsriskdatabase.org/wp-content/uploads/2025/09/Research-Note_GEMs.pdf; World Bank, Infrastructure Monitor 2024, https://documents1.worldbank.org/curated/en/099042325153540676/pdf/P506950-8ecb178f-a03f-4014-8655-5e768316eeac.pdf.

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23 Id. ¶ 66.

24 This bottom-up, channel-by-channel logic is not a novel methodology. It mirrors the standard practice of political-risk-insurance underwriting, where the underwriter begins at the level of the project's business model, identifies the most direct transmission risks, layers structural and contractual mitigants against each, and only then considers residual or less direct risks. Disaggregation is how a related industry already prices and structures protection against substantially the same class of sovereign-related risks.

25 One potential avenue for future product development would be the creation of guarantee instruments calibrated against back-tested periods of transfer-and-convertibility restrictions, structured to cover likely durations of foreign exchange controls. A similar methodology could be applied to devaluation risk.

26 Duggar et al., *supra* note 20.

27 *See* World Bank, *Adjustment in Africa: Reforms, Results, and the Road Ahead* 25–28 (World Bank Pol'y Research Rep., 1994), https://documents1.worldbank.org/curated/en/544791468741876274/pdf/multi0page.pdf (documenting macroeconomic conditions and fiscal effects of the January 1994 CFA franc devaluation).

28 *See* RISE/ESMAP, *PPA Inflation Indexation*, https://rise.esmap.org/node/129001.

29 Pre-agreed cost adjustment mechanisms link specific construction inputs to observable indices, with ring-fenced contingency amounts automatically released when devaluation-driven escalation exceeds defined thresholds.

30 The imported component of capital expenditure is explicitly denominated and funded in hard currency through segregated escrow accounts, insulating critical equipment payments from post-devaluation repricing and liquidity disruption.

31 Binding commitments by project sponsors to inject additional equity or subordinated funding if construction costs exceed contractual buffers ensure project completion notwithstanding macro-driven cost shocks.

32 Duggar et al., *supra* note 20.

33 *See* Moody's Investors Service, *The Incorporation of Joint-Default Analysis into Moody's Corporate, Financial and Government Rating Methodologies* (Feb. 2005), https://www.moodys.com/sites/products/DefaultResearch/2007000000425610.pdf; Vincent J. Truglia & Pierre Cailleteau, *Revised Foreign-Currency Ceilings to Better Reflect Reduced Risk of a Payments Moratorium in Wake of Government Default* (Moody's Invs. Serv., May 2006), applying the JDA framework to the sovereign-ceiling piercing decision through a correlation weight $W \in [0,1]$. The current operative expression of the same logic is Moody's Investors Service, *Assessing the Impact of Sovereign Credit Quality on Other Ratings* (Cross-Sector Methodology, June 2019), https://www.moodys.com/research/doc--PBC_1137220, which frames the equivalent threshold in survival-probability terms.

34 *See* Int'l Monetary Fund, *Annual Report on Exchange Arrangements and Exchange Restrictions* (2023 ed.) (de facto classification data). Approximately 63 EMDEs maintain currencies pegged to the U.S. dollar or euro, including 19 in Africa — 2 U.S. dollar pegs (Djibouti, Eritrea) and 17 euro-area pegs through the CFA franc zone and related arrangements (Benin, Burkina Faso, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Côte d'Ivoire, Equatorial Guinea, Gabon, Guinea-Bissau, Mali, Niger, Republic of the Congo, São Tomé and Príncipe, Senegal, and Togo).

35 *See* OECD, *OECD Economic Surveys: Egypt 2024*, ch. 7 (2024), https://www.oecd.org/en/publications/oecd-economic-surveys-egypt-2024_af900de2-en/full-report/component-7.html (analyzing Egypt's macroeconomic adjustment, including the shift from a tightly managed exchange rate to a more flexible regime following its IMF agreement and the sharp depreciation of the Egyptian pound during 2022–2023).

36 *See* EBRD, *Transition Report 2023–24: Southern and Eastern Mediterranean* 18–22 (2023), https://www.ebrd.com/content/dam/ebrd_dxp/assets/pdfs/office-of-the-chief-economist/transition-report-archive/transition-report-2023/country-assessments-2023-24/southern-and-eastern-mediterranean/transition-report-202324-southern-and-eastern-mediterranean.pdf.

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54 *See* World Bank, *State of Electricity Utilities in Sub-Saharan Africa* 12–15 (2020); Int'l Energy Agency, *Financing Clean Energy in Africa* 36–37 (2023). Offtakers in categories (a) through (c) carry materially different transmission implications: category (a) offtakers — those with cost-reflective tariffs and commercial discipline — can sustain payment obligations independently of government fiscal conditions; category (b) offtakers — transfer-dependent but ring-fenced — retain some insulation through structural liquidity mechanisms but remain susceptible to sovereign stress with a lag; and category (c) offtakers — functioning as extensions of the sovereign balance sheet with no meaningful commercial separation — constitute, in economic substance, contingent fiscal obligations.

55 *See* World Bank, *Guarantees in Infrastructure Projects* 7–10, 23–24 (2019); Multilateral Inv. Guarantee Agency, *Guarantee Products* 5–8 (2022).

56 *See* World Bank, Guarantees in Infrastructure Projects 23–24, 37–40 (2019).

57 *See* S&P Glob. Ratings, *Ratings Above the Sovereign — Corporate and Government Ratings: Methodology and Assumptions* ¶¶ 35–40 (Nov. 19, 2013); Moody›s Invs. Serv., *Assessing the Impact of Sovereign Credit Quality on Other Ratings: Cross-Sector Rating Methodology* ¶¶ 35–41, *supra* note 10. The distinction between mitigants that prevent impairment and those that merely reallocate losses is consequential for rating purposes: a debt service reserve account does not alter the probability that an offtaker defaults on a payment obligation — it allows the project to service its debt despite that default for a defined period — whereas a sovereign or MDB guarantee, if enforceable and liquid, transfers the

payment obligation to a higher-credit counterparty and thereby changes the probability distribution of project-level default, not merely the timing of loss recognition.

58 *See* Borensztein, Cowan & Valenzuela, *supra* note 5, at 18–19.

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79 In Fitch's diversified payment rights (DPR) methodology, the Going Concern Assessment (GCA) measures the probability that an originating bank will remain a viable going concern — that is, will continue operating and generating the future flows being securitized — over the life of the rated notes. Fitch assigns GCA scores on a scale of GC1 (strongest) to GC6; the score is the primary determinant of the maximum rating uplift available above the sovereign. *See* Fitch Ratings, *Future Flow Securitization Rating Criteria* (current).

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COLUMBIA CENTER ON SUSTAINABLE INVESTMENT

Columbia Center on Sustainable Investment

475 Riverside Drive, Suite 504, New York, NY, 10115

Phone: +1 (212) 854-1830

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