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China as an International Lender of Last Resort

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Abstract

This paper shows that China has launched a new global system for cross-border rescue lending to countries in debt distress. We build the first comprehensive dataset on China's overseas bailouts between 2000 and 2021 and provide new insights into China's growing role in the global financial system. A key finding is that the global swap line network put in place by the People's Bank of China is increasingly used as a financial rescue mechanism, with more than USD 170 billion in liquidity support extended to crisis countries, including repeated rollovers of swaps coming due. The swaps bolster gross reserves and are mostly drawn by distressed countries with low liquidity ratios. In addition, we show that Chinese state-owned banks and enterprises have given out an additional USD 70 billion in rescue loans for balance of payments support. Taken together, China's overseas bailouts correspond to more than 20 percent of total IMF lending over the past decade and bailout amounts are growing fast. However, China's rescue loans differ from those of established international lenders of last resort in that they (i) are opaque, (ii) carry relatively high interest rates, and (iii) are almost exclusively targeted to debtors of China's Belt and Road Initiative. These findings have implications for the international financial and monetary architecture, which is becoming more multipolar, less institutionalized, and less transparent.

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1. Introduction

Following a more than decade-long boom in overseas lending and investment, China's Belt and Road Initiative (BRI) has come under pressure, as many recipient (debtor) countries in the developing world experience financial distress.¹ It has already been documented that Chinese state creditors have responded to this crisis by reducing new overseas lending flows to the Global South and by negotiating dozens of sovereign debt restructurings (Horn et al. 2022b, 2023). What is less well understood and of more recent vintage is the large and rising number of Chinese bailouts to countries in distress over the past 15 years. This paper shows that the Chinese government has created a new system of international rescue lending, which has not yet been documented or studied. We fill this gap by exploring China's role as an international lender of last resort for the first time.

China's overseas bailouts have not been systematically examined largely due to the opacity of its overseas lending practices and bilateral debt restructuring agreements (Horn et al. 2021, Gelpert et al. 2022; Dreher et al. 2022). We overcome this limitation by constructing a new, comprehensive, hand-coded dataset of Chinese overseas rescue loans from 2000 to 2021. Specifically, we study two main pillars of China's emerging system of cross-border bailouts. First, balance of payments support via the People's Bank of China (PBOC) swap line network, and second, liquidity support via loans and deposits from Chinese state-owned banks and commodity enterprises.

Regarding China's overseas swap lines, it is well known that the PBOC has built a global network with almost 40 foreign central banks since 2008. A growing body of research has focused on the drivers and economic impact of this growing swap line network, in particular the pioneering work of Bahaj and Reis (2022a, 2022b). This literature has typically focused on the date on which the bilateral agreement is signed (e.g. Liao and McDowell 2015, McDowell 2019; Horn et al. 2021, Perks et al. 2021). However, most of these swap lines remained dormant for years. Our paper is the first to systematically track and quantify the actual drawings on these lines. We code which countries made drawings, in what amounts, and when. This information is crucial to understand the relevance and context of the PBOC's swap line usage, with surprising insights. Officially, the main purpose of the swap lines is to promote the use of RMB for trade and investment settlement purposes (Eichengreen et al. 2017; Prasad 2016).

¹ As of 2022, 60% of China's overseas lending portfolio supports debtors in distress, up from just 5% in 2010 (Horn et al. 2022a).

We find that the swap lines are mostly drawn in situations of financial and macroeconomic distress by countries with low reserve ratios and weak credit ratings. Out of 17 countries that have made PBOC swap line drawings thus far, only four did so in normal times, with no apparent signs of distress. This result is consistent with the literature as well as surveys of central bankers, which show that countries build up reserves to avert rollover crises and default.² It is clear that the PBOC swap line drawings bolster *gross* reserves and serve the purpose of window dressing (Bahaj and Reis 2022b), but there is a lack of clarity about how the funds are actually used—especially if they are used to directly service external debts to China coming due.³

Thus, a main insight is that China’s swap line network has become an important tool of overseas crisis management. In total, we find that 170 billion USD have been extended by the PBOC to central banks of countries in financial or macroeconomic distress. This amount involves a large number of rollovers, as short-term PBOC swap loans are often extended again and again, resulting in a *de facto* maturity of more than three years, on average.

To supplement our new data on swap line drawings, we also track balance of payments support (bridge loans) from Chinese state-owned policy banks, state-owned commercial banks, and state-owned enterprises to EMDE central banks and governments. We identify more than 70 rescue loans to 13 different EMDEs worth of 70 billion USD. These loans are mostly USD-denominated and they often explicitly allow borrowers to use the funds to repay existing debts, including those owed to Chinese institutions. We also track commodity prepayment facilities through which Chinese state-owned oil and gas companies (like CNPC and UNIPPEC) provide large cash advances for commodity imports.

In total, more than 20 debtor countries have received 240 billion USD in Chinese rescue lending since 2000. The scale of China’s global bailout lending program is also growing fast. More than 185 billion USD was extended in the past five years alone (2016-2021).

² A global survey of reserve managers by the IMF (2011, p. 9) finds that the main motive to accumulate reserves is to build up a “buffer for liquidity needs”. Relatedly, there is a large and growing literature showing that higher reserves decrease the probability of distress and crises (e.g. Calvo et al. 2012, Gourinchas and Obstfeld 2012, Bianchi et al. 2018).

³ Typically, neither the PBOC nor recipient country central banks disclose how swap line drawdowns can be used, in particular, whether they can be exchanged into US dollars and/or rechanneled to repay external debt obligations. See Section 2 for a more detailed discussion. Appendix Figures A3 and A4 show for Mongolia and Argentina that the PBOC’s swap line debts can create significant differences between countries’ gross and net reserve positions and therefore improve widely-used early warning indices, such as the reserve-to-import ratio. In selected cases, credit rating agencies have started to monitor PBOC swap line drawdowns to assess international reserve adequacy and point to these drawings to explain their rating decisions (e.g. Fitch 2021 and 2022; Moody’s 2020).

We therefore find that China has emerged as a key lender of last resort for a growing number of developing countries. However, its role in the international financial system is less central, by far, than that of the established global lenders of last resort (Fisher 1999; Reinhart and Trebesch 2016). China’s bailouts are small compared to the IMF’s global lending portfolio and dwarfed by the sweeping international USD liquidity support extended by the U.S. Federal Reserve (Fed) since 2007, primarily to advanced economies.⁴ We also find that Beijing has targeted a limited set of potential recipients, as almost all Chinese rescue loans have gone to low- and middle-income BRI countries with significant debts outstanding to Chinese banks.

In sum, China has developed a system of “Bailouts on the Belt and Road” that helps recipient countries to avoid default, and continue servicing their BRI debts, at least in the short run. China’s role as an international crisis manager can therefore be compared to that of the US Treasury during previous Latin American debt crises or to a regional financial institution like the European Stability Mechanism, which helped to avert, delay, or resolve defaults by highly indebted borrowers, rather than to a global financial backstop with “deep pockets” (Rogoff 1999, Scheubel and Stracca 2019, Mitchener and Trebesch 2022, Reinhart 2022, Roldan and Sosa-Padilla 2023).

⁴ Comparing lending amounts by China, the IMF and the US Fed is not straightforward because of different maturity structures and frequent rollovers. For example, when counting all rollovers, Chinese rescue lending since 2016 corresponds to about 34% of IMF rescue lending commitments. However, if one excludes rollovers and only counts the initial lending amount, the Chinese total corresponds to around 10% of IMF rescue lending commitments (see Appendix I.4 for details).

2. A new dataset of China’s international bailouts, 2000-2021

For the purpose of data collection, we define rescue or bailout lending as any form of official financial assistance that allows a sovereign debtor to (i) service existing debts, (ii) finance general budgetary expenditures and/or (iii) shore up foreign reserves (potentially enabling future repayments—at least for a limited period of time).⁵

Table 1 presents a typology of the different crisis management instruments used by China that meet this definition, as well as selected country examples. We identify three varieties of Chinese rescue lending: (i) short- and medium-term loans by state banks to developing countries that have the explicit purpose of budgetary and balance of payment support (“bridge loans”), (ii) deposits at foreign central banks and currency swap drawdowns from the People’s Bank of China (PBOC) bilateral swap line network (considering only drawings in distress situations), and (iii) commodity prepayment facilities through which Chinese state-owned oil and gas companies provide large cash advances for commodity exporting countries that are in distress.

Table 1. Chinese varieties of international rescue lending

Lending instrument	Example Cases
<p>Rescue loans (general purpose / liquidity support) Chinese state-owned banks, in particular CDB, have provided USD credit lines that allow recipients to service external debts, increase reserves or finance general budgetary expenditures</p>	Egypt 2016, Belarus 2019
<p>Commodity prepayment facilities Chinese oil importers have provided large upfront USD cash payments on long-term oil delivery contracts</p>	Ecuador 2009
<p>Drawings from PBOC swap lines Recipient country central banks have drawn down their RMB swap lines to increase gross reserves</p>	Argentina 2014 - 2020, Turkey 2021
<p>Central Bank deposit loans Chinese banks and the PBOC have provided USD deposits to foreign central banks to help increase their gross reserves</p>	Pakistan 1997 - 2021

⁵ We track rescue lending by all state-owned Chinese creditor entities, regardless of whether they are considered official or commercial lenders by the Chinese government. CDB’s status in particular remains contested (see, for example, Gelpern et al. 2021).

Rescue financing can also come in the form of equity investments in distressed projects (like China’s investment in the electricity grid of Laos in 2020) or in the form of secondary market purchases of foreign sovereign bonds (as reportedly done by the PBOC during the Euro Zone Crisis). We do not track these two instruments due to a lack of reliable data.⁶

a. Data coding methodology

Our data collection involves three steps. First, we focus on PBOC swap lines and conduct a systematic and encompassing review of official and non-official sources—including the annual reports and financial statements of central banks in borrowing countries—that provide information about PBOC swap line drawings and amounts outstanding. To do so, we build on AidData’s Tracking Underreported Financial Flows (TUFF) methodology (Custer et al. 2021; Dreher et al. 2022). In addition to coding the incidence and magnitude of swap line drawings, we collect contextual information about the purpose of the swap drawdowns, whenever available. We use this information to distinguish between swap drawdowns for balance of payments purposes and those primarily used for trade and investment settlement in RMB (see the next sub-section).

Second, we focus on international liquidity support operations by Chinese state-owned policy banks, commercial banks, and energy firms to EMDE government institutions, again using the TUFF methodology. In line with the above definition of rescue lending, we identify all loans by state-owned Chinese firms that explicitly authorize the borrower to use the proceeds to (a) repay existing debts, (b) finance general budgetary expenditures, and/or (c) shore up foreign exchange reserves.⁷ In total, we identify 60 billion USD in liquidity support facilities and deposit loans from China Development Bank, China’s state-owned commercial banks, and from China’s State Administration Of Foreign Exchange (SAFE).⁸ We also track 9 billion USD in commodity prepayment facilities through which Chinese state-owned oil and gas companies (like CNPC and UNIPPEC) provide cash advances for commodity imports. These arrangements

⁶ All instruments listed in Table 1 are closely related to financing assurances provided in the context of IMF programs. We do not separately track financing assurances because they constitute financial pledges that do not always materialize. Rescue lending and debt restructurings that involve grace period and maturity extensions can have very similar reprofiling effects. Here, we focus entirely on rescue instruments that provide fresh financing. For a discussion of Chinese debt restructurings, see Acker et al. 2020, Bon and Cheng 2020, Horn et al. 2022, Horn et al. 2023.

⁷ Our instrument identification relies on the stated or “de jure” purpose of the loans, but in Appendix I.3 we show that the balance of payments loans in our dataset also have significantly different “de facto” characteristics than Chinese project loans. They go to recipients with significantly weaker sovereign risk ratings and lower foreign reserve holdings than the recipients of Chinese project loans.

⁸ This total includes 17 rollovers of loans and deposits with total commitment amounts of 8.7 billion USD.

are reminiscent of previous Western rescue efforts to help energy exporting countries cope with balance of payments problems—for example, US oil prepayments to Mexico during its debt crises of 1982 (Boughton, 2001).

In a third step, we validate the transaction-level data extracted from the primary sources by comparing it to aggregate macro data published by recipient country authorities. We benchmark our results to the World Bank’s Quarterly External Debt Statistics (QEDS), which contains aggregate information on central bank short-term liabilities, as well as to BOP data. Both sources allow to track whether supposed inflows from Chinese swap line drawings are reflected in the aggregate series on central bank liabilities. Overall, the aggregated, loan-by-loan data that we manually collected closely matches the aggregate figures published by country authorities (see Appendix Figure A1).

In addition to coding the incidence and magnitude of lending (flows and stocks), we collect data on borrowing terms—in particular the interest rate, grace period, and maturity as well as collateralization arrangements, whenever available. Appendix I provides a detailed overview.

b. Patterns of PBOC swap line drawings

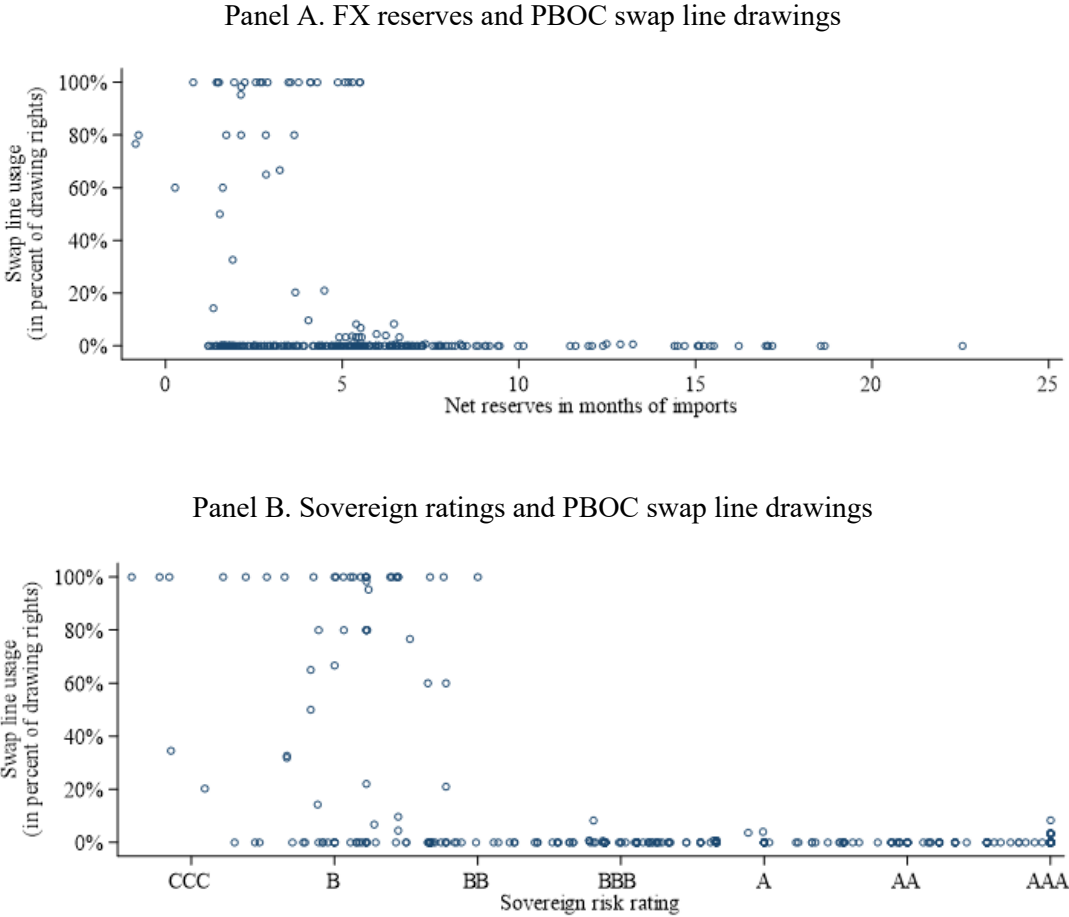
A key contribution of this granular dataset is that it identifies the scope and context of PBOC swap line drawings. We show that, after a slow start, the swap network has now been activated by at least 17 emerging and developing economy (EMDE) central banks with total drawdowns and rollovers of more than 185 billion USD. We also find that swap line drawings have been made predominantly by central banks of countries in financial or macroeconomic distress. Figure 1 shows that the largest drawings (in percent of drawing rights) were made by countries whose foreign exchange reserves covered less than 6 months of imports and whose sovereign ratings had entered junk territory (BB or lower). These patterns are statistically significant both across countries and within countries over time (see Appendix Table A2): RMB swap lines are drawn down by weak recipient countries and they tend to do so during particularly bad times.

Furthermore, we checked the context of swap line usage on a case-by-case basis and found evidence that 13 countries made total drawings of 170 billion USD in situations of economic or financial distress. Examples include Argentina (2014-2021), Mongolia (2012-2021), Suriname (2015-2021), and Sri Lanka (2021), which drew on their RMB swap lines right before and/or after sovereign defaults on their external creditors. Other important users include Pakistan (2013-2021), Egypt (2016-2021) and Turkey (2021), which made large drawdowns during protracted balance of payments crises, as demonstrated by their crashing currencies in

the face of dwindling foreign exchange reserves. Another group, including Russia (in 2015 and 2016) and Ukraine (in 2015) activated their swap lines in the face of sanctions and deep geopolitical crises. Appendix Table A3 provides a full list, while Appendix II presents three detailed case studies.

At the same time, we only identify four countries that utilized their PBOC swap lines without any indication of macroeconomic distress and, thus, likely for trade and investment purposes alone. These four countries are Malaysia, Singapore, South Korea and Thailand, with combined drawdowns of 15 billion USD (see Appendix I for details). We exclude these four countries from our analysis of Chinese rescue lending in Sections 3 and 4 below.

Figure 1. China’s swap lines are mostly used by countries in distress



Note: This figure links the scale of Chinese swap line drawings (in percent of total drawing rights granted by the PBOC) to the country’s level of reserves to imports (Panel A) and its sovereign risk rating (Panel B). Reserves to imports data is from the World Bank’s WDI database, data on sovereign risk ratings is from Kose et al. (2022) and from Reinhart, Reinhart and Trebesch (2016). See Appendix I for regression results.

A key question is whether PBOC swap line proceeds can be used for debt servicing or not. Given the opacity surrounding these swap lines, systematic evidence is difficult to find, but

individual country cases provide important insights. In Argentina, the central bank signed a supplementary agreement with the PBOC that explicitly allows it to exchange RMB drawings into USD and to use them for external debt service (see Appendix II). However, if no such authorization is granted by the PBOC, then swap line drawings may be of more limited use in a balance of payments or debt crisis. In Sri Lanka, the central bank reportedly signed an agreement with the PBOC that allows for the flexible use of swap line proceeds under the condition that the country's gross reserves remain above the equivalent of 3 months of merchandise imports—or approximately 4 billion USD (see Appendix II).⁹ But even when such restrictions on the use of swap line proceeds are in place, the fungibility of foreign exchange reserves ensures that swap line drawdowns can facilitate debt service payments by freeing up other sources of foreign exchange.¹⁰

The expansion of swap line drawings has complicated the challenge of monitoring debt vulnerabilities in the developing world. In principle, PBOC swap line borrowings represent short-term repayment obligations that fall outside most existing international debt disclosure requirements (since they have de jure maturities of 3-12 months).¹¹ However, due to their frequent rollovers, many of these borrowings have de facto maturities that substantially exceed one year and that should be reported as external public debt obligations. In practice, only very few developing countries include swap line debt in their public debt reporting. In an effort to adapt data coverage to the evolving nature of external debt and the growing importance of PBOC swap lines, since 2020, the World Bank requires the reporting of central bank swap debt and foreign official deposits with de facto maturities of more than one year through the Debtor Reporting System that underlies the International Debt Statistics (see World Bank 2020). With respect to reserve adequacy metrics, it has become clear that swap line debt can create substantial discrepancies between gross and net reserve adequacy metrics (Appendix Figures A3 and A4 illustrate this for Argentina and Mongolia). This has important implications for

⁹ This condition has proven consequential because Sri Lanka's gross reserves fell below this threshold before and after it defaulted on its external sovereign debts in April 2022.

¹⁰ See for example Obstfeld et al. (2009) for a discussion of fungibility in the case of Russia.

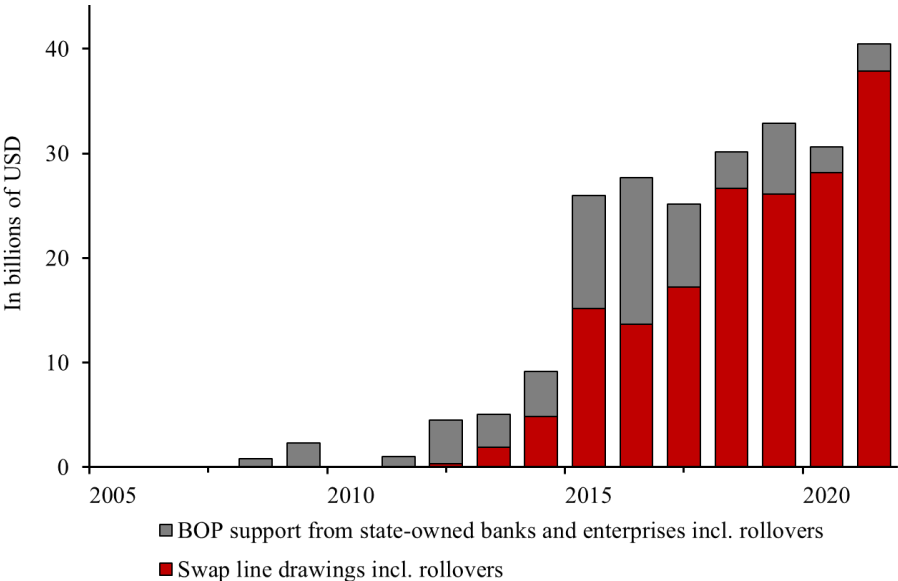
¹¹ The long-term, public and publicly guaranteed, external debt stocks published in the World Bank International Debt Statistics, for example, "include all long term external debt, *that is, debt with an original maturity of more than one year*, and owed by residents of the reporting country to non residents thereof" (World Bank 2000:3, emphasis added).

country surveillance work, in particular when central banks do not disclose their outstanding swap line drawings.¹²

3. Bailouts on the Belt and Road

This section summarizes the main insights on China’s rescue lending from our dataset. Figure 2 documents a sharp increase in Chinese bailout activity over time, distinguishing between swap line lending (in total USD 170 billion) and other types of rescue lending—in particular, bridge loans or balance of payments support by Chinese state-owned banks and enterprises like the CDB (in total USD 70 billion). This figure counts each individual borrowing separately, irrespective of whether it is a new loan or a rollover of a previous loan. If we disregard rollovers, the total amount of extended credit declines from 240 billion USD to roughly 100 billion USD.

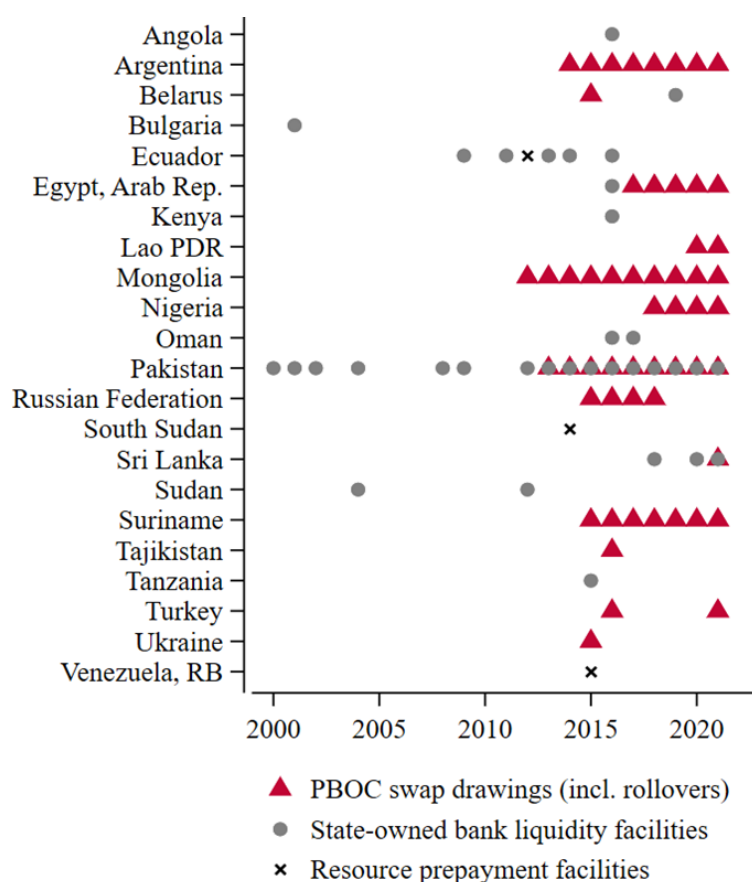
Figure 2. China’s bilateral bailouts - yearly amounts of cross-border rescue lending



Note: This figure shows the yearly aggregate amount of newly extended rescue loans based on our new dataset. Red bars show total drawdowns from PBOC swap lines (incl. rollovers) for balance of payments purposes. Four recipient countries with no indication of financial distress are excluded. Grey bars show total commitments from BOP support loans by Chinese state-owned banks and enterprises (again incl. rollovers). The grey bars also include deposits by Chinese banks at foreign central banks as well commodity prepayment facilities (see Appendix I for details).

¹² Swap line debt is not unique in creating a gap between gross and net reserves. Central bank debt issuance and commitments in the forward exchange market can have similar effects, as was the case in the Asian Financial Crisis (see e.g. Goldstein 1998).

Figure 3. Chinese cross-border bailouts by country



Note: This figure shows the incidence of Chinese bilateral bailouts by recipient country and year. See Section II and Appendix I for sources and details on data collection.

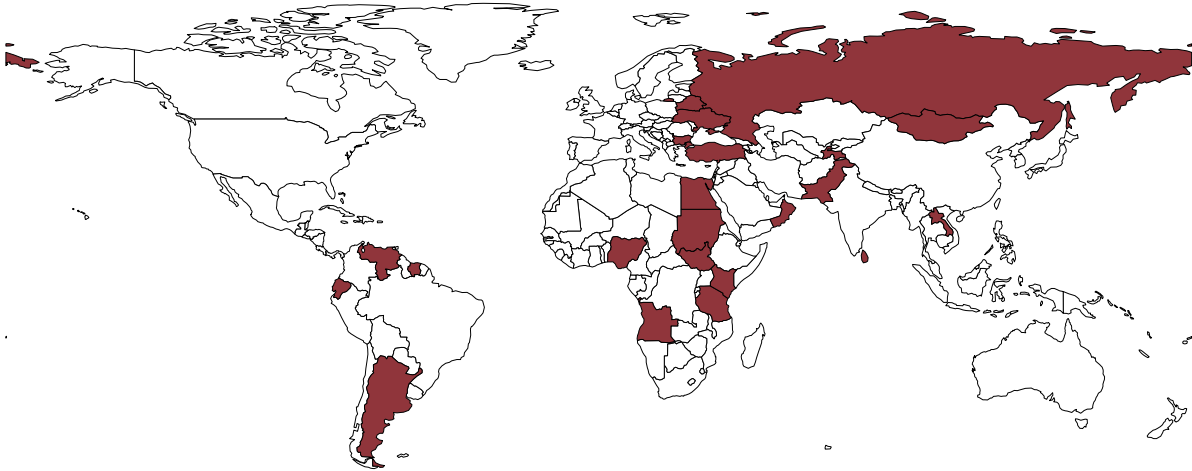
In terms of incidence, we identify 128 separate rescue lending operations. Most of these are rollovers, meaning loans renewed upon maturity and going to the same country. Indeed, Figure 3 shows that some debtors, like Argentina, Mongolia or Pakistan, have received continuous balance of payments support from Chinese banks and the PBOC.¹³ These types of repeated bailouts by China are reminiscent of the “serial lending” practices by the IMF in recent decades (Reinhart and Trebesch 2016) and more broadly, the serial restructurings and bridge credits by private creditors prevalent during the 1980s debt crisis (Cruces and Trebesch 2013). Repeated rollovers also imply that the de facto maturities of Chinese rescue loans are longer than their relatively short de jure maturities suggest. PBOC swap line drawings, for example, are initially

¹³ An early example of such serial rescue lending goes back to late 1990s when one of China’s neighbors—Pakistan—experienced an acute shortage of foreign exchange reserves. Bank of China issued three deposit loans to Pakistan’s central bank in 1997 and 1998, with maturities of less than two years and annual interest rates above 8%. Pakistan subsequently defaulted on its foreign debt repayment obligations (1998/99) and none of the Bank of China loans were repaid on their scheduled maturity dates. Instead, they were repeatedly rolled over for more than a decade and Pakistan’s central bank did not make its first principal repayment until 2008, with full repayment completed only in 2011. In sum, it took 14 years to repay a set of loans that were originally scheduled for repayment within 1-2 years (State Bank of Pakistan 2008, 2009, 2010).

scheduled for repayment in 12 months or less, but their de facto maturities on average amount to 3.5 years. In this regard, PBOC swap line lending is substantially different from the very short-term USD swaps extended by the US Fed.

As Figure 4 demonstrates, China’s rescue lending activities are spread across 22 countries. They include, among others, Argentina, Ecuador, Suriname and Venezuela in Latin America; Angola, Sudan, South Sudan, Tanzania and Kenya in Africa; Turkey, Oman and Egypt in the Middle East; and Pakistan, Sri Lanka, Mongolia and Laos in Asia. While China has focused its sovereign debt restructuring efforts (with little or no new money) in low-income countries, its international bailout activities are concentrated in middle-income countries (see Horn et al. 2023).

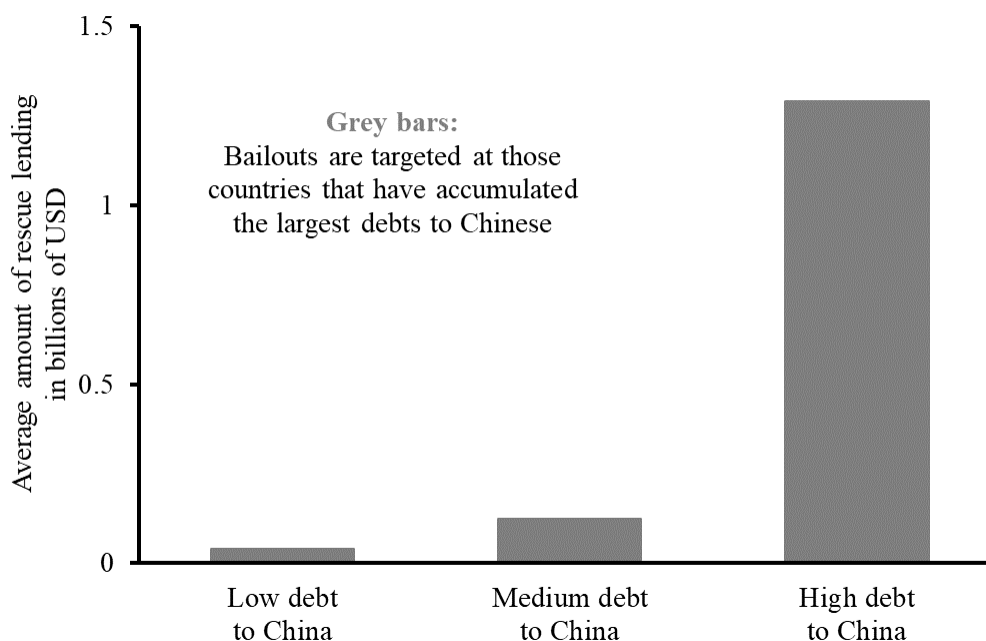
Figure 4. The geography of China’s bilateral bailouts



Note: Countries marked in red have received rescue lending from China, either by making drawdowns on their RMB swap lines and/or by receiving balance of payments support from Chinese state-owned banks and enterprises. Swap drawings by non-distressed countries are excluded. See Appendix I for details.

A common characteristic of the recipient countries of Chinese rescue lending is that they have borrowed extensively from Chinese banks during the lending boom of the 2010s (Horn et al. 2021, Custer et al. 2021). Indeed, Figure 5 shows that most recipients are heavily indebted to Chinese banks.

Figure 5. Rescue lending is targeted at countries with high debts to China



Note: This figure shows the average amount of rescue lending through PBOC swap line drawings and bank lending in billions of USD for different levels of indebtedness to China. To construct the three groups, countries are ranked by the total amount of Chinese lending received during years 2000 to 2017 (excl. balance of payments assistance). Data on total Chinese project lending is from Custer et al. (2021) and Dreher et al. (2022).

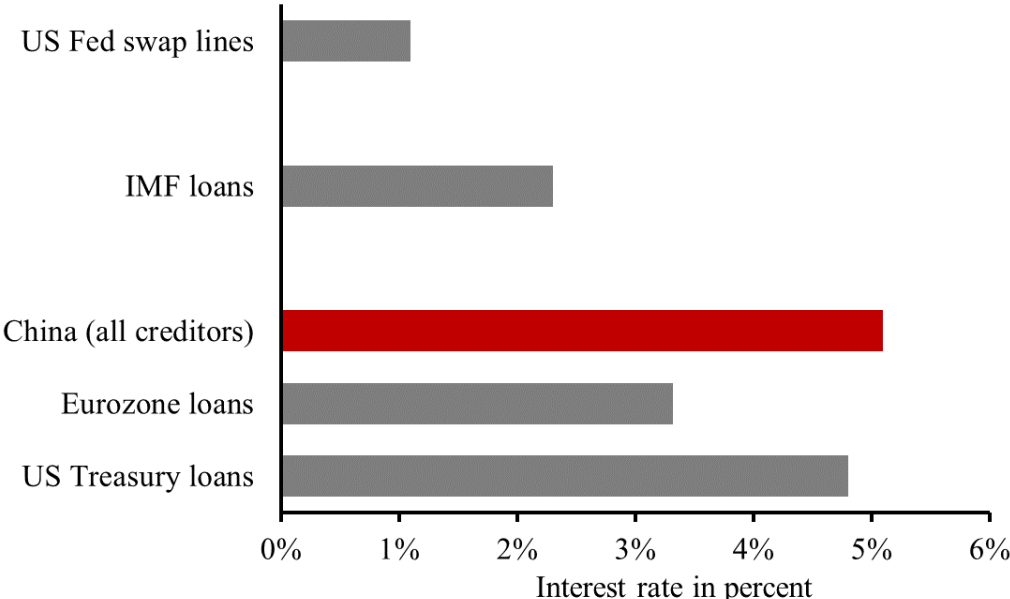
4. China's rescue lending in comparison to other international lenders of last resort

This section shows that China's bilateral rescue loans demonstrate important parallels to bilateral rescue loans previously extended by the US Treasury and to more recent Eurozone bailouts.

Besides IMF programs, a natural point of comparison is the large swap line program administered by the US Fed, which has helped to address USD funding needs abroad, in particular by foreign commercial banks in advanced economies (e.g., Obstfeld et al. 2009; Goldberg et al. 2010; Bordo et al. 2015). The US Fed's swap lines have been used most extensively in turbulent times, such as during the 2008 crash, the Eurozone crisis, and the Covid-19 pandemic, as a tool to address temporary distress in USD-denominated financial markets (Bahaj and Reis 2022c). In contrast, PBOC swaps are primarily used by EMDEs that suffer from protracted balance of payments problems.

Another key difference is pricing of the rescue loans and swaps. Figure 6 demonstrates that Chinese rescue lending is extended at relatively high interest rates. The Fed usually charges margins of around 25 basis points over the LIBOR reference rate. In contrast, the PBOC swap lines show interest rates at margins between 200 and 400 basis points above the Shibor reference rate, while the typical rescue loan by Chinese banks requires interest rates of 5 percent.¹⁴ These rates are also considerably higher than the average IMF interest rate, which has been around 2 percent for non-concessional lending operations over the past 10 years. Other multilateral institutions, including the World Bank, offer even lower rates for budgetary support. The borrowing terms of Chinese rescue loans, however, are broadly similar to those of past US Treasury bilateral rescue facilities and to those initially charged by Eurozone rescue facilities.¹⁵

Figure 6. Average borrowing terms across different lenders of last resort



Note: This figure compares the interest rates of Chinese (all creditors), US (FED), IMF rescue loans, Eurozone rescue loans and US Treasury loans. See Appendix I.4 for details and sources.

Similarities between Chinese rescue lending and past US Treasury bailouts go beyond the terms of lending. The US Treasury, in conjunction with the US Export-Import Bank, has acted as an

¹⁴ The PBOC itself does not disclose the lending terms of its bilateral swap lines and only few recipient countries have released information: Argentina pays a margin of 400 bps over the Shibor reference rate, whereas Turkey and Mongolia pay a margin of 200 bps. The bilateral swap line between Korea and China, which has been used by both parties, does not require a margin.

¹⁵ The Eurozone rescue loans to Greece, Ireland and Portugal were rescheduled several times in order to reduce borrowing rates and to lengthen the time to maturity (see for example Gourinchas et al. 2020).

international crisis manager since the 1930s and extended bilateral bailouts through a variety of instruments, including its Exchange Stabilization Fund (Bordo and Schwartz 2001, Bitterman 1973).¹⁶ Consistent with China's contemporary approach, US bilateral bailouts systematically targeted countries with high level of outstanding debt to US banks and exporters, most importantly during the Latin American debt crises of the 1980s and 1990s. More recently, bailout loans during the Eurozone Sovereign Debt Crises were strongly driven by the large exposures that private banks in Northern Europe had vis-à-vis Southern European banks and sovereigns (Tirole 2015, Gourinchas et al. 2020).

5. Conclusion

In this paper, we show that China's role as an international crisis manager has grown exponentially in recent years following its long boom in overseas lending. Its position is still far from rivaling that of the United States or the IMF, which are at the center of today's international financial and monetary system and the effectiveness of its rescue lending operations is not well understood. However, we see historical parallels to the era when the US started its rise as a global financial power, especially in the 1930s and after World War 2, when it used the US Ex-Im Bank, the US Exchange Stabilization Fund and the Fed to provide rescue funds to countries with large liabilities to US banks and exporters (Bitterman 1973, Bordo and Schwartz 2001, Horn et al. 2020). Over time, these ad hoc activities by the US developed into a tested system of global crisis management, a path that China may possibly pursue as well.

Our findings have major implications for the evolution of the international financial system, as cross-border rescue operations become less institutionalized, less transparent, and more piecemeal. China has demonstrated that a major creditor country (notwithstanding its current status as an emerging market) can create a large system of cross-border rescue lending to nearly two dozen recipient countries, while at the same time keeping its bailout operations largely out of public sight. Much more research is needed to measure the impacts of China's rescue loans, in particular the large swap lines administered by the PBOC so as to gauge the full extent of debt distress in EMDEs and recalibrate what we understand as the global financial architecture.

¹⁶ An interesting parallel between past US bailouts and Chinese contemporary practice is that the US Treasury repeatedly offered loans from its Exchange Stabilization Fund to shore up the foreign exchange reserves of borrower countries. In such cases, the borrower country had to keep the proceeds of the loan in an account with the Federal Reserve and it could use them to "beef up the amount of its reported-foreign exchange reserves, but for nothing else" (Munk 2010, p. 226).

This paper offers a first attempt to understand how rising creditor powers outside the traditional Paris Club creditors (China, Saudi Arabia, the United Arab Emirates, or Russia) use central banks and other state-controlled institutions to channel rescue loans in opaque ways. These developments may indeed foreshadow a deeper shift towards a more multipolar and fragmented international financial architecture.

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Appendix I. Data collection, validation and scope

This appendix provides a detailed explanation of how our new dataset of Chinese bilateral rescue lending has been constructed. Our final dataset captures 128 lending transactions to 22 EMDEs between 2000 and 2021.

Appendix I.1 Drawings under the PBOC swap network

Identifying standing swap lines: As a first step, we identify all of the PBOC's outstanding bilateral swap lines based on the PBOC's 2021 RMB Internationalization Report, which lists all bilateral swap agreements and their renewals. For each swap line, we collect the signature date, the expiration date, swap terms (wherever available), and the maximum drawing rights in both RMB and the local currency. Table A1 provides summary statistics.

In addition to the bilateral swap lines, the PBOC participates in two multilateral swap networks: The Chiang Mai Initiative and the BRICS Contingent Reserve Arrangement. Since neither of these networks have been activated, we do not consider them in this paper.

Table A1. The PBOC's standing swap lines

Recipient Economy	First Agreement Date	Max. Drawing Rights in bn RMB	Max. Drawing Rights in bn LCU
Albania	12.09.2013	2	35.8
Argentina	02.04.2009	70	38
Armenia	25.03.2015	1	77
Australia	22.03.2012	200	30
Belarus	11.03.2009	20	8.000
Brazil	26.03.2013	190	60
Canada	08.11.2014	200	30
Chile	25.05.2015	50	5.600
ECB	08.10.2013	350	45
Egypt	06.12.2016	18	47
Hong Kong	20.01.2009	500	590
Hungary	09.09.2013	20	864
Iceland	09.06.2010	3.5	70
Indonesia	23.03.2009	100	175.000

Japan	26.10.2018	200	3.400
Kazakhstan	13.06.2011	7	350
Laos	20.05.2020	6	7.600
Malaysia	08.02.2009	180	110
Mongolia	20.03.2020	15	5.400
Morocco	11.05.2016	10	15
New Zealand	18.04.2011	25	5
Nigeria	25.04.2018	15	720
Pakistan	23.12.2011	30	720
Qatar	03.11.2014	35	20.8
Macao	05.12.2019	30	35
Serbia	17.06.2016	1.5	27
Russia	13.10.2014	150	1.75
Singapore	23.07.2010	300	64
South Africa	10.04.2015	30	54
South Korea	20.04.2009	360	64.000
Sri Lanka	16.09.2014	10	225
Suriname	18.03.2015	1	1.1
Switzerland	21.07.2014	150	21
Tajikistan	03.09.2015	3	3
Thailand	22.12.2011	70	370
Turkey	21.02.2012	35	46
Ukraine	26.06.2012	15	62
UAE	17.01.2012	35	20
United Kingdom	22.06.2013	350	40
Uzbekistan	19.04.2011	0.7	167

Note: This table shows all of the PBOC's standing bilateral swap lines. Column 2 gives the data at which the first agreement was signed. Columns 3 and 4 provide the maximum drawing rights in billions of RMB and the local currency. Some of the agreements have expired.

Identifying drawdowns: There is no centralized source of information or data on PBOC swap line drawings. The PBOC does not voluntarily disclose country-level data on drawdowns under its currency swap agreements with other central banks.

To compile data on the incidence and magnitude of PBOC swap line usage, we systematically reviewed the publicly available annual reports and financial statements of every central bank that has signed a currency swap agreement with the PBOC (as identified in Table A1) and retrieved data on drawdowns and amounts outstanding under these agreements.¹⁷ These English-language and local-language annual reports and financial statements were retrieved from central bank websites. Whenever possible, we reviewed these publications from the first year in which a central bank signed a bilateral currency swap agreement with the PBOC (as documented in Table A1) until the end of 2021. We also conducted a review of central bank press releases and media reports in international and local newspapers for additional information on swap line usage. We conducted these primary data collection activities in collaboration with the AidData research lab at William & Mary between January 2022 and December 2022. Our dataset, which can be accessed via <https://www.aiddata.org/data/china-as-an-international-lender-of-last-resort-dataset-version-1-0>, identifies all of the sources that we used at the country-year level.

Scope of data collection: Whenever possible, we collect data on drawdowns (flows) and the amounts outstanding at the end of the reporting periods (stocks), in both RMB and USD. We also compile data on interest rates, the length of the swaps and any information on the allowed uses of the funds, e.g., by tracking the conclusion of supplementary agreements.

Miscellaneous issues and assumptions: A key challenge is the lack of uniform disclosure standards for swap debt, which implies that each central bank publishes different pieces of information on its outstanding obligations and recent drawdowns. To create a dataset that is comparable across countries and over time, we make the following adjustments to our data collection:

- **Flows vs. stocks:** Most recipient countries publish their end-of-year outstanding swap debt, but only a few report detailed transaction-level data on drawings during the year. If no information on drawings is available, we assume that total drawings during the period equal the amount outstanding at the end of the reporting period (and vice versa).

¹⁷ Our dataset only covers swaps that are initiated by the recipient countries. While the PBOC has initiated drawdowns in some cases, these are generally rare and not included in the dataset. We further exclude Hong Kong and Macao from the data collection effort and the analysis of this paper. While both Hong Kong and Macao have used their RMB swap lines, their status as special administrative regions of China limits comparisons with other countries in our sample.

Since the (de jure) maturity of swap drawings is 12 months or less, this creates a lower bound estimate for actual drawdowns under the swap.

- **Treatment of rollovers:** As we discuss in Section 3 of the main text, Chinese swap debt is frequently rolled over. In central bank reports, where we only observe the year-end outstanding amount, no distinction between rollovers and drawdowns is possible. In these cases, we derive (new) drawdowns as the difference between the current and last year's outstanding swap debt stock. This measure essentially captures net lending through the swap line.
- **Fiscal years vs. calendar years:** Recipient country central banks operate on different fiscal years. To make amounts and drawdowns comparable across countries, we rely on the simplifying assumption that the fiscal year equals the calendar year.

None of these assumptions is consequential to the main results discussed in the paper.

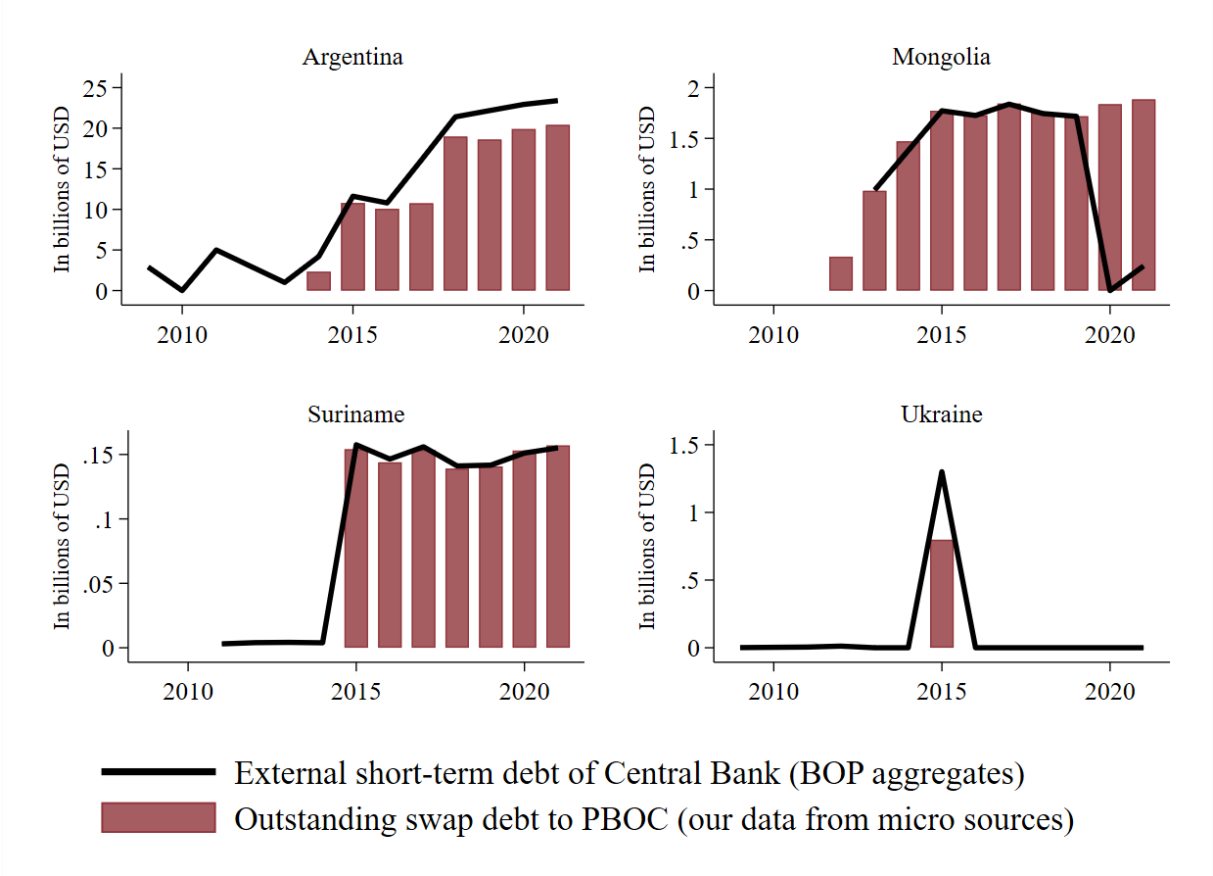
Data validation through QEDS and BOP data: We validate the data extracted from primary sources by systematically comparing it to macroeconomic data aggregates published by the recipient country authorities. In particular, we make use of the following two data sources, whenever available.

- **QEDS:** The World Bank's Quarterly Debt Statistics provide disaggregated debt statistics by recipient country sector and maturity. Most importantly, they provide data on short-term central bank liabilities from loans and from currencies and deposits to non-residents. Increases in these series allow to identify and validate potential drawdowns of PBOC swap lines.
- **BOP data:** Similarly, recipient country BOP data can be used to track whether supposed inflows from swap line drawings correspond to the net acquisition of foreign short-term liabilities by the central bank. This data is taken from the IMF's Balance of Payments Statistics and from Central Bank websites. Details on the reporting of swap lines in BOP statistics can be found in IMF (2017).

These exercises suggest that our estimates derived from transaction-level data from micro sources are consistent with the macroeconomic aggregate figures published by recipient countries. For recipient countries with large swap debt positions, our numbers closely track the BOP and QEDS aggregates (see examples in Figure A1 below). For recipient countries in which

swap debt is comparatively low, we check whether our identified swap debt positions are always below the central bank’s total liabilities to all creditors in the relevant categories.

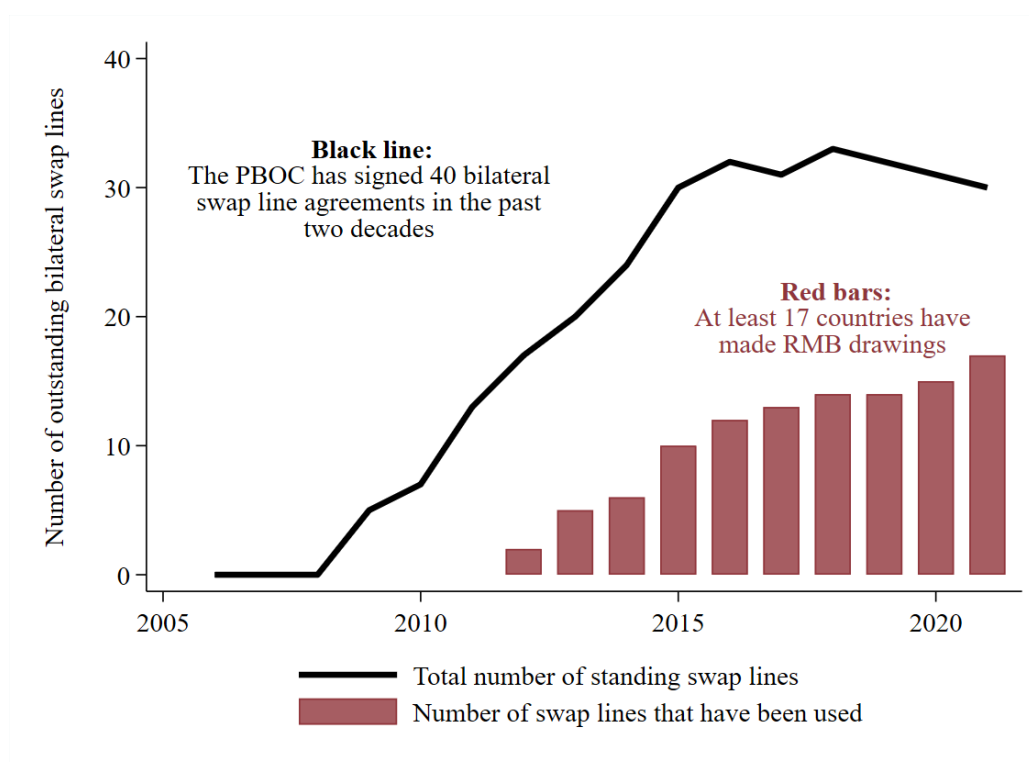
Figure A1. Comparing our data collection to macroeconomic aggregates



Note: This figure shows results from our data validation exercise for selected recipient countries of Chinese swap funding. Red bars show the outstanding swap liabilities according to our data collection from micro sources. Black lines show the total short-term debt of the central bank towards all external creditors as reported by recipient countries through their balance of payments statistics or the World Bank’s Quarterly External Debt Statistics (QEDS). The discrepancy with Mongolia’s short-term external debt series in 2020 and 2021 is caused by Mongolia re-classifying the swap as a long-term liability in 2020.

Figure A2 summarizes our final dataset by showing the rollout and usage of the PBOC swap network over time.

Figure A2. Gaining traction: Rollout and use of the PBOC’s swap line network



Note: This figure shows the total number of outstanding bilateral swap lines of the PBOC (black line) and the number of countries that have at any time drawn on their swap lines (red bars). Note that bilateral swap lines in Armenia, Brazil, Georgia, Morocco, Serbia, Switzerland, Tajikistan, the UAE and Uzbekistan have likely expired.

Appendix I.2 Purpose of RMB swap drawdowns

Swap lines between central banks have been used for different purposes, including but not limited to the provision of liquidity support during financial crises (see Bahaj and Reis 2022b for a comprehensive survey). With respect to the RMB swap network, most official statements by the PBOC and recipient country central banks emphasize that the swaps’ main purpose is to promote the use of the RMB for bilateral trade and investment settlements. In many cases, however, these statements also refer to “other purposes” for which the swap lines can be used based on mutual agreement.

To shed light on how the swap lines are used and to identify cases of rescue lending, we rely on both contextual information and on the analysis of macroeconomic distress indicators at the time of the drawdowns. Specifically, Table A2 shows that weak sovereign risk ratings and low net reserve levels (in months of imports) are strongly associated with higher RMB swap line

drawings, both across countries and within countries over time (also see Figure 1 in the main text).

Table A2. Drawings tend to occur when sovereign risk is high and reserve levels are low

	Dep. Variable: Swap Line Drawings in percent of total drawing rights				
	(1)	(2)	(3)	(4)	(5)
Sovereign Risk Rating	-2.96*** (0.61)	-3.71*** (1.12)			-2.63*** (1.17)
Net reserves			-2.25*** (0.64)	-2.48*** (0.81)	-2.40*** (0.82)
Observations	293	293	284	284	280
Country FE	No	Yes	No	Yes	Yes

Note: This table shows regressions of swap line drawings (in percent of total drawing rights) on the sovereign risk rating and on net reserves in a sample of all countries with outstanding swap lines. Net reserves are measured as total reserves including gold minus swap debt to the PBOC. Data on sovereign risk ratings is from Kose et al. (2022) and from Reinhart et al. (2016) and data on gross reserves is from the World Bank's WDI.

Table A3 complements the analysis of macroeconomic indicators and zooms in on individual country cases in the sample. For each of the 17 countries that have drawn on their RMB swap lines, we summarize what we know about the drawdowns and their usage. The information from the individual country cases broadly confirms the results of the regression analysis. Most drawdowns in our sample occurred in situations of financial distress, such as during sovereign default episodes, dwindling reserve levels, foreign sanctions, or IMF programs. This finding suggests that the provision of short-term liquidity assistance during episodes of financial distress is a primary function of the RMB swap line network.

At the same time, the case-by-case narratives also reveal a significant degree of heterogeneity in why countries draw on their RMB swap lines. In 4 of the 17 country cases, the drawdowns seem to have occurred without any indication of distress: in Thailand, Malaysia, Singapore and South Korea, information released by the authorities suggests that the primary purpose of drawdowns was to encourage the use of RMB for bilateral trade flows with China without addressing urgent liquidity needs. We therefore exclude these four cases and their combined

drawdowns of 15 billion USD from our total tally of rescue lending and from the analysis presented in sections 3 and 4.

Table A3. Contextual information on PBOC swap line activation

Argentina	<ul style="list-style-type: none"> • Swap line drawdowns and serial rollovers from 2014 to 2021 followed Argentina’s sovereign default in July 2014. They also took place at a time of low net reserve levels and ongoing IMF programs. • Argentina’s Central Bank (BCRA) and the PBOC signed a supplementary agreement in 2015 that allows for the exchange of RMB into USD for debt service purposes (BCRA 2015: 9); there is no information on whether drawdowns have ever been used in this way. • A 2017 agreement increased the swap line from RMB 70 billion to RMB 130 billion, and a 2018 amendment to the agreement specified that PBOC could reject BCRA drawings if Argentina’s IMF standby agreement was suspended or cancelled.¹⁸
Belarus	<ul style="list-style-type: none"> • Belarus’ first and only (known) drawdown occurred in 2015 when reserve levels hit a low at 4.2 bn USD (1.4 months of imports) and debt service obligations to Chinese banks were relatively high (see details in Appendix II below). • Belarus’ swap line access was supplemented in December 2019 with a 500 mn USD emergency loan from China Development Bank that helped it service external debt. • Reserve levels fell in 2020 and 2021, and Belarus defaulted on its USD-denominated bonds on July 14, 2022.
Egypt	<ul style="list-style-type: none"> • The Central Bank of Egypt (CBE) first activated the swap line in 2017 in the context of an IMF program and after witnessing an erosion of the country’s foreign reserve position. • In parallel, China Development Bank provided liquidity support facilities worth approximately 2 bn USD to the CBE. • To strengthen foreign reserves, the CBE also secured long-term deposits worth 15 bn USD from UAE, Kuwait, and Saudi Arabia. • Since 2017, the CBE has repeatedly rolled over its swap line drawdowns amid ongoing IMF lending and a weak net reserve position.
Korea	<ul style="list-style-type: none"> • No indication of financial distress • The swap line has been used by both the Bank of Korea and by the PBOC to on-lend foreign currency to local firms and banks for the purpose of trade and investment settlement • Drawdowns are not included in amounts presented in Section 3 and 4

¹⁸ The agreement can be accessed in its entirety via <https://www.dropbox.com/s/lm13x19qwxcd15c/Supplementary%20Agreement%20regarding%20the%20Bilateral%20Currency%20Swap%20Agreement%20Between%20PBOC%20and%20BCRA.pdf?dl=0>.

Laos	<ul style="list-style-type: none"> • Laos has an exceptionally high level of public debt exposure to China (at least 43% of GDP), and the Laotian authorities urgently sought debt relief from their Chinese creditors during the latter half of 2020 • The first (known) drawdown by the Bank of Laos occurred in June 2020 when its gross reserves stood at only 1.5 months of import cover and rating agencies warned of a high default probability. • The drawdown of around 300 mn USD increased Laos' gross reserve position by roughly 30%. • The Bank of Laos has not disclosed how it used the proceeds from its swap line drawing. However, according to Fitch Ratings, it "helped to boost foreign-exchange reserves." • Around the same time as the PBOC currency swap drawdown, the Laotian government was taking other measures to ensure that it was sufficiently liquid to service its outstanding debts. In September 2020, it sold a major public infrastructure asset—a large part of the country's electricity transmission grid—to a Chinese state-owned enterprise for a 600 mn USD fee.
Malaysia	<ul style="list-style-type: none"> • No indication of financial distress • The Central Bank of Malaysia on-lends swap line drawings through an RMB liquidity facility to onshore banks for trade, FDI, and liquidity management • Drawdowns are not included in amounts presented in Section 3 and 4
Mongolia	<ul style="list-style-type: none"> • Mongolia, which has a high level of public debt exposure to China (approximately 10% of GDP), started drawing on the swap line in 2012 and gradually increased swap line drawings amidst falling copper prices and dwindling reserve levels (see Figure A5). • Mongolia's central bank has described the swap as a key tool to deal with balance of payments pressures. According to the IMF, the "PBOC swap is [...] medium-term balance of payments support to help shore up gross reserves." • The PBOC's commitment to renew the swap line for an additional three years played an important role in enabling the IMF's Extended Fund Facility that aimed to stabilize Mongolia's external position and restore debt sustainability.
Nigeria	<ul style="list-style-type: none"> • In April 2018, the Central Bank of Nigeria started using its swap line to lessen dependence on the USD in trade settlement and to improve foreign reserve management. • Swap line drawings are auctioned off to domestic banks in order to reduce demand pressure for USD and to preserve foreign exchange reserves. • At the time of the first swap line drawing, Nigeria's sovereign credit rating was in junk territory (B-). It also faced a sharp increase in debt service to China: average annual principal and interest payments to Chinese creditors amounted to 61 mn USD from 2013-2017 and 186 mn USD from 2018-2021.

Pakistan	<ul style="list-style-type: none"> • Pakistan is one of the most important participants in China’s Belt and Road Initiative. It faced principal and interest payments to Chinese creditors worth 10.2 bn USD between 2013 and 2021. • In 2013, the State Bank of Pakistan made its first drawdown from the swap line. A Financial Times article described the episode: “In May [2013], with Pakistan’s rupee looking particularly weak, its balance of payments parlous and election jitters increasing, Yaseen Anwar, the head of State Bank of Pakistan, quietly took advantage of a little-known clause in the bank’s central currency swap agreement with the People’s Bank of China and borrowed almost \$600m. By drawing down on part of a \$1.5bn line of credit, the government was able to report that far from showing a big deficit, Pakistan’s balance of payments were positive at the end of the month. By the end of June [2013] the rupee was under less pressure and by early September [2013] the new government of Nawaz Sharif had signed an agreement with the International Monetary Fund that further stabilized the ailing currency” (Sender 2013). • Since 2013, the SBP has repeatedly rolled over and increased its swap debt to the PBOC (4.7 bn USD as of 2021), leading the IMF to express concern about Pakistan’s strong reliance on short-term swap debt and its inadequate net reserve position. • Between 2013 and 2021, Pakistan also received 23 bn USD in additional liquidity support (incl. rollovers) from China’s State Administration of Foreign Exchange (SAFE), China Development Bank, Bank of China, and ICBC.
Russia	<ul style="list-style-type: none"> • In 2015 and 2016, amid falling oil prices and Western sanctions, the Bank of Russia made a series of (small) drawdowns from its swap line • Media reports and press releases at the time suggest that the Bank of Russia provided the RMB drawings to Russian commercial banks, which used them to pay for imports from to save scarce USD reserves
Singapore	<ul style="list-style-type: none"> • No indication of distress • The Monetary Authority of Singapore has used its RMB drawings to provide Chinese Yuan liquidity to financial institutions in Singapore for the purpose of trade and investment settlement and for financial stability purposes • Drawdowns are not included in amounts presented in Section 3 and 4
Sri Lanka	<ul style="list-style-type: none"> • Between 2019 and 2021, Sri Lanka faced several large debt service payments on its Eurobonds worth approximately 3 bn USD. According to the IMF, the Sri Lanka authorities made these Eurobond repayments “by drawing down reserves.” The country's foreign currency reserves plummeted from 7.6 bn USD (5 months of import cover) in 2019 to 3.1 bn USD (1.5 months of import cover) by the end of 2021. • At the same time, Sri Lanka faced principal and interest payments to Chinese creditors worth 2 bn USD between 2019 and 2021.

	<ul style="list-style-type: none"> • To address these challenges, the Government of Sri Lanka contracted five balance of payments loans from China Development Bank and the PBOC worth approximately 3.8 bn USD between 2018 and 2021. • In December 2021, the Central Bank of Sri Lanka (CBSL) made full use of its swap line drawing rights. The CBSL later acknowledged that its swap agreement with the PBOC was subject to “conditionalities on usability” (CBSL 2022: 3). However, it did not disclose how the proceeds from its 1.5 bn USD swap line drawing can and cannot be used. Some reporting indicates that an agreement between the CBSL and the PBOC only allows for the flexible use of swap line proceeds if the country’s gross reserves equal or exceed the average value of 3-months’ worth of merchandise imports (approximately 4 billion USD). • Despite securing rescue loans, Sri Lanka defaulted on most of its external sovereign debt obligations in April 2022.
Suriname	<ul style="list-style-type: none"> • The country's gross reserves fell sharply from 1 bn USD (4.4 months of import cover in 2012) to 355 mn USD (1.9 months of import cover) in 2015. The IMF sounded the alarm, characterizing Suriname’s gross reserves as “perilously low.” • In response to the rapid depletion of foreign reserves, the authorities devalued the Surinamese dollar (SRD) by 21 percent on November 19, 2015. • The Central Bank of Suriname first activated the swap line in 2015 and used the full drawing rights to increase its gross reserve position by approximately 150 mn USD (1 bn RMB). • The swap remained fully activated until the end of 2021 amid an episode of extreme distress that culminated in a November 2020 default on external creditors.
Tajikistan	<ul style="list-style-type: none"> • The National Bank of Tajikistan made a small drawing of 1 mn RMB in 2016. The drawing occurred after large external shocks had weakened the external position of the country. According to the IMF’s Article IV consultation in that year, remittances had decreased by 45 percent in nominal USD terms, the current account deficit had widened to six percent, and gross reserves provided only around 2 months of import cover.
Thailand	<ul style="list-style-type: none"> • No indication of distress • Thailand made drawdowns in preparation of providing RMB liquidity to local banks if demand for trade settlement could arise • Drawdowns are not included in amounts presented in Section 3 and 4
Turkey	<ul style="list-style-type: none"> • In June 2021, Turkey activated its swap line and drew the maximum drawing amount of around 5.5 bn USD. The drawdown followed similar financial assistance from the UAE, Qatar and South Korea. • According to the World Bank Economic Monitor, the swap deals were used to boost gross reserves, which had been depleted by repeated foreign exchange market intervention to stabilize the Lira.

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- Ukraine**
- The first and only (known) drawing of the National Bank of Ukraine under its swap line occurred in 2015 (at the same time as a drawing under a swap line from Sweden), when the country faced large external shocks and after reserve coverage had hit a new low (just 1.2 months of import cover) in 2014.
 - The IMF’s second review of its Extended Fund Facility notes that Ukraine drew on its RMB swap line to mitigate a shortfall in (gross) reserves. Valeria Gontareva, who served as Governor of the National Bank of Ukraine at the time of the swap line drawing, has confirmed that this was the case.

Sources: Recipient country central bank reports and press releases, media reports, IMF and World Bank country reports, McDowell (2019), Nozahie (2017), Sender (2013), Moramudali and Panduwawala (2022).

Appendix I.3 Compiling balance of payments loans by Chinese state-owned banks and enterprises

Neither China’s state-owned banks nor its state-owned enterprises publish detailed information about their balance of payments lending activities on a country-by-country basis. To overcome this obstacle, we collaborated with AidData to build a comprehensive dataset of balance of payment loans from Chinese state-owned creditors to government institutions in low-income and middle-income countries between 2000 and 2021. Using the latest version of AidData’s Tracking Underreported Financial Flows (TUFF) methodology, we implemented the following systematic search procedures.¹⁹ First, based on a manual review of all records in AidData’s Global Chinese Development Finance (GCDF) Dataset with an OECD sector code of 510 (General Budget Support), we identified loan agreements between official sector institutions in China and central government institutions in low-income and middle-income countries that are not earmarked for individual projects and that can be used to (a) repay existing debts, (b) shore up foreign exchange reserves, and/or (c) finance general budgetary expenditures. These lending instruments—including liquidity support facilities (LSFs), foreign currency term financing

¹⁹ AidData’s TUFF methodology seeks to generate detailed and comprehensive data about the provision of grants and loans from the full set of official sector institutions in China to low-income countries and middle-income countries (Custer et al. 2021; Malik et al. 2021; Dreher et al. 2022). It does so by synthesizing and standardizing information from a wide variety of official sources, including (1) grant and loan agreements published in government registers and gazettes; (2) records extracted from the aid and debt information management systems of finance and planning ministries in host countries; (3) the annual reports, financial statements, stock exchange filings, and bond prospectuses of companies and banks; (4) IMF Article IV reports and IMF/World Bank debt sustainability assessments (DSAs); (5) data and documentation from Chinese ministries, embassies, and economic and commercial counselor offices; and (6) reports published by parliamentary oversight institutions in host countries. Unofficial sources (field research, NGO reports, media reports) are then used to fill information gaps.

facility agreements (FCTFFs), deposit loans, and so-called ‘sovereign loans’ (主权贷)—are issued by China’s state-owned policy banks (China Development Bank and China Eximbank), state-owned commercial banks (e.g., Bank of China, Industrial and Commercial Bank of China), and State Administration of Foreign Exchange (SAFE).²⁰

In a second step, we conducted a record-by-record review of all commodity prepayment facility agreements in AidData’s GCDF Dataset and again identified those agreements that allow central government institutions in the borrower countries to use the facility proceeds to (a) repay existing debts, (b) shore up foreign exchange reserves, and/or (c) finance general budgetary expenditures. The implementation of these search procedures resulted in the identification of 73 balance of payment loans (worth \$68 billion) across 13 countries over a 22-year period (2000-2021).

Table A4. Mean recipient country sovereign risk for Chinese rescue and project loans

	Sovereign Risk Rating	Gross reserves in months of imports
Chinese rescue loans	B	3.2
Chinese project loans	BB+	8.4

Note: This table compares the commitment-weighted average recipient country risk rating and gross reserves in months of imports for Chinese rescue lending (as identified above) and for project lending from Custer et al. (2021) and Dreher et al. (2022). The reported differences are statistically significant at the 1 percent significance level.

Our identification of balance of payments lending relies on the stated or “de jure” purpose of the loans, which might be problematic if lending is fungibly used by recipient countries. For example, a Chinese project loan could in principle be used to free up resources for debt servicing and a general purpose loan could be used to finance infrastructure or energy projects. As an additional validation exercise, we therefore test whether the identified balance of payments loans also differ in their “de facto” properties. For this purpose, Table A4 repeats the exercise presented for swap drawdowns (in Table A2) and compares the mean sovereign risk ratings and reserve levels of rescue lending recipients and project lending recipients. We confirm that

²⁰ Our review focused on a forthcoming version (Version 3.0) of the AidData GCDF Dataset.

balance of payments loans not only differ from project loans in their stated purpose, but also in their cyclical properties.

Appendix I.4 Comparing Chinese rescue lending to IMF, US and Eurozone rescue lending

In section 4, we compare the loan terms of Chinese rescue lending to those of IMF programs, US rescue lending (Fed and Treasury) and Eurozone rescue lending. Data on IMF lending programs and their terms is from the IMF website and from Horn et al.(2020). Data on Federal Reserve swap drawings is taken from the FED website. Data on US bilateral rescue lending through the US Treasury Exchange Stabilization Fund and the US Export-Import Bank is from Horn et al. (2020) and from Bitterman (1973). Data on Eurozone rescue lending through the ESM, EFSF and EFSM is from official websites and from Corsetti et al. (2017).

Comparing our tally of Chinese rescue lending to the lending volumes by other international lenders of last resort is challenging for several reasons:

- Chinese lending has much shorter (de jure) maturities and therefore needs to be rolled over frequently which leads to higher lending totals in comparison to creditors that lend at longer maturities.
- Chinese rescue lending takes different forms. For swap lending, we are able to collect data on drawings. For other forms of rescue lending (e.g. the prepayment facilities on commodities), we only know the commitment amounts and have no systematic data on disbursements or drawdowns.

Estimates of relative magnitudes vary depending on whether the comparison includes rollovers, on whether one compares amounts committed or amounts disbursed (drawn). For example, our estimates of Chinese lending as a share of IMF rescue lending vary between 10 percent and around 40 percent across different specifications. Regardless of the specific comparison, however, there is no doubt that Chinese lending is still far from rivaling the amount of lending extended by the IMF and the Fed.

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Appendix II. Case studies

Argentina: After the Government of Argentina defaulted on its foreign bonds in July 2014, it faced increased financing problems. The country's central bank (BCRA) turned to Beijing for support, activating a bilateral currency swap arrangement with the PBOC in the fourth quarter of 2014. The agreement had originally been signed in April 2009 but had remained dormant for more than five years.²¹ The BCRA borrowed \$10.8 billion from the PBOC through a series of swap line drawings that took place between October 2014 and September 2015. Then, in December 2015, the BCRA and the PBOC signed a supplementary agreement, authorizing (a) the conversion of the RMB that BCRA received from PBOC in exchange for Argentine pesos (ARS) into any currency (including U.S. dollars) and (b) the use of such funds to service foreign debt obligations. A likely explanation for this supplementary agreement was extensive Chinese bank exposure and large debt repayments coming due. In 2012, CDB and ICBC issued a \$2.09 billion loan to Argentina's Ministry of Economy and Public Finance for the Belgrano Cargas Railway Line Rehabilitation Project. Then, in 2014, a syndicate of Chinese banks—including Bank of China, China Development Bank, and the Industrial and Commercial Bank of China (ICBC)—issued a \$4.7 billion loan to finance the Nestor Kirchner and Jorge Cepernic Hydroelectric Power Plant construction project. Although BCRA's 2014 and 2015 borrowings through the PBOC currency swap agreement initially carried 1-year maturities, these debts were rolled over in 2016 and 2017. Then, in 2018, the parties agreed to increase maximum drawing rights under the swap line to RMB 130 billion (approximately \$19 billion). The BCRA made an additional drawing worth RMB 60 billion (\$8.7 billion) in December 2018, bringing its total outstanding PBOC swap debt to \$18.9 billion. By December 2021, total PBOC swap debt had increased to \$20.4 billion, representing 51% of the BCRA's foreign currency reserves (see Figure A3).

Belarus: Between 2005 and 2019, the Government of Belarus went on a Chinese borrowing spree, contracting loans worth \$10.2 billion.²² Servicing these debts was manageable for about a decade: average annual debt service to Chinese creditors was only \$95 million between 2005 and 2014. However, when the Government of Belarus faced substantially higher repayments to its Chinese creditors (\$283.6 million in 2015, \$360.1 million in 2016, and \$504.8 million in 2017), the country's central bank made an RMB 1 billion (\$154 million) drawing under its

²¹ More specifically, in April 2009, the BCRA and the PBOC signed an RMB 70 billion (\$11 billion) bilateral currency swap agreement. The agreement was extended for an additional three years in July 2014.

²² According to the December 2022 edition of the World Bank's International Debt Statistics (IDS).

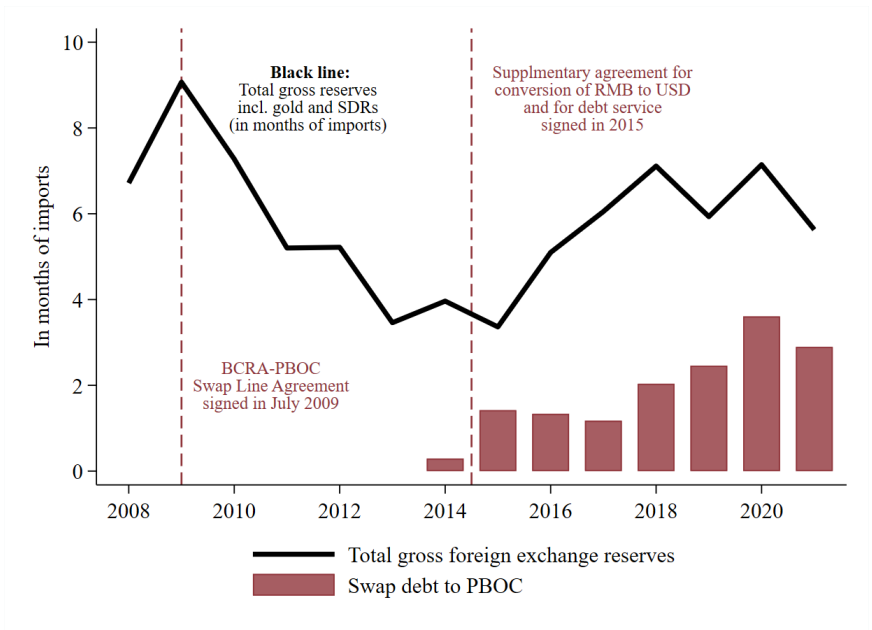
PBOC swap line. The September 2015 bailout from the PBOC was followed by an even larger emergency loan from China Development Bank. By 2019, the grace periods on most of the loans issued by Chinese creditors had expired, which meant that the authorities in Minsk faced their largest-ever annual repayments of loan principal and interest to Beijing, amounting to \$953 million in 2019 and \$969 million in 2020. At the same time, the country's international reserves had fallen “well below adequacy metrics” (IMF 2018), covering a mere 2 months of imports by the end of 2019. Under these circumstances, China Development Bank stepped into the breach and issued an RMB 3.5 billion (\$500 million) emergency loan to Ministry of Finance of Belarus on December 16, 2019. The lender explicitly authorized the borrower to use the proceeds of the loan to repay existing debts and shore up the country's foreign exchange reserves. The loan was fully disbursed four days after its was issued.

Sri Lanka: Between 2000 and 2017, the Government of Sri Lanka contracted dozens of loans with Chinese creditors for large infrastructure projects worth approximately \$9 billion according to the World Bank IDS. As a result, average annual repayments of principal and interest to China doubled from about \$300 million during 2012-2016, to more than \$600 million during 2017-2021. The Government of Sri Lanka also faced several large repayments of dollar-denominated Eurobonds during the same period, including a \$1.5 billion repayment in 2019, a \$1 billion repayment in 2020, a \$1 billion repayment in 2021, plus another \$500 million Eurobond repayment due in January 2022. This contributed to a rapid depletion of the country's foreign currency reserves from \$7.9 billion (3.4 months of import cover) in 2017 to \$3.1 billion (1.5 months of import cover) by the end of 2021. To address the problem, the Government of Sri Lanka contracted five balance of payments loans from China Development Bank (CDB) and the People's Bank of China (PBOC) worth approximately \$3.8 billion between 2018 and 2021: a \$1 billion foreign currency term financing facility (FCTFF) with CDB in October 2018, a \$500 million FCTFF with CDB in March 2020, a \$500 million FCTFF with CDB in April 2021, a \$300 million FCTFF with CDB in August 2021. In addition, the central bank drew \$1.5 billion (RMB 10 billion) in currency swaps from the PBOC in December 2021. Despite these rescue loans, gross international reserves continued to fall (to below \$400 million as of June 2022) and Sri Lanka defaulted on most of its foreign debt obligations on April 12, 2022. The country's central bank (CBSL) subsequently acknowledged that its swap agreement with the PBOC was subject to “conditionalities on usability” (CBSL 2022: 3). The PBOC reportedly made flexible use of the proceeds from its swap line drawings conditional upon gross reserves

exceeding the monetary equivalent to 3 months of merchandise imports—approximately 4 billion USD (Moramudali and Panduwawala 2022).

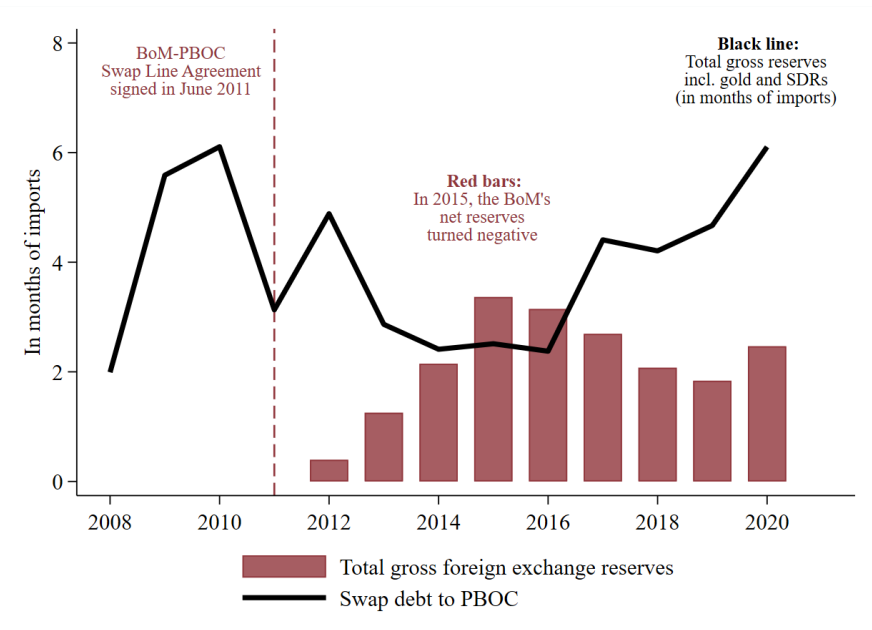
Appendix III. Additional results

Figure A3. Swap debt to the PBOC accounts for half of Argentina’s gross reserves



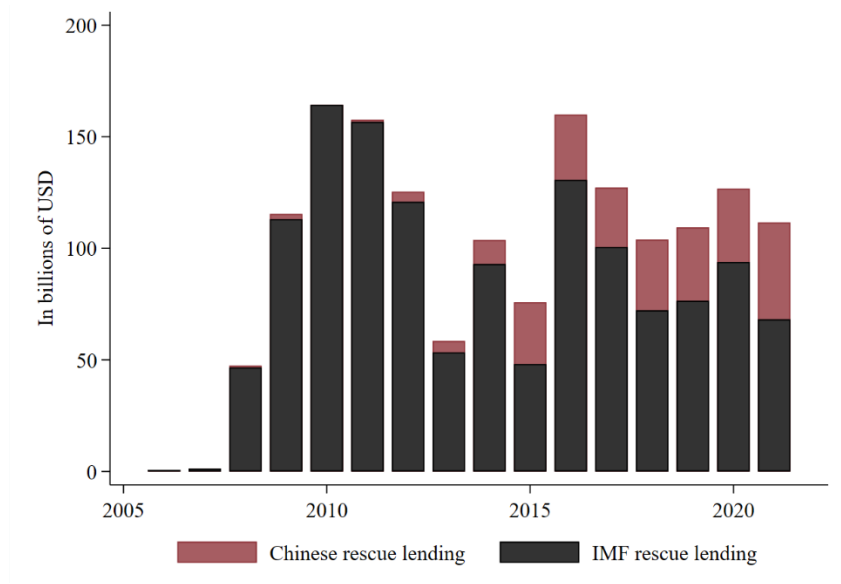
Note: This figure shows Argentina’s total gross reserves incl. gold and SDR holdings (black line) and its outstanding swap debt to the PBOC (red bars). Both series are scaled by months of imports (from the World Bank WDI).

Figure A4. Swap debt to the PBOC has at times exceeded Mongolia’s total gross reserves



Note: This figure shows Mongolia’s total gross reserves incl. gold and SDR holdings (black line) and its outstanding swap debt to the PBOC (red bars). Both series are scaled by month of import (from the World Bank WDI).

Figure A5. Total Chinese and IMF rescue lending volumes over time



Note: This figure shows the yearly volumes of Chinese rescue lending as red bars (incl. rollovers by the PBOC, plus by state-owned banks and enterprises) and total IMF rescue loan commitments as black bars (including IMF GRA and PRGT programs). See Appendix I.4 for details and caveats related to this comparison.