

Hidden Defaults

Sebastian Horn
Carmen M. Reinhart
Christoph Trebesch



WORLD BANK GROUP

Development Economics Vice Presidency

Office of the Senior Vice President and Chief Economist

February 2022

Abstract

China's lending boom to developing countries is morphing into defaults and debt distress. Given the secrecy surrounding China's loans, also the associated defaults remain "hidden", as missed payments and restructuring details are not disclosed. This paper constructs an encompassing dataset of sovereign debt restructurings with Chinese lenders and finds that these credit events are surprisingly frequent,

exceeding the number of sovereign bond or Paris Club restructurings. Chinese lenders follow a resolution approach reminiscent of 1980s Western lenders; they seldom provide deep debt relief with face value reduction. If history is any guide, multi-year debt workouts with serial restructurings lie in store.

This paper is a product of the Office of the Senior Vice President and Chief Economist, Development Economics Vice Presidency. It is part of a larger effort by the World Bank to provide open access to its research and make a contribution to development policy discussions around the world. Policy Research Working Papers are also posted on the Web at <http://www.worldbank.org/prwp>. The authors may be contacted at shorn1@worldbank.org; creinhart@worldbank.org; and Christoph.trebesch@ifw-kiel.de.

The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the International Bank for Reconstruction and Development/World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

Hidden Defaults

Sebastian Horn

(World Bank)

Carmen M. Reinhart

(World Bank, Harvard)

Christoph Trebesch¹

(Kiel Institute)

¹ This paper was prepared for the American Economic Association 2021 Annual Meeting session “Hidden Debt” and will be submitted for publication in the American Economic Review Papers and Proceedings. We thank Clemens Graf von Luckner, Martin Raiser, Rita Ramalho, Diego Rivetti and Matthias Schlegl for helpful comments. The views expressed herein are those of the authors and do not necessarily reflect the views of the World Bank Group.

1. Introduction

Over the past two decades, the Chinese state and its state-owned banks have become the largest official lenders to the developing world, but the size and characteristics of China's lending boom have remained exceptionally opaque. Lack of transparency owes, in large part, to the fact that the main Chinese lenders require strict confidentiality from their debtors and do not release a granular breakdown of their lending.

To address the significant gap in the data and analysis of modern international lending patterns, Horn et al. (2021) compiled a comprehensive data set of Chinese overseas loans. They document the large scale of China's lending boom from 2000 to 2017 and find that around 50% of China's lending was not captured by the most widely used international debt statistics. "Hidden debts" are a significant challenge to international surveillance and the pricing of risk.

As of 2021, China's lending boom to emerging markets and developing economies (EMDEs) appears to have largely ended. Following the path of many prior lending booms, the current one has turned sour, with growing debt sustainability problems and default risks resurfacing in many debtor countries. Of the 73 low-income countries eligible for the Debt Service Suspension Initiative (DSSI) introduced at the outset of the Covid-19 crisis, more than 50% are estimated by the IMF and World Bank to be currently in debt distress or at high risk of a sovereign debt crisis. Against this backdrop, the knowledge gap on Chinese lending has expanded beyond debt (stocks, flows and terms) to include "credit events" (default and debt restructuring operations). This paper takes a step toward filling that gap.

Details on the crisis response by Chinese lenders are hard to come by, for several reasons. Chinese official loans and related credit events are not on the radar screen of credit rating agencies such as Moody's or Standard & Poor's. Data on Chinese defaults and restructuring is also not collected systematically by international organizations such as the OECD, the IMF or the Paris Club. Chinese lenders themselves do not share information on their overseas loans in arrears or default and on whether debt restructurings took place and at what terms. In effect, as Gelpert et al. (2021) document, China's loan contracts often explicitly rule out being part of a transparent, multilateral, coordinated debt relief initiative with comparable treatment. Most Chinese debt restructuring deals are arranged bilaterally and outside the public domain. As a result, defaults or restructurings of Chinese overseas debts remain largely "hidden". As we discuss, "hidden defaults" are neither new nor unique to Chinese creditors. OECD

governments in the 1980s and 1990s were not particularly transparent and neither are other non-Paris Club creditor governments today. This lack of data on defaults and debt forgiveness is problematic, especially in a world battered by the Covid-19 crisis. Any assessment of distressed developing countries today requires knowledge on what happens to outstanding Chinese loans, which can be very large in volume and difficult to repay due to their comparatively short maturities and high interest rates (see Horn et al. 2021 for details).

This paper draws on a broad range of sources to create an encompassing data set of credit events on Chinese overseas loans to developing and emerging market sovereigns over 2000-2021, including many "hidden defaults." We present information, where available, on the timing and basic terms of debt restructuring operations and provide context on how defaults and debt restructurings on debts owed to China compare with other creditor groups. The analysis incorporates updated existing data sets of defaults and restructurings involving private external creditors (in particular, international loans and bonds) and of debt defaults toward mostly high-income governments organized in the so-called Paris Club. Three findings stand out.

First, we find that restructurings on Chinese debts are more frequent than restructurings involving the private sector or Paris Club official creditors. Since 2008, Chinese creditors arranged at least 71 distressed debt restructurings, more than three times the number of restructurings of private external debts (we record 21 bond and bank debt restructurings) and higher than the total number of Paris Club restructurings with distressed debtors (68 cases) in the same period. The increase of restructurings with China in the past 7 years largely reflects deteriorating economic fundamentals in many EMDEs and the fact that China became the largest creditor for many high-risk countries.

Second, many restructurings with Chinese state-owned creditors are preceded by a lengthy spell of default involving payment arrears, according to data from the World Bank's Debtor Reporting System (DRS). Yet, the observed scope of arrears in this database is likely the tip of the iceberg because missed payments can go unreported, not just toward China but toward other lenders as well. It is a significant shortcoming in the literature that we lack a systematic, publicly available dataset on the start and end date of sovereign defaults towards official creditors as well as supplier credits. "Hidden defaults" will likely remain a challenge in the years ahead.

Third, we show that Chinese lenders only grant limited debt relief, which can result in lengthy debt overhang spells and "serial restructurings". China has been a major contributor to the

DSSI initiative, granting temporary payment suspensions to many developing countries, but as for other creditors, these agreements did not reduce the nominal repayment burden. Even prior to 2020, we find that almost none of the distressed debt restructurings with Chinese policy banks and other state-owned entities involves face value debt reduction.² The typical deal involves a lengthening of maturities or grace periods. This “kicking the can down the road” is reminiscent of Western commercial banks in the 1980s, which long opposed face value debt reduction and only agreed to deeper debt relief as part of the US-led Brady deal initiative in the early 1990s. China’s current approach to crisis resolution also resembles the blueprint of the Paris Club, mainly in the 1980s and 1990s, when it opposed deep debt relief and rescheduled the same debts again and again, thus contributing to the “lost decades” in many low income countries, featuring low growth and unresolved debt overhang.

2. Credit events on Chinese overseas debts, 2000-2021: The database

We build a comprehensive database of the external debt credit events of developing and emerging market sovereigns. We move beyond the usual focus on sovereign bonds and account for debt restructurings with bilateral creditors and, in particular, with Chinese lenders.

Due to the lack of official data, it is challenging to track credit events involving Chinese loans. Since Chinese creditors are (mostly) state-owned, their restructurings are not monitored by the major global credit rating agencies. China is not a member of the Paris Club or the OECD and does not report on lending and restructuring activities. We are not aware of an international financial institution that provides comprehensive data on defaults or restructurings on Chinese loans. In this void, researchers have stepped in to provide data hand-coded from official announcements, press reports and other sources.

This paper creates a data set on credit events on Chinese loans based on multiple sources created by researchers. The starting point was our own preliminary work in Horn et al. (2021), which we revise, update, and expand in a much more comprehensive data compilation here. Most importantly, we draw on AidData’s newly released Chinese Official Finance Database 2.0 (Custer et al. 2021), as well as on new data sets and academic work. On the latter, the contributions by Acker et al. (2020), Bon and Cheng (2020, 2021), as well as Kratz et al. (2019, 2020) were particularly helpful and substantive.

² China does regularly cancel debts of aid-like Zero-Interest Rate Loans given out by the Ministry of Commerce to poor countries, but the amounts lent and forgiven tend to be very small. See Appendix I for details.

For case selection, we follow Cruces and Trebesch (2013) and focus on distressed debt restructurings, meaning restructurings that occur in a situation of default or severe debt distress and that typically result in terms less favorable than the original terms (i.e., with “haircuts” to the creditors). Furthermore, like Cruces and Trebesch (2013), we focus on the main lenders and ignore small debts extended by minor creditors. In the Chinese context, this means that we focus on restructurings involving loans extended by China EXIM bank, CDB and the other large state-owned banks active abroad. As shown by Horn et al. (2021) these state-owned creditors have done the lion’s share of China’s overseas lending.

Based on this approach, we identify 84 credit events and distressed debt restructurings involving Chinese loans to 39 developing countries between 2000 and 2021.³ This total includes 30 debt payment suspension events by distressed developing countries under the G20’s Debt Service Suspension Initiative (DSSI) in 2020-21.⁴ Whenever possible, we code not only the timing of these events but also the creditor entity and the restructuring terms. All of the 88 cases involve debts owed to Chinese state-owned banks and enterprises, importantly China Export-Import Bank and China Development Bank (CDB), which account for the lion’s share of Chinese lending abroad.

Given the lack of a standardized source on Chinese credit events, this tally of debt restructurings should be regarded as a lower bound. The list is likely to omit many restructurings of Chinese overseas loans to state-owned enterprises (SOEs) and special purpose vehicles (SPVs). Chinese lending to SOEs and SPVs abroad has increased markedly over the past decade and lending flows and debt restructuring operations are particularly opaque and often go unreported (Horn et al. 2021; Malik et al. 2021).⁵

In addition to the core 84 credit events, we identify 149 small (symbolic) debt relief events involving reschedulings and debt write-offs on Zero-Interest Loans extended by China’s Ministry of Commerce. These events are not included in the remainder of the analysis, since they involve very small amounts and are of little relevance for understanding the bigger picture on the restructuring of Chinese overseas loans. Zero-Interest Loans account for less

³ We start in 2000 since China’s overseas lending boom started around this year. Evidence and data on lending and restructuring events is very scarce prior to 2000.

⁴ To avoid upward bias and to focus on distressed debt exchanges, we exclude 28 cases of agreed payment suspensions on Chinese loans under the DSSI by countries not considered to be “in debt distress” or “at high risk of debt distress” in 2020 or 2021 according to the IMF and World Bank Debt Sustainability Framework.

⁵ Debt restructurings with SPVs might also take a different form. In Pakistan, for example, there are ongoing negotiations to alter power purchase agreements between national authorities and Chinese and private-financed power producers. The power purchase agreements in question guarantee a minimum return on equity to the foreign investors.

than 0.5% of Chinese overseas lending since 2000 and their average volume is just US\$ 12.9 million, with a median of US\$ 6.3 mn (Horn et al. 2021). The loans are canceled regularly as part of China’s development aid program, often in the context of high-level diplomatic visits and largely independent of the economic cycle of the debtor country (Gardner et al. 2020; Acker et al. 2020; Appendix I).

To place Chinese debt restructurings in the broader context of debt workouts, we compare our data with a chronology of credit events involving private or other official creditors. For private external creditors we use the updated database of sovereign debt restructurings with private external creditors (bondholders and banks) by Asonuma and Trebesch (2016), which covers 192 restructurings between 1975 and 2021. To add restructurings with other official creditors, we use data on the Paris Club deals from Cheng et al. (2019), which we update to bring the total tally of Paris Club restructurings to 460 cases from 1956 to 2021.⁶ It is important to note that there is no systematic database that covers debt restructurings with official creditors outside of Paris Club umbrella. To date, restructurings of “South to South” loans remain largely undocumented, despite evidence that such lending is on the rise (Cerutti et al. 2020; Broner et al. 2020). More details are provided in Appendix I.

3. China’s overseas loans and “hidden defaults”: Stylized facts

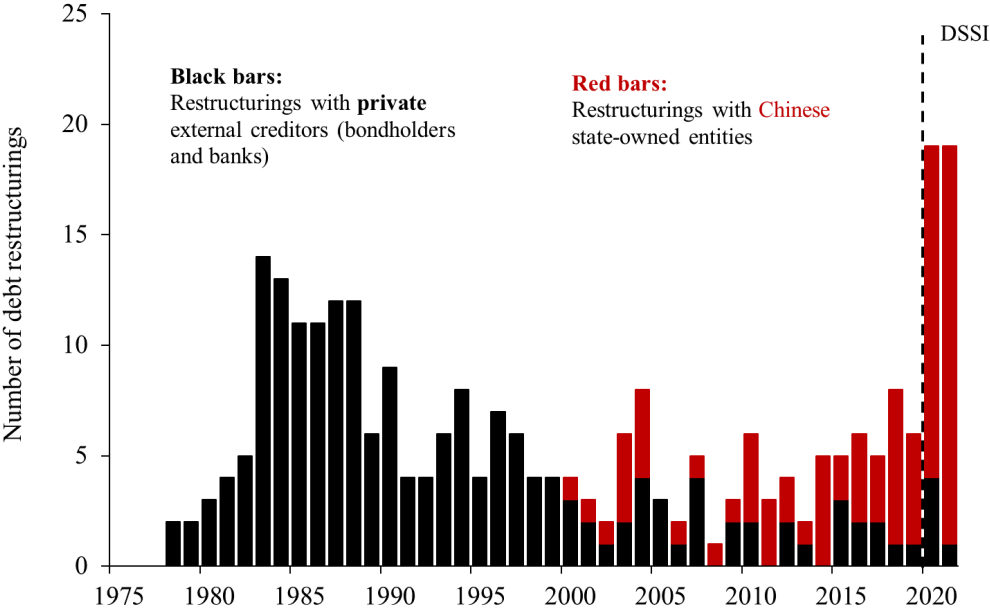
Frequency and incidence. Figure 1 reveals that restructurings of China’s overseas loans now account for a major fraction of sovereign credit events in developing countries. Since 2008, we record 71 restructuring operations involving Chinese loans, but only 21 on external bonds or loans involving private creditors. The high number of recorded Chinese loan restructurings poses an important knowledge gap, given that relatively little is known about these events. Defaults on Chinese creditors seem to fall through the cracks of global credit reporting. Schlegl et al. (2019) conclude that sovereign bond defaults are “loud” and often trigger headline news and sharp credit rating downgrades. In contrast, defaults on banks, particularly Chinese state-owned banks, typically occur “silently”, without much international coverage.

The lack of reporting by rating agencies is puzzling, not least because China’s lending amounts are so large and China Development Bank (CDB) or ICBC emphasize that their overseas activities are commercial in nature. If we take CDB and ICBC self-declarations at face value, recent Chinese restructurings with Angola, Ecuador, Venezuela and Zambia were

⁶ As with Chinese restructurings, we exclude 33 Paris Club restructuring agreements under the DSSI with countries not classified to be “at high risk of” or “in debt distress” (World Bank and IMF in 2020-21).

credit events with private creditors, but they were not classified as such by the major rating agencies.

Figure 1: Sovereign debt restructurings: Chinese creditors vs. private external creditors

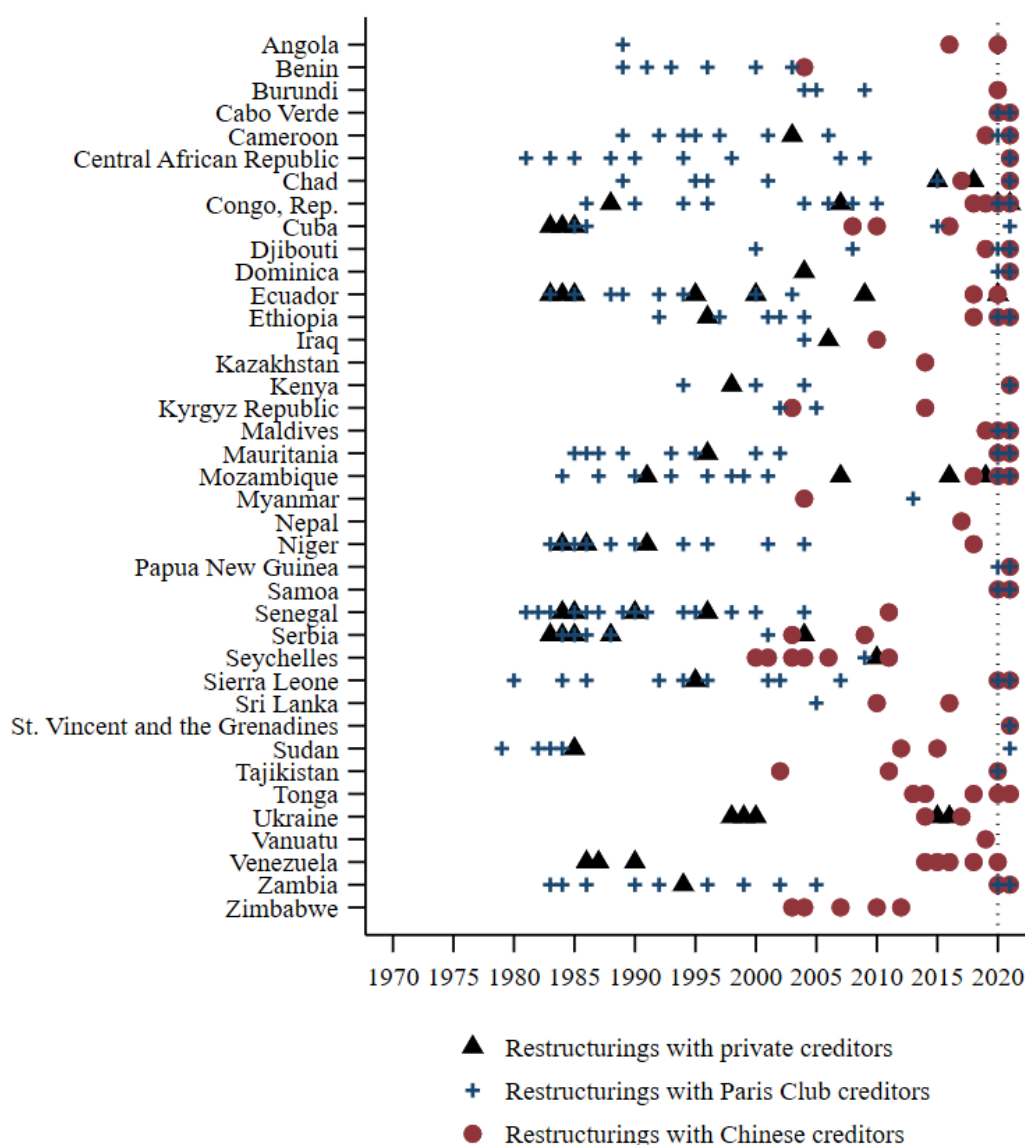


Note: This figure combines data on distressed debt restructurings on private external creditors (bondholders and banks) with those on Chinese creditors from the various sources listed in Appendix I. The Chinese cases include 33 debt reschedulings with countries in high risk of or at debt distress in the wake of the DSSI over 2020-21. To avoid bias, 149 “symbolic” restructurings of minor, Zero-Interest Loans are excluded.

Figure 2 shows restructuring timelines by country, with a focus on those countries that restructured their debts with Chinese creditors. For completeness, we add restructurings with private external creditors and with the Paris Club as well (Appendix II shows these timelines for all countries, including those that never restructured with China). As can be seen, Paris Club restructurings were frequent in the 1980s and 1990s, but their number has since decreased markedly, especially after the HIPC debt relief initiative was all but completed in the late 2000s. Around that same time, Chinese overseas lending picked up, and so did the number of restructurings of Chinese official loans. China has by now become the most important official player in international sovereign debt renegotiation, taking over much of this role from traditional bilateral creditors and the Paris Club.

Just like the Paris Club in the 1980s and 1990s, China has been relying on serial restructurings - meaning repeat debt relief deals in the same country. In less than 20 years, countries like the Seychelles, Venezuela or Zimbabwe have already restructured five or more times with Chinese creditors - often rescheduling the same debts again and again.

Figure 2. Serial restructuring: Private, Paris Club, and Chinese Creditors, 1970-2020



Note: This figure shows completed debt restructuring events. Data on Chinese restructurings starts in 2000. The sample consists of developing and emerging market countries that have experienced distressed debt restructurings with Chinese state-owned entities. The dotted line indicates the onset of the Covid-19 pandemic and the DSSI.

“Hidden defaults” on Chinese creditors. We have presented evidence on debt restructuring arrangements, which often (but not always) mark the end of a default or debt distress episode. Missing is information on the onset of a debt crisis (start of default), the time when missed payments vis-à-vis China and other bilateral official creditors first occur. It is noteworthy that no standardized dataset exists on the start and end of default spells on official debts. The World Bank’s Debt Reporting System (DRS), which collects data on the amounts of principal and interest arrears (missed payments) on bilateral debts, is helpful in this regard. The DRS data shows more than a dozen instances of arrears on official debts to China during the past

decade. In most cases, missed payments start piling up years before a debt restructuring is arranged, suggesting that the typical default spell on Chinese debts may be particularly protracted.

Yet in many cases there is no evidence of prior arrears, despite the fact that the government restructured its debts with China amid a situation of financial distress. One possible explanation is that some of these debt restructurings were preemptive, meaning that no payments were missed before the debt exchange. Preemptive restructurings are not unusual in the context of external bank or bond restructurings, but “strictly preemptive” cases with no missed payments account for only 13% of cases between 1970 and 2010 (Asonuma and Trebesch 2016). According to DRS data, in the case of China, almost half of the restructurings occurred with no prior arrears. This points to alternative explanations for the absence of arrears.

Horn et al. (2021) document a substantial hidden debt problem, with DRS aggregates underreporting liabilities to China by about 50%. If individual loans are missing altogether from the DRS data in the first place, arrears on those loans will be equally absent. Thus, a “hidden debt” problem becomes a “hidden default” problem. In addition, Gelpern et al. (2021) and others have shown that Chinese lending contracts are special in several dimensions and make it less likely that a payment default is recorded. In particular, contracts involving China’s state-owned banks regularly ask loan recipients to pay project revenues into escrow accounts in China, or to repay loans through proceeds from commodity exports. In case of late payments, Chinese lenders may first seize the cash collateral in the established escrow account, so that no arrears occur – despite a formal payment default. Similarly, a default by a commodity exporter may not show up, because missed commodity deliveries are not recorded as a default and, accordingly, not formally registered.

In sum, we lack an encompassing and precise empirical basis to measure the start and end dates as well as the size of sovereign defaults on Chinese overseas debts. This gap remains a major shortcoming for debt sustainability and risk analyses.

“Hidden defaults” as a general problem (including South-South lending). The problem of “hidden defaults” is not limited to debts owed to China. In fact, there is no systematic dataset of debt defaults toward trade creditors and suppliers or toward other official creditors. This is true for Paris Club member governments and also very much for “South-to-South” lending, which has increased in recent years, with India, the Russian Federation and Saudi Arabia figuring prominently among the newer creditors.

Since 2008, the only “truly” reliable data on sovereign defaults is for sovereign bonds, which are tracked meticulously by rating agencies and the global press. Sovereign defaults on other external creditors (official, banks, suppliers) are likely underestimated, even though they make up the bulk of total external lending to governments. In fact, sovereign bonds accounted for only around 30%-40% of total international sovereign lending by developing countries in the 2010s (Schlegl et al. 2019).

Features of China’s debt restructurings. The limited information on restructuring terms available in the case of Chinese lending does not allow for a systematic analysis on the size of debt relief (or “haircuts”), as in Sturzenegger and Zettelmeyer (2007), Cruces and Trebesch (2013), Reinhart and Trebesch (2016), Asonuma et al. (2017) or IMF (2020).⁷ But the data show clearly that China’s large state-owned banks very rarely agree to provide deep debt relief to their debtors.

Between 2000 and 2019, the majority of restructuring events associated with debtor debt distress were reschedulings that do not reduce the nominal debt burden but extend the repayment period by increasing the maturity and/or grace periods (45 of the 51 cases prior to the Covid-19 crisis).⁸ Interest rates on the loans were unaffected by the restructuring in most cases, with evidence for a reduction of rates in only 10 of 51 cases. Only four cases involved face value debt stock reductions and these are outlier deals that took place in exceptional circumstances.⁹ China’s preference for limited cash flow debt treatments has only been reinforced since the outbreak of the Covid-19 crisis. In 2020 and 2021, all 33 Chinese debt restructuring agreements that we can document were reschedulings or payment suspensions with no nominal debt reduction.

Figure 3 compares the Chinese debt restructurings with those involving the Paris Club and private external creditors. The main take away is that China’s approach today most closely resembles that of private and Paris Club lenders during the 1980s and 1990s, when face value relief on debts owed to Western banks and governments was a rare exception. Indeed, the

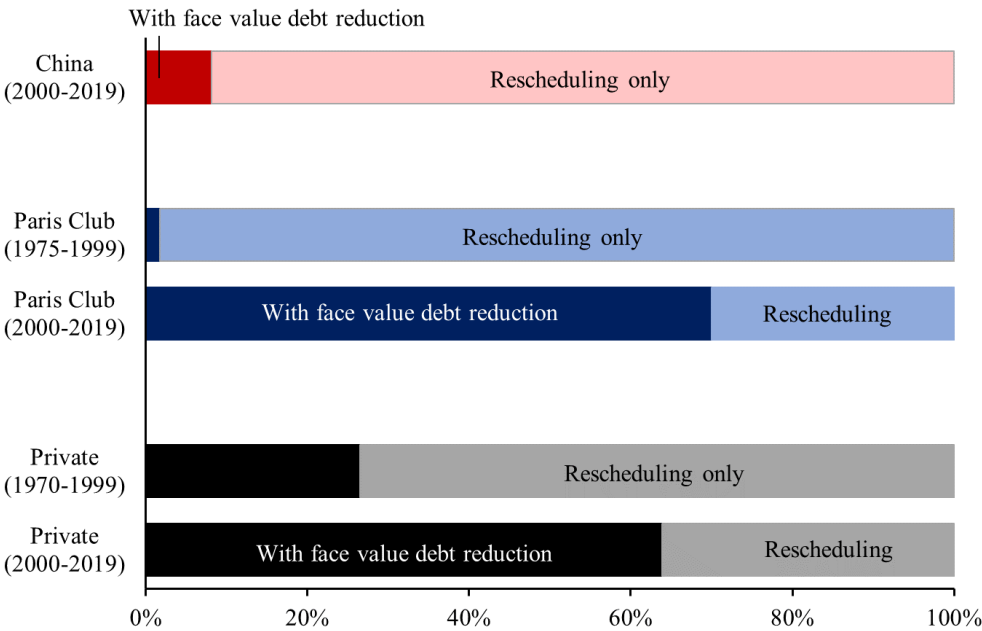
⁷ To compute the scope of debt relief, the typical approach by researchers, rating agencies, and international financial institutions is to compare the payment burden of the debtor before and after the restructuring in present value terms, with one crucial element being the size of face value debt reduction (e.g. Sturzenegger and Zettelmeyer 2007, Reinhart and Trebesch 2016, IMF 2020). In contrast, some estimates of Chinese “debt relief” simply add total amounts treated, which results in large numbers and ignores the terms of the treatment and, thus, the scope of actual future payment relief (e.g. Acker et al. 2021). The approach of adding amounts is particularly problematic in the context of Chinese distressed restructurings, since these rarely involve a reduction of interest rates or the cancellation of debt outstanding and thus, typically, imply limited present value debt relief.

⁸ As noted, 149 “symbolic” cancellation deals of small Zero-Interest Loans are not included. In two cases there was not enough information available to determine whether the agreement entailed a face value reduction.

⁹ Face value debt forgiveness occurred in Serbia (twice in the early 2000s), in Iraq in 2010 and in Cuba in 2016.

approach of Chinese creditors of the past 20 years resembles the commercial bank deals at the very beginning of the 1980s developing country debt crisis, when debts coming due were rescheduled by a few years at market rates and with creditor losses (haircuts) typically around or below 10% (Cruces and Trebesch 2013). Another fitting parallel is the Paris Club’s “Classic” and “Houston” terms, which are mostly non-concessional reschedulings at market rates that do not entail face value reductions and generate only very limited net present value debt relief. The Paris Club relied on these terms in the 1970s and 1980s before gradually shifting towards greater debt relief in the wake of the HIPC initiative (Cheng et al. 2019; Schlegl et al. 2019). China today is similarly opaque as the Paris Club of the 1980s, which did not publicly share details on debts outstanding or restructurings. Official credit events remained just as “hidden” until the 2000s.

Figure 3: Scope of debt relief, 2000-2019: China and other international creditors



Note: This figure combines data on distressed debt restructurings with private external creditors, with Paris Club and Chinese restructurings. The figure differentiates between restructurings that implied debt rescheduling only (i.e., maturity extensions) and those that also resulted in a reduction in face value. Data on face value reduction by the Paris Club is from Das et al. (2012, updated here) and by private external creditors from Cruces and Trebesch (2013) and Asonuma et al. (2017).

China’s approach to debt restructuring today is thus poised to repeat the errors of previous creditors and crises, not just those of the 1980s, but also those of the 1920s (on the 1980s, see Appendix Figures A3 and A4; on the 1920s, see Reinhart and Trebesch 2016). In both episodes, debtor countries went through a protracted period of over-indebtedness, low growth,

and limited ability to repay. It took creditors more than a decade to realize that serial rescheduling would not resolve the debt overhang.

4. Concluding remarks

China's overseas lending boom to developing countries is resulting in a growing number of defaults and debt restructurings. If history is any guide, multi-year debt workouts and serial restructurings lie ahead. Lack of transparency on the extent of indebtedness and on "hidden" debt restructurings makes it even more difficult to assess whether progress in restoring debt sustainability for the debtor countries is being accomplished. Filling in these knowledge gaps is a step in that direction.

References

- Acker, Kevin, Deborah Brautigam, and Yufan Huang. 2020. Debt Relief with Chinese Characteristics. CARI Working Paper No. 2020/39.
- Acker, Kevin, Deborah Brautigam, and Yinxuan Wang. 2021. Global Debt Relief Dashboard: Tracking Chinese Debt Relief in the Covid-19 era. China Africa Research Initiative, Johns Hopkins University School of Advanced International Studies.
- Asonuma, Tamon, and Christoph Trebesch. 2016. Sovereign Debt Restructurings: Preemptive or Post-Default? *Journal of the European Economic Association*, 14(1), 175-214.
- Asonuma, Tamon, Dirk Niepelt and Romain Ranciere. 2017. Sovereign Bond Prices, Haircuts and Maturity. IMF Working Paper No. 17/119.
- Bon, Gatién and Gong Cheng. 2020. China's Debt Relief Actions Overseas and Macroeconomic Implications. *EconomiX Working Papers* No 2020-27.
- Bon, Gatién and Gong Cheng. 2021. China's Overseas Sovereign Debt Relief Actions: What Insights Do Recent Cases Provide? *International Economics*, 166, 23-41.
- Broner, Fernando, Tatiana Didier, Sergio L. Schmukler, Peter von Goetz. 2020. Bilateral International Investments: The Big Sur? World Bank Policy Research Working Paper No. 9501.
- Cerutti, Eugenio, Catherine Koch, and Swapan-Kumar Pradhan. 2020. Banking across borders: Are Chinese banks different? BIS Working Papers No. 892.
- Cheng, Gong, Javier Diaz-Cassou, and Aitor Erce. 2019. The macroeconomic effects of official debt restructurings. *Oxford Economic Papers*, 71(2), 344-363.
- Custer, Samantha, Axel Dreher, Thai-Binh Elston, Andreas Fuchs, Siddhartha Ghose, Joyce Lin, Ammar Malik, Bradley P. Parks, Brooke Russell, Kyra Solomon, Austin Strange, Michael J. Tierney, Katherine Walsh, Lincoln Zaleski, and Sheng Zhang. 2021. *Tracking*

- Chinese Development Finance: An Application of AidData's TUFF 2.0 Methodology*. Williamsburg, VA: AidData at William & Mary.
- Cruces, Juan J. and Christoph Trebesch. 2013. Sovereign Defaults: The Price of Haircuts. *American Economic Journal: Macroeconomics*, 5(3), 85-117.
- Das, Udaibir, Michael G. Papaioannou and Christoph Trebesch. 2012. Sovereign Debt Restructurings 1950-2010: Literature Survey, Data and Stylized Facts. IMF Working Paper No. 12/203.
- Gardner, Alysha, Joyce Lin, Scott Morris, and Brad B. Parks. 2020. *Bargaining with Beijing: A Tale of Two Borrowers*. Center for Global Development and AidData at William & Mary.
- Gelpern, Anna, Sebastian Horn, Scott Morris, Brad Parks, and Christoph Trebesch. 2021. How China Lends: A Rare Look into 100 Debt Contracts with Foreign Governments. CEPR Discussion Paper No. 16331.
- Horn, Sebastian, Carmen M. Reinhart, and Christoph Trebesch. 2021. China's Overseas Lending. *Journal of International Economics*, 133, 103539.
- IMF. 2020. The International Architecture for Resolving Sovereign Debt Involving Private-Sector Creditors—Recent Developments, Challenges, And Reform Options. IMF Policy Paper No. 2020/043.
- Kratz, Agatha, Allen Feng, and Logan Wright. 2019. New Data on the 'Debt Trap' Question. Rhodium Group.
- Kratz, Agatha, Matthew Mingey and Drew D'Alelio. 2020. Seeking Relief: China's Overseas Debt After Covid-19. Rhodium Group.
- Malik, Ammar, Parks, Brad, Russell, Brooke, Lin, Joyce, Walsh, Katherine, Solomon, Kyra, Zhang, Sheng, Elston, Thai-Binh, and Seth Goodman. 2021. *Banking on the Belt and Road: Insights from a new global dataset of 13,427 Chinese development projects*. Williamsburg, VA: AidData at William & Mary.
- Reinhart, Carmen M. and Christoph Trebesch. 2016. Sovereign Debt Relief and its Aftermath. *Journal of the European Economic Association*, 14(1), 215-251.
- Schlegl, Matthias, Christoph Trebesch, and Mark L. J. Wright. 2019. The Seniority Structure of Sovereign Debt. NBER Working Paper No. 25793.
- Sturzenegger, Federico and Jeromin Zettelmeyer. 2007. *Debt Defaults and Lessons from a Decade of Crises*. MIT Press.

Appendix I. Database on debt restructurings with Chinese and other creditors

This appendix section presents a detailed overview on how the data sets on restructurings with private, Paris Club and Chinese creditors were constructed.

Restructurings with state-owned Chinese creditors: The starting point for our data compilation is our own work in Horn et al. (2021), which we cross-check, supplement, and update by drawing on a variety of new academic sources and policy reports. We make extensive use of AidData's newly released Chinese Official Finance Database 2.0 (Custer et al. 2021; Malik et al. 2021), which provides data on Chinese debt restructurings between 2000 and 2017. To update the database until 2021, we draw on academic work by Acker et al. (2020, 2021) on Chinese debt restructurings with African countries, on the case studies presented in Bon and Cheng (2021) and Gardner et al. (2020) as well as on two reports by the Rhodium Group (Kratz et al. 2019, 2020). To verify and complement the information found in this literature, we also consult IMF and World Bank reports.

Rescheduling agreements under the Debt Service Suspension Initiative (DSSI): As part of the G20, China has joined the DSSI. In contrast to Paris Club members, however, it has not disclosed with which debtor countries it has concluded DSSI rescheduling agreements. To identify Chinese rescheduling agreements under the DSSI, we therefore need to rely on information provided by the World Bank and the Paris Club. For 2020, the World Bank's DSSI website provides detailed information on debt service payments deferred by each bilateral creditor. For 2021, no such data is available yet. To identify Chinese DSSI agreements in this year, we make use of the fact that the DSSI requires comparability of treatment from all bilateral creditors. More specifically, we assume that all eligible countries with debt service obligations toward China Ex-Im Bank or the Ministry of Commerce are granted a debt service suspension by China when they reach an agreement with the Paris Club.

Content of the database: Whenever possible, we not only construct dummy variables for the occurrence of a restructuring but use our sources to collect information on the Chinese creditor entity and on the restructuring terms. In contrast to other data sets, however, we do not provide estimates of the *scope of debt relief* associated with Chinese debt restructurings. The academic literature has defined debt relief as the reduction in the net present value of the debtor's outstanding obligations due to the restructuring agreement (see Sturzenegger and Zettelmeyer 2007 or Cruces and Trebesch 2013 for details). Quantifying debt relief or haircuts in this net present value sense requires detailed information on discount rates and on

the exact loan terms prior to and after the restructuring, which is not available for most Chinese debt restructuring deals.¹⁰

Dealing with small, “symbolic” restructurings and debt cancellations: As explained in the main text, we identify 149 cases of “symbolic” restructuring of Zero-Interest Loans with China’s Ministry of Commerce, which are not included in the main analysis to avoid bias and noise.

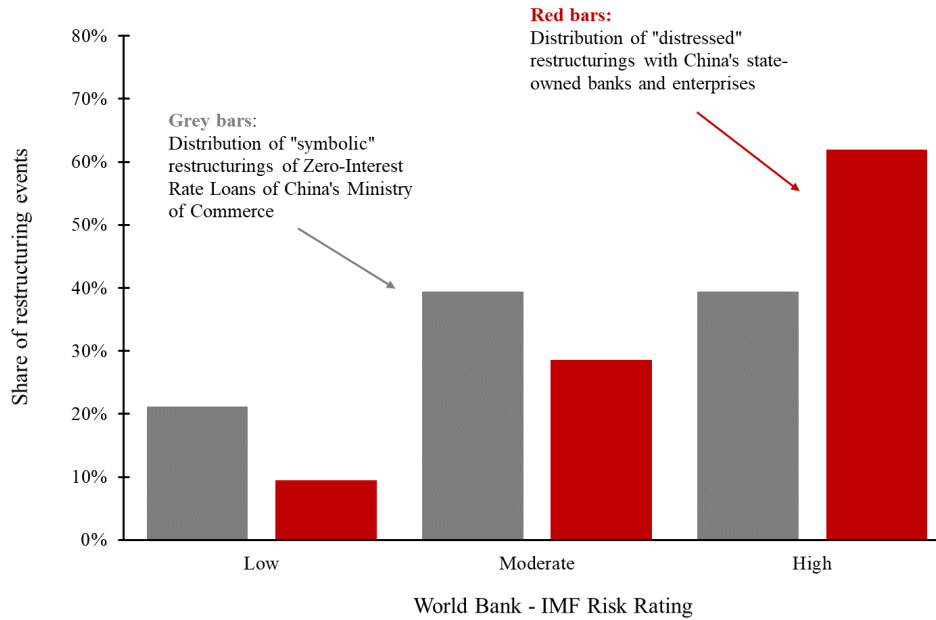
Debt restructurings of Zero-Interest Loans constitute a special aid program of the Chinese government and often entail nominal debt write-offs (Gardner et al. 2020; Acker et al. 2020). These debt cancellations by the Ministry of Commerce, however, are likely to offer little insights into the debt restructuring approaches of China’s state-owned banks. First, Zero-Interest Loans tend to be very small: the average face value of a Zero-Interest Loan is 12.9 mn USD and on aggregate they constitute less than 0.5 percent of China’s total foreign lending (Horn et al. 2021). This is in sharp contrast to the large loans extended by China Ex-Im Bank and CDB which account for around 75 percent of China’s total overseas lending (Horn et al. 2021).

Furthermore, restructurings of Zero-Interest Loans are often linked to high-level diplomatic visits and occur at regular intervals, largely independent of the underlying macroeconomic fundamentals. This is confirmed in Figures A1 and A2, which show that restructurings of Zero-Interest Loans are only weakly related to macroeconomic fundamentals and sovereign risk. In contrast, distressed restructurings with Chinese creditors tend to occur when the debtor countries (i) are classified as risky by the IMF and World Bank’s debt sustainability risk ratings and (ii) when they receive low sovereign ratings by international credit ratings agencies.

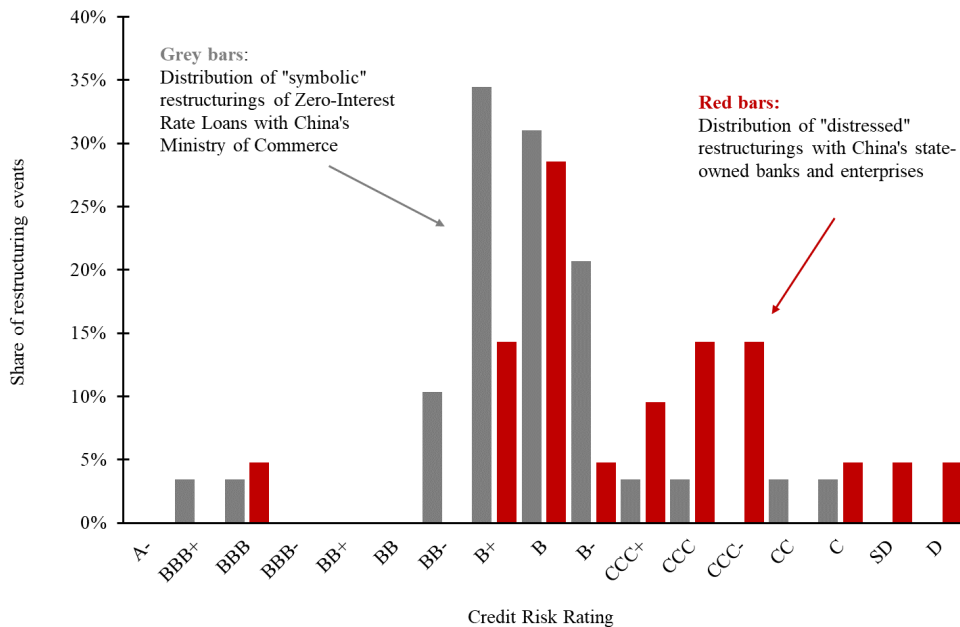
¹⁰ See Gardner et al. (2020) and Bon and Cheng (2021) for haircut estimates in selected case studies.

Figure A1. Chinese restructuring events and risk ratings

Panel A. IMF and World Bank Debt Sustainability Ratings



Panel B. Credit Rating Agency risk ratings

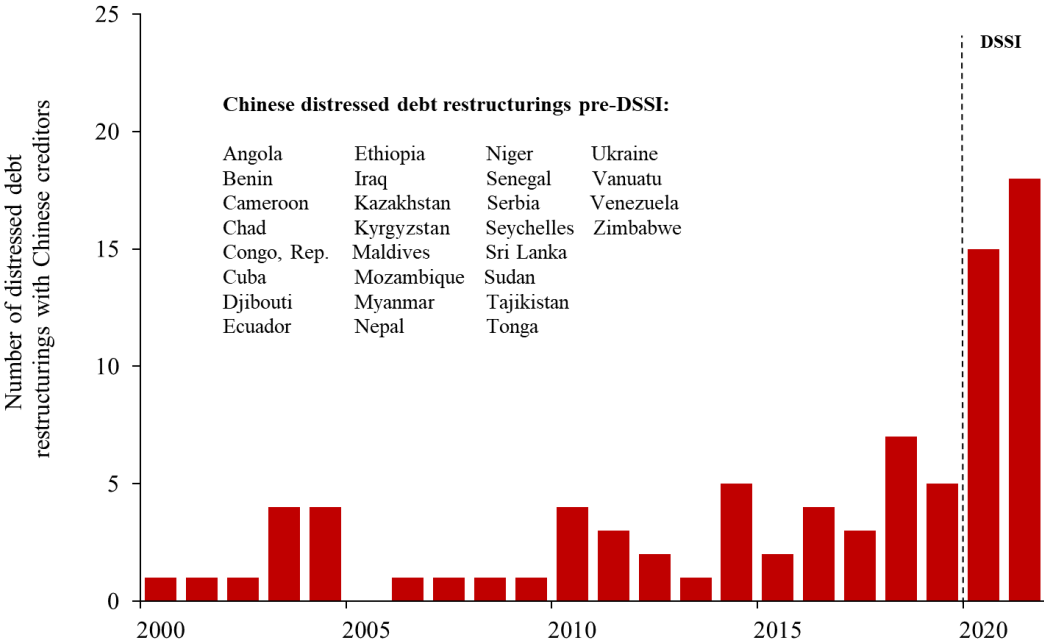


Note: This figure shows the incidence of Chinese debt restructurings across debtor country risk ratings. Red bars indicate the occurrence of “distressed” restructurings with Chinese state-owned banks and enterprises, whereas grey bars indicate the occurrence of “symbolic” debt restructurings with China’s Ministry of Commerce. Panel A shows the distribution across World Bank and IMF Risk Ratings for 54 restructuring cases in low income countries between 2009 and 2019 for which the risk ratings are available. Panel B shows the distribution of events across rating agency credit risk ratings for 56 cases since 2002 for which rating data is available. Data on credit risk ratings is from Moody’s, Fitch and Standard & Poor’s. If more than one rating is available, we take an unweighted average. Countries participating in the DSSI in 2020 and 2021 are excluded from both panels.

Since restructurings of Zero-Interest Loans are largely inconsequential for debt sustainability in the recipient countries due to their small size and since they are not correlated to actual economic or financial distress in the recipient countries, we exclude these events from our main analysis.¹¹ Similarly, we also exclude 28 Chinese rescheduling events under the Debt Service Suspension Initiative that were agreed with countries that are not considered to be “in debt distress” or “at high risk of debt distress” according to the IMF and World Bank Debt Sustainability Framework, to avoid inflating our measures of the incidence of restructuring activity.

Once we exclude symbolic debt restructurings, we are left with 84 Chinese restructuring events that are linked to periods of financial distress in 39 different borrowing countries (Figure A2). All episodes entail the restructuring of liabilities owed to Chinese state-owned banks and enterprises, most importantly China Export-Import Bank and China Development Bank.

Figure A2. Distressed debt restructurings with Chinese lenders, 2000 - 2021



Note: This figure shows the number of countries that have completed debt restructurings with Chinese state-owned entities and banks according to our database. See text for sources and details.

¹¹See section 5 in Acker et al. (2020) for a detailed discussion of Zero-Interest Loan restructurings and cancellations.

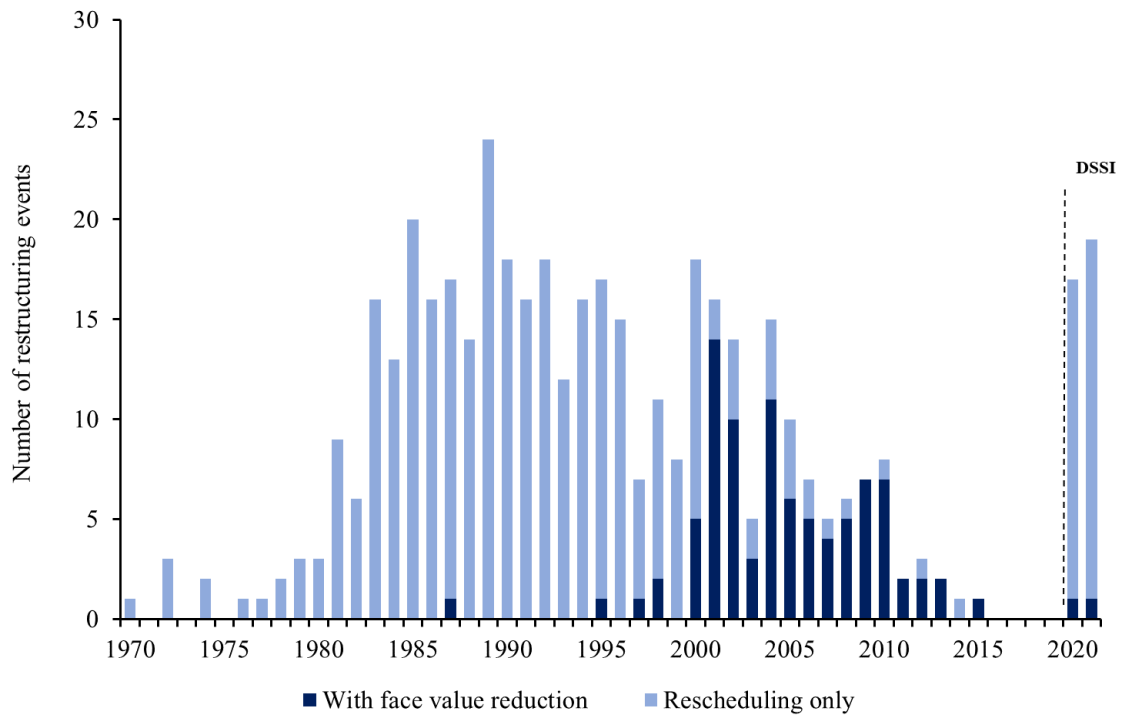
Caveats: Given the lack of a standardized official source on Chinese credit events, our tally of Chinese debt restructurings is likely to be incomplete. An omission that deserves particular attention is restructurings of recipient country SOEs and SPVs for which hardly any data is publicly available and which constitute an increasingly important share of China's outbound lending (Horn et al. 2021; Malik et al. 2021). In the same way that off-balance sheet debt of these entities often remains "hidden" from official debt statistics, debt restructurings with these entities are also likely to go unreported. Our tally of credit events with the Chinese government and its state-owned entities therefore needs to be regarded as a lower bound.¹²

Data on credit events with Paris Club creditors: To add restructurings with the Paris Club, we use data from Cheng et al. (2019) until 2015 and update their database by using the Paris Club website and World Bank information on the implementation of the DSSI. As for Chinese creditors, we also exclude Paris Club reschedulings with DSSI eligible countries that are not considered to be "in debt distress" or "at high risk of debt distress" under the World Bank and IMF debt sustainability framework. To distinguish between Paris Club agreements that entailed only rescheduling and agreements that also implemented face value reductions, we additionally draw on the data set by Das et al. (2012), which we again update using the Paris Club website. Figure A3 shows our tally of Paris Club restructurings between 1970 and today.

Data on debt restructurings with private creditors: To identify restructurings with private external creditors (foreign bondholders and banks), we use the database by Asonuma and Trebesch (2016). Since 1975, their data identifies a total of 192 debt restructurings with 74 developing and emerging countries. To assess the scope of debt relief, we add information from Cruces and Trebesch (2013) and from the updated data set of Asonuma et al. (2017) and Asonuma and Trebesch (2016). Specifically, we use their dummy variable on whether debt restructurings involved face value debt reductions in contrast to agreements that only reschedule debt payments. Figure A4 shows the resulting data and depicts the number of countries that completed a debt restructuring with private creditors in any given year since 1975.

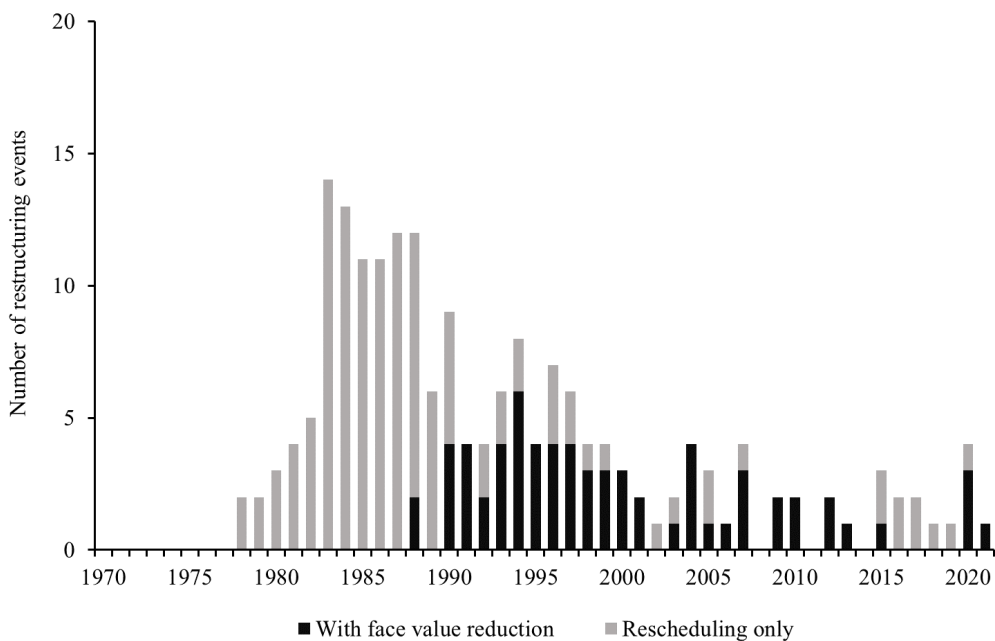
¹² Data on principal and interest arrears from the World Bank's International Debt Statistics offers corroborative evidence: In several countries that have large bilateral debts to China, arrears to official creditors have been rising sharply, although no credit events or restructuring agreements have been made public.

Figure A3. Rescheduling vs Debt Write-Offs: Paris Club



Note: This figure shows the number of countries that restructured debt with Paris Club creditors between 1970 and 2021. Deals that implemented a face value reduction are shown in dark blue, agreements that only rescheduled payments are shown in light blue. See text for sources and details.

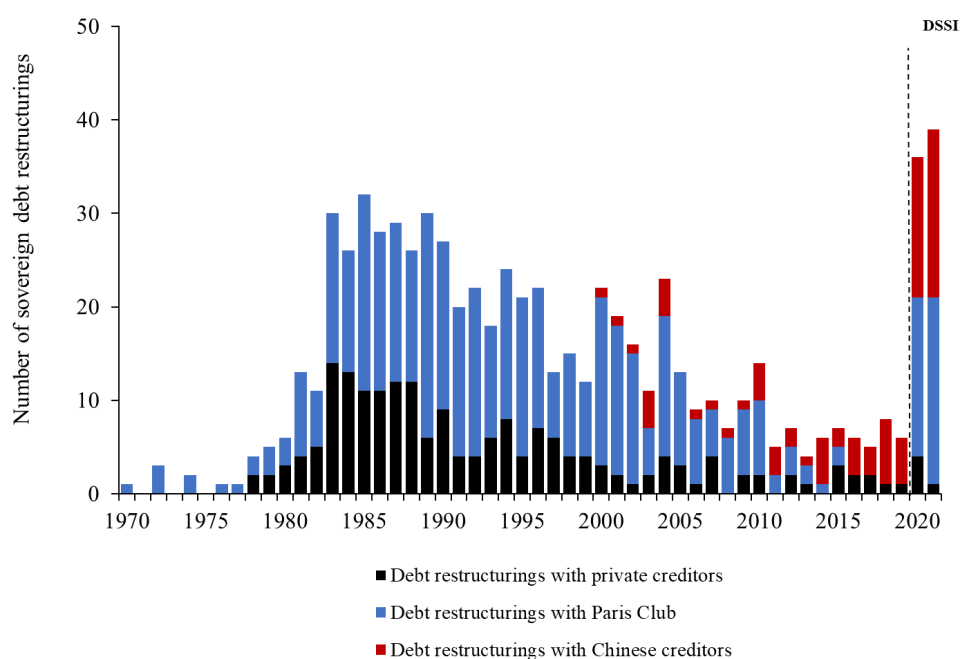
Figure A4: Rescheduling vs Debt Write-Offs: Private creditors



Note: This figure shows the number of countries that restructuring debt with private creditors (bonds and banks) between 1970 and 2021. Deals that implemented a face value reduction are shown in black, agreements that only rescheduled payments are shown in grey. See text for sources and details.

Appendix II. Additional figures and results

Figure A5. Sovereign debt restructurings with official and private creditors, 1970 - 2020



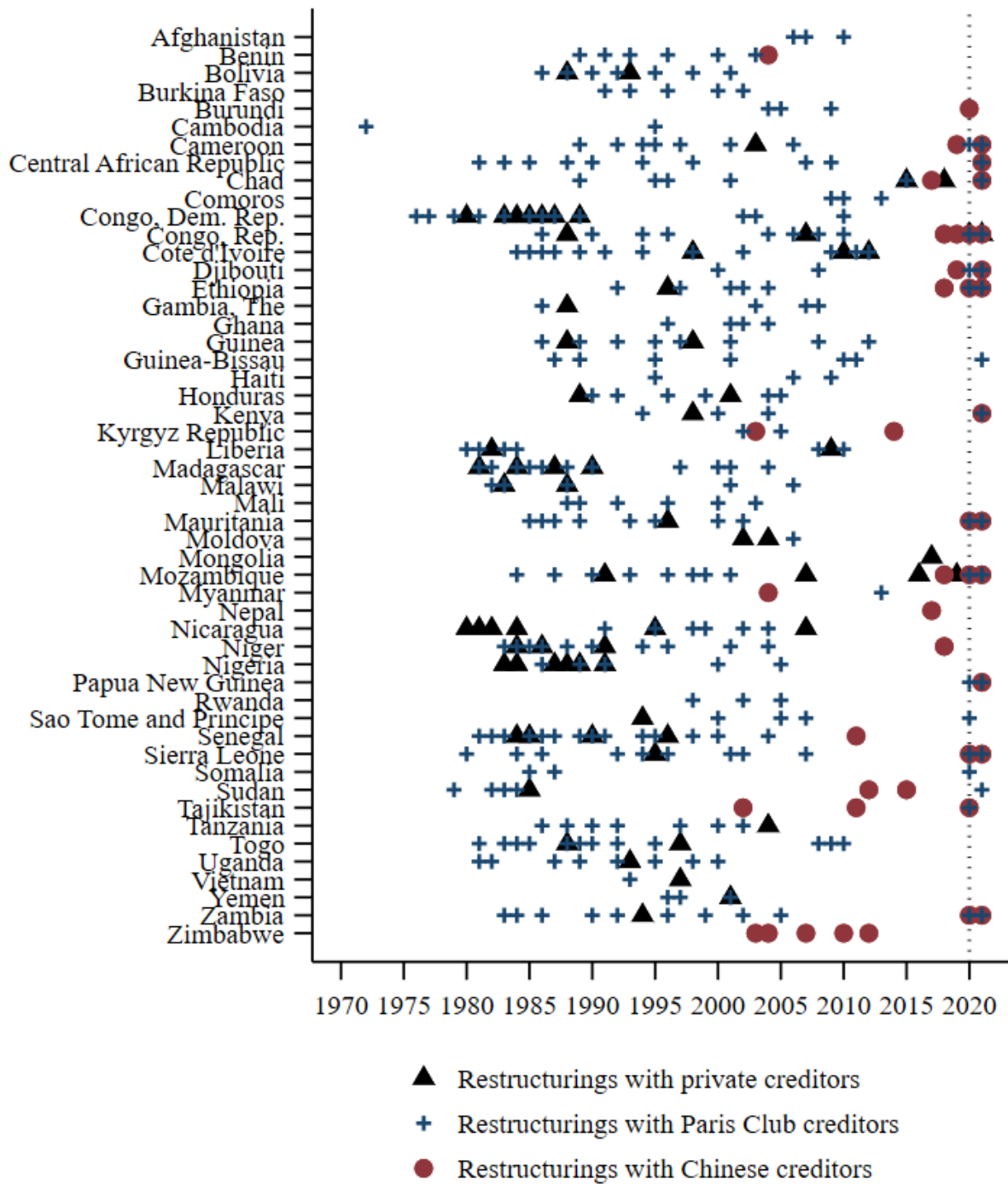
Note: This figure shows the number of developing and emerging market countries that restructured with private creditors (black bars), Paris Club creditors (blue bars) and Chinese state-owned entities (red bars; data available since 2000). We exclude “symbolic” restructurings with the Chinese Ministry of Commerce and DSSI reschedulings with countries that are not in or at high risk of debt distress. See text for a discussion of details and sources.

Table A1. Incidence of credit events by creditor over time

	<u>Average number of debt restructurings per year</u>				
	1980 - 1989	1990 - 1999	2000 - 2009	2010 - 2019	2020 & 2021
Private creditors	9.1	5.6	2.2	1.4	2.5
Paris Club	14	13.8	10.3	1.8	18.5
China			1.5	3.6	16.5

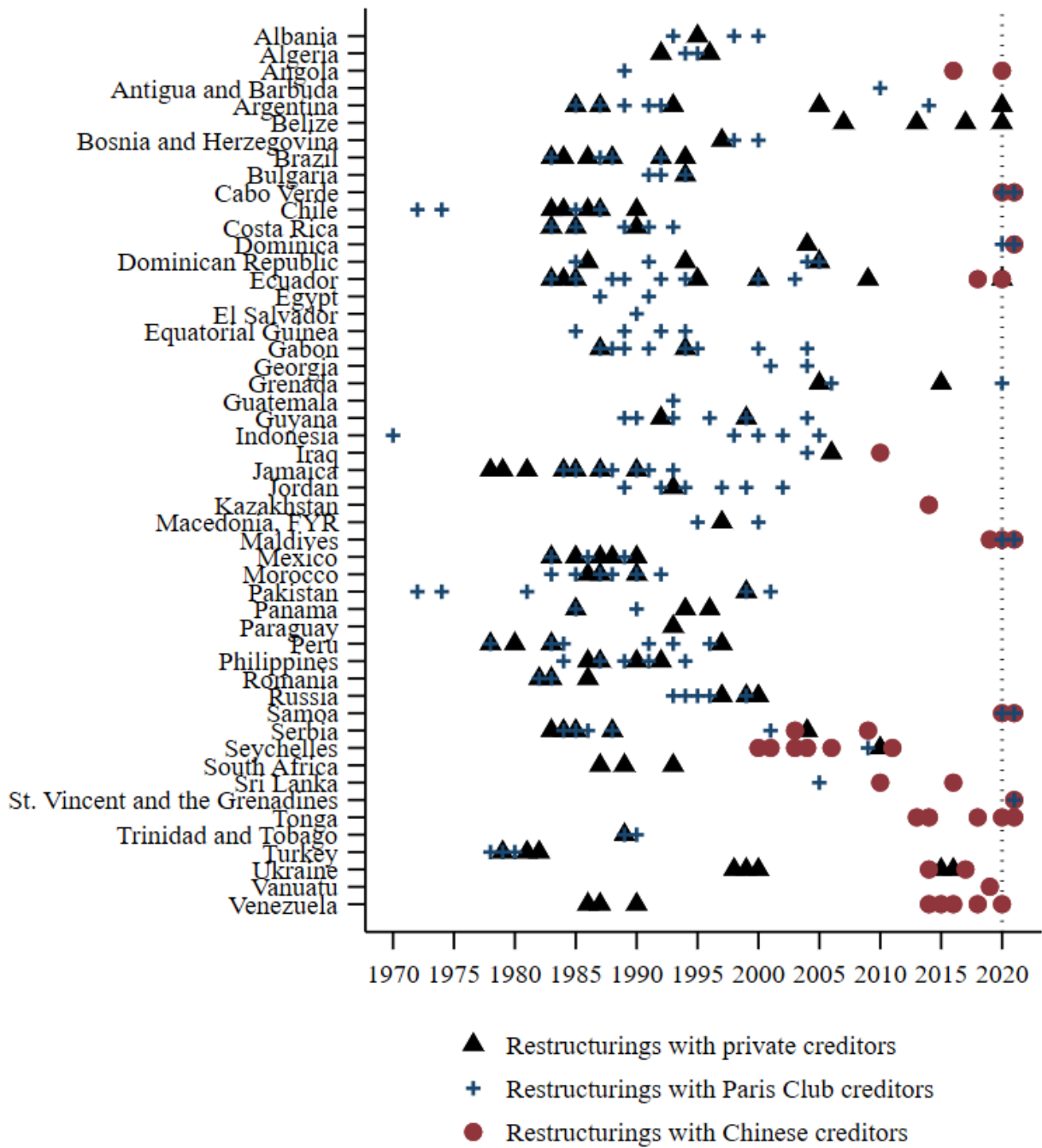
Note: This table shows the average number of countries per year that completed debt restructurings with private creditors, Paris Club creditors and with Chinese state-owned banks and enterprises across different decades. Incidence numbers presented in the table exclude “symbolic” debt restructurings of Zero-Interest Loans with the Chinese Ministry of Commerce and DSSI reschedulings with countries that are not in or at high risk of debt distress. See text for a discussion of details and sources.

Figure A6. Country profiles, 1970-2021, all low-income developing countries



Note: This figure shows completed debt restructuring events. Data on Chinese restructurings starts in 2000. The sample consists of all low-income developing countries. The dotted line marks the onset of the DSSI.

Figure A7. Country profiles, 1970-2021, all emerging market countries



Note: This figure shows completed debt restructuring events. Data on Chinese restructurings starts in 2000. The sample consists of all emerging market economies. The dotted line marks the onset of the DSSI.