

Brautigam, Deborah; Huang, Yufan; Acker, Kevin

Research Report

Risky Business: New Data on Chinese Loans and Africa's Debt Problem

Briefing Paper, No. 03/2020

Provided in Cooperation with:

China Africa Research Initiative (CARI), School of Advanced International Studies (SAIS), Johns Hopkins University

Suggested Citation: Brautigam, Deborah; Huang, Yufan; Acker, Kevin (2020) : Risky Business: New Data on Chinese Loans and Africa's Debt Problem, Briefing Paper, No. 03/2020, China Africa Research Initiative (CARI), School of Advanced International Studies (SAIS), Johns Hopkins University, Washington, DC, <http://www.sais-cari.org/publications-briefing-papers-bulletins>

This Version is available at:

<https://hdl.handle.net/10419/248244>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

New data show that **China makes up 22% of public debt stock (2018) and 29% of debt service (2020) in low income Africa.** Yet China's role should not be overestimated. In over half of the 22 countries facing debt distress, China is a small lender. Their debt problems are not made in China

In seven of these 22 countries, China accounts for a quarter or more of all public and publicly

guaranteed debt: Angola, Djibouti, Cameroon, Republic of Congo, Ethiopia, Kenya, and Zambia. Four of these countries negotiated debt restructuring with Chinese lenders in 2018 and 2019.

Chinese banks' "project-by-project" analysis may have disregarded the overall debt risk in borrower countries. Only a quarter of Chinese lending is secured by natural resource exports.

Borrower government should plan their projects better before they borrow. A large portion of Chinese loan commitments are slow to disburse, partly due to borrowers' inability to meet their share of project responsibilities. Delays hurt the bank, the contractor, and the borrower government.

Risky Business: New Data on Chinese Loans and Africa's Debt Problem

Deborah Brautigam, Yufan Huang, and Kevin Acker

FROM MODEST BEGINNINGS IN 1960, CHINA HAS RECENTLY become a highly visible actor in Africa's lending landscape. African borrowers have built roads, installed electrical grids, and modernized their airports with Chinese finance. Yet when commodity prices and growth rates began to tumble in 2015, the specter of a new debt crisis arose. These fears expanded sharply with the impact of the COVID-19 pandemic.

Are the African countries most vulnerable to debt distress those with high Chinese debt? Who are the Chinese lenders in Africa and how do they manage lending in risky environments? Is China a bigger lender than the World Bank? What kind of terms do we see on Chinese loans in Africa? Why have Chinese banks lent so much in risky environments? How often are loans collateralized with natural resource exports? Do Chinese banks require property as collateral for loans to African governments or their state-owned enterprises (SOEs)?

In this paper we attempt to answer these questions, using data on Chinese loan commitments from the SAIS China Africa Research Initiative and the World Bank, and data on African borrowing and debt levels from the World Bank and International Monetary Fund's International Debt Statistics. Our analysis finds that Chinese loans play a more modest role in Africa's struggle with debt sustainability than conventional wisdom would suggest. The picture varies sharply across the continent's 54 countries, however. New data released by the World Bank in June 2020 suggest that Chinese lending is over 25 percent of the debt stock in seven countries in Africa deemed to be at risk of, or already in, debt distress: Djibouti (57 percent), Angola (49 percent), Republic of Congo (45 percent), Cameroon (32 percent), Ethiopia (32 percent), Kenya (27 percent), and Zambia (26 percent). However, in another 12 countries, more than half of those at highest risk of debt distress, Chinese lending is relatively modest, making up less than fifteen percent of all debt. This data is helpful, but many questions remain as to the details of debt and its evolution.

RISING AFRICA AND RISKY AFRICA: ENTER CHINA

IN THE 1980s AND 1990s, MANY AFRICAN COUNTRIES went through a long struggle with economic crisis, reluctant reform, and mounting debt. Penalty charges imposed by Paris Club creditors and other bilateral lenders on debtors' arrears added billions to

debt woes.¹ After the millennium, thirty-one low income African countries received substantial debt cancellation through the highly indebted poor countries (HIPC) initiative spearheaded by the Paris Club, the World Bank and the International Monetary Fund (IMF).² Yet as their debts were eased, many countries began to borrow again to fill an annual gap in infrastructure finance estimated to be between US\$ 68 and US\$ 108 billion.³ As their traditional sources of credit, the Paris Club, had shifted their areas of concern away from infrastructure, countries turned to non-traditional financiers, including China.

As Figure 1 points out, Chinese lending took off in a period of rapid growth in Africa. In 2014, a year after the peak in non-Angolan Chinese lending commitments, the IMF predicted that sub-Saharan Africa would continue to grow at a rate of 5.5 percent.⁴ Yet already in a May 2014 interview, IMF Managing Director Christine Lagarde presciently warned that the “Africa rising” story could be at risk. “Governments should be attentive and they should be cautious about not overloading the countries with too much debt.”⁵ Oil prices fell dramatically from US\$100/bbl in 2014 to only US\$ 44/bbl in 2016. Copper prices showed a similar decline (see Figure 1).

In 2016, the African region’s growth rate slumped to 1.4 percent, the lowest rate since 1995.⁶ Although some countries

continued to post strong economic growth, such as Senegal, Ethiopia, and Kenya, others struggled with political instability including civil war, or saw their economies contract with a fall in commodity prices. Still, as of 2019, before the COVID-19 crisis hit, analysts at Brookings argued that fears were overblown. Although some countries were facing difficulties, “an African sovereign debt crisis is not imminent.”⁷ Even with the economic recession caused by COVID-19, the picture remains nuanced. Countries dependent on tourism, or commodities with depressed demand, are more at risk than those without these income sources. Many countries are facing a liquidity crisis but not all are facing insolvency.

By 2017, the Paris Club accounted for only five percent of public and publicly guaranteed debt in sub-Saharan Africa (Table 1). Private lenders from wealthy countries filled a large part of this gap, responding to opportunities in a continent with high risks and high rewards. Over the past decade, more than fifteen African countries issued foreign currency sovereign bonds, many for the very first time.⁸ Eight African countries issued 30-year bonds in 2018.⁹ As Table 1 points out, in 2018, African governments owed US\$ 117 billion to the bond market, 32 percent of public and publicly guaranteed debt.¹⁰

Much of the rest of the gap was filled by Chinese lenders.

According to the World Bank’s International Debt Statistics, in 2017, official bilateral credits from China accounted for 62 percent of bilateral official credits, or about 23 percent of all public and publicly guaranteed debt in sub-Saharan Africa. In 2018, for the 40 low income African countries, Chinese debt came to 60 percent of bilateral lending, and 17 percent of public and publicly guaranteed (PPG) debt in this subset of countries.¹¹ Chinese commercial banks are also part of the picture, and would be accounted for in this data as non-official private creditors, even if they are owned by the state.

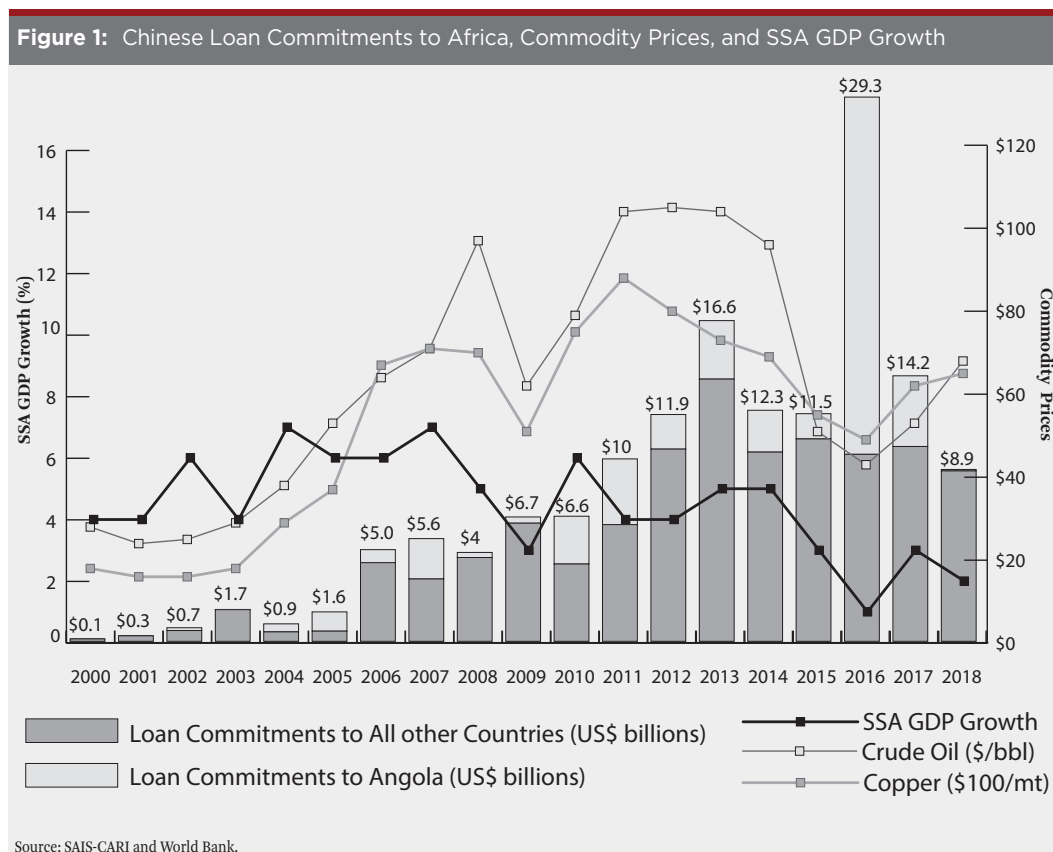


Table 1: PPG Debt, sub-Saharan Africa 2018

	Bilateral public debt (US\$ billion)	% of Total PPG Debt
Debt Outstanding and Disbursed: Total US\$ 493 billion		
Public and publicly guaranteed (PPG): Total US\$ 365 billion		
Official Creditors: Total US\$ 210 billion		
Multilateral: Total US\$ 110 billion		
World Bank	66	18%
Other Multilateral	44	12%
Bilateral: Total US\$ 99 billion		
Paris Club*	17	5%
China**	80	22%
Private Creditors: Total US\$ 155 billion		
Bonds	117	32%
Commercial Banks	38	10%
Other Private	11	3%
Private - Nonguaranteed: Total US\$ 128 billion		
Bonds	17	
Commercial banks & other	111	

Source: International Monetary Fund, 2020 International Debt Statistics and 2019 International Debt Statistics

*Paris Club estimate based on comments in 2019 International Debt Statistics, p. 11., "At the end of 2017 Paris Club creditors accounted for just 5 percent of the long-term public and publicly guaranteed external debt stock of countries in Sub-Saharan Africa...China...accounted for over 60 percent of the region's long-term debt owed to bilateral creditors in 2017 [about 17%]."

**According to the DSSI, China's share of PPG debt for 40 low-income African borrowers was 22% in 2018. We use that percentage as our estimate for 2018.

OUR DATA

OVERVIEW OF OUR DATA

CHINESE FINANCIERS ARE NOT VERY transparent, and do not systematically provide data on the loans they offer to individual overseas borrowers. International media sources do sometimes report on loans from China to Africa, but these reports are often inaccurate. Many reported loans are based on the wish lists of African governments or vague memorandums of understanding (MoUs) signed between African and Chinese officials, and never end up being officially signed and disbursed.

To sift through the noise and collect accurate data on signed Chinese loan commitments to African governments or their SOEs, CARI deploys a highly trained, multilingual team of research assistants (RAs). CARI RAs are trained to follow a rigorous set of steps to triangulate and confirm the existence of officially signed loans using African, Chinese, and international sources. Most loans are not considered confirmed until our researchers find them included in African ministry of finance or central bank documents or reported by Chinese embassies in Africa. Furthermore, loans we have identified as signed are periodically re-checked, and loans for projects that do not enter disbursement are removed. Deskwork is supplemented with field research conducted by CARI fellows, and interviews with our contacts in Africa.

Our data on loan commitments should not be viewed as "debt". Each loan takes an average of five years to disburse, and for large projects the disbursement time is longer. Some loans have already been repaid. It is not uncommon for outstanding debt to only reach 49 percent of total loan commitments between 2000 and 2018. Nigeria provides a good illustration. Between 2000 and 2018, Nigeria signed 16 loan contracts totaling US\$ 6 billion with Chinese financiers.¹² However, their outstanding debt to China as of 2018 was only US\$ 2.5 billion.¹³ This is because Nigeria has repaid US\$ 660 million, and another US\$ 2.8 billion remains undisbursed.¹⁴ Most of the undisbursed debt is accounted for by the US\$ 2.6 billion worth of loans signed in 2017 and 2018. As each

loan takes around five years to be fully disbursed, Nigeria has yet to receive most of the funds from these loans.

Figure 1 shows our loan commitment data, with Angola separated from the rest. With US\$ 43 billion, Angola makes up 29 percent of all Chinese loan commitments in Africa. Both the volume and the modalities of Chinese lending there are quite different from most of China's other development partners on the continent.

THE SHIFTING LANDSCAPE OF CHINESE LENDERS

ALTHOUGH THE CHINESE GOVERNMENT made its first official loan to an African country (Guinea) in 1960, Chinese banks are relatively new to the continent. Between 1994 and the present, Chinese lenders proliferated in Africa. Table 2 provides an overview of China's main lenders, the date they provided their first loans in Africa, the number of loans they have committed to finance between 2000 and 2018, and the gross value of these loan commitments to African governments and their SOEs.

China Eximbank today counts clients in 45 African countries, and Africa accounts for a third of the bank's overseas business.¹⁵ The average annual growth rate of China Eximbank's Africa lending surpassed 40 percent between 2006 and 2018 (see Figure 3: Loans by Lender).¹⁶ China Development Bank has provided

finance to over a dozen African governments. Loans from Chinese commercial banks are growing. The largest syndicated loan in our database is US\$ 4.1 billion in support of the massive 2,170 mw Caculo Cabaca hydropower project in Angola. Here, Industrial and Commercial Bank of China (ICBC) brought together a number of China-based banks, including Bank of China's Beijing branch, China Construction Bank's Beijing Branch, China Minsheng Bank, Ping An Bank, and Bank of China's Shanghai Pilot Trade Zone Branch.

TERMS OF CHINESE LOANS

RECENTLY A PAPER PUBLISHED BY THE Center for Global Development analyzed the terms of lending by China and compared these terms with those from the World Bank.¹⁷ This research showed that the World Bank's loans to poor countries come with 1.54 percent fixed interest rates, 10-year grace periods, and 40-year maturities. The Bank also offers market-based loans to countries that no longer qualify for the most concessional lending. These use the six-month LIBOR rate, plus 205 basis points (bp), and have maturities of 18 to 20 years.

Our data suggests that Chinese terms and interest rates

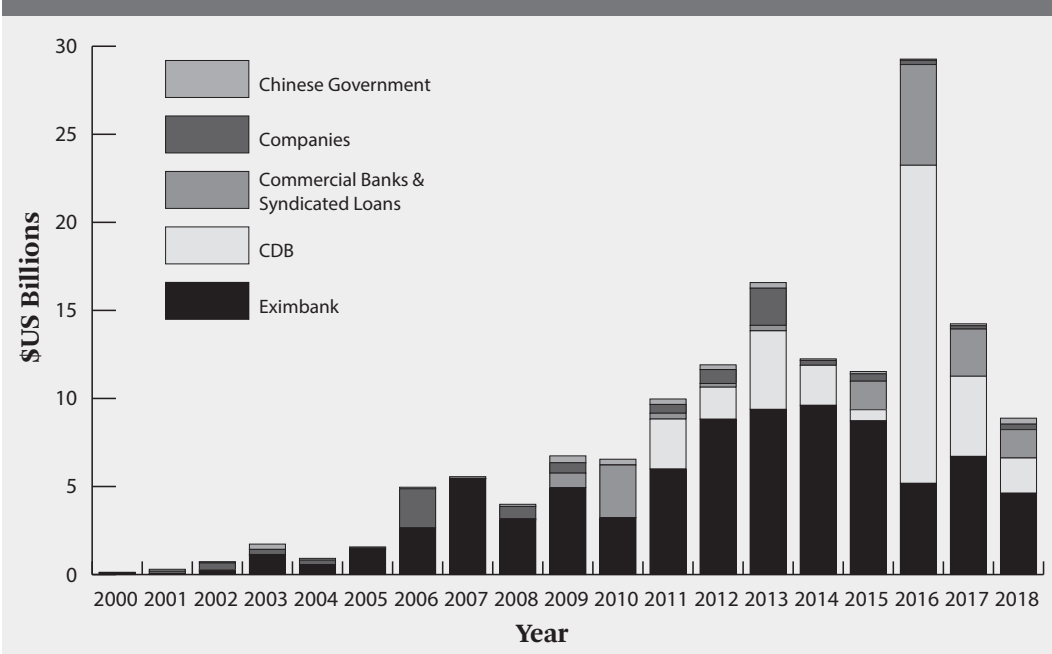
vary considerably by lender, and type of project. China offers interest-free loans as one instrument in its foreign aid program, but these make up less than five percent of all Chinese loan commitments. Concessional loans are subsidized by the Chinese government from the foreign aid budget, while preferential export buyer's credits are subsidized from other budget lines. In the first years of the millennium, China Eximbank's concessional loans had interest rates around four percent, but over the past decade, interest rates for China Eximbank's concessional

Table 2: Chinese Lending to African Governments and State-Owned Enterprises

Chinese Lender	Year lender Provided 1st Loan in Africa	No. of Loans Signed 2000-2018	Gross Value of Loan Commitments 2000-2018 (in US\$ billion)
Chinese Government	1960	212	3
China Eximbank	1995	589	82
Suppliers' Credits from Chinese Firms	2000	61	9
Chinese Commercial Banks	2001	52	10
China Development Bank	2007	158	37
Syndicated Loans Involving Only Chinese Banks	2016	5	7
Total		1,077	148

Note: Includes Chinese loans to African governments and their SOEs

Source: SAIS-CARI Data

Figure 2: Loans by Chinese Lenders 2000-2018 (in US\$ billions)

and preferential export buyer's credit have stabilized at a fairly uniform two percent, with 20-year maturity. Grace periods for these loans vary by the expected construction time of the project, but average five years.

Like the World Bank's IBRD (International Bank for Reconstruction and Development) loans, Chinese commercial loans are provided at a variable interest rate linked to the six-month LIBOR plus a margin. The lowest margin in our data is 30 bps (0.3 percent) charged by the Industrial and Commercial Bank of China for a rural electrification project in Ghana.¹⁸ The highest margin was 450 bp for a loan from China Development Bank to Zambia to make up the 15 percent of project cost it was required to contribute for the Mansa-Luwingu Road Project. Most commercial loans had margins in the 300 pb range. The maturity for these loans ranges from three to 17 years with an average of eight years.

COLLATERALIZED LENDING

ONE OF THE misunderstood features of Chinese overseas lending is the extent to which loans are secured by collateral. For example, a *New York Times* article in May 2020 contended that borrowers of Chinese loans “put up ports, mines and other crown jewels as collateral”.¹⁹ We have seen only one case, a Chinese-funded petroleum refinery in Chad, where a sovereign borrower put up property as collateral. We believe this statement is a misreading of the practice of collateralized lending or using future revenue

earnings to secure infrastructure project loan finance.

Collateralized lending, or “resource-secured infrastructure finance,” is a form of project finance in which repayment is secured *not* through existing assets as in a mortgage (i.e. property) but through future receivables (i.e. future cocoa, tobacco, oil, copper, and other export revenues).²⁰ While Chinese banks did not invent this project finance model, China Eximbank in particular has been an enthusiastic user of it in Africa. This is because reducing the risk of a loan lowers its cost, which enables borrowing governments

to use more finance (and employ more Chinese construction firms, since, like all export credit agencies, China Eximbank's lending is largely tied to the use of Chinese goods and services).

Forexample, in Ghana, a Chinese loan to support construction of the Bui Dam was secured through an arrangement whereby the Ghanaian marketing board for cocoa, Cocobod, arranged to export cocoa beans to a Chinese buyer.²¹ The dam is also secured by an off-take arrangement based on future electricity revenues paid by consumers. The cocoa security was arranged through a sales agreement between Genertec Corporation of China and Cocobod for up to 40,000 metric tons of cocoa beans annually for the first five years of the loan.²² The cocoa beans will be sold for foreign exchange at the prevailing market price, and the proceeds placed in an escrow account with China Eximbank. The cocoa security arrangement was scheduled to last for five years, and after this, loan repayment is done from the electricity sales. This off-take arrangement requires Bui Hydropower to have a power purchase agreement with the Electricity Company of Ghana: 85 percent of energy sales from Bui will be deposited into an escrow account to help repay the loan. In the first instance, Bui Dam revenues (in cedi) will reimburse Cocobod for the cocoa exports. In both cases of cocoa and electricity, excess funds in the account can be withdrawn by Ghana, or they can stay in the account and earn interest.

Whereas many banks and commodity traders have used commodity-secured loans in Africa, it is far less common to see

them used to lower risks for project finance in infrastructure construction. Yet even though we have many examples in our data, this lending mode is less widespread than many believe. Commodity-secured loans account for 25 percent of the loan commitments in our data. However, lending to Angola, much of which is secured by oil exports, makes up 75 percent of the export commodity-secured loans. This model has also been used in nine other countries, and this amounts to only six to 12 percent of the loan commitments in our data. In some cases (such as Nigeria or Ghana) only a handful of projects were financed this way. Chinese banks have used this model more extensively in the Republic of Congo, Democratic Republic of the Congo, Sudan, and Equatorial Guinea, where at least 57 projects were constructed with resource-secured financing.

We expect that, as with Ghana's Bui Dam electricity off-take, other kinds of revenue securities that are not export-related exist. Kenya's Standard Gauge Railway, for example, uses escrow accounts filled with revenues from the railway itself, and, if necessary, funds from the Railway Development levy, a tax of 1.5 percent imposed on all imports into Kenya, and collected by the Kenya Port Authority. In 2018, the Railway Development Levy would have provided US\$ 261 million to supplement revenues earned by the railway.²³ By mechanisms like these, low income countries have found revenue sources that add to their ability to finance expensive infrastructure projects.

As noted above, we found only one case in our data—a US\$ 330 million preferential export buyer's credit from China Eximbank that financed China National Petroleum Corporation's joint venture oil refinery in Chad—where the loan was secured with the actual asset. Chad had provided a government guarantee but Sinosure, China's export credit insurer, refused to insure the loan given the risk.²⁴ CNPC arranged for Chad's shares to be collateral for the loan. CNPC also used its own shares as collateral for its portion of the investment loan, a common practice in China.

DEVELOPMENT SUSTAINABILITY VERSUS DEBT SUSTAINABILITY

EAST ASIA'S DEVELOPMENT SUCCESS was based on debt financing. China's own growth model has involved extensive public sector borrowing.²⁵ Local governments in China have created numerous special purpose vehicles (LSPVs): companies established to access loan funding for infrastructure projects and real estate development. Yet across East Asia, including in China, external borrowing was fairly conservative during periods

of rapid growth. In China, external borrowing never rose above 20 percent of gross domestic product (GDP).²⁶

Li Ruogu, the former head of China's export credit agency, China Export Import Bank, argued that post-HIPC concerns about debt sustainability meant that low income borrowers were restrained from investing in projects that could provide the necessary infrastructure for their economic development.²⁷ The World Bank and IMF, having lived through several decades of debt crisis, and implemented debt write-offs under the HIPC initiative, have been more wary about optimism on the sustainability of borrowing. The International Financial Institution's (IFIs) Debt Sustainability Framework provided limits on borrowing for post-HIPC countries, and these limits have been the subject of intense negotiations with some countries that wanted to borrow at commercial rates from Chinese lenders.

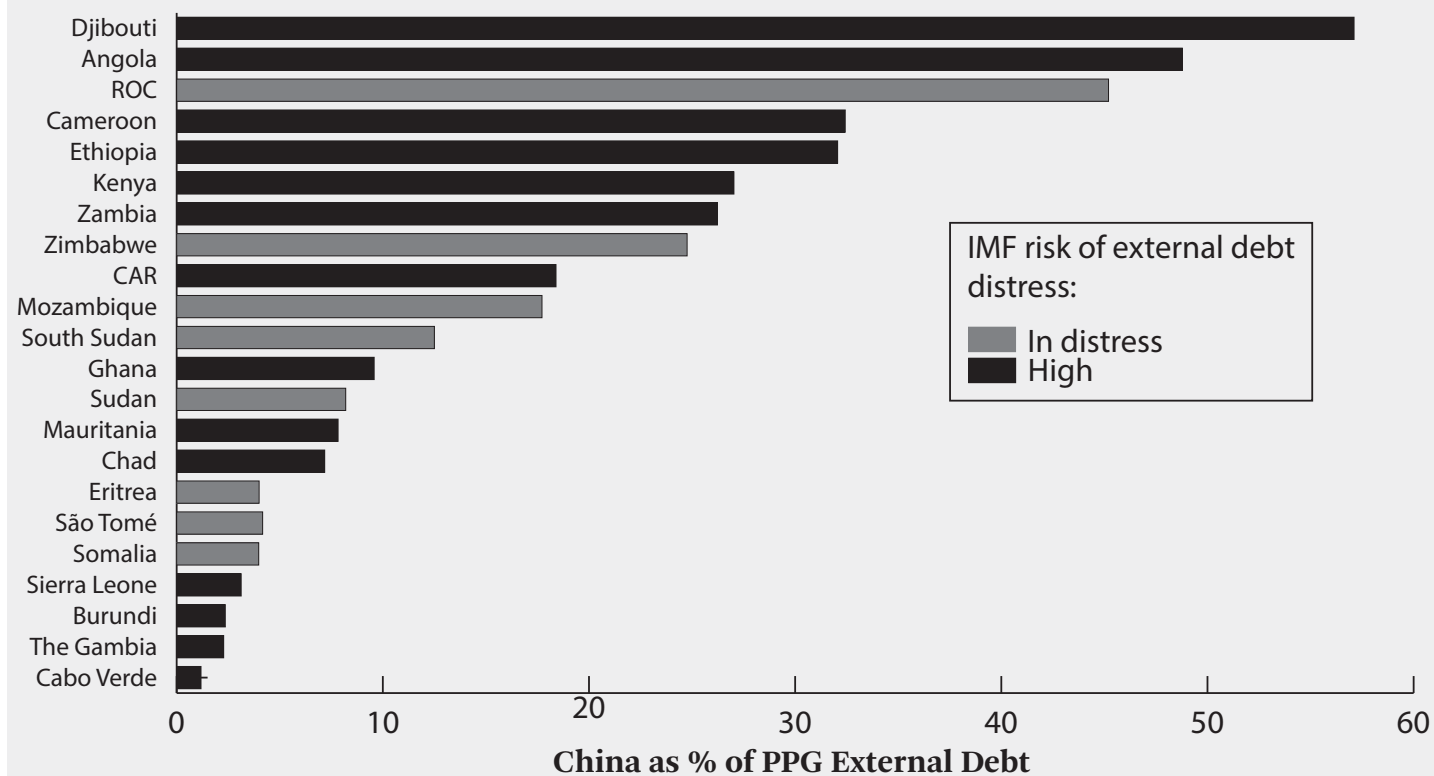
In April 2019 China's Ministry of Finance published China's own Debt Sustainability Framework.²⁸ In many ways, the framework is quite similar to the one used by the Washington-based IFIs. However, as Johanna Malm has pointed out, there are some important differences. For example, Malm notes, "the framework makes it clear that China does not see debt distress as an obstacle to continued borrowing."²⁹

"[I]t should be noted that an assessment for a country as "high risk" of debt distress, or even "in debt distress", does not automatically mean that debt is unsustainable in a forward-looking sense. In general, when a country is likely to meet its current and future repayment obligations, its [public and publicly guaranteed] external debt and overall public debt are sustainable."

The crux of the Chinese argument is the belief that "*Productive investment, while increasing debt ratios in the short run, can generate higher economic growth [...] leading to lower debt ratios over time*" [emphasis added].³⁰ The concern of course is whether investment is truly productive.

CHINESE LENDING AND DEBT DISTRESS: WHAT DO THE NUMBERS SAY?

IN THIS SECTION WE USE EXAMPLES FROM our data, and information on Chinese lending contained in the World Bank's monitoring of the COVID-19 Debt Service Suspension Initiative (DSSI), to present a picture of the Chinese contribution to debt in Africa. All figures refer to PPG. The DSSI data suggest that for the 40 low income African countries, debt to China adds up to US\$

Figure 4: Chinese Debt as % PPG External Debt Stock in Countries at High Risk or in Debt Distress

Burundi: Saudi Arabia and India have both lent more to Burundi than China, whose debt comes to just two percent of the total. Almost all of Chinese lending went to telecoms projects.

Cape Verde: China held less than two percent of Cape Verde's debt, having financed airport scanners for US\$ 13 million and two e-government projects (US\$ 30 million).

Chad: In Chad, a US\$ 1.45 billion oil-secured loan from the Anglo-Swiss company Glencore meant that by the end of 2016, 85 percent of Chad's oil exports (its primary source of revenue) were going to repay Glencore.³³ Only seven percent of Chad's debt is owed to China, financing a cement factory, Chad's share of an oil refinery and power station built by China National Petroleum Corporation, and electricity transmission lines from the refinery to the capital. After the oil price crash in 2014-2015, Chad was having trouble paying three loans with upcoming maturities to China Eximbank, and in 2017 the outstanding debts on these loans were rescheduled.³⁴

Eritrea: China makes up 4 percent of the country's debt stock. The loans were to support a telecom project, a thermal power plant, food storage, purchase of Chinese machinery, and a road.

The Gambia: As of 2018, China had made only one loan to The Gambia, for a telecoms project.

Ghana: The government of Ghana has a total external debt of US\$ 19.4 billion. They owed US\$ 1.86 billion to China (under 10 percent), while nearly half of the external debt is owed to bondholders and commercial banks, and a third to multilateral banks. Our data show US\$ 3.7 billion in loan commitments between 2000 and 2018. Ghana's largest Chinese-financed projects include several loans for the 2007 Bui Dam (US\$ 673 million), and the 2013 Western Corridor gas processing plant (US\$ 850 million). The latter loan had a 10-year term, so should be close to being repaid.

Mauritania: Saudi Arabia is the largest single creditor in Mauritania, where China holds less than 10 percent of debt. China built Mauritania's Friendship Port in the 1980s as a foreign aid project. The largest project in Mauritania since 2000 has been an expansion of this port, for US\$ 293 million.

São Tomé and Príncipe: The DSSI lists outstanding official bilateral debt to China as US\$ 10 million. This is likely misreported by São Tomé and Príncipe. Our data records no lending to São Tomé and Príncipe from official Chinese bilateral

lenders. However, we do record a US\$ 30 million loan from the China International Fund, a private company from Hong Kong, from which only US\$ 10 million was disbursed.³⁵

Sierra Leone: In Sierra Leone, Chinese lenders have financed several fiberoptic and telecoms projects, for a total outstanding debt of US\$ 48 million, about three percent of the country's total debt according to the DSSI. However, the World Bank figure does not include a contingent liability for a public private partnership (PPP) toll road financed by China Railway 7th Group (the US\$ 165 million, 67 km Wellington-Masiaka Toll Road).

Somalia: According to the DSSI, Chinese debt, at US\$ 83.9 million, is less than four percent of the total in Somalia, where the largest creditors are Italy, the United Arab Emirates, and the United States, all creditors to whom Somalia—a highly indebted poor country that embarked on the HIPC debt relief process only in March 2020—is in arrears. We have recorded no loans from China to Somalia between 2000 and 2018. Since there is no debt service scheduled for these Chinese loans, we believe the World Bank records refer to Chinese debt from before 2000 that has gone into arrears.

Sudan: In Sudan, which is also not eligible for the DSSI, China is a less significant lender than many might assume. Paris Club debt, including arrears, at US\$ 20.6 billion is 37.7 percent of the total, and non-Paris Club debt at US\$ 20.2 billion, is 36.9 percent.³⁶ According to the DSSI, Saudi Arabia is currently Sudan's major creditor, with US\$ 1.6 billion outstanding. The data released by the World Bank in June 2020 note that China accounts for only eight percent of Sudan's outstanding debt.³⁷ While according to our data, China has signed off on at least US\$ 6.8 billion to Sudan over the years, a portion of this debt has already been repaid through oil shipments. After the loss of the oil-producing South in 2012, China granted a delay of five years to Sudan's debt repayment.³⁸

South Sudan: The World Bank did not include data for South Sudan on its DSSI website (it is possible that the data for South Sudan was combined with that for Sudan). However, the IMF reported that as of the end of March 2019, South Sudan owed China US\$ 150 million for the Juba International Airport, out of a total debt stock of US\$ 1.196 billion, or 12.5 percent.³⁹ Our data shows two loans signed as of 2018, for the airport, and for an air traffic system, for a total of US\$ 407 million.

CHINESE LOANS A MEDIUM SHARE (15 TO 25 PERCENT) OF DEBT STOCK: 3 DEBT DISTRESSED COUNTRIES

IN A SECOND GROUP, INCLUDING Central African Republic, Mozambique, and Zimbabwe, Chinese debt stock is from 15 to 25 percent of the total. It is important to note that in all three countries, debt service due in 2020 rises considerably above 25 percent. These cases show the impact of higher interest rates for Chinese loans compared with other funders.

Central African Republic: In the Central African Republic (CAR), China accounted for 18 percent of the debt stock, but 31 percent of debt service for 2020. The DSSI lists outstanding debt to China as US\$ 130 million. According to the IMF, CAR is in arrears to Taiwan (we also see this in Liberia and Burkina Faso, which are at only moderate risk of debt distress).⁴⁰ These loans appear to have been folded into the China figures, since our figures show only US\$ 71 million in Chinese loan commitments. Our data shows several small loans to help make up budgetary shortfalls, and two other projects (US\$ 21 million for the Boali hydropower project and a US\$ 36 million for a telecoms project) for a total of US\$ 73 million in lending commitments.

Mozambique: The DSSI records show that Mozambique owed China US\$ 2 billion out of a total debt of US\$ 11.4 billion (18 percent), but debt service to Chinese creditors was expected to be 27 percent of all debt service for 2020. It is possible that this debt service figure reflects debt reprofiling that was done in 2017 and pushed some debt payments off to later dates. In 2017, Mozambique was in default on its external public debt, and reached an agreement to reschedule its debts to China. According to media reports, Mozambique was granted a grace period on payments due on US\$ 2.02 billion, although the original maturities were maintained.⁴¹ Our data show signed loan commitments of US\$ 2.5 billion. Mozambique's largest loans from China have financed the Maputo-Catembe Bridge (US\$ 686 million), Beira to Machipanda EN6 road repair (287 km) for US\$ 416 million, and the 74 km Maputo ring road (US\$ 300 million). Aside from one zero-interest foreign aid loan signed in 2018, there have been no new Chinese loans since the country reprofiled its Chinese debt.

Zimbabwe: Although Zimbabwe is not eligible for the DSSI because of its arrears to the World Bank and IMF, it is in debt distress. Because of these arrears, Zimbabwe's debt sustainability analysis published in March 2020 noted that 77 percent of

Zimbabwe's debt was owed to Paris Club and multilateral creditors like the World Bank, with "non-Paris Club lenders", including China, making up 20 percent.⁴² However, the DSSI figure for Zimbabwe states that China accounts for 24.8 percent of Zimbabwe's outstanding debt, around US\$ 1.1 billion. It is not clear why this discrepancy exists.

Our database includes US\$ 3 billion in Chinese loan commitments in Zimbabwe since 2000. The largest projects include US\$ 998 million for the Hwange coal-fired power plant expansion, signed in 2017 and currently underway, and US\$ 360 million for the Kariba South Bank hydropower project, and US\$ 219 million for an upgrade to state-owned telecoms company NetOne. As in other countries, a significant portion of these loan commitments remain to be disbursed.

According to the DSSI, Zimbabwe was scheduled to repay Chinese lenders US\$ 72 million in 2020, which would have been 54 percent of all debt service. Zimbabwe has defaulted on multiple loans to China Eximbank, and each time was granted extensions of the repayment period. A US\$ 35 million loan for ZISCOSteel was granted maturity extensions in 2003, 2007, and 2010. Two loans totaling US\$ 18 million for the SinoZimbabwe Cement Plant were granted maturity extensions and interest rate reductions in 2004, and a US\$ 200 million buyer's credit for agricultural machinery was granted a maturity extension in 2012.

CHINESE LOANS A LARGE SHARE (OVER 25 PERCENT) OF DEBT STOCK

IN SEVEN LOW INCOME COUNTRIES with significant debt problems, China now holds over 25 percent of all external debt, according to the DSSI figures: Angola, Cameroon, Republic of Congo, Djibouti, Ethiopia, Kenya, and Zambia.

Angola: With over US\$ 19 billion in debt to China according to the DSSI, Angola is China's largest borrower in Africa, and indeed, owes China the most among all the low-income countries in the DSSI. China makes up 49 percent of outstanding government debt. For 2020, debt service on Chinese loans is scheduled to account for 58 percent of all debt service due. Our database shows over US\$ 40 billion in loan commitments over the past 20 years. Many of these have been repaid with oil exports, and some have not yet been disbursed. Chinese lines of credit have financed over 100 projects in Angola, including the US\$ 2.5 billion Kilamba Kiaxi new city with over 20,000 apartments, US\$ 509 million for the Nzeto-Soyo road, and US\$ 835 million for Soyo I, Africa's largest gas turbine power station. Angola also refinanced

a number of loans that its state-owned oil company Sonangol owed to Chinese banks. Between 2010 and 2014, Sonangol signed US\$ 10 billion worth of loans with CDB and ICBC. When the oil price crashed in 2015, Sonangol was having trouble paying them back. In late 2015, CDB extended a US\$ 15 billion line of credit to Angola, US\$ 10 billion of which Angola used to recapitalize Sonangol. Over the next two years Sonangol used some of this money to pre-pay debts to Chinese banks.

Cameroon: Cameroon has borrowed extensively from Chinese banks. Some of the largest loan commitments include Kribi port (US\$ 948 million over two phases), Yaounde water supply project from the Sanaga river (US\$ 678 million), and US\$ 541 million for the 211 Mwh Memve'ele hydropower dam.⁴³ We have data on the terms for 27 loans out of a total of 44 loans from China, all but two are at fixed interest rates, two percent or less. According to the World Bank's DSSI data, China accounted for 32 percent of Cameroon's public debt as of 2018 (US\$ 3.2 billion), but 45 percent of all debt service estimated to be due in 2020. This is a function of the loan restructuring Cameroon agreed to in 2019. Cameroon's debt to China was reprofiled so that only one third of the debt service due between 2019 and 2022 would have to be paid over those three years, with the other two thirds (US\$ 253 million) reprofiled to be paid in following years within the existing maturity.⁴⁴ Cameroon's debt difficulties meant that disbursement of funds committed to existing projects slowed. As of late September 2019, China accounted for 28.5 percent of undisbursed external loans.⁴⁵ Chinese banks could slow or pause disbursement if Cameroon was unable to finance its share (usually 15 percent) of a project, or unable to complete tasks like compensating landholders in the project area, a responsibility usually left with host governments.

Republic of the Congo: Chinese lending to the Republic of Congo accounts for 45 percent of the country's external debt, and in 2020, 43 percent of debt service. The largest loans were for highways. Chinese loans have financed a new highway, National Route 1, linking Brazzaville with Pointe Noire on the coast (US\$ 1.8 billion) and National Route 2 (US\$ 537 million). In 2019, China Eximbank agreed to restructure US\$ 1.6 billion of outstanding debt from loans signed by the ROC between 2010 and 2014, extending the maturities by 15 years and reducing the interest rates.⁴⁶

Djibouti: In Djibouti, where Chinese banks financed the Djibouti portion of the Djibouti-Addis railway, a large water project, and

three port upgrade projects, China holds 57 percent of PPG debt at US\$ 1.2 billion, according to the DSSI. Multilateral creditors, with US\$ 600 million, hold 29 percent. Djibouti's debt service due to China accounts for 58 percent of the total due in 2020. Negotiations between Djibouti and China Eximbank are ongoing regarding the restructuring of the US\$ 490 million loan for Djibouti's section of the Addis-Djibouti railway. In 2019, an MOU was signed to extend the maturity by 10 years and reduce the interest from LIBOR + 300 bps to LIBOR + 210 bps. The agreement has yet to be finalized.⁴⁷

Ethiopia: Our data suggest that Ethiopia has signed loan agreements with Chinese lenders of almost US\$ 14 billion between 2000 and 2018. These loans have funded over 50 projects, the most significant being telecoms expansion (US\$ 3 billion), wind farms (US\$ 600 million), hydropower plants and associated transmission lines (US\$ 2.3 billion), the Addis Ababa light rail system (US\$ 475 million), the Addis-Djibouti railway (US\$ 2.5 billion), and a number of sugar complexes including mills (US\$ 1.7 billion). The DSSI data lists China as the single most significant creditor in Ethiopia, with outstanding debt of US\$ 8.7 billion, 32 percent of all public debt. The World Bank is very close, with 31 percent of outstanding debt. Yet higher interest rates for Chinese loans mean that China makes up 42 percent of all debt service due in 2020. In 2018, China Eximbank granted a restructuring for the loan for the Ethiopian section of the Addis-Djibouti railway, extending the maturity by 20 years.⁴⁸

Kenya: The DSSI records that Chinese lending to Kenya makes up 27 percent (US\$ 7.5 billion) of Kenya's outstanding debt of US\$ 27.8 billion. Large projects financed by Chinese lenders in Kenya include US\$ 867 million for a number of geothermal wells at Olkaria, US\$ 229 million for the Karimenu Dam Water Supply Project, US\$ 156 million for the Nairobi southern bypass highway, and US\$ 5.1 billion for two phases of the controversial Standard Gauge Railway between Mombasa and Malaba.⁴⁹ In Kenya, commercial interest rates for some large loans, including part of the Standard Gauge Railway, mean that in 2020, debt service on Chinese loans was scheduled to take up 38 percent of all debt service.

Zambia: Zambia has been hovering on the precipice of debt distress for several years, even though a joint IMF/World Bank debt sustainability analysis (DSA) published in August 2019 noted that at that point, Zambia was servicing its debt and had

“remained current on all its debt obligations.”⁵⁰ According to the DSSI, as of 2018, PPG debt to China was less (US\$ 2.8 billion) than to bondholders (US\$ 3 billion), and Chinese lenders held about 26 percent of PPG debt in Zambia. The DSA recorded that Zambia's public electricity utility ZESCO held an additional US\$ 700 million in non-guaranteed debt, likely to be entirely from Chinese lenders.

These figures are quite a bit smaller than our CARI data on signed Chinese loan commitments (US\$ 9.7 billion). Aside from repayments, the most obvious reason for this difference is the distinction between loan commitments and disbursements, as we noted above with the case of Nigeria. The DSA noted that Zambia had contracted US\$ 9.7 billion of PPG loans that were expected to be disbursed between 2019 and 2024. A large portion of this is likely to be Chinese. For example, ZESCO signed off on US\$ 5.6 billion in Chinese loan commitments for power projects just between 2016 and 2018. Because of Zambia's debt problems and inability to contribute its side of some project costs (compensation for land acquisition, for example), disbursement on existing projects has been halting.

DISCUSSION

IN 2020, HOW DIFFERENT IS AFRICA'S debt crisis compared with the crisis that began in the late 1970s? The earlier crisis had its origins in global and domestic policy factors, and the balance between these differed country by country. There is no dispute about the two most important global shocks: the dramatic rise in oil prices caused by the Yom Kippur War (1974) and the Iran-Iraq War (1980) which hurt all oil importers, and the dramatic rise in global interest rates caused by the July 1981 decision of the US Federal Reserve to raise US interest rates to 22.36 percent.⁵¹ Developing countries that had borrowed at variable rates found their debts far more difficult to service, and capital fled from the south to the north.

When countries went into arrears, they faced steep penalties from Paris Club creditors. Domestic policy factors such as overvalued exchange rates, loss-making public companies, and expensive subsidies also played a role. In the late 1980s, the members of the Paris Club recognized the fact that dozens of low-income countries were essentially bankrupt. In low income sub-Saharan Africa, the external debt to GNI ratio rose from 49 percent to 104 percent between 1980 and 1987, considerably above today's pre-COVID-19 levels. This recognition of insolvency slowly led to programs of bilateral and multilateral debt write-offs, culminating in the HIPC initiative in 1996.

In 2020, after decades of reform, most African countries are in far better economic shape than they were in the 1980s, although there are exceptions such as Zimbabwe. Global interest rates are at record low levels. In some countries such as South Sudan, the Central African Republic, Burundi, and Somalia, armed conflict and civil war hamper economic output and debt sustainability. Pre-COVID 19, the collapse of commodity prices was the chief factor driving debt distress in Angola, Chad, the Republic of Congo, Mauritania, and Sudan. This also played a role in Ghana and Zambia, but expansive spending around elections was an additional factor. Still, for most of the 21 countries in this analysis, debt problems are likely to be liquidity problems rather than reflections of insolvency.

Chinese lenders are now a significant part of the debt picture in Africa, but their role should not be overestimated. In over half of the low-income countries most at risk of, or already in, debt distress, Chinese lending is relatively small, with less than 15 percent of debt stock. That is to say, their debt problems are largely caused by lenders other than China.

In another 3 countries, borrowing from China appears to be between 15 and 25 percent of debt stock: Central African Republic (CAR), Mozambique, and Zimbabwe. Yet in CAR, some of the DSSI debt data is from Taiwan, which complicates analysis.

In just seven African countries, as of 2018, China contributed between 26 and 58 percent of PPG debt stock. These are the countries where Chinese lending is central to the African debt distress picture.

Debt service is another important variable. In two countries, Angola and Djibouti, more than 50 percent of debt service was owed to Chinese lenders in 2020. Yet even here, looking at averages creates a somewhat misleading picture. With Angola included, 29 percent of all debt service in the DSSI countries in Africa is due to China. With Angola excluded, only 18 percent of debt service is Chinese.⁵²

The World Bank's DSSI data is a gold mine of information for Chinese lending in low income countries and Angola. Our CARI database gives the details on each loan commitment made by Chinese lenders across Africa, including countries that are not part of the DSSI. These two resources should allow analysts to make a great leap forward in understanding the myths and realities of Chinese lending in risky markets in Africa. ★

Appendix 1a: Chinese Lending and African Debt (all \$ are in US\$ millions)

Country	Risk of external debt distress	CARI 2000-18 CN loan commitment	2018 Debt to China as % of loan commitment	China as % of debt by official bilateral lenders	Biggest official bilateral lender	2018 DSSI debt stock: China	China as % of PPG external debt	Debt to China as % of GNI	World Bank as % of PPG external debt	Bonds as % of PPG external debt	Debt service due 2020: China	China as % of debt service due 2020
Total	-	131,247	49%	62%	China	64,456	22%	5%	21%	15%	7,185	29%
Angola	-	43,232	45%	88%	China	19,251	49%	19%	3%	15%	2,678	58%
Benin	Moderate	682	47%	70%	China	318	9%	2%	28%	0%	13	7%
Burkina Faso	Moderate	43	176%	22%	France	76	2%	1%	45%	0%	6	4%
Burundi	High	83	17%	13%	Saudi Arabia	14	2%	0%	24%	0%	0	0%
Cape Verde	High	48	42%	5%	Portugal	20	1%	1%	20%	0%	3	3%
Cameroon	High	5,933	53%	66%	China	3,155	32%	8%	15%	7%	374	45%
CAR	High	71	184%	54%	China	130	18%	5%	14%	0%	7	31%
Chad	High	577	45%	27%	China	260	7%	2%	5%	0%	27	16%
Comoros	Moderate	340	198%	44%	China	79	31%	7%	5%	0%	2	23%
DRC	Moderate	2,433	23%	28%	China	569	12%	1%	22%	0%	76	7%
ROC	In distress	5,070	43%	72%	China	2,189	45%	22%	4%	7%	111	43%
Côte d'Ivoire	Moderate	2,793	70%	61%	China	1,959	14%	5%	6%	50%	63	4%

Appendix 1b: Chinese Lending and African Debt (all \$ are in US\$ millions) - continued

Country	Risk of external debt distress	CARI 2000-18 CN loan commitment	2018 Debt to China as % of loan commitment	China as % of debt by official bilateral lenders	Biggest official bilateral lender	2018 DSSI debt stock: China	China as % of PPG external debt	Debt to China as % of GNI	World Bank as % of PPG external debt	Bonds as % of PPG external debt	Debt service due 2020: China	China as % of debt service due 2020
Djibouti	High	1,414	84%	81%	China	1,187	57%	39%	7%	0%	93	58%
Ethiopia	High	13,729	64%	75%	China	8,733	32%	10%	31%	4%	971	42%
Eritrea	In distress	632	5%	24%	China	31	4%	NA	57%	0%	5	15%
The Gambia	High	25	60%	10%	Saudi Arabia	15	2%	1%	17%	0%	3	3%
Ghana	High	3,670	51%	49%	China	1,861	10%	3%	20%	26%	235	13%
Guinea	Moderate	2,008	32%	58%	China	637	27%	6%	14%	0%	105	46%
Guinea-Bissau	Moderate	94	34%	28%	China	32	8%	2%	29%	0%	1	4%
Kenya	High	9,048	83%	74%	China	7,502	27%	9%	21%	17%	1,008	38%
Lesotho	Moderate	123	36%	40%	China	44	5%	1%	37%	0%	5	5%
Liberia	Moderate	55	242%	69%	China	133	11%	5%	31%	0%	1	2%
Madagascar	Low	456	17%	20%	China	78	2%	1%	49%	0%	6	4%
Malawi	Moderate	262	84%	51%	China	220	10%	3%	41%	0%	22	12%
Mali	Moderate	994	59%	53%	China	587	12%	4%	35%	0%	38	16%

Appendix 1c: Chinese Lending and African Debt (all \$ are in US\$ millions) - continued

Country	Risk of external debt distress	CARI 2000-18 CN loan commitment	2018 Debt to China as % of loan commitment	China as % of debt by official bilateral lenders	Biggest official bilateral lender	2018 DSSI debt stock: China	China as % of PPG external debt	Debt to China as % of GNI	World Bank as % of PPG external debt	Bonds as % of PPG external debt	Debt service due 2020: China	China as % of debt service due 2020
Mauritania	High	432	76%	20%	Saudi Arabia	326	8%	6%	9%	0%	31	8%
Mozambique	In distress	2,450	82%	39%	China	2,012	18%	14%	26%	6%	207	13%
Niger	Moderate	703	55%	53%	China	390	12%	4%	33%	0%	12	8%
Nigeria	...	6,176	40%	79%	China	2,485	9%	1%	31%	41%	174	11%
Rwanda	Low	414	39%	42%	China	160	5%	2%	45%	11%	13	11%
São Tomé and Príncipe	In distress	0	NA	6%	Portugal	10	4%	2%	5%	0%	0	2%
Senegal	Moderate	1,887	76%	44%	China	1,440	12%	6%	18%	35%	72	10%
Sierra Leone	High	229	21%	31%	China	48	3%	1%	19%	0%	5	7%
Somalia	In distress	0	NA	8%	United States	84	4%	2%	20%	0%	0	0%
South Sudan	In distress	407	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sudan	In distress	6,815	20%	18%	Saudi Arabia	1,330	8%	4%	8%	0%	102	17%
Tanzania	Low	2,043	36%	27%	China	734	6%	1%	52%	0%	155	22%
Togo	Moderate	674	75%	81%	China	506	34%	9%	4%	0%	37	36%

Appendix 1d: Chinese Lending and African Debt (all \$ are in US\$ millions) - continued

Country	Risk of external debt distress	CARI 2000-18 CN loan commitment	2018 Debt to China as % of loan commitment	China as % of debt by official bilateral lenders	Biggest official bilateral lender	2018 DSSI debt stock: China	China as % of PPG external debt	Debt to China as % of GNI	World Bank as % of PPG external debt	Bonds as % of PPG external debt	Debt service due 2020: China	China as % of debt service due 2020
Uganda	Low	2,862	68%	74%	China	1,946	24%	7%	39%	0%	137	42%
Zambia	High	9,703	29%	84%	China	2,808	26%	11%	9%	28%	316	27%
Zimbabwe	In distress	2,962	37%	48%	China	1,100	25%	4%	20%	1%	72	54%

ENDNOTES

1. For a discussion of these penalties, see Kevin Acker, Deborah Brautigam, Yufan Huang, “Debt Relief with Chinese Characteristics,” *China Africa Research Initiative*, Working Paper 2020/39, Johns Hopkins University School of Advanced International Studies, June 2020, <http://www.sais-cari.org/s/WP-39-Acker-Brautigam-Huang-Debt-Relief.pdf>.
2. “Heavily Indebted Poor Country Initiative (HIPC) Initiative,” *The World Bank*, January 11, 2018, <https://www.worldbank.org/en/topic/debt/brief/hipc>.
3. African Development Bank, “Africa’s Infrastructure: Great Potential but Little Impact of Inclusive Growth,” *African Economic Outlook 2018*, (Abidjan, Côte d’Ivoire): 2018, https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/2018AEO/African_Economic_Outlook_2018_-_EN_Chapter3.pdf.
4. International Monetary Fund, “Sub-Saharan Africa: Fostering Durable and Inclusive Growth,” *Regional Economic Outlook 2014*, (Washington, DC): 2014, https://www.imf.org/~media/Websites/IMF/imported-flagship-issues/external/pubs/ft/reo/2014/af/eng/_sre00414pdf.ashx.
5. Javier Blas and Andrew England, “IMF Warns ‘Rising’ African Nations on Sovereign Debt Risks,” *Financial Times*, May 29, 2014. <https://www.ft.com/content/6ae943e0-e751-11e3-8b4e-00144feabdco>.
6. International Monetary Fund, “Sub-Saharan Africa: Restarting the Growth Engine,” *Regional Economic Outlook 2017*, (Washington DC): 2017, <https://www.imf.org/~media/Files/Publications/REO/AFR/2017/May/pdf/sre00517.ashx?1a=en>.
7. Brahim Sangafowa Coulibaly, Dhruv Gandhi and Lemma Senbert, “Looming Debt Crisis in Africa: Myth or Reality,” *The Brookings Institution*, April 5, 2019, <https://www.brookings.edu/blog/africa-in-focus/2019/04/05/looming-debt-crisis-in-africa-myth-or-reality/>.
8. Javier Blas and Andrew England, “IMF Warns ‘Rising’ African Nations on Sovereign Debt Risks,” *Financial Times*, May 29, 2014, <https://www.ft.com/content/6ae943e0-e751-11e3-8b4e-00144feabdco>; Brahim Sangafowa Coulibaly, Dhruv Gandhi, and Lemma Senbet, “Looming Debt Crisis in Africa: Myth or Reality?” *Brookings Africa in Focus* Blog, April 5, 2019, <https://www.brookings.edu/blog/africa-in-focus/2019/04/05/looming-debt-crisis-in-africa-myth-or-reality/>.
9. “African Governments Face a Wall of Debt Repayment,” *The Economist*, June 6, 2020 <https://www.economist.com/middle-east-and-africa/2020/06/06/african-governments-face-a-wall-of-debt-repayments>; Taku Dzimwasha, “Africa’s Debt Spree: Precursor to a New Debt Crisis?” *African Business*, May 15, 2017, <https://africanbusinessmagazine.com/sectors/finance/africas-debt-spree-precursor-new-debt-crisis/>. “The largest bond issuances in 2015 came from Ghana, which issued bonds worth \$3.5bn; Kenya, at \$2.8bn; Angola, at \$2.5bn; Zambia, at \$2bn; and Ethiopia, which issued bonds worth \$1bn. The average return for these bond issuances is about 6.6%, with an average maturity of 10 years.”
10. Taku Dzimwasha, “Africa’s Debt Spree: Precursor to a New Debt Crisis?” *African Business*, May 15, 2017, <https://africanbusinessmagazine.com/sectors/finance/africas-debt-spree-precursor-new-debt-crisis/>.
11. World Bank, *International Debt Statistics 2019*, p. 11, <https://openknowledge.worldbank.org/bitstream/handle/10986/30851/IDS2019.pdf?sequence=5&isAllowed=y>.
12. SAIS-CARI Loan Commitment Data
13. “Nigeria’s External Debt Stock as at December 31, 2018 in Millions of USD,” *Debt Management Office Nigeria*, <https://www.dmo.gov.ng/debt-profile/external-debts/external-debt-stock/2761-nigeria-s-external-debt-stock-as-at-december-31-2018/file>.
14. The Debt Management Office of Nigeria lists the amount of debt service paid on each loan in each year, separated into principal and interest payments. To calculate disbursement (as these amounts are not usually made public), we take advantage of SAIS-CARI’s data on interest rates. Using the interest rate, we calculate the amount outstanding on each individual loan from the interest payment made on that outstanding balance the following year: “Debt Service,” *Debt Management Office Nigeria*, <https://www.dmo.gov.ng/debt-profile/external-debts/debt-service>

15. "The 180th Banking Industry Regular Press Conference," Finance China, August 30, 2018, <http://finance.china.com.cn/blank/20180828/588.shtml>.
16. *Ibid.*
17. Scott Morris, Brad Parks, and Alysha Gardner, "Chinese and World Bank Lending Terms: A Systematic Comparison Across 157 Countries and 15 Years," *Center for Global Development Policy Paper*, no. 170, April 2020, <https://www.cgdev.org/sites/default/files/chinese-and-world-bank-lending-terms-systematic-comparison.pdf>.
18. Ministry of Finance, Government of Ghana, *Debt Management Report 2016*, <https://www.mofep.gov.gh/sites/default/files/reports/economic/2016%20ANNUAL%20DEBT%20MANAGEMENT%20REPORT.pdf>.
19. Maria Abi-Habib and Keith Bradsher, "Poor Countries Borrowed Billions from China. They Can't Pay it Back," *New York Times*, May 18, 2020 <https://www.nytimes.com/2020/05/18/business/china-loans-coronavirus-belt-road.html>.
20. "Assessing Public Sector Borrowing Collateralized on Future Flow Receivables," *International Monetary Fund*, June 11, 2003, <https://www.imf.org/external/np/fad/2003/061103.pdf>; For an excellent overview of resource-financed infrastructure practices, see Harvard Halland *et. al.*, "Resource Financed Infrastructure," *The World Bank*, 2014, <http://documents.worldbank.org/curated/en/394371468154490931/pdf/Resource-financed-infrastructure-a-discussion-on-a-new-form-of-infrastructure-financing.pdf>.
21. Deborah Brautigam, Jyhjong Hwang, and Nancy Wang, "Chinese Engagement in Hydropower Infrastructure in Africa," Working Paper 2015/1, School of Advanced International Studies, China Africa Research Initiative, Johns Hopkins University School of Advanced International Studies, Washington, DC: SAIS-CARI, 2015, https://static1.squarespace.com/static/5652847de4b033f56d2bdc29/t/569f41cbdc5eb40e1bcc03e7/1453278368598/CARI+WP+01_Hydropower.pdf
22. The information in this paragraph comes in part from Oliver Hensengerth, "Interaction of Chinese Institutions with Host Governments in Dam Construction: the Bui Dam in Ghana," German Development Institute Discussion Paper 3/2011, pp. 37-38.
23. Total imports in 2018 were US\$ 17.4 billion, and 1.5 percent of this would be US\$ 261 million. "Kenya Imports, Tariff by Country and Region 2018," *World Bank Group*, 2018, <https://wits.worldbank.org/CountryProfile/en/Country/KEN/Year/2018/TradeFlow/Import>.
24. Han Yu, Zheng Heng, Jia Yongchang, "Zhade lianchang youhui chukou maifang xindai anli fenxi qishi" [Case Study of the Preferential Export Buyer's Credit for the Chad Refinery], *China Petroleum Accounting*, No. 5, 2014, <http://bpmti.cnpc.com.cn/bpmti/chgdlb/201505/1e27116136b94f92bbaf49cac7afccdc/files/f3621ea0407d4dd8b1cab0087f125a02.pdf>.
25. IMF, "People's Republic of China, 2017 Article IV Consultation," August 8, 2017 <https://www.imf.org/~media/Files/Publications/CR/2017/cr17247.ashx>.
26. World Bank, International Debt Statistics, accessed June 27, 2020.
27. Li Ruogu, "Zhengque Renshi Fazhan Zhong Guojia de Zhaiwu Kechixu Wenti (A Proper Understanding of Debt Sustainability of Developing Countries)," *World Economics and Politics*, April 2007, http://en.cnki.com.cn/Article_en/CJFDTotal-SJJZ200704009.htm.
28. Ministry of Finance, People's Republic of China, *Debt Sustainability Framework for Participating Countries of the Belt and Road Initiative*, April 25, 2019, <http://m.mof.gov.cn/czxw/201904/P020190425513990982189.pdf>.
29. Johanna Malm, "China's New Debt Sustainability Framework," *China in Africa: the Real Story Blog*, August 27, 2019, <https://www.blogger.com/blogger.g?blogID=9189930829940284211&useLegacyBlogger=true#editor/target=post;postID=5678545023309669360;onPublishedMenu=posts;onClosedMenu=posts;postNum=0;src=postname>.
30. Ministry of Finance, People's Republic of China, *Debt Sustainability Framework for Participating Countries of the Belt and Road Initiative*, April 25, 2019, <http://m.mof.gov.cn/czxw/201904/P020190425513990982189.pdf#page=5>.
31. IMF, "Factsheet: The Joint World Bank-IMF Debt Sustainability Framework for Low-Income Countries," March 12, 2020. The framework uses the present value of debt, calculated using a discount rate of 5 percent, <https://www.imf.org/en/About/Factsheets/Sheets/2016/08/01/16/39/Debt-Sustainability-Framework-for-Low-Income-Countries>

32. The World Bank, "COVID 19: Debt Service Suspension Initiative," June 19, 2020, <https://www.worldbank.org/en/topic/debt/brief/covid-19-debt-service-suspension-initiative>; "List of LIC DSAs for PRGT-Eligible Countries As of April 30, 2020," *International Monetary Fund*, <https://www.imf.org/external/Pubs/ft/dsa/DSAlist.pdf>. "In December 2019, the IMF noted that "seven countries are in debt distress (Eritrea, The Gambia, Mozambique, Republic of Congo, Sao Tomé and Príncipe, South Sudan, and Zimbabwe) and nine are at high risk of debt distress (Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Ethiopia, Ghana, Sierra Leone, and Zambia)". Sudan, Djibouti, Kenya and Mauritania have since been added to the list. Dominique Desruelle, Ivohasina F. Razafimahefa, and Cemile Sancak, "Sustainable Development & Debt: Finding the Right Balance," *International Monetary Fund*, December 2, 2019, <https://www.imf.org/~media/Files/Conferences/2019/dec-2019-devtdebt/conference-paper-sustainable-development-sustainable-debt.ashx>. At the end of 2019, Angola was clearly in distress. See, for example, John Njiraini, "As Africa's Growth Slows, Debt Distress Looms," *Global Finance*, November 04, 2019, <https://www.gfmag.com/magazine/november-2019/africas-growth-slows-debt-distress-looms>.
33. Natasha White, "Oil-hungry Western Companies are Contributing to Huge Debt Problems in Africa – G20 Leaders Need to Fix this," *The Independent* (UK), November 30, 2018 <https://www.independent.co.uk/voices/africa-oil-companies-g20-summit-fix-glencore-debt-chad-a8660606.html>.
34. IMF African Department, "First Review under the Extended Credit Facility Arrangement-- Debt Sustainability Analysis," International Monetary Fund, March 30, 2018, <https://www.imf.org/external/pubs/ft/dsa/pdf/2018/dsacr18108.pdf>; personal email communication, IMF official, May 20, 2020.
35. "Patrice confirma entrada de 10 milhões de dólares da China Popular," *Téla Nón*, Dec. 20, 2016. <https://www.telanon.info/politica/2016/12/20/23493/patrice-confirma-entrada-de-10-milhoes-de-dolares-da-china-popular/>
36. Scott Hickie, "Intelligence Brief: An Assessment of States and Institutions Well Placed to Provide Significant Financial Relief to Sudan," *Open Briefing*, December 18, 2012, <https://www.openbriefing.org/publications/intelligence-briefings/financial-relief-to-sudan/>.
37. IMF Africa Department, "Sudan: 2019 Article IV Consultation," *International Monetary Fund*, March 2020, <https://www.imf.org/~media/Files/Publications/CR/2020/English/1SDNEA2020001.ashx>. Our figures for total loan commitments from China to Sudan between 2000 and 2018 comes to US\$ 6.4 billion.
38. "UPDATE 1-Sudan Delays China Debt, Exports \$400 mln of gold," *Reuters*, February 18 2012, <https://www.reuters.com/article/sudan-gold-exports-idUSL5E8DI0BH20120218>.
39. IMF Africa Department, "Republic of South Sudan: 2019 Article IV Consultation," *International Monetary Fund*, June 2019, <https://www.imf.org/~media/Files/Publications/CR/2019/1SSDEA2019001.ashx>. The report also notes that South Sudan owed estimated short-term debts of US\$ 338 million to oil companies for oil advances. These are likely to be Chinese companies, which dominate the oil sector, but could also be from oil traders. Trafigura has provided oil advances to South Sudan in the past. If these oil advances were all to be from Chinese firms, the Chinese share of South Sudan's debt would rise to 41 percent.
40. IMF, "Central Africa Republic: Request for a Three-Year Arrangement Under the Extended Credit Facility," December 10, 2019. <https://www.imf.org/~media/Files/Publications/CR/2020/English/1CAFEA2020001.ashx>.
41. "China dá Mais Tempo a Moçambique para Pagar Dívida," Secretariado Permanente do Fórum para a Cooperação Económica e Comercial entre a China e os Países de Língua Portuguesa, April 17, 2018, [https://www.forumchinapl.org.mo/china-india-extend-grace-period-for-mozambique-to-repay-debt/?lang=pt](https://www.forumchinapl.org.mo/china-india-extend-grace-period-for-mozambique-to-repay-debt/?lang=pt;); "China, India Extend Grace Periods for Mozambique Debt Repayment," *FurtherAfrica*, April 16, 2018, <https://furtherafrica.com/2018/04/16/china-india-extend-grace-periods-for-mozambique-debt-repayments/>.
42. In 2019, the IMF's Debt Sustainability Analysis for Zimbabwe's listed the country's total external debt (including arrears) as US\$ 8.7 billion, with the Paris Club making up US\$ 3.5 billion and multilateral creditors US\$ 3.3 billion (78 percent). The IMF did not report on Chinese debt, but "non-Paris Club" debt was US\$ 1.7 billion, or 20 percent. IMF Africa Department, "Zimbabwe: 2019 Article IV Consultation," *International Monetary Fund*, Country Report No. 20/82, March 2020, <https://www.imf.org/~media/Files/Publications/CR/2020/English/1ZWEEA2020001.ashx>.
43. On the Memve'ele Dam, see Yunnan Chen and David G. Landry, "Capturing the Rains: A Comparative Study of Chinese Involvement

in Cameroon's Hydropower Sector," *China Africa Research Initiative*, Johns Hopkins University School of Advanced International Studies, Working Paper 2016/6, Washington, DC: SAIS-CARI, 2015, <http://www.sais-cari.org/s/cameroon-final-draft-9-fm7n.pdf>.

44. IMF Africa Department, "Cameroon: Fifth Review Under the Extended Credit Facility Arrangement," *International Monetary Fund*, Feb. 2020, <https://www.imf.org/~media/Files/Publications/CR/2020/English/1CMREA2020001.ashx>.
45. *Ibid.*
46. Ministry of Finance and Budget, Republic of Congo, "Summary of the Complementary Agreement on the Congo's Debt to China Restructuring," May 24, 2019, <https://www.finances.gouv.cg/en/articles/summary-complementary-agreement-congos-debt-china-restructuring>.
47. IMF Africa Department, "Djibouti 2019 Article IV Consultation," *International Monetary Fund*, Country Report No. 19/314, October 2019, <https://www.imf.org/~media/Files/Publications/CR/2019/1DJIEA2019002.ashx>.
48. Aaron Masho, "Ethiopia PM Says China Will Restructure Railway Loan," *Reuters*, September 6, 2018, <https://www.reuters.com/article/ethiopia-china-loan/update-1-ethiopia-pm-says-china-will-restructure-railway-loan-idUSL5N1V628E>.
49. Acker, Brautigam, and Huang, "Debt Relief."
50. "Zambia: Joint World Bank-IMF Debt Sustainability Analysis," *International Development Association and International Monetary Fund*, August 2019, <https://openknowledge.worldbank.org/bitstream/handle/10986/32572/Zambia-Joint-World-Bank-IMF-Debt-Sustainability-Analysis-August-2019.pdf?sequence=1&isAllowed=y>.
51. CNBC, "Paul Volker, the Carter-Reagan Fed Chairman Who Beat Inflation, Dies at 92," *CNBC.com*, December 9, 2019, <https://www.cnbc.com/2019/12/09/paul-volker-the-carter-reagan-fed-chairman-who-beat-inflation-dies-at-92.html>
52. Because of the lack of data, we do not exclude debt service to Angola's other lenders from total debt service.

AUTHORS

DEBORAH BRAUTIGAM is the Bernard L. Schwartz Professor of International Political Economy and the Director of the International Development Program and founding director of the China Africa Research Initiative (CARI) at Johns Hopkins SAIS. Her Ph.D. is from the Fletcher School of Law and Diplomacy, Tufts University. **YUFAN HUANG** is a Research Assistant at CARI, a 2019 M.A. graduate from Johns Hopkins SAIS, and is currently a Ph.D. candidate at Cornell University. From 2014 to 2017 he was a researcher for the *New York Times* Beijing bureau. He has a B.A. from Renmin University. **KEVIN ACKER** is SAIS-CARI's Research Manager and a 2019 M.A. graduate from Johns Hopkins SAIS, he holds a B.A. in Economics and China Studies from Binghamton University.

Editor: Daniela Solano-Ward

THE SAIS CHINA-AFRICA RESEARCH INITIATIVE at the Johns Hopkins University School of Advanced International Studies (SAIS) in Washington, D.C. was launched in 2014. Our mission is to promote research, conduct evidence-based analysis, foster collaboration, and train future leaders to better understand the economic and political dimensions of China-Africa relations and their implications for human security and global development.

SAIS China-Africa Research Initiative
1717 Massachusetts Ave NW, Suite 733
Washington, DC 20036
www.sais-cari.org
Email: sais-cari@jhu.edu

Support for this briefing paper was provided by a grant from Carnegie Corporation of New York. Carnegie Corporation of New York is a philanthropic foundation created by Andrew Carnegie in 1911 to do "real and permanent good in this world."

