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Make-wholes in sovereign bonds (not sure why they are there, but they may be free)

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MAKE-WHOLES IN SOVEREIGN BONDS
(not sure why they are there, but they may be free)

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Mitu Gulati & Ugo Panizza*

Abstract

Unnoticed in the literature on sovereign bonds, an innovation has been taking place over the past decade and a half. Starting with a single issuance in 2006 by Mexico and two issuances by Brazil in 2007, a small number of issuers have been using what are known as “doomsday” or “make whole” call provisions. These are call options set deep out of the money at issuance, and therefore unlikely to ever be triggered. We report the birth and evolution of the clause over the past fifteen years and ask what drove its application to sovereign bonds. We also estimate its cost for the issuing country. It turns out, at least thus far, that it is free.

Keywords: make-whole call, doomsday call, sovereign bonds

JEL Codes: F34, H63, K12, K22

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I. Introduction

Multiple researchers have observed a dramatic shift in US corporate bonds starting roughly in the mid 1990s and extending to the current period: from fixed premium call options to flexible rate call options.¹ This flexible rate call provision was known initially as the “doomsday call” and is now referred to as “make whole” call. It originated in the Canadian corporate bond market in the mid 1980s and migrated to the US in the mid 1990s.² Today, it is ubiquitous in the corporate bond market.

A fixed premium call typically specified a percentage premium over the principal amount as a function of the remaining time on the bond (e.g., 110%, if called five years prior to maturity year prior to maturity or 108% if redeemed four years prior and so on).³ A “make-whole” call, instead, measures the amount to be paid as discounted value of future amounts, with the discount rate being a small spread over the prevailing risk-free rate (e.g., the discount rate might be the US Treasury rate plus 50 basis points).⁴

The shift has intrigued researchers in part because the move from the traditional fixed rate option to the new flexible rate option was not just a change in form. The pricing was dramatically different. While the fixed premium calls were typically set at amounts where it was quite plausible that market interest rates might change in a fashion that the issuer might someday wish to exercise the call, the new make-whole calls are set so deep out of the money that it is unlikely that the issuer is ever going to exercise the option, except in a lottery win type scenario.⁵ These options are commonly called “make-wholes”, although they are more akin to lottery tickets in that

¹ While fixed price call provisions are still quite common with non-investment grade issuers, make-whole calls are now the norm in the lower ranges of investment grade issuers. See Zavika Afik, Gady Jacoby, David Stangeland & Zhenyu Wu, *The Make-Whole and Canada-Call Provisions: A Case of Cross-country Spillover of Financial Innovation*, 61 J. INT’L FIN. MKTS INSTITUTIONS & MONEY 120-127 (2019); Steven Mann & Eric Powers, *Indexing a Bond’s Call Price: An Analysis of Make-whole Call Provisions*, 9 J. CORP. FIN. 535-554 (2003); Scott Brown & Eric Powers, *The Life Cycle of Make-whole Call Provisions* (2018 draft), at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2139497

² See Afik et al., *supra* note 1; Gady Jacoby & Gordon S. Roberts, *Default- and Call- Adjusted Duration for Corporate Bonds*, 27 J. BANK FIN. 2297 (2003).

³ For an illustration of the typical fixed premium bond used in the 1980s and early 1990s, see Richard S. Wilson & Frank J. Fabozzi, *CORPORATE BONDS: STRUCTURE AND ANALYSIS* 116 (1996).

⁴ For a discussion of the choice between the types of call provision, fixed or make whole, as a function of agency costs, see Michael J. Alderson, Fang Lin & Duane R. Stock, *Does the Choice Between Fixed Price and Make Whole Call Provisions Reflect Differential Agency Costs?* 46 J. CORP. FIN. 442 (2017).

⁵ Marcel Kahan & Mitu Gulati, *Cash America and the Structure of Bondholder Rights*, 13 CAP. MKTS L. J. 570 (2019); Marcel Kahan & Mitu Gulati, *Sleeping Giant Contracts* (2020 draft), at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3442355

they come into play only when the bond issuer hits a hugely positive outcome far out of contemplation at the issuance date (the opposite of a doomsday outcome).⁶ Intriguing to scholars, therefore, have been the questions of why these new types of options were being set so deep out of the money and what the pricing differential between the old style fixed premium call and the newer make-whole was.⁷

Unnoticed in the studies of make-wholes in corporate bonds has been that this innovation has spilled over into the sovereign debt world. Our article documents that that shift.

The shift to make-wholes in sovereign world began in 2006, with a single issuance by Mexico. That is, roughly a decade after make-wholes emerged in the US corporate bond market and two decades after the birth of the Canadian Domsday call. The sovereign shift is intriguing in its own right for at least five reasons that we list below.

First, sovereign bonds terms are famously sticky. Parties have a standard template that they are loathe to change, even when that standard form poses significant litigation risks. And when sovereigns and their investors do change terms, they want the assurance that others are going to change too; that is, that the official sector is active in ensuring that the market standard is changing.⁸ With the make- whole call, the change came quietly, from a few elite issuers and law firms. Indeed, a decade and a half after its birth in sovereign area, ours is the first academic article to examine the sovereign make whole.⁹

⁶ An article in the Bond Buyer explains, “Issuers . . . need an out in extraordinary circumstances such as a corporate takeover requiring the extinguishment of bonds with negative covenants”. Andrew Kolotay, *Making Sense of the Make Whole Call: From Its Origins to BABs*, BOND BUYER, July 26 (2010).

⁷ See, e.g., Min Park & Steven Clark, *A Reduced-Form Model for Valuing Bonds with Make-Whole Call Provisions*, 22 APP. MATH. FIN. 419 (2015); Amora Elsaify & Nikolai Roussanov, *Why do Firms Issue Callable Bonds?* Wharton Finance Working Paper (2016 draft), at http://repository.upenn.edu/fnce_papers/

⁸ See e.g., Anna Gelpern, Mitu Gulati & Jeromin Zettelmeyer, *If Boilerplate Could Talk: The Work of Standard Terms in Sovereign Bond Contracts*, 44 L. & SOC. INQUIRY 617 (2019); Stephen J. Choi, Mitu Gulati & Robert E. Scott, *The Black Hole Problem in Commercial Boilerplate*, 67 DUKE L. J. 1 (2017); Robert Scott & Mitu Gulati, *THE THREE AND A HALF MINUTE TRANSACTION* (2013).

⁹ The one mention we have found – a single sentence -- is in a 2016 law firm memorandum. See Eli Whitney Debevoise, Neil M. Goodman & Carlos Pelaez, *The Current State of the Sovereign Bond Market*, LAW360 (May 2, 2016) (“For investment-grade sovereign issuers, issuer call provisions (at a make-whole premium against U.S. Treasuries for the majority of the outstanding tenor, reduced to par as the debt securities near maturity) have become another standard feature of sovereign bond issuances.”), at <https://www.arnoldporter.com/en/perspectives/publications/2017/05/the-current-state-of-the-sovereign-bond-market>

Second, unlike in the corporate bond area, where Issuer calls at a fixed premium have long been common place, sovereign bonds in the modern era traditionally contained no redemption provisions at all.¹⁰ So, while the shift to using make-whole provisions in corporate bonds was a change in the type of Issuer Call provisions (fixed premium to make-whole), the shift in the sovereign world was more radical: from using no Issuer Call provision to utilizing the make-whole option.

Third, make-whole calls tend to be more prevalent for bond issuances by corporates with low credit ratings.¹¹ That makes sense because deep out of the money calls are valuable only when there is the potential for a high upside; something that corporate borrowers in the junk category are more likely to bring than blue chips. In the sovereign case though, the shift to make-wholes has largely been in the investment grade category of bond issuers (albeit in the lower rungs of this category).

Fourth, the use of these make-whole provisions appears almost exclusively in one corner of the world: Latin American and Caribbean issuers using New York law. There are only two bonds with make-whole clauses and English Law in our dataset: A bond issued by Finland in 2014, and one issued by Fiji in 2015. The reason for this differential is not obvious, since there is nothing in English law that we can see that disfavors the use of such provisions.

Fifth, we find no evidence that issuers, on average, are paying anything for these options. By contrast, scholars have found distinct pricing effects for these call options in the corporate context – depending on the type of option and how deep out of the money it is, prices can range from a few basis points to a few hundred basis points. Unsurprisingly, since the traditional fixed price options are more likely to be in the money and exercised, they cost more than the make wholes that are set deep out of the money.¹² But in the sovereign case, we find no evidence of pricing

¹⁰ The exceptions in sovereign bonds that we have found in our data are from some of the brady bonds from the 1980s, that allowed redemption at par. Other than the bradies though, we have not found other redemption provisions in sovereign bonds. That is, until the use of the make-whole provisions begins in 2006.

¹¹ Make-whole issuers tend to be lower-end investment grade. Non-callable issuers average one or two notches higher and fixed-price call issuers are non-investment grade See Mann & Powers, *supra* note 1.

¹² See Brown & Powers, *supra* note 1; see also Eric Powers & Sergey Tsyplakov, *What is the Cost of Financial Flexibility? Theory and Evidence for Make-Whole Call Provisions*, 37 FIN. MGT 485 (2008); Steven Mann & Eric Powers, *What is a Make-Whole Call Provision Worth?* 4 J. BOND TRADING & MGT. 315 (2003).

effects. Thus far, the options look to be free for the issuers. That may explain the increasing share of bonds with such options.

In what follows, we describe the data on the emergence of the make-whole provision in sovereign bonds. Section II draws from the corporate literature to provide background. Section III describes the trend data on the evolution of make-wholes in the sovereign setting. Section IV asks who the key innovators were. Section V analyzes the financial cost of these clauses to the issuers that have used them. Section VI looks at snap shot of the data in the quasi sovereign setting. Section VII concludes by noting some insights from industry experts.

II. Background

Make-whole calls have their origin in Canadian bonds in the late 1980s. From there, they moved to US corporates in the mid 1990s and they are now used in the majority of US corporate bonds.¹³ Since then, they have been adopted in other developed country bond markets as well, such as the European and Japanese bond markets.¹⁴ However, make-whole clauses did not migrate to sovereign bonds until March 2006, when Mexico issued a New York Law dollar-denominated bond with a ten-year maturity and a face value of \$3 billion. Mexico was followed by Brazil with two issuances in 2007, and then Mexico itself used make-wholes again in two issuances in 2008. Other countries did not begin using this provision until 2009. Since then though, adoptions have increased at a steady clip. For instance, all bonds issued by Ecuador after 2010 include a make-whole clause. By 2019, more than 60% of Latin American foreign-law sovereign bond issuances included a make-whole clause. And this share goes well above 70% of total issuances if, instead of focusing on the number of issuances, we focus on the face value of the bonds.

There is a small literature in finance and a miniscule one in law that has examined the emergence of make-whole clauses in bonds. The focus, however, has almost exclusively been on corporate bonds.¹⁵ Best we know, ours is the first article to analyze the emergence of make-whole clauses in sovereign bonds.

¹³ Elsaify & Roussanov, *supra* note 7.

¹⁴ Brown & Powers, *Life Cycle*, *supra* note 1.

¹⁵ *E.g.*, Nandakumar Nayar & Duane Stock, *Make-Whole Call Provisions: A Case of "Much Ado About Nothing?"* 14 J. CORP. FIN. 387-404 (2008); Elsaify & Roussanov, *supra* note 7; Afik et al., *supra* note 1; Alderson et al., *supra* note 4; Mann & Powers, *Indexing*, *supra* note 12; Powers & Tsyplakov, *supra* note 12; Kahan & Gulati, *Cash America*, *supra* note 5.

The feature that differentiates callable bonds from non-callable debt instrument is an option that allows, but does not force, the bond issuer to buy back all or parts of the bond at a pre-specified price. A key difference between traditional fixed price callable bonds and make-whole callable bonds is the price at which the bond can be bought back. As described earlier, traditional callable bonds specify a time window over which the option can be exercised and a price (normally defined as a percentage of the bond face value) at which the bond could be bought back. This price may either be fixed or vary with the residual maturity of the bond.¹⁶ Even in this latter case, the call price at a given date is known at the time of issuance. Bonds with make-whole calls, instead, have a strike price that depends on market conditions. The strike price is normally equal to the maximum of the par value of the bond and the present value of the bond future payments discounted at small spread (usually 20-30 basis points) over a safe bond issued in the same currency (normally US Treasuries for bonds issued in US dollars and German Bunds for bonds issued in euros) and with the same maturity. This small spread is usually referred to as “make-whole spread.”

Given that make-whole spreads embedded in make-whole call options tend to be very low, these options are always far from being in the money and they are rarely exercised. In fact, Afik and co-authors show that having a make-whole spread lower than the issuer yield spread is a necessary, but not sufficient condition for the make-whole call being in-the-money.¹⁷ As make-whole options are rarely in the money, their increasing importance in both corporate and sovereign bonds is puzzling. The literature on corporate bonds has focused two reasons that lead firms to include such options.

The first reason has to do with refinancing risk. Elsaify and Roussanov develop a theoretical model in which firms that issue long-term debt may face a liquidity shock at time of refinancing.¹⁸ If in the period before the bond expires, liquidity conditions are particularly good but at risk of deteriorating, a firm that issued a bond with a make-whole call has the option of refinancing the bond in advance. While this action will have a cost (equal to the difference between the current spread faced by the firm and the yield spread written in the make-whole option) it may still be

¹⁶ Wilson & Fabozzi, *supra* note 3.

¹⁷ Afik et al., *supra* note 1.

¹⁸ Elsaify & Roussanov, *supra* note 7.

desirable because it eliminates refinancing risk.¹⁹ Elsaify and Roussanov show that their model is consistent with the fact that the issuance of bonds with make-whole calls increased at the onset of the global financial crisis and that low rated corporations are more likely to issue bonds that include make-whole provisions. The model of Elsaify and Roussanov is also consistent with the prior Powers and Tsyplakov finding that the users of make-whole calls have higher growth potential than firms that do not use these provisions (as measured by Tobin's Q).²⁰

The second reason for issuing a bond with a make-whole option is the possibility of retiring bonds with troublesome covenants without being subject to a severe holdout problem. This possibility can be particularly important in the context of mergers or acquisitions. In this case, exercising the option could benefit the firm even if it has a financial cost.²¹ This explanation is consistent with the finding of a survey of Chief Financial Officers (CFOs) showing that the most cited reason for issuing bonds with a make-whole call is the ability to retire 100% of a given bond issuance.²² Interviews with corporate lawyers in the high-yield space on why they use these deep out of the money call options revealed the same rationale.²³

It is worth noting that make-whole options are not the only way to retire existing debt. Another way to do it is by open market repurchases. While there is evidence that this mechanism is an inexpensive way to retire existing debt, open market repurchases are not suitable for retiring 100% (or even just a large share) of a bond issuance. An alternative way to retire existing bonds is through a tender. With this mechanism, the issuer submits a formal offer to its bondholders specifying a price (which usually includes a premium over the market price) at which the issuer is willing to buy back a certain amount of its bonds. While tenders are suitable for retiring a full bond issuance, they tend to be expensive and a make-whole provision can help avoid the costs of a tender.²⁴ Based on this intuition, Afik and co-authors build a model showing that, if the increase in yield at issuance associated with issuing a bond with a make-whole provision is not very high, issuing bonds with a make-whole call can be a cheap method to insure against the potentially

¹⁹ *Id.*

²⁰ Powers & Tsyplakov, *supra* note 12.

²¹ See Bo Becker et al., *Debt Overhand and the Life Cycle of Callable Bonds* (2018 draft), at <https://www.ssrn.com/abstract=3302502>

²² See Mann & Powers, *Indexing*, *supra* note 12.

²³ Theresa Arnold, Amanda Dixon, Madison Whalen & Mitu Gulati, *The Myth of Optimal Expectation Damages*, MARQUETTE L. REV. (forthcoming 2020).

²⁴ See Mann & Powers, *Indexing*, *supra* note 12; Steven Mann & Eric Powers, *Determinants of Bond Tender Offer Premiums and Tendering Rates*, 31 J. BANKING & FIN. 547-567 (2007).

high costs of making a successful tender offer.²⁵ Data for corporate bonds suggest that the costs of including a make-whole option are indeed much lower than the estimated cost of a tender offer.²⁶

III. The Trends and the Innovators

To describe the rise of make-whole clauses in sovereign bonds, we used the Dealogic database to download data on the characteristics of 21,948 sovereign issuances over 2005-19 period. Our sample includes 12,436 bonds issued by advanced economies or offshore centers and 9,512 bonds (43% of the total) issued by emerging and developing economies.²⁷

The top two panels of Figure 1 show that make-whole calls are extremely rare in the bonds of advanced economy sovereigns and that there were no sovereign bonds with make-whole clauses before 2005. The share of bonds issued by emerging market countries (EM, henceforth) with a make-whole provision increased to 2% in 2009, and 9% in 2019. Focusing only on bonds issued under foreign jurisdiction, this share increased from 0% in 2005 to 12% in 2013, reaching 19% in 2019 (bottom left panel of Figure 1). The trend is even more striking for EM bonds issued under New York law. In this case, the share of bonds with make-whole provisions reached 30% in 2013 and surpassed 40% in 2019 (bottom right panel of Figure 1). By contrast, the share of sovereign bonds with make-wholes in the English-law market, the other primary location for EM issuances, is close to 0 all through.

Given that there were no issuances of bonds with a make-whole call before 2005 and that there are very few advanced economies that issue bonds with such calls, we limit our analysis to 7316 bonds issued by emerging market economies (EM, henceforth) over 2005-2019. Within this sample, nearly 5,600 (76% of the total) are governed by the law of the issuing country, 519 (7% of the total) are under New York law, 455 (6% of the total) by English law, and the remaining 757

²⁵ Afik et al., *supra* note 1.

²⁶ *Id.*

²⁷ Since Dealogic does not provide the original deal documents, we had to rely on their coding for our key variables. As a check, we hand coded 400 of the same observations independently from the Filings Expert database, where the deal documents are available. The match for our key variable of interest, the make-whole provision, was almost perfect. Out of 166 bonds included in both datasets, we only found three cases (and five bonds) for which there was a mismatch (in all three cases the hand coded dataset indicated the presence of a make-whole call and the Dealogic dataset did not). These three cases are: Iceland, May 2012, Qatar, March 2019, and Tajikistan, September 2017. (Qatar, in March 2019, did three separate issuances on the same issue date).

(10% of the total) under other jurisdictions (Table 1). Overall, only 2% of the bonds issued by developing and emerging countries included in our dataset include a make-whole provision. However, the share of bonds with make-whole provisions increases to 23% if we focus on New York law governed bonds.

Given the foregoing, we unsurprisingly find that most bonds that include make-whole clause are issued in US dollars. In 2019, about 30% of foreign law bonds issued in US dollar included a make-whole provision, while the share of non-dollar bonds was below 4% (Figure 2).

Things get more intriguing when we focus on the regions that the issuers using make-wholes come from. Almost all EM bonds with a make-whole clause are issued by countries in Latin America and the Caribbean. Almost none come from the Middle East and North Africa, East Asia and Pacific and Sub-Saharan Africa regions and no issuances in South Asia and Eastern Europe and Central Asia (Figure 3). In the case of Latin America and the Caribbean, the share of bond issuances with a make-whole clause reached 40% in 2009 and surpassed 60% in 2019.

Figures 4-7 shows that these trends are yet more striking if we describe bond issuances by face value instead than by number of issuances. In the case of Latin America, more than 70% of issuances in 2019 included a make-whole clause (Figure 7).

Turning to the details of the clauses themselves, Table 2 describes the make-whole spreads associated with the bonds included in our sample. The spread ranges between 7.5 and 50 basis points with median and average values of approximately 30 basis points. These values fall roughly between the spreads for investment grade US corporate bonds (15 basis points) and those for investment grade ones (50 basis points).²⁸ We also find that while there are no large differences between the make-whole spreads of different categories of investment grade sovereign bonds, the average and median make-whole spreads are significantly higher for speculative grade sovereign bonds.²⁹

²⁸ See Afik et al., *supra* note 1; Arnold et al., *supra* note 23.

²⁹ For corporate bonds there is evidence of a rule of thumb that sets the make-whole spread at 15% of the prevailing credit spread (rounded to common values 5 basis point increments). However, the make-whole spread is often (but not always) set to 50 basis points when that rule of thumb generates a higher value. See Eric A. Powers & Sudipto Sarkar, "Setting the Optimal Make-Whole Call Premium," 23 *Appl., Fin. Econ.* 461-473 (2007).

If we look at rating groups (Table 3), we find a high prevalence of bonds with make-whole calls among highly rated bonds (5.5% of the total). However, it is worth noting that there is only one issuer here and it is not exactly an emerging market country (Qatar) and a number of the other bonds with a make-whole call are at the lower end of the investment grade spectrum (Issuers in this group include Brazil, Colombia, Mexico, Panama, and Uruguay). One surprising result is that low rung investment grade bonds seem to be more likely to include make-whole clauses than speculative grade bonds. This finding is in line with the evidence for corporate bonds which suggests that make-whole users tend to be lower-end investment grade issuers.³⁰ This result is robust to the “other things other” analysis discussed in the next section and illustrated in Table A1 in the Appendix.

IV. The Drivers of Innovation: Lawyers or Bankers?

Prior research on sovereign debt contract terms suggests that law firms, and particularly the handful of law firms that dominate this market, are important drivers of innovation. The story being that these big firms, because they advise a lot of clients, can coordinate a shift in the market standard.³¹ That then reassures individual issuers that they won't have to suffer any pricing penalty that might be imposed on an issuer that is seen to be deviating from the market standard.

The make-whole provision though is not a purely legal term, in the manner of some of the terms that have been examined in prior research, such as collective action and *pari passu* clauses. Make-Whole clauses, while being partially legal, are also partially financial. After all, they contain an explicit price – the number of basis points over the risk-free rate that a particular payment stream will be discounted by. And this number can and does vary across deals. So, given that the investment bankers are likely to play a role with the shape of the make-whole provision, we code for the lead bankers as well as the lawyers.³²

Tables 4 and 5 report on the fraction of the deals done by each of the major international law firms in London and New York that use make-whole provisions. The dominant players on the

³⁰ See Mann & Powers, *supra* note 1.

³¹ See Stephen J. Choi & Mitu Gulati, *Innovation in Boilerplate Contracts: An Empirical Investigation of Sovereign Bonds*, 53 EMORY L. J. 930 (2004); see also Robert E. Scott et al., *Revising Boilerplate: A Comparison of Private and Public Company Transactions*, __ WIS. L. REV. __ (forthcoming 2020) (finding a similar impact of elite law firms, albeit in the corporate and private equity contexts).

³² Plus, some research has found bankers to be key drivers of contract innovation, albeit in the non-sovereign case. See Marcel Kahan & Michael Klausner, *Standardization and Innovation in Corporate Contracting* (or “*The Economics of Boilerplate*”), 83 VA. L. REV. 713 (1997).

underwriter counsel side are Sullivan & Cromwell, Clifford Chance and Shearman & Sterling. Of those, as Table 4 shows, there is one firm that is most clearly associated with the use of the make-wholes (63% of them): the venerable New York firm Sullivan & Cromwell.

If we dig deeper, it turns out that Sullivan & Cromwell advised the very first issuance in our data set with a make-whole, which is a single issuance in 1996 by Finland. After that, it takes another ten years before the next issuance with a make-whole, which is in 2006 by Mexico. Again, Sullivan & Cromwell is one of the legal advisers. And that issuance is followed by Brazil in 2007, where we see Sullivan & Cromwell again.

No other law firm, on either the issuer or underwriter side comes close to having as close of an association with this innovation as Sullivan & Cromwell. On the issuer side, Arnold & Porter and Cleary Gottlieb are associated with a number of uses of the make-whole (29% and 21% of their deals), but their numbers and percentages pale in comparison to Sullivan & Cromwell.³³

So far, we showed that bonds with make-whole calls are prevalent among dollar denominated bonds, bonds issued by Latin American sovereigns, bonds issued under New York Law, and bonds for which the advisor is part of a select group of law firms. However, these variables are correlated with each other. Latin American sovereign are more likely to issue in dollar than sovereigns in central Europe. Dollar bonds, in turn, are more likely to use New York law and issuers of dollar bonds are more likely to use the services of a small number of law firms. Regression analysis can help to conduct an “other things equal” analysis and identify the key variable associated with the adoption of make-whole clauses in bonds issued by EM sovereigns.

We estimate a set of regressions in which the dependent variable is a dummy that takes the value one if a given bond contains a make-whole option and zero otherwise and the set of explanatory variables include law, geographical, and rating dummies (all regressions also control for the year in which the bond was issued).³⁴ We estimate eight models using both data for all bonds in our

³³ Sullivan & Cromwell (along with the issuers, Mexico and Brazil) was also at the forefront of innovating with the famous Collective Action Clauses in 2003 and then again in 2014. In that case though, the issuer's side counsel Cleary Gottlieb (Mexico) and Arnold & Porter (Brazil) were also closely associated with the development of the innovation. Choi & Gulati, *supra* note 31. For a discussion of these innovations by a Sullivan & Cromwell partner, see Sergio J. Galvis, *Solving the Pari Passu Puzzle: The Market Still Knows Best*, 12 CAP. MKTS L. J. 204 (2017); Sergio J. Galvis & Angel L. Saad, *Sovereign Exchange Offers in 2010*, 6 CHI. J. INT'L L. 219 (2005); Sergio J. Galvis & Angel L. Saad, *Collective Action Clauses: Recent Progress and Challenges Ahead*, 35 GEO. J. INT'L L. 815 (2004).

³⁴ Our estimations use a linear probability model. The results are qualitatively similar if we use probit or logit models.

sample and restricting the analysis to dollar-denominated bonds. We also estimate models that include different control variables. Our results (reported in Table A1 of the appendix) suggest that the key drivers for the presence of make-whole clauses is being based in Latin America and the Caribbean. Once we control for the origin of the issue, we find that the law that governing the bond and the currency of denomination are not significantly correlated with the presence of make-whole clauses. They looked important in the previous analysis only because Latin American issuers tend to denominate their bonds in US dollars and have them governed by New York law.

When we look at the role of legal advisors (to both issuers and bookrunners), we find a strong effect for Sullivan & Cromwell in the bookrunner advisor category. (columns 3 and 4). This suggests that this law firm did indeed play a key role in promoting the introduction and spread of make-whole provisions in sovereign bonds.

Given that it is a law firm that is a specialist counsel for the underwriters that appears to be a key driver of the use of the make-whole provision, it seems plausible to ask whether there are might also be a particular investment bank that is closely associated with this innovation in a similar fashion. Unlike with law firms, where there are a small number of firms that advise the vast majority of the deals in the EM space (roughly five on the issuer side and another five on the underwriter side), that is not the case with the lead bankers.³⁵ Analyzing the role of investment banks is also complicated by the fact that many of the bonds in our dataset are underwritten by multiple investment banks (more than ten in some cases) and in our data we cannot identify the lead underwriter (the banks are listed alphabetically). Hence, we proceed as follows: We identify 27 banks that underwrote at least 20 issuances of foreign law bonds issued by EM countries and we checked the prevalence of make whole clauses among the bonds underwritten by these banks.³⁶

As each bond is underwritten by many banks, we cannot simply tabulate the share of bonds with a make-whole call underwritten by each bank because this share would not be comparable with the share of bonds associated with each law firm (where we do not have the problems of multiple international law firms associated to one bond). We can however, estimate a statistical model

³⁵ On the law firms that dominate the EM space, see Michael Bradley, Irving De Lira Salvatierra & Mitu Gulati, *Lawyers: Gatekeepers of the Sovereign Debt Market?*, 38 INT'L REV. L. & ECON. 150 (2014).

³⁶ The 27 banks are: BBVA, BNP, Bank of China, Barclays, Bank of America, Citi, Commerzbank, Credit Agricole, Daiwa, Deutsche Bank, Goldman Sachs, HSBC, ING, JP Morgan, Mizhuo, Morgan Stanley, NatWest, Natixis, Nomura, SG, Santanter, Standard Bank, Standard Chartered, Sumitomo, UBS, UniCredit, and VTB.

similar to that of Table 1 by putting law firms and underwriters in a horse race and see whether any of the leading banks is significantly (from a statistical point of view) associated with the issuance of bonds with a make-whole call. Table A2 in the appendix reports the result of this test and shows that there is no investment bank which is positively and significantly associated with the presence of make-whole.

V. How Much Do the Make-Wholes Cost?

The literature on corporate bonds has found that the inclusion of a make-whole provision is associated with an increase in the yield at issuance that ranges between 6 and 36 basis points.³⁷ We now explore the cost of make-whole provisions for sovereign issuers. In theory, since they are obtaining a call right from investors, there should be a cost. And given that these calls are set deep out of the money, we should expect the cost to be small; maybe a few basis points.

We begin first with a set of regressions that do not control for issuer-specific unobservable characteristics (Table 6, columns 1-4) but include a set of standard variables that should capture the standard pattern that bonds with greater risks carry higher yields. Three basic results we expect to see are: (1) that bonds of countries with higher credit ratings will have lower yields because of lower credit risk; (2) bonds governed by foreign law will have lower yields than those governed by local law because of lower expropriation risk; (3) bonds with longer maturity will carry higher yields than those with shorter maturities because of higher interest rate risk.

All three results show up as predicted. Bonds governed by domestic law carry higher interest rates than bonds under foreign law. Higher rated bonds have lower interest rates than lower rated bonds. And bonds with longer maturities have higher yields than those with shorter maturity.³⁸

When we focus on US dollar bonds (columns 3 and 4) we also find lower yields for bonds issued by countries in the Asia and Pacific region. When we control for issuer fixed effects (columns 5 and 6) and we use all bonds, we find that, other things equal, New York and English Law bonds carry the same interest rates as domestic law bonds. All other results are similar to those of the regressions that do not include issuer fixed effects. The finding that when we include fixed effects, we do not find a yield penalty for domestic law bonds, is puzzling, and it is probably driven by the

³⁷ Mann & Powers, *Indexing*, *supra* note 12 estimate that the cost of make whole calls is 6-10 basis points and Becker et al., *supra* note 21 (Table 3; pg. 15), estimate the premium to be around 36 basis points.

³⁸ However, the coefficient for bond maturity is not statistically significant in the model where we include non-dollar bonds and do not control for country-specific effects.

the within-country correlation between currency of denomination and the law that regulates the bond. When we restrict the sample to dollar bonds (columns 7 and 8), we find that the coefficient associated with the New York law dummy variable (60 basis point) is lower than that associated with the domestic law variable (89 basis points in column 7 and 130 basis points in column 8).

The most intriguing (non) result is that the make-whole dummy is rarely statistically significant and often has a negative coefficient. Indeed, in the only regression in which the make-whole dummy is marginally statistically significant (column 7), the coefficient is negative. This suggests that, for sovereigns, there is no cost associated with issuing bonds with make-whole clauses. That is, the issuers are getting a free call option. The call may not be worth much, but it does not seem to cost anything.

To examine the pricing question from a different vantage point, we next use a set of models similar to those reported above, except that our dependent variable is more fine-tuned. Instead of being the yes/no question of whether the bond has a make-whole, our dependent variable is the specific spread on the make-whole. Table 7 reports the estimates for a set of models similar to those of Table 6, but now only includes bonds with a make-whole call and studies the role of the make-whole spread. As expected, that the yield is positively correlated with the make-whole spread. This is expected, because a higher make-whole spread increases the value of the call (creditors gets paid less because the discount rate applied to their future payments is higher). It should be pointed out that the results in Table 7 are simple correlations and should not be interpreted as causal. It is indeed, possible that it is the sovereign spread that causes the make-whole spread.³⁹ Other results are similar to those of Table 6, with the exception that we now find that dollar bonds tend to have higher interest rates than bonds denominated in other currencies. However, in the sample of bonds with make-wholes, there are only sixteen bonds not denominated in US dollars.

We also check if make-whole calls are more costly for longer dated bonds (the idea is that options with a longer maturity are more valuable), but we did not find evidence in this direction (see Tables A3 and A4 in the Appendix).⁴⁰

While our statistical model suggests that there is no cost associated with issuing a sovereign bond with a make-whole call, this result provides information for the average issuer (conditional on all

³⁹ This would be the case if the make-whole spread is determined by a rule of thumb as suggested by Powers & Sarkar, *supra* note 29.

⁴⁰ Note that all credit environment (global risk aversion, US interest rate, etc) are controlled for by the year of issuance fixed effects.

other variables included in the regression). To probe further and explore the characteristics of individual sovereign bonds with make-whole calls, we next estimate country-by country regressions. As country-specific regressions could not be estimated for countries with a small number of bonds or for countries with no variance in the presence of make-whole calls, we were able to conduct this experiment only for 8 countries (Table 8). Herein, we found a negative and statistically significant coefficient for Brazil (suggesting that bonds with a make-whole call have a yield which is 82 basis points lower than bonds without make-whole calls) and a positive and statistically significant coefficient for Mexico (the point estimate suggest a 38 basis point cost associated with the presence of a make-whole call). The coefficient for Qatar is close to zero, and those for the other countries are negative but not statistically significant. Table 8 suggests, therefore, that our finding that make-whole calls have no cost is not driven by the presence of outliers.

VI. A Snapshot of Quasi Sovereigns

While our focus is on the emergence of the make-whole innovation in the sovereign market, we examine a snapshot of the market that lies between the corporate and the sovereign worlds; that of quasi sovereigns (including large state-owned corporations). The goal being to see whether examining the quasi-sovereigns can provide us with clues as to what the direction the evolution of this innovation in the sovereign space might take next. What we count as quasi sovereigns include state-owned companies such as Pemex, the Mexican oil company, and regional issuers such as the Province of Buenos Aires.

With the caveat that our snapshot is made of up only 143 randomly collected foreign-law governed issuances from the Filings Expert database, we find that the same country was the first user of the make-whole in this space as well.⁴¹ Pemex, the Mexican state-owned oil company is first, in 2006.⁴²

Overall, we also find the same pattern of dominance by Latin American issuers that we found for the sovereigns. Of the issuances, ten of these issuers are based in advanced economies, 57 in East Asia and the Pacific, eight in East Europe and Central Asia, 85 in Latin America and the Caribbean, and one in the Middle East and North Africa. On average, 53% of these bonds include

⁴¹ In effect, the foreign law constraint on our data means that the issuances in question are almost all from EM nations.

⁴² Although not in our randomly put together subset of 143 issuances, we believe that Petrobras, the Brazilian state-owned oil company was the next user, in 2007.

a make-whole call, with the share for Latin American issuances being close to 80% (Table 9). We also find that the majority (60%) of dollar bonds in our sample include a make-whole call (Table 10).

The one significant difference that we find between the sovereign and quasi sovereign subsets that might point towards what we might see in the future with sovereign issuers, is that the use of make-wholes in the quasi sovereign space, while initially starting in the world of New York law, spills into the English market. Specifically, for our 143 quasi-sovereign issuances, 66% of bonds governed by New York law have a make-whole and 13% of the English-law governed bonds have it. In terms of currency, 60% of dollar issuances have make-whole clauses, while 30% of euro issuances have make-whole clauses (Table 11). So, overall, while we see the same disproportionate use of make-wholes by in those bonds governed by New York law and denominated in dollars, spillover into the European market occurs.⁴³ It bears reiteration though that we've only taken a snap shot of the quasi sovereigns.

VII. A Looming Iceberg

While our pricing tests suggest that make-wholes are a free option, the clauses may pose a risk to countries seeking to restructure. As we will explain, there is little reason why this risk cannot be eliminated for newly issued bonds. However, as of this writing, there has been no move to do so.

One might ask, why is the issuer's call option relevant in the context of an attempted sovereign restructuring? After all, it should only be relevant where the issuer chooses to exercise the option. And the sovereign issuer in distress is seeking to get creditors to take haircuts, rather than exercise its redemption option. Remember, the redemption option typically requires the issuer to pay a supra compensatory amount (because it is intended to operate in a state of the world where things have improved so dramatically for that issuer that it wishes to retire the debt) – which is the opposite of the haircut that a country in trouble needs to impose because things have turned terrible for the sovereign.

⁴³ If we estimate a regression in which the dependent variable is a dummy taking value one if a bond includes a make-whole call and the explanatory variables are a LAC dummy, a New York Law dummy and a US dollar dummy, we find that all three variables have positive coefficients, but only the LAC and NY law dummy are statistically significant.

The answer has to do with a New York case from 2016, *Wilmington Savings Fund FSB v. Cash America International Incorporated* (“Cash America”).⁴⁴ In summary, here is the story of the case:

Make-whole provisions, as we have discussed, give the issuer of the bonds the option to redeem the bonds at a premium over par. Bond indentures also contain an acceleration clause that gives bondholders the option, upon an Event of Default, to demand immediate payment of the principal amount and receive par. Redemption is an option of the issuer while acceleration is an option for bondholders.

In *Wilmington Savings Fund FSB v. Cash America International Incorporated*, the issuer, as a result of having spun off a subsidiary, was accused by creditors of having violated an Event of Default. The matter went to court and the judge found that this was indeed a violation. That part of the case was uncontroversial. What came next, in terms of the remedy, was unexpected. The court ruled that when an issuer engages in a “voluntary” covenant breach, holders are entitled to receive as a remedy the amount they would have received upon redemption, that is a premium over the amount receivable under the acceleration clause. And that redemption amount was the supra compensatory “make-whole” amount.

The decision caused much consternation among numerous elite law firms. Transactional lawyers argued that the contract didn’t say anywhere, or even imply, that the bondholders were entitled to such a remedy.⁴⁵ The implication of the foregoing was that bond issuers using make-whole provisions should henceforth be forewarned that they might be liable for this payment if their triggering of an Event of Default sometime in the future were seen as “voluntary” by a court.⁴⁶ The question to ask then is what did the court in *Cash America* mean by the term “voluntary”. The opinion does not explain. Our guess is that the judge was thinking of a state of affairs where the debtor was insolvent and was being forced by the creditors into a bankruptcy proceeding. After all, that seems involuntary.

⁴⁴ No. 1:2015cv05027 - Document 49 (S.D.N.Y. 2016).

⁴⁵ For discussion, see Gulati & Kahan, *Cash America*, *supra* note 5.

⁴⁶ See e.g., Glenn West, *How a “Voluntary” Default under An Indenture Converted an Optional Redemption Provision into a Mandatory Redemption Provision Requiring Payment of a Make-Whole Premium*, Weil Gotshal Private Equity Blog, Oct 5 (2016), at <https://privateequity.weil.com/features/voluntary-default-indenture-converted-optional-redemption-provision-mandatory-redemption-provision-requiring-payment-make-whole-premium/> ; David Johansen et al., *Recent Cases Restrict Issuers’ Ability to Avoid Paying Premiums*, White & Case Website, Jan 11 (2017), at <https://www.whitecase.com/publications/alert/recent-cases-restrict-issuers-ability-avoid-paying-premiums>

But what does the foregoing mean for the sovereign debtor whose contracts are governed by New York law and contain a make-whole provisions. After all, sovereigns cannot be forced into a bankruptcy proceeding. Further, given that sovereigns can in theory always tax their people more to repay their debt, sovereign debt restructurings are in a sense always “voluntary”. Also, sovereigns themselves frequently describe their debt restructurings as “voluntary”.⁴⁷ So, does the remedy given by the court in *Cash America* apply any time a sovereign (with an Optional Redemption provision) triggers an Event of Default along the way to seeking a “voluntary” debt reduction?

The foregoing is probably not what the judges in either *Cash America* or *Sharon Steel* intended. They, we think, were concerned about instances where a financially healthy issuer was trying to escape having to pay a redemption provision by causing an Event of Default and inducing creditors to accelerate and take par. And that is not the case with a sovereign debtor in crisis. But a good litigator would not find it difficult to argue that the explicit language of *Cash America* points the other way. And if one reads the case in that fashion, that then gives the holders of the bond with the make-whole the basis to assert that they are owed a significantly higher amount than what the holders of bonds without this clause are owed. An example as of this writing in mid 2020 is Argentina, that is trying to negotiate a “voluntary” restructuring with creditors holding its various bonds. One of its bonds (its century bond) has a make-whole provision, whereas the rest do not.⁴⁸ If the *Cash America* case applies, as a Bloomberg article explains, Argentina could end up paying the holders of this century bond many millions more than what it would had had to pay them in the absence of this clause.⁴⁹

As an aside, the Argentine century bond was issued in June 2017, over six months after the *Cash America* decision came down. That means that the lawyers doing the Argentine issuance would have known about the risk that the case posed for them should there need to be a restructuring.

⁴⁷ E.g., Colby Smith, *Argentina’s Creditors Face Restructuring Dilemma*, FIN. TIMES (Sept. 2, 2019); Tommy Stubington, Benedict Mader & Colby Smith, *Argentina Begins to Restructure 101 Billion of Debts*, FIN. TIMES (Aug. 30, 2019).

⁴⁸ See Matt Levine, *Goldman Has Some Boring Plans*, BLOOMBERG (Jan .29, 2020) (discussing the make-whole provision in the Argentine century bond and the implications of the *Cash America* case); Mark Weidemaier & Mitu Gulati, *Argentina’s Hundred-Year Bond and its Make-Whole Provisions: A Spanner in the Works?*, Creditslips.org (Jan 26, 2020), at <https://www.creditslips.org/creditslips/2020/01/argentinas-hundred-year-bond-and-its-make-whole-premium-a-spanner-in-the-works.html>

⁴⁹ Levine, *id.*

The parties could have easily put in place corrective language to negate the implications of the *Cash America* decision. Indeed, examples of that corrective language are readily available because a dozen and a half corporate issuers did design and implement such language.⁵⁰ Yet, as of this writing, there has been no move in any of the sovereign issuances using make-wholes in our data to put in place corrective language to take into account the *Cash America* decision. Hopefully, that will change.

VIII. Conclusion

Our instinct is that the move towards the increased use of issuer calls in sovereign issuances is a positive. It indicates that issuers are not settling for using the same old standard terms, but thinking about new techniques to manage their debt stock as a function of unexpected contingencies. And here, is it perhaps unsurprising that Mexico, Brazil and their long-time counsel are at the forefront of innovating since these are the countries reputed to have the most sophisticated debt offices and external counsel.

As part of our inquiry, we reached out informally to about two dozen legal specialists in the sovereign market who we thought might be able to give us additional insight about the reasons for this innovation and the direction it might take in the future. Four points emerged from these conversations that were not obvious from the data and hopefully provide some clues for further research in this area.

First, a couple of the most senior of our New York based respondents had a very specific story as to why Mexico and Brazil were the earliest users of the make-whole. The story was that these were countries whose experience with Brady bonds had taught them the value of Issuer Call provisions since those bonds had given issuers to redeem the bonds at par; options that the issuers had exercised some years later after the Latin American debt crisis of the 1980s abated at great benefit to themselves. Given that investors had lost out with the redemption at par options, they had been reluctant to give issuers that type of provisions. But the make-wholes, which were set deep out of the money, were more acceptable.

Second, turning to our respondents from the English law firms, they all said that there had been discussions about the use of make-wholes by Mexico, Brazil and some other Latin American issuers and whether their clients should also use these clauses. However, in the English market,

⁵⁰ Gulati & Kahan, *Cash America*, supra note 5

the resistance to the use of this provision had been “uncertainty about determining pricing”, according to what we were told.

Third, and finally, a number of our respondents with experience working in the corporate bond issuance world cautioned us to look beyond the clauses themselves to actual behavior. The make-wholes, they explained set an upper bound that was a situation unlikely to ever happen. The value of this provision was to give the sovereign, and the majority of its creditors, a cap on how much a holdout could extract in the event that the sovereign needed to retire its debt. And those retirements apparently generally occur via tender offers and open market buybacks, not the exercise of call options.

Fourth, not one of our respondents expressed concern about the *Cash America* case causing trouble for sovereigns in the restructuring context. The reason, we suspect, being that these lawyers view the case as having been wrongly decided and predict that other New York judges will not make this same mistake in the future.⁵¹ This perspective puzzles us, since it strikes us as easy to eliminate the risk with the use of a simple revision to the contract language in new deals. However, as has been shown before, contract language can be remarkably sticky.⁵²

We have but scratched the surface on what we think is a fascinating ground up contract innovation sovereign market. Prior research on innovation in the sovereign market has almost exclusively focused on clauses that the large Official Sector institutions, such as the International Monetary Fund and the US Treasury were pushing.⁵³ Best we know, the folks at these Official Sector institutions don’t even know about this particular innovation. And that means it provides us a new and different window into how contract innovation occurs in this market independent of the Official Sector. Perhaps the next step will be for these countries to put in place provisions that help them tackle highly negative events for their economies, such as pandemics. Some Caribbean nations

⁵¹ Gulati & Kahan, *Sleeping Giant Contracts*, *supra* note 5.

⁵² *Id.* See also Mitu Gulati & Robert E. Scott, THE THREE AND A HALF MINUTE TRANSACTION: BOILERPLATE AND THE LIMITS OF CONTRACT DESIGN (2013).

⁵³ See Choi & Gulati, *Innovation in Boilerplate*, *supra* note 31; Scott et al., *Black Holes*, *supra* note 8; Anna Gelpern, Ben Heller & Brad Setser, *Count the Limbs: Designing Robust Aggregation Clauses in Sovereign Bonds*, in TOO LITTLE, TOO LATE (Joseph Sitglitz eds. 2018); Anna Gelpern & Mitu Gulati, *Public Symbol in Private Contract*, 84 WASH. U. L. REV. 1628 (2006).

have already begun using such clauses,⁵⁴ that protect the issuer in the event of hurricanes. But, as current events are demonstrating, more is needed.

⁵⁴ See Andrew Shutter, *Barbados Sovereign Debt Restructuring 2018-19 – Like the Island, Small but Perfectly Formed*, CAP. MKTS L. J. (forthcoming 2020).

Tables and Figures

Figure 1

Share of sovereign bonds with make-whole clauses

This figure plots the share of sovereign bonds issued in a given year with and without make-whole clauses (light blue and orange bars, respectively). The top left panel includes all countries, the top right panel focuses on bonds issued by emerging market countries, the bottom left panel includes bonds issued by emerging market country and regulated by foreign law, and the bottom right panel focuses on bonds issued by emerging market countries and regulated by New York Law

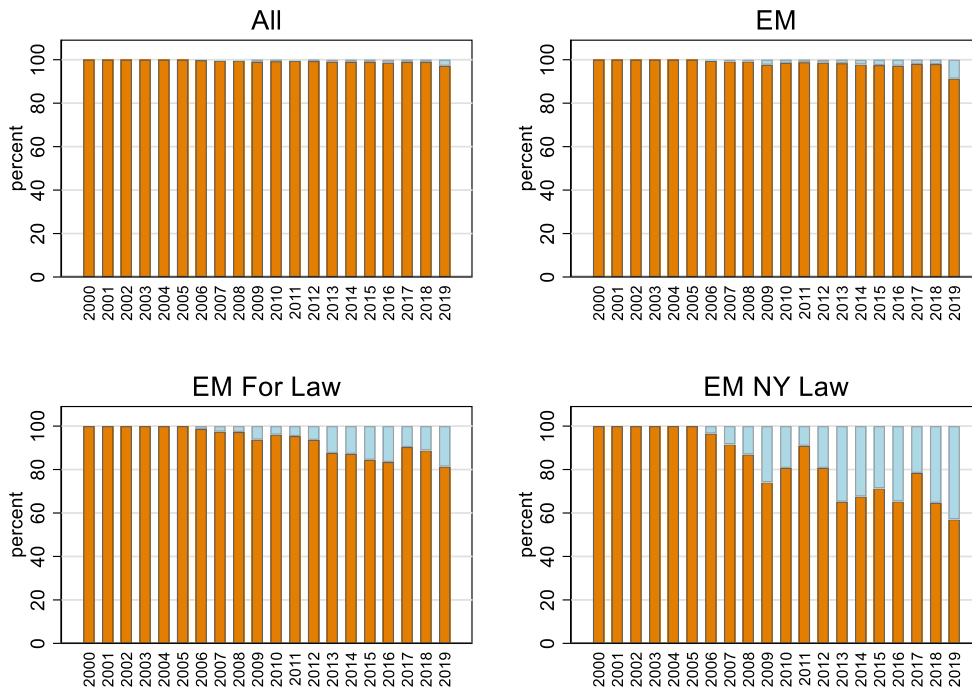


Figure 2

Share of sovereign bonds with make-whole clauses by currency of issuance

This figure plots the share of foreign law covering bonds issued by developing countries in a given year with and without make-whole clauses (light blue and orange bars, respectively). The left panel focuses on bonds issued in US dollars and the right panel on bonds issued in other currencies.

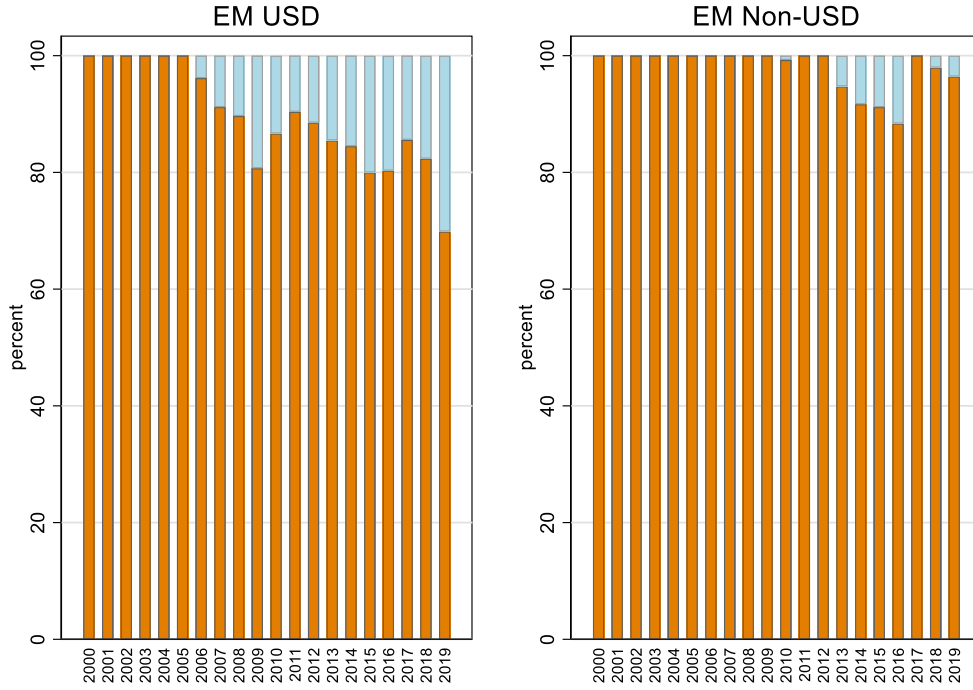


Figure 3

Share of sovereign bonds with make-whole clauses by region

This figure plots the share of foreign law covering bonds issued by developing countries in a given year with and without make-whole clauses (light blue and orange bars, respectively). The top right panel focuses on issuers in the East Asia and Pacific region, the top right panel on issuers in East Europe and Central Asia, the mid left panel on issuers in Latin America and the Caribbean, the mid right panel on issuers the Middle East and North Africa, the bottom left panel on issuers in South Asia, and the bottom right panel on issuers in Sub-Saharan Africa.

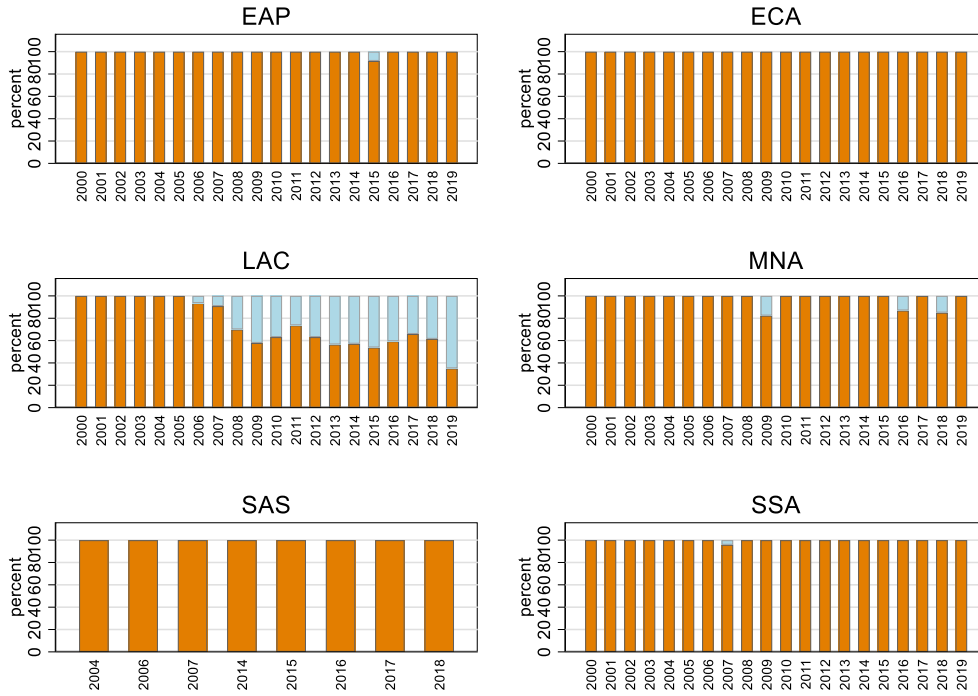


Figure 4

Share of sovereign bonds with make-whole clauses, by value

This figure plots the share of sovereign bonds, weighted by face value, issued in a given year with and without make-whole clauses (light blue and orange bars, respectively). The top left panel includes all countries, the top right panel focuses on bonds issued by emerging market countries, the bottom left panel includes bonds issued by emerging market country and regulated by foreign law, and the bottom right panel focuses on bonds issued by emerging market countries and regulated by New York Law

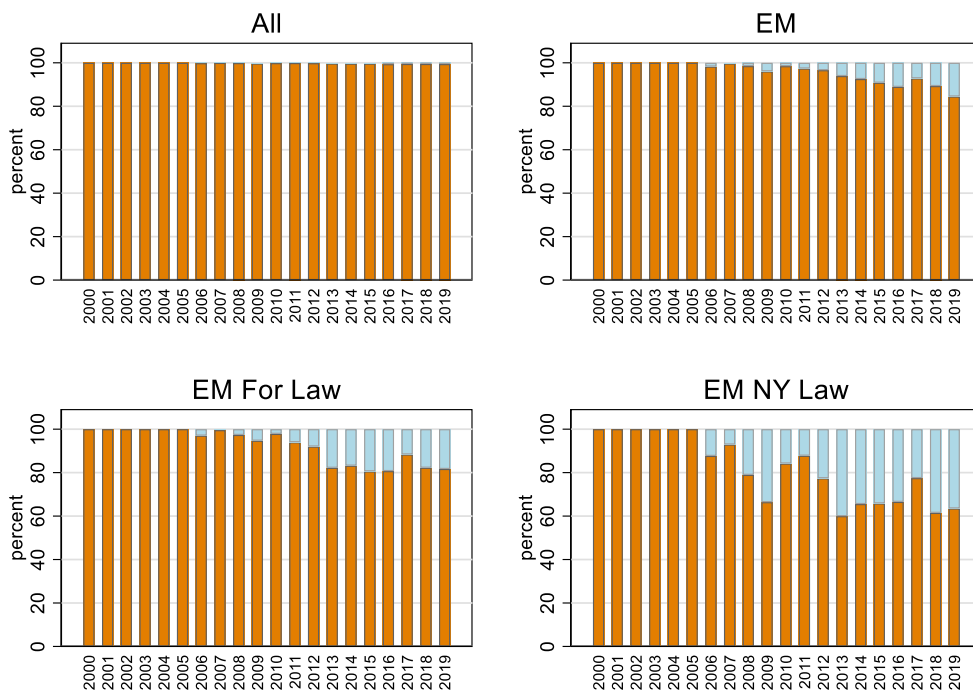


Figure 5

Share of sovereign bonds with make-whole clauses by currency of issuance

This figure plots the share of foreign law covering bonds weighted by face value issued by developing countries in a given year with and without make-whole clauses (light blue and orange bars, respectively). The left panel focuses on bonds issued in US dollars and the right panel on bonds issued in other currencies.

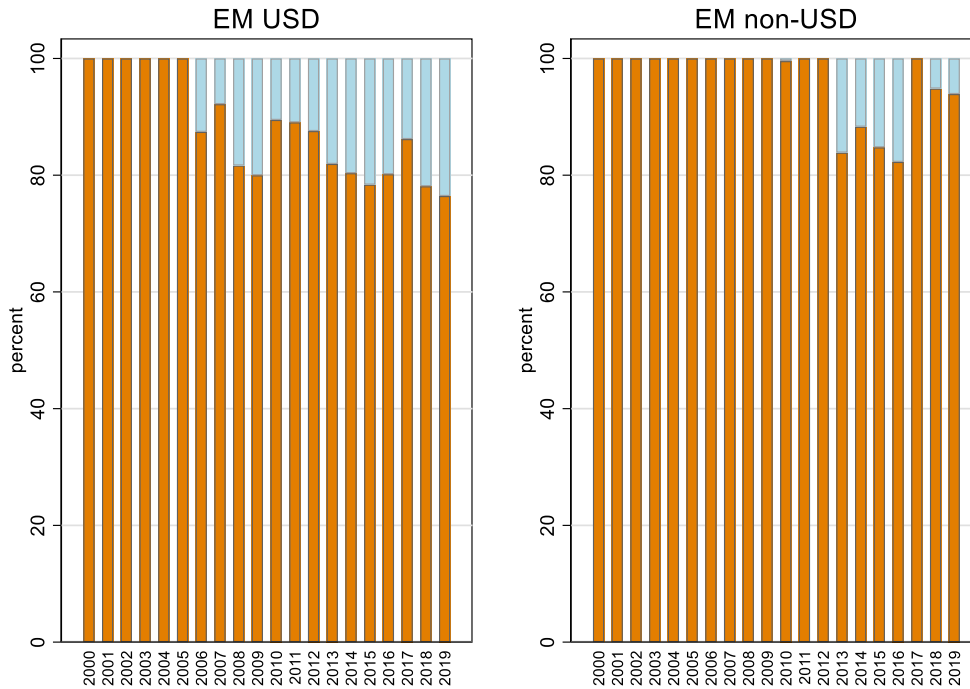


Figure 6

Share of sovereign bonds with make-whole clauses by region

This figure plots the share of foreign law governing bonds weighted by face value issued by developing countries in a given year with and without make-whole clauses (light blue and orange bars, respectively). The top right panel focuses on issuers in the East Asia and Pacific region, the top right panel on issuers in East Europe and Central Asia, the mid left panel on issuers in Latin America and the Caribbean, the mid right panel on issuers in the Middle East and North Africa, the bottom left panel on issuers in South Asia, and the bottom right panel on issuers in Sub-Saharan Africa.

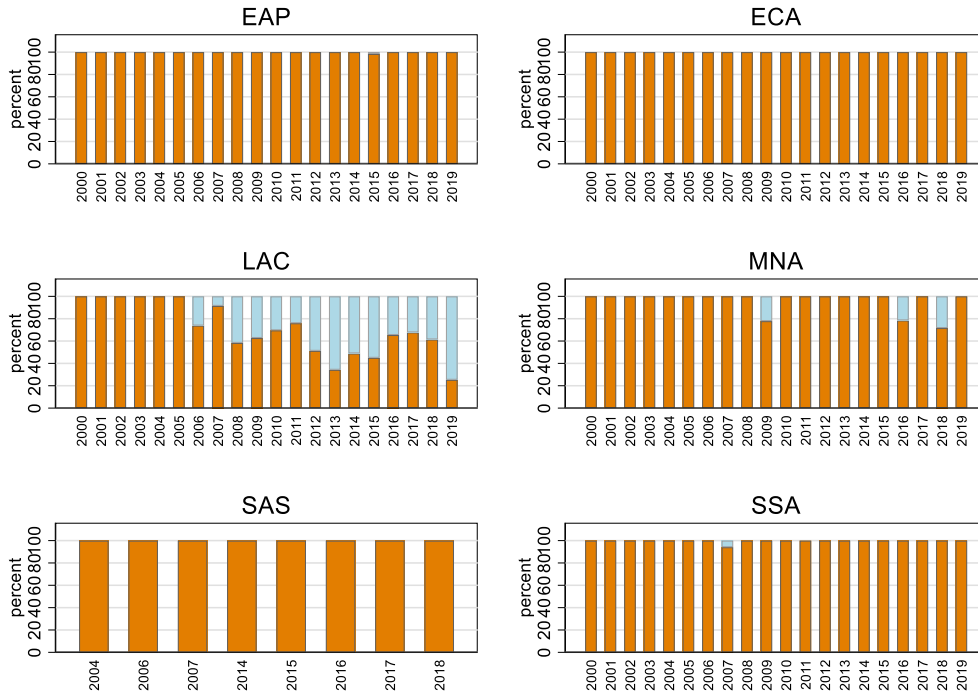


Figure 7

Share of sovereign bonds with make-whole clauses in Latin America and the Caribbean

This figure plots the share of foreign law covering bonds issued by countries in Latin America and the Caribbean in a given year with and without make-whole clauses (light blue and orange bars, respectively). The left panel shows shares by number of issuances and the right panel shares weighted by the face value of the bonds.

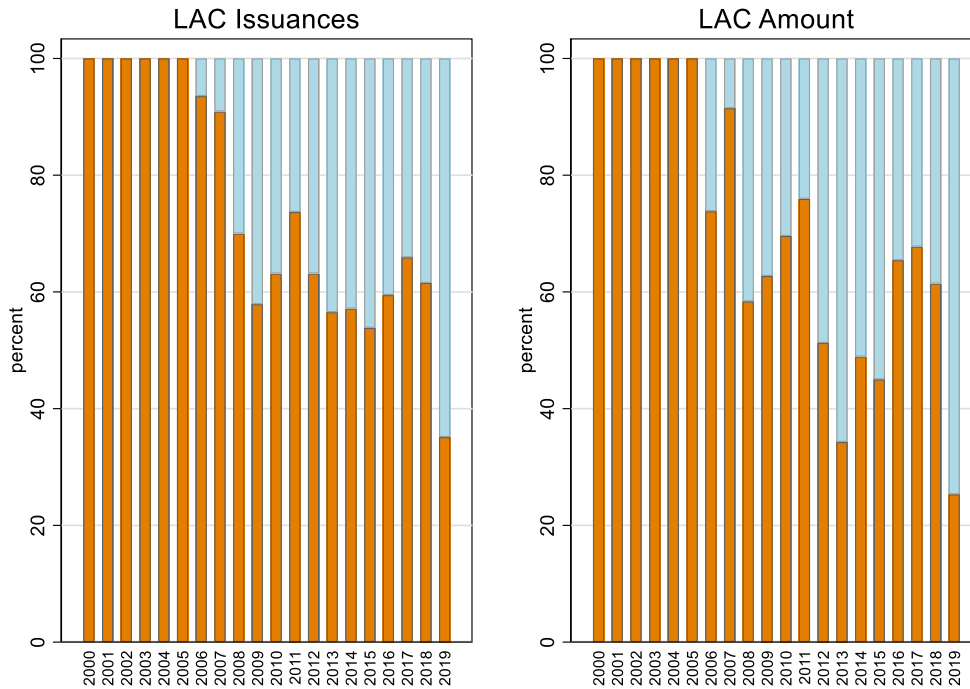


Table 1

Share of sovereign bonds with a make-whole clause, by law

This table shows the shares of developing countries bond issuances with make-whole clauses over the 2005-19 period

	Share of issuances	N. of bonds
Domestic Law	0.04%	5,585
New York law	23.0%	519
English Law	2.2%	455
Other Law	2.9%	757
Total	1.9%	7,316

Table 2**Make-whole spread in sovereign bonds with a make-whole clause**

This table presents summary on the make-whole spread for sovereign bonds with a make-whole clause (there are 153 bonds with a make-whole clause in our dataset, but we do not have information on the make-whole spread for 4 of these bonds).

Benchmark	Mean	Median	Std. Dev.	Min	Max	N. Bonds
US Treasury	34.2	30	12.3	7.5	50	133
Bund	32.7	30	10.9	20	50	15
UK Gilt	25	25	NA	25	25	1
By Rating category						
Prime (AAA)	na	na	na	na	na	0
High Grade (AA+, AA, AA-)	33.8	30	10.7	25	50	12
Upper Medium Grade (A+, A, A-)	30.2	30	9.0	20	50	28
Lower medium Grade (BBB+, BBB, BBB-)	28.3	25	9.9	12.5	50	64
Speculative (below BBB-)	44.5	50	10.3	7.5	50	45
All	33.9	30	12.1	7.5	50	149

Table 3**Share of bonds with a make-whole clause, by credit rating**

This table shows the shares of developing countries bond issuances with make-whole clauses over the 2005-19 period

	Share of issuances	N. of bonds
Prime (AAA)		0
High Grade (AA+, AA, AA-)	5.5%	163
Upper Medium Grade (A+, A, A-)	1.3%	1,978
Lower medium Grade (BBB+, BBB, BBB-)	2.5%	2,493
Speculative (below BBB-)	1.8%	2,545
Total	2.1%	7,179

Table 4**Share of bonds with a make-whole clause, by legal advisor to the bookrunner**

This table shows the shares of developing countries bond issuances with make-whole clauses over the 2005-19 period

	Share of issuances	N. of bonds
Allen & Overy	3%	36
Cleary Gottlieb Steen & Hamilton	0	25
Clifford Chance	8%	75
Linklaters	0	29
Shearman & Sterling	4%	53
Skadden Arps Slate Meagher	27%	11
Sullivan & Cromwell	63%	102
White & Case	0	25

Table 5**Share of bonds with a make-whole clause, by legal advisor to the Issuer**

This table shows the shares of developing countries bond issuances with make-whole clauses over the 2005-19 period

	Share of issuances	N. of bonds
Allen & Overy	4%	26
Arnold & Porter	29%	161
Cleary Gottlieb Steen & Hamilton	21%	112
Clifford Chance	54%	11
Linklaters	0	35
Shearman & Sterling	4%	24
Skadden Arps Slate Meagher	0	0
Sullivan & Cromwell	70%	10
White & Case	7%	84

Table 6
Make-whole calls and bond yields

This table reports a set of regression in which the dependent variable is the bond yield-to-maturity at issuance. The regressions use data for all bonds issued by developing countries over 2005-2019. All regressions include issuance year fixed effects. The regressions of columns 5-8 also include issuer fixed effects. Columns 3-4 and 7-8 only include bonds denominated in US dollars.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MW	0.141 (0.543)	0.250 (0.625)	-0.0671 (0.511)	-0.0741 (0.520)	-0.417 (0.725)	-0.297 (0.712)	-0.0942 (0.198)	-0.282* (0.145)
NYL	0.418 (0.482)	0.705 (0.710)	0.542 (0.381)	0.414 (0.347)	2.508* (1.187)	2.457* (1.152)	0.661** (0.267)	0.604** (0.251)
UKL	-0.0219 (0.730)	0.483 (0.619)	0.898* (0.434)	0.810* (0.427)	1.402** (0.597)	1.670** (0.626)	1.227** (0.527)	1.032* (0.484)
DOM	1.581** (0.707)	1.048* (0.498)	0.890** (0.371)	1.338** (0.454)	2.437*** (0.686)	2.196*** (0.429)	0.890** (0.403)	1.343*** (0.429)
EAP	0.787 (1.388)	-0.108 (0.940)	-0.765** (0.293)	-0.927** (0.351)				
ECA	2.088 (1.715)	0.782 (0.935)	-0.507** (0.202)	-0.615** (0.256)				
LAC	1.706 (0.999)	0.792 (0.709)	-0.0985 (0.198)	-0.374 (0.345)				
MNA	1.781 (1.112)	0.645 (1.004)	-0.427 (0.266)	-0.556 (0.343)				
SSA	2.878*** (0.706)	1.622 (1.232)	0.520 (0.374)	0.314 (0.387)				
USD	-0.0866 (0.936)	0.139 (0.798)			-1.694 (1.579)	-1.549 (1.349)		
R_high	-4.865** (1.641)	-4.199*** (1.166)	-2.567*** (0.348)	-2.634*** (0.331)	0.107 (1.008)	0.245 (1.023)	-1.862** (0.642)	-1.691** (0.668)
R_UM	-5.222** (2.394)	-4.625** (1.854)	-2.336*** (0.273)	-2.386*** (0.281)	-0.214 (1.034)	-0.0129 (1.029)	-1.471*** (0.233)	-1.333*** (0.207)
R_LM	-3.068 (2.381)	-2.842 (2.073)	-1.372*** (0.257)	-1.469*** (0.259)	-0.520 (0.450)	-0.470 (0.457)	-0.755*** (0.207)	-0.737*** (0.194)
lamount		-0.467 (0.548)		0.0551 (0.0749)		-0.390 (0.302)		0.0911 (0.101)
lmaturity		-0.305 (0.453)		0.380** (0.154)		0.420** (0.163)		0.619*** (0.123)
Constant	5.199*** (0.746)	15.93 (12.65)	6.290*** (0.314)	4.536*** (1.329)	4.048*** (0.578)	10.80* (5.500)	5.588*** (0.287)	2.308 (1.870)
Observations	6,189	6,174	835	834	6,181	6,166	825	824
R-squared	0.017	0.018	0.420	0.439	0.037	0.038	0.625	0.664
Sample	All	All	USD	USD	All	All	USD	USD
FE	year	year	year	year	Year & Issuer	Year & Issuer	Year & Issuer	Year & Issuer

Standard errors are clustered at year and issuer level *** statistically significant at 1%, ** statistically significant at 5%, * statistically significant at 10%.

Table 7**Bond yields and discount rates applied to make-whole bonds**

This table reports a set of regression in which the dependent variable is the bond yield-to-maturity at issuance for bonds with make-whole clauses issued by developing countries over 2005-2019. All regressions include issuance year fixed effects. The regressions of columns 5-8 also include issuer fixed effects. Columns 3-4 and 7-8 only include bonds denominated in US dollars.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MWbps	0.0674*** (0.0150)	0.0663*** (0.0165)	0.0730*** (0.0208)	0.0726*** (0.0214)	0.0413*** (0.0100)	0.0289*** (0.00693)	0.0404** (0.0131)	0.0307** (0.00969)
NYL	-0.639 (0.503)	-0.659 (0.497)	-0.696 (0.538)	-0.696 (0.514)	0.206 (0.226)	0.259 (0.276)	0.162 (0.210)	0.218 (0.231)
DOM	-0.314 (0.385)	-0.446 (0.442)	-0.450 (0.431)	-0.512 (0.444)	0.126 (0.232)	0.0676 (0.352)	0.0256 (0.166)	0.0537 (0.319)
LAC	1.512** (0.645)	1.666** (0.696)	1.510** (0.583)	1.637** (0.615)				
USD	1.606*** (0.301)	1.598*** (0.334)			1.512*** (0.174)	1.347*** (0.133)		
R_UM	-1.688** (0.582)	-1.780*** (0.585)	-1.550** (0.561)	-1.607** (0.538)	-1.002*** (0.130)	-0.995*** (0.116)	-1.019*** (0.170)	-0.918*** (0.150)
R_LM	-1.195** (0.546)	-1.262** (0.542)	-0.923* (0.464)	-0.959** (0.444)	-0.467*** (0.140)	-0.396*** (0.0913)	-0.311 (0.189)	-0.287** (0.123)
lamount		0.145 (0.0901)		0.121 (0.0952)		0.116 (0.121)		0.0932 (0.105)
Imaturity		0.219 (0.305)		0.0814 (0.332)		0.691*** (0.0737)		0.594*** (0.0821)
Constant	1.399 (0.818)	-2.246 (2.368)	2.710*** (0.876)	-0.107 (2.525)	2.595*** (0.512)	-1.189 (2.698)	4.139*** (0.631)	0.868 (2.367)
N. obs	143	143	127	127	137	137	121	121
R2	0.667	0.675	0.630	0.633	0.874	0.918	0.886	0.918
Sample	All	All	USD	USD	All	All	USD	USD
FE	year	year	year	year	Year & Issuer	Year & Issuer	Year & Issuer	Year & Issuer

Standard errors are clustered at year and issuer level *** statistically significant at 1%, ** statistically significant at 5%, * statistically significant at 10%.

Table 8
Country by country regressions

This table reports the result of a set of country-by-country regressions in which the residuals of a regression similar to that of column 4 Table 6 but that does not include the make-whole dummy are regressed on the dummy. Column 1 reports the country specific coefficient for the make-whole dummy, column 2 its standard error and column 3 the number of observations.

Country	(1) Coefficient	(2) SE	(3) N. Obs
Argentina	-0.68	0.98	24
Brazil	-0.82**	0.32	32
Colombia	-0.16	0.25	25
Dominican Republic	-0.43	0.43	19
Mexico	0.38*	0.21	36
Qatar	0.03	0.41	19
Panama	-0.47	0.29	18
Uruguay	-0.06	0.41	16

Table 9
Prevalence of make-whole clauses for sub-sovereigns companies by region

Region	Share of bonds with make-whole calls	N. of bonds
Advanced economies	0.00%	10
East Asia and Pacific	33.3%	57
East Europe and Central Asia	0.00%	8
Latin America and the Caribbean	78.8%	85
Middle East and North Africa	0.00%	1
Total	53.4%	161

Table 10
Prevalence of make-whole clauses for sub-sovereigns by currency

Currency	Share of bonds with make-whole calls	N. of bonds
Euro	29.4%	17
US dollar	60.1%	133
Other currencies	11.1%	9
Total	53.4%	159

Table 11
Prevalence of make-whole clauses for sub-sovereign by Law

Law	Share of bonds with make-whole calls	N. of bonds
New York	66%	110
England	13%	30
Other	0.000%	3
Total	53.8%	143

Appendix: Additional Regression Results

Table A1 reports a set of regressions (estimated with a linear probability model) where the dependent variable is a dummy taking value one if a given bond include a make-whole clause. The regressions use data for all bonds issued by developing countries over 2005-2019.

Column 1 of Table A1 shows that only things that matter is the dummy for Latin American issuer. Other things equal, issuers in Latin America and the Caribbean are 25% more likely to issue a bond with a make-whole clause with respect to the excluded geographical group (South Asia). None of the other geographical variables are statistically significant. The dummies capturing the law that regulate the bond issuance and the currency of denomination and never statistically significant. They looked important in the previous analysis only because Latin American issuers tend to denominated their bonds in US dollars and US New York Law. These results do not change if we control for the log of bond maturity and face value (column 2, Table A1). Controlling for the role of legal advisors (to both issuers and bookrunners), we find a marginally statistically significant coefficient for Clifford Chance in the issuer advisor category and small negative coefficients for Cleary and Sherman and positive coefficient for Sullivan in the bookrunner advisor category (columns 3 and 4). All these results are robust to limiting the sample to issuances denominated in US dollars (columns 5-8 of Table A1).

One surprising result is that in column 5 and 6 low rated investment grade bonds seem to be more likely to include make-whole clauses than speculative grade bonds. This finding seems to contrast with the evidence for corporate bonds, which suggest that lower rated bonds are more likely to include make-whole clauses.

Table A2 estimate a regression similar to that of column 4, Table A1 but augmented with a set of lead-bank dummies (the excluded dummy groups all banks that did not manage at least 20 foreign law bonds in our dataset). This regression, which only focuses on foreign law bonds, shows none of the top 27 large underwriters is associated with a significantly larger number of bonds with a make-whole call.

Table A3 reports a set of regression similar to those of Table 6, but augmented with the interaction between the make-whole dummy and bond maturity. As longer dated options should be more valuable, we expect that this interaction to take a positive coefficient. However, the interactive term is never statistically significant and, in one case, negative. In Table A4, we repeat the

experiment focusing on the make-whole spread. As before, we find that the spread is positive and statistically significant, but we also find that the interactive term is always negative (which is the opposite of what we expected) and statistically significant in columns 1 and 2.

Table A1
The correlates of make-whole clauses

This table reports a set of regressions (estimated with a linear probability model) in which the dependent variable is a dummy taking value one if a given bond include a make-whole clause. The regressions use data for all bonds issued by developing countries over 2005-2019. All regressions include issuance year fixed effects. Columns 5-8 only include bonds denominated in US dollars.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
NYL	0.0530 (0.0652)	0.0522 (0.0643)	0.0502 (0.0663)	0.0490 (0.0653)	0.0334 (0.0629)	0.0303 (0.0596)	0.0369 (0.0634)	0.0336 (0.0589)
UKL	-0.0293 (0.0309)	-0.0305 (0.0304)	-0.0405 (0.0334)	-0.0426 (0.0333)	-0.0635 (0.0584)	-0.0705 (0.0584)	-0.0731 (0.0646)	-0.0846 (0.0663)
DOM	0.00135 (0.0196)	0.00234 (0.0201)	-0.00282 (0.0171)	-0.00107 (0.0173)	-0.0269 (0.0808)	0.0119 (0.101)	-0.0305 (0.0867)	0.0271 (0.0943)
EAP	-0.0313 (0.0201)	-0.0295 (0.0204)	-0.0327 (0.0193)	-0.0295 (0.0187)	-0.123** (0.0554)	-0.131** (0.0583)	-0.104 (0.0761)	-0.120 (0.0830)
ECA	-0.0260 (0.0148)	-0.0233 (0.0141)	-0.0313* (0.0152)	-0.0263* (0.0147)	-0.0810* (0.0445)	-0.0976* (0.0454)	-0.105 (0.0614)	-0.127* (0.0622)
LAC	0.251*** (0.0791)	0.253*** (0.0797)	0.194** (0.0689)	0.197** (0.0695)	0.300** (0.0999)	0.291** (0.100)	0.248** (0.105)	0.233** (0.102)
MNA	-0.0254 (0.0440)	-0.0232 (0.0435)	-0.0500 (0.0427)	-0.0460 (0.0413)	-0.0391 (0.0365)	-0.0501 (0.0337)	-0.0710 (0.0506)	-0.0898 (0.0549)
SSA	-0.0166 (0.0202)	-0.0141 (0.0211)	-0.0251 (0.0211)	-0.0207 (0.0212)	-0.0579 (0.0504)	-0.0628 (0.0511)	-0.0946 (0.0619)	-0.102 (0.0647)
USD	0.0539 (0.0352)	0.0536 (0.0353)	0.0673 (0.0388)	0.0669 (0.0386)				
R_high	0.0196 (0.0639)	0.0182 (0.0644)	0.0260 (0.0417)	0.0234 (0.0417)	0.0945 (0.159)	0.0749 (0.159)	0.106 (0.131)	0.0832 (0.125)
R_UM	0.0235 (0.0155)	0.0223 (0.0149)	0.0226 (0.0140)	0.0204 (0.0135)	0.0759 (0.0923)	0.0656 (0.0892)	0.0629 (0.0692)	0.0469 (0.0682)
R_LM	0.0240 (0.0145)	0.0236 (0.0144)	0.0221 (0.0139)	0.0212 (0.0138)	0.141* (0.0738)	0.140* (0.0715)	0.119 (0.0696)	0.115 (0.0671)
LAI_Allen			0.0366 (0.0918)	0.0360 (0.0931)			-0.00730 (0.130)	-0.00502 (0.130)
LAI_Arnold			-0.0636 (0.108)	-0.0643 (0.109)			-0.0480 (0.111)	-0.0591 (0.118)
LAI_Cleary			-0.0703 (0.0566)	-0.0702 (0.0569)			-0.119 (0.0711)	-0.126 (0.0751)
LAI_Linkla			0.0144 (0.0450)	0.0152 (0.0451)			0.0226 (0.0779)	0.0137 (0.0791)
LAI_White			0.0516 (0.0755)	0.0533 (0.0759)			0.0903 (0.0749)	0.0834 (0.0765)
LAI_Cliff			0.433* (0.213)	0.434* (0.213)			0.521*** (0.160)	0.512*** (0.156)
LAI_Sulli			0.00873 (0.163)	0.00877 (0.161)			-0.528*** (0.163)	-0.527*** (0.165)
LAI_Sherm			-0.0531 (0.0732)	-0.0528 (0.0751)			-0.0767 (0.108)	-0.0769 (0.111)
LAB_Allen			-0.0790 (0.0681)	-0.0782 (0.0690)			-0.0534 (0.101)	-0.0535 (0.104)
LAB_Cleary			-0.105* (0.0517)	-0.105* (0.0513)			-0.0440 (0.0475)	-0.0382 (0.0454)
LAB_Linkla			-0.0339 (0.0456)	-0.0343 (0.0462)			-0.0405 (0.0723)	-0.0415 (0.0761)
LAB_White			-0.0417 (0.0575)	-0.0441 (0.0579)			-0.0654 (0.0766)	-0.0768 (0.0815)

LAB_Cliff			-0.0439 (0.0712)	-0.0457 (0.0710)			0.0282 (0.0819)	0.0257 (0.0784)
LAB_Sulli			0.380** (0.146)	0.380** (0.146)			0.392** (0.152)	0.399** (0.154)
LAB_Sherm			-0.215** (0.0876)	-0.216** (0.0888)			-0.278** (0.0948)	-0.294** (0.103)
LAB_Skadden			0.151 (0.135)	0.150 (0.127)			0.0705 (0.185)	0.0521 (0.184)
lamount	0.000899 (0.00156)			0.00168 (0.00163)		0.0256 (0.0251)		0.0367 (0.0214)
lmaturity	0.000789 (0.00317)			0.00110 (0.00269)		-0.0127 (0.0340)		-0.0141 (0.0281)
Constant	0.00603 (0.0219)	-0.0151 (0.0444)	0.0163 (0.0212)	-0.0222 (0.0428)	0.0608 (0.0595)	-0.418 (0.451)	0.0902 (0.0807)	-0.602 (0.374)
Observations	7,179	7,153	7,179	7,153	844	843	844	843
R-squared	0.337	0.337	0.461	0.462	0.364	0.368	0.512	0.519
Sample	All	All	All	All	Dollar	Dollar	Dollar	Dollar

Standard errors are clustered at year and issuer level *** statistically significant at 1%, ** statistically significant at 5%, * statistically significant at 10%.

Table A2**The correlates of make-whole clauses The role of Investment banks**

This table reports the result of a regression (estimated with a linear probability model) in which the dependent variable is a dummy taking value one if a given bond include a make-whole clause. The regression uses data for all foreign law bonds issued by developing countries over 2005-2019. The regression includes issuance year fixed effects.

Variables		Variables	
NYL	0.0368 (0.0270)	BBVA	0.0217 (0.0754)
UKL	-0.0442** (0.0198)	BNP	-0.0161 (0.0161)
EAP	-0.0431 (0.0398)	Bank of China	-0.0579** (0.0228)
ECA	-0.0527 (0.0376)	Barclays	0.0238 (0.0215)
LAC	0.202*** (0.0484)	BofA	-0.0157 (0.0362)
MNA	-0.0416 (0.0383)	Citi	-0.0457*** (0.0157)
SSA	0.00562 (0.0367)	Commerzbank	-0.00994 (0.0346)
USD	0.0858*** (0.0190)	CrAgricole	-0.0331 (0.0502)
R_high	0.0664** (0.0265)	Daiwa	-0.0142 (0.0262)
R_UM	0.0635*** (0.0177)	Deutsche	-0.00783 (0.0173)
R_LM	0.0849*** (0.0210)	Goldman	0.0343 (0.0258)
lamount	0.0113* (0.00587)	HSBC	-0.0246 (0.0183)
lmaturity	-0.000775 (0.00758)	ING	0.00685 (0.0137)
LAI_Allen	-0.0167 (0.0697)	JPM	-0.0312* (0.0167)
LAI_Arnold	-0.0719 (0.0534)	Mizhuo	0.000253 (0.0352)
LAI_Cleary	-0.103*** (0.0371)	MS	0.0197 (0.0313)
LAI_Linkla	0.0199 (0.0344)	NatWest	-0.0388** (0.0190)
LAI_White	0.0560 (0.0383)	Natixis	0.00945 (0.0135)
LAI_Clifflo	0.433*** (0.0951)	Nomura	-0.157*** (0.0283)
LAI_Sulli	0.00448 (0.159)	SG	-0.0135 (0.0133)
LAI_Sherm	-0.0807 (0.0749)	Santander	-0.0422 (0.0541)
LAB_Allen	-0.0345 (0.0532)	StandardB	-0.136*** (0.0299)
LAB_Cleary	-0.0374 (0.0347)	StandCharter	-0.0635*** (0.0159)
LAB_Linkla	-0.0125 (0.0385)	Sumitomo	0.0177 (0.0346)
LAB_White	-0.0463 (0.0389)	UBS	-0.0177 (0.0316)
LAB_Clifflo	-0.0108 (0.0410)	Unicredit	0.00109 (0.0137)

LAB_Sulli	0.362*** (0.0627)	VTB	-0.0435* (0.0241)
LAB_Sherm	-0.205*** (0.0500)		
LAB_Skadden	0.114 (0.142)		

Observations	1,716
R-squared	0.482

Standard errors are clustered at year and issuer level *** statistically significant at 1%, ** statistically significant at 5%, * statistically significant at 10%.

Table A3**The correlates of bond yields, interaction between make-whole clauses and maturity**

This table reports a set of regression in which the dependent variable is the bond yield-to-maturity at issuance. The regressions use data for all bonds issued by developing countries over 2005-2019. All regressions include issuance year fixed effects. The regressions of columns 3-4 also include issuer fixed effects. Columns 2 and 4 only include bonds denominated in US dollars.

	(1)	(2)	(3)	(4)
MW	-0.977 (1.870)	1.510 (1.954)	-1.584* (0.782)	-0.488 (0.375)
MW*Maturity	0.459 (0.752)	-0.596 (0.570)	0.461 (0.317)	0.0738 (0.137)
NYL	0.707 (0.713)	0.399 (0.353)	2.472* (1.151)	0.609** (0.248)
UKL	0.486 (0.620)	0.800* (0.426)	1.679** (0.624)	1.038* (0.492)
DOM	1.045* (0.499)	1.426*** (0.414)	2.195*** (0.430)	1.342*** (0.425)
EAP	-0.112 (0.940)	-0.987** (0.342)		
ECA	0.778 (0.936)	-0.648** (0.257)		
LAC	0.788 (0.711)	-0.438 (0.340)		
MNA	0.644 (1.006)	-0.590 (0.363)		
SSA	1.619 (1.235)	0.260 (0.382)		
USD	0.139 (0.798)		-1.553 (1.347)	
R_high	-4.192*** (1.163)	-2.649*** (0.326)	0.249 (1.022)	-1.684** (0.670)
R_UM	-4.625** (1.854)	-2.372*** (0.274)	-0.00954 (1.029)	-1.331*** (0.209)
R_LM	-2.843 (2.074)	-1.455*** (0.243)	-0.469 (0.458)	-0.737*** (0.196)
lamount	-0.467 (0.548)	0.0433 (0.0713)	-0.391 (0.302)	0.0922 (0.101)
lmaturity	-0.316 (0.463)	0.483*** (0.152)	0.409** (0.163)	0.606*** (0.140)
Constant	15.95 (12.67)	4.588*** (1.238)	10.83* (5.493)	2.314 (1.877)
Observations	6,174	834	6,166	824
R-squared	0.018	0.445	0.038	0.664
Sample	All	USD	All	USD
FE	Year	Year	Year and Issuer	Year and Issuer

Standard errors are clustered at year and issuer level *** statistically significant at 1%, ** statistically significant at 5%, * statistically significant at 10%.

Table A4**Bond yields and discount rates applied to make-whole bonds, interaction with maturity**

This table reports a set of regression in which the dependent variable is the bond yield-to-maturity at issuance for bonds with make-whole clauses issued by developing countries over 2005-2019. All regressions include issuance year fixed effects. The regressions of columns 3-4 also include issuer fixed effects. Columns 2 and 4 only include bonds denominated in US dollars.

	(1)	(2)	(3)	(4)
MWbps	0.237*** (0.0744)	0.232** (0.0806)	0.0900* (0.0411)	0.0711 (0.0400)
MWbps*Maturity	-0.0640** (0.0255)	-0.0598** (0.0254)	-0.0237 (0.0158)	-0.0157 (0.0141)
NYL	-0.307 (0.445)	-0.368 (0.458)	0.267 (0.266)	0.223 (0.229)
DOM	-0.597 (0.427)	-0.672 (0.453)	-0.0290 (0.340)	-0.00917 (0.337)
LAC	1.533** (0.565)	1.489** (0.536)		
USD	1.564*** (0.296)		1.342*** (0.120)	
R_UM	-1.719*** (0.504)	-1.563*** (0.488)	-1.050*** (0.220)	-0.951*** (0.271)
R_LM	-1.264** (0.493)	-0.977** (0.425)	-0.455*** (0.122)	-0.325** (0.115)
lamount	0.186* (0.0969)	0.159 (0.106)	0.0986 (0.110)	0.0837 (0.101)
lmaturity	2.465*** (0.745)	2.239*** (0.713)	1.467** (0.528)	1.117** (0.432)
Constant	-9.258*** (2.883)	-6.829** (2.470)	-2.796 (3.254)	-0.270 (2.882)
Observations	143	127	137	121
R-squared	0.726	0.683	0.923	0.920
Sample	All	USD	All	USD
FE	Year	Year	Year and Issuer	Year and Issuer

Standard errors are clustered at year and issuer level *** statistically significant at 1%, ** statistically significant at 5%, * statistically significant at 10%.