

GLOBAL CHINA INITIATIVE



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Calculated Capital

THE BUSINESS LOGIC BEHIND CHINESE LENDING IN THE GLOBAL SOUTH

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ABSTRACT¹

Overseas development finance plays a pivotal role in China's expanding global engagement. Existing scholarship often underestimates the commercial astuteness of Chinese capital, portraying it as "patient" due to its higher tolerance of risk compared to Western capital, which prioritizes short-term gains. However, we demonstrate that this narrative overlooks the calculated decisions behind much Chinese overseas lending. Our empirical analysis of Chinese overseas loans committed between 2000-2021 shows that far from being patient, Chinese capital employs hard-nosed risk-mitigation strategies. In risky countries, China routinely demands collateral in the form of future natural resources revenues for its loans, while also requiring loan insurance for projects, and charging higher interest rates on these loans. More specifically, our models demonstrate that loans to countries with higher credit risk levels are more likely to be resource-backed, as are loans that are insured. We also demonstrate that, surprisingly, resource-backed loans carry higher interest rates than their non-resource-backed counterparts, as do insured loans. To explain this surprising finding, we draw on qualitative case studies based on field interviews in the Democratic Republic of Congo, Ecuador and Ghana, and propose three potential mechanisms: political corruption and political business cycles in terms of political risks, and the security of the resource used as collateral in terms of financial risk. These findings suggest that Chinese state lending remains motivated by returns, even though it can also advance broader economic and political aims. This calculated finance, combined with the moral hazard posed by risk-seeking Chinese state-owned enterprises, can heighten sovereign default risk in the Global South. Recognizing the underlying pragmatism of Chinese global finance is critical for understanding the risk perceptions and priorities of emerging sovereign lenders.

Keywords: Finance; China; Natural resources; Credit risk; Political risk

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INTRODUCTION

Overseas development finance is a significant component of China's rising global engagement, as the country has become the world's largest creditor to low- and middle-income countries (Horn et al. 2019; Moses et al. 2023). Examining the determinants of China's overseas development finance is essential to gain insights into the characteristics of China's state capitalism and its foreign policy goals, as well as its impacts on the economic landscapes and political dynamics of recipient countries and global economic governance more broadly. Building upon existing theory, this working paper examines the factors that impact the structure of Chinese lending. More specifically, it contributes to the scholarship on China's perception of risk and economic statecraft by investigating the terms of Chinese loans, focusing on resource collateral, insurance and interest rates, which are important indicators of Chinese state capital's risk perceptions.

The literature suggests that sovereign creditors can strategically extend loans to gain political and economic leverage with debtors lacking creditworthiness. By offering interest rates higher than those from international financial institutions (IFIs) but lower than private lenders, creditors can increase their political influence and soft power (Bunte 2018), lock up important natural resources (Meidan 2016) and secure export markets for their firms (Gallagher and Irwin 2015). However, questions remain about how emerging creditors evaluate risks when lending to frontier markets without credit ratings or alternative creditors.

Previous literature indicates that emerging creditors like China reduce risk exposure by tying loans to resource deals in addition to mandating that Chinese firms are awarded construction and equipment procurement contracts (Brautigam and Gallagher 2014; Gallagher and Irwin 2015; Landry 2018). Some countries face such elevated risk levels that securing credit becomes exceedingly challenging for their governments, regardless of offered interest rates. The private sector is so unwilling to finance certain high-risk countries—like Angola, the Democratic Republic of Congo, Guinea, Sudan and Zimbabwe—that lack credit ratings from agencies like Standard & Poor, Fitch and Moody's. Resource-backed loans (RBLs) have evolved in response to this lending constraint. When discussing Chinese RBLs in Africa, Brautigam and Hwang (2016) argue their primary purpose is not merely securing natural resources but rather reducing risks associated with lending to financially disadvantaged and politically unstable nations. In their view, resource backing enables reasonable interest rate financing for these projects. RBLs can also be helpful as a means of securing resources. Alves (2013) argues that, in Angola and Brazil, oil-backed loans helped China pursue its energy goals by helping secure long-term oil-supply contracts. This strategy mirrors Japan's first development finance packages to China in the 1980s—RBLs that largely financed railroads and ports to facilitate the export of Chinese oil and coal (to Japan) (Brautigam 2011).

However, research is needed to determine what factors drive Chinese loans to be collateralized by resource revenues or insured, and if such measures provide cost advantages for risky borrowers. Our primary focus is on analyzing the risk calculations of Chinese state financiers, which we primarily explore through the phenomenon of RBLs. RBLs are a prime example of how China mitigates political and financial risks in its sovereign lending practices and play a pivotal role in Chinese overseas lending to developing countries. In fact, they account for close to 20 percent of Chinese loans by value.² In addition to resource-backing as a risk mitigation strategy, we also explore the role of loan insurance, which is routinely required in the case of projects that pose non-repayment risks (Brautigam and

² In terms of loan counts, RBLs represent a relatively small share of the number of loans made by Chinese development finance institutions. For instance, according to AidData, only about 4 percent of Chinese loans (517 out of 13,427 included in the dataset) are collateralized or securitized. However, as these loans are often large, they make up a substantial share of China's state finance portfolio. Per AidData, in nominal terms, more than 28 percent of Chinese loans are backed by some kind of collateral, and more than 18 percent are specifically backed by minerals, coals or hydrocarbons revenues.



Hwang 2016),³ and interest rates, which closely reflect the risk perception of creditors (Gelpern et al. 2022). In addition to serving as a risk mitigation tool, RBLs also serve as an important resource acquisition mechanism for China. For instance, RBLs issued by the China Development Bank (CDB) alone accounted for 17-18 percent of China's oil import contracts for 2012 (Downs 2011). Furthermore, for governments heavily reliant on Chinese RBLs for financing, such as Angola, the Democratic Republic of Congo and Ecuador, these loans can limit the options of governments in terms of how they manage future resource rents. For example, largely as a result of the RBLs its government signed with CDB, over 90 percent of Ecuador's oil exports in 2013 were controlled by Chinese firms.

In this working paper, we demonstrate that in engaging with high-risk borrowers, China's response to risk is not as different from that of private capital as previously thought. Chinese state financiers often resort to what we term "triple risk mitigation"—resource-backing, insurance and high interest rates. In fact, our findings reveal that Chinese RBLs and insured loans are vastly more expensive than their counterparts. Even when controlling for factors like loan size, type, timing, the risk factors associated with debtor countries and their bilateral ties with China, our models indicate that the interest rates on Chinese RBLs are more than one percentage point higher than those of other Chinese loans. Furthermore, loans that are insured by the China Export and Credit Insurance Corporation (Sinosure) are more than twice as likely to also be resource-backed. In other words, Chinese capital may be less patient than described in previous literature (Lee 2017; Kaplan 2021). Ironically, these risk-mitigation efforts can increase debt-service pressures on borrowers and exacerbate default risk, particularly in resource-dependent economies.

This finding challenges the traditional perception of Chinese capital displaying long-term risk tolerance. Instead, it suggests that Chinese overseas lending operates with a market-oriented logic and may be impatient, adopting triple risk-mitigation measures: resource revenue collateral, insurance and higher interest rates to secure its lending. More broadly, our findings contribute to the study of Chinese foreign policy, the literature on the political risks of sovereign lending and the broader literature on international political economy by demonstrating that Chinese state capital does not simply focus on securing bilateral ties and exporting overcapacity, but also exhibits striking levels of risk aversion and unique risk mitigation strategies.

LITERATURE REVIEW AND THEORY

Risk and China's State Capital

In recent years, understanding of what factors impact the distribution of Chinese state capital has grown dramatically. China's state finance goes beyond economic statecraft and export-led growth (Chen 2020). It internationalizes a model that has facilitated China's economic progress. This "state-supported, market-based" Chinese approach has reshaped development finance by offering an alternative for developing nations. Overall, however, the literature does not strongly suggest that China lends to fundamentally different countries than its Western counterparts. Kern and Reinsberg (2022), in analyzing when and how countries indebted to China who faces debt distress turn to the International Monetary Fund (IMF), establish that "China loan defaulters are not different from defaulters of non-Chinese creditors." Furthermore, in line with Western aid flows, which are largely driven by political and economic considerations,⁴ Chinese finance is linked to United Nations General Assembly voting patterns (Taylor 1998; Brautigam 2009; Landry 2021; Hoeffler and Sterck 2022)

³ A relatively small share of Chinese loans are insured—only 334 of the 13,427 loans included in the AidData database are coded as insured—it is especially common for large projects. In fact, more than 20 percent of the total value of loans committed by China between 2000-2017 was insured (Custer et al. 2021).

⁴ See, for instance, Maizels and Nissanke (1984), McGillivray (1989), Alesina and Dollar (2000), Burnside and Dollar (2000), Dollar and Levin (2004), Berthelemy (2006) and Claessens et al. (2009).



and to economic objectives, such as trade facilitation and the need to secure energy supplies (Zweig and Jianhai 2005; Burgos and Ear 2010; Brautigam 2011; Alves 2013; Dreher et al. 2018; Landry 2021).

Only three of the papers that address the determinants of Chinese development finance quantitatively include credit risk as a predictor variable (Dreher et al. 2018; Landry and Portelance 2021; Hoeffler and Sterck 2022). Dreher et al. (2018) find that debt-to-gross domestic product (GDP) ratio is negatively associated with non-concessional Chinese finance, such as loans. Landry and Portelance (2021) demonstrate that riskier countries are more likely to receive Chinese loan commitments, but also to see these loans canceled. Finally, Hoeffler and Sterck (2022) find no significant relationship between risk and Chinese finance. In all three cases, however, the testing is limited to loan amounts, not to loan terms.

According to Kaplan (2016), the global expansion of Chinese state capital can be characterized by a patient approach, a long-term horizon and a promise of non-interference in sovereign affairs. Compared to private creditors, Chinese lenders' long-term perspective and their willingness to endure emerging market business cycle risk are appealing to debtors who are frustrated by the short-term volatility of market capital. Additionally, the focus on infrastructure within Chinese state finance helps address China's construction sector overcapacity while providing the fiscal space for recipient countries' governments to defer their infrastructure spending and, in the short-term, increase spending on their political agendas. Similarly, Shi (2015) argues that Chinese state-owned enterprises generally have a higher tolerance for risks compared to Western multinational corporations. This tolerance allows them to invest and operate in politically volatile countries in the Global South, ensuring long-term access to energy and raw materials. Likewise, Lee (2017), through comparative case studies of Chinese state capital and global private capital in Zambia, argues that Chinese state capital's greater interest in long-term relationships, as opposed to financial capital's focus on short-term profits, enables a more flexible relationship with African governments, civil society and labor.

In contrast, Chalmers and Mocker (2017) dispute the notion that Chinese capital is patient or not profit-driven. Instead, using firm-level mergers and acquisitions data reflecting China's state-owned oil and gas companies' overseas foreign direct investment (OFDI), the authors find that these firms are risk averse. They favor host states with low corruption levels, a robust rule of law, a favorable regulatory environment and long-term stability. Chalmers and Mocker argue that Beijing's 2006 "Going Out" policy shifted the risk from the state to state-owned enterprises (SOEs) by enhancing their autonomy over investment decisions, including in the evaluation of investment-related risks. This led to Chinese SOEs ultimately prioritizing host states with relatively lower political risks.

Beyond how Chinese state financiers respond to risk in terms of capital allocation, the literature demonstrates that they can take a strong approach to protect themselves against default. For example, in the Democratic Republic of Congo's infamous Sicominex deal, which is discussed in depth in this paper, when Kinshasa rejected the changes proposed by the Export-Import Bank of China (CHEXIM) to reduce its risk exposure, CHEXIM rescinded its funding (albeit temporarily) (Landry 2018). Similarly, China placed the second phase of the Standard Gauge Railway in Kenya on hold until it could establish the project's commercial viability after President Uhuru Kenyatta failed to secure funds for the project (Guguyu 2018).

Short of halting projects, Chinese state lenders have a diverse set of tools at their disposal to protect their loans, beyond resource-backing and insurance. Chinese lenders use what Dreher et al. (2022) call a "special set of tools—which are generally not used by Western lenders—to reduce the risks of financial misappropriation and repayment delinquency" (p.145). Analyzing a set of 100 Chinese loans to 24 countries, Gelpern et al. (2021) find that many Chinese loans feature agreements to exclude the debt from collective loan restructuring (Ibid.). They also find that some clauses in



Chinese contracts entitle lenders to terminate loans and demand immediate full repayment when a borrower “defaults on its *other* lenders” or, in some cases, when they take “any action adverse to China’s investment interests in the borrowing country” (p.7). Likewise, Parks et al. (2023) find that co-financing with private or multilateral capital is an approach Beijing has used to de-risk. Currently, over 80 percent of China’s syndicated loans in low- and middle-income countries involve Western banks and multilateral institutions, such as the International Finance Corporation, the European Bank for Reconstruction and Development, Standard Chartered Bank and BNP Paribas (Ibid.). They argue that this represents a shift away from China relying on its banks for risk management in lending and increasingly using institutions that have stronger due diligence standards (Ibid.). This suggests that Chinese creditors pay significant attention to borrowers’ creditworthiness levels.

Chen (2023) argues that the collateralized lending to developing countries is akin to the approaches Chinese development finance institutions (DFIs) use to deal with potential insolvency among local governments when they lend domestically. For instance, China Development Bank (CDB) uses local governments’ collateralized future land and fiscal revenues to facilitate the growth of local government debt (Ibid.).

From the demand side, Gupta et al. (2008) find that sound macroeconomic policies, including fiscal consolidation and high public investment, lead to lower political risks and, consequently, lower borrowing costs for emerging market debtors. In contrast, political instability, poor fiscal discipline and weak institutions result in higher political risk, wider credit spreads and higher borrowing costs. Similarly, using a dataset of international sovereign bonds from both primary and secondary markets, Gbohoui et al. (2023) find that countries in sub-Saharan Africa (SSA) pay significantly higher coupon rates compared to their peers from other regions, even after controlling for risk ratings. The authors argue that the perceived risk premium for SSA countries is driven by structural challenges, including the countries’ low levels of financial sector development, the low transparency levels of their governments’ budgeting processes, the large size of their informal sectors and the low quality of their regulatory systems.

Risk and RBLs

Resource-backed loans have a historical precedent dating back to the late 1840s when Peru, plagued by political turmoil and economic uncertainties, began using guano, a high-quality source for fertilizer, as collateral on foreign debt. This innovative approach allowed Lima to access foreign finance and regain solvency, ultimately enabling the issuance of new bonds in the London capital market (Vizcarra 2009). Other “risky” countries have leaned on RBLs for finance more recently. During the 1980s and 1990s, while Angola was enduring a bloody civil war, the Dos Santos government took out many oil-backed loans. By the end of the war, Angola had taken 48 such loans, most of which were arranged by Western banks like BNP Paribas, Standard Chartered and Commerzbank (Brautigam 2011).

It was also in Angola that China got its feet wet as a provider of RBLs. In 2004, two years after the end of the Angolan Civil War, CHEXIM extended its first oil-backed loan to Luanda, a practice that has grown and evolved substantially. According to AidData, 123 of the 350 Chinese loans committed to Angola between 2004-2017—or 62 percent of the total value of the loans—were resource-backed (Custer et al. 2021).

However, as Chen (2023) notes, Chinese top leadership has urged more cautious risk control and the People’s Bank of China (PBOC) has suggested discouraging collateralized lending with “risk-profit mismatch” to prevent excessive collateralized lending by debtors and urging China’s DFIs and SOEs to engage in low-risk and small-scale projects that could generate greater social impacts.



Thirty-eight percent of the 100 loans reviewed by Gelpert et al. (2022) are collateralized. Interestingly, these collateralization practices occur much more prevalently among the loans funded by CDB than CHEXIM, potentially because CDB makes larger loans and operates without formal subsidies from the central government, and thus is more incentivized to minimize repayment risk. Similarly, Brautigam and Gallagher's (2014) survey of China's commodity-backed finance in Africa and Latin America between 2003-2011 indicates that Chinese finance generally aligns with global private interest rates. Finally, Mihalyi et al. (2021) compare the interest rates on 19 Chinese RBLs in SSA to regular loans—Chinese or otherwise—reported via the World Bank Debt Reporting System, finding that controlling for various factors, interest rates on RBLs are higher compared to other loans on average.

HYPOTHESES

As discussed, interest rates reflect the creditor's perception of nonpayment risks (Gelpert et al. 2022). The rates and terms of Chinese loans are negotiated on a bilateral, project-by-project basis. The negotiation process is highly concentrated between borrowing country and Chinese government agencies. Typically, the borrowing country initiates the loan request, which goes through an approval process in Beijing.⁵ Countries with more financing options can leverage alternatives to secure better terms from China (Bunte 2019). Borrowing country policies and institutions also matter—independent debt management offices, parliamentary loan approval requirements and public investment vetting can strengthen negotiation capacity (Morris et al. 2020). Additionally, the macroeconomic condition of the borrower affects negotiations. For instance, China renegotiated deals with Venezuela to contain more favorable terms when the country struggled with original debt service after oil prices declined (Dollar 2018). But in general, as discussion and decision-making are concentrated among top officials, political elites in borrowing countries have more leverage on loans' terms, which can introduce corruption risk. In summary, China bilaterally negotiates loan interest rates and conditions based on recipient country risk and strategic importance on a case-by-case basis. These negotiations on the terms of loans therefore provide insight into China's risk calculations and approach to sovereign lending.

Building upon existing theories related to Chinese lending practices, we test the following two key hypotheses:

- *H1: Resource-backing is more likely to be used for borrowing countries with heightened political and economic risks, indicating a deliberate strategy to mitigate risk exposure.*
- *H2: The interest rates of RBLs are expected to be lower than those for non-RBLs, as resource-backing is primarily used as a risk-mitigation tool.*

In response to the surprising results encountered in testing H2, we explore the following three hypotheses:

- *H3: Higher corruption levels generate higher political risk for sovereign lenders. As this risk is disproportionately high in the case of RBLs, interest rates are expected to be higher as part of RBLs extended to countries that suffer from higher corruption levels.*
- *H4: Given the political salience of RBLs, which combine the borrowing of vast sums of money and the commitment of future resource rents, interest rates in cases where RBLs feature prominently in the "political business cycle" are expected to carry higher interest rates.*

⁵ For an overview of how the loan approval process occurs depending on which lender is making the loan, its size and its level of concessionality, see Rudyak and Chen (2021).



- *H5: Resource revenues are only useful as a risk-mitigating tool if the underlying resource can be expected with a high degree of certainty to be extracted and sold. In other words, risky resource production decreases the risk mitigation effects of resource-backing. Therefore, higher interest rates are expected for RBLs backed by risky resources.*

DATA AND METHODOLOGY

Data

We employ development finance data from two main sources to construct this paper's dependent variables: AidData, a research laboratory based at the College of William and Mary, and the Chinese Loans to Africa (CLA) Database managed by the Boston University Global Development Policy Center (GDP Center). The AidData dataset used for this paper is Version 2.0 of the Global Chinese Development Finance Dataset, which covers 13,427 development projects worth \$843 billion across 165 countries from 2000-2017, financed by over 300 Chinese entities. This analysis specifically includes only the 2,003 loans provided by the Chinese government and state-owned institutions, including commercial banks, that are documented in the database and have recorded interest rates. Private entities are not included in our analysis. This dataset also contains information on collateral and security backing for loans—517 loans are coded as collateralized or securitized. Of these, we code the 234 loans backed by minerals, coal or hydrocarbons, totaling \$277.8 billion—or 43 percent of the total loan value of the loans for which interest rates are available—as RBLs.⁶ We utilize the subset of the loans containing interest rates information from 2000-2021. Of these 651 loans extended by the Chinese government and by Chinese DFIs or state-owned commercial banks, 153 loans were secured by natural resources revenues. We coded as RBLs the loans backed by minerals and oil, which totaled \$26.8 billion, or 30.1 percent of the total value of the loans included in our data.⁷

To provide a comparative perspective, we also employ data on loans to African governments from other creditors, which are compiled as part of the Africa Debt Database (Mihayi and Trebesch 2023). This database includes all publicly reported sovereign loans to African countries, from all creditors, committed or disbursed between 2000-2020. The data includes loans from private sector lenders, multilateral institutions and bilateral creditors, including members of the Organisation for Economic Co-operation and Development's (OECD) Development Assistance Committee (DAC), members of the Gulf Cooperation Council (GCC) and China.

The variables that capture economic risk are compiled using data from the OECD's Country Risk Classification, which classifies countries based on the minimum premiums they can expect to pay to receive official export credits. This index was adopted because of its extensive coverage across low- and middle-income countries and because it relates specifically to the risk associated with export credit, which accounts for a substantial large share of Chinese development finance. The alternative measures of sovereign economic risk included in the models are the gross government debt-to-GDP ratio, which is compiled by the World Bank, the Financial Development Index developed by the IMF and a dummy variable capturing whether one of more IMF programs were initiated in a country in a given year.

⁶ For instance, a CHEXIM loan for the construction of the Ninh Binh nitrogenous fertilizer plant in Vietnam was secured by the plant itself, a loan by ICBC to Indonesia for the building of a skyscraper was collateralized by the land on which the building was built and part of the Chinese loan financing provided by CHEXIM for the Bui Dam project in Ghana was backed by cocoa. None of these loans were coded as RBLs in this working paper.

⁷ The cocoa-backed CHEXIM loans to Ghana above are not counted as RBLs.



The variables reflecting debtor countries' political risk levels are generated from the World Bank's Worldwide Governance Indicators (WGI). The WGI Political Stability and Absence of Violence/Terrorism index captures "perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism." The WGI Control of Corruption index captures "perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests." Finally, the WGI Voice and Accountability Index captures "perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association and a free media." These indices do not exhaustively capture the nuances behind the phenomena driving political risk that play out in the real world. That said, these variables do offer enough breadth to capture the variance in political risk across countries at different points in time. Additionally, these variables are perception-based—they are generated from the informed opinions of experts. This means they can suffer from a wide array of biases. That said, no better indicators exist for this research. And, importantly, the mechanisms through which these phenomena are expected to affect development finance as part of this paper are perception-driven themselves. Alternative measures of political stability, control of corruption and democratic development derived from the Varieties of Democracy (V-Dem) project are used as robustness checks.

The variables reflecting the characteristics of the debtor countries sampled are drawn from two data sources. First, the variable that captures the importance of natural resource rents as a share of GDP is from the World Bank. Second, data on economic activity (per capita GDP) and population are drawn from the Centre d'Études Prospectives et d'Informations Internationales (CEPII).

Finally, the variables reflecting bilateral factors specific to China and the 120 debtor countries included in this working paper—the geographical distance between their respective capitals, in kilometers, and their diplomatic disagreements, is based on an index developed by Bailey et al. (2017) using respective UN General Assembly voting records—are drawn from the CEPII data.

Methodology

This working paper explores how Chinese financiers respond to credit risk through tools like resource-backing and interest rates using large-N analysis and small-N case studies. Three sets of models test three categories of questions, respectively. Equation 1 is used to test why some loans are backed by resources while others are not. Equation 2 tests whether interest rates systematically differ between resource-backed and non-resource-backed loans. Equation 3 tests whether corruption contributes to the higher interest rates charged for RBLs. The models control for four categories of factors: debtor countries' economic risk levels, as measured by credit risk; their levels of political risk, as measured by governance indicators; debtor-country specific controls, such as their per capita GDP and population; and the political and economic ties between the borrowing country and China.

Equation 1: Why are some loans backed by resources while others are not?

$$\text{resource-backing}_{it} = \gamma_1 x_{jt} + \gamma_2 w_{it} + \gamma_3 v_j + \gamma_4 u_t + \varepsilon_{ijt}$$

Equation 2: Are RBLs more or less expensive than non-RBLs?

$$\text{interest rate}_{it} = \beta_1 \text{resource-backing}_{it} + \beta_2 x_{jt} + \beta_3 w_{it} + \beta_4 u_t + \varepsilon_{ijt}$$

Equation 3: Do corruption controls impact whether RBLs are more or less expensive than non-RBLs?

$$\begin{aligned} \text{interest rate}_{it} = & \delta_1 \text{resource-backing}_{it} * \text{corruption}_{jt} + \delta_2 \text{resource-backing}_{it} + \delta_3 \text{corruption}_{jt} \\ & + \delta_4 x_{jt} + \delta_5 w_{it} + \delta_6 v_j + \delta_7 u_t + \varepsilon_{ijt} \end{aligned}$$



Where x_{jt} represents a vector of economic and political control factors specific to debtor country j in year t , including variables such as credit risk, total resource rents as a share of GDP, governance and bilateral trade and UN diplomatic disagreement with China, w_{it} is a set of characteristics specific to loan i committed in year t , such as the type of the loan, the size of the loan and whether the loan is insured, u_t is year-fixed effects, v_j is country-fixed effects and ϵ_{ijt} is the error term.

Table 1: Summary Statistics of the Data

Descriptive Statistics (AidData)

Variable	Obs	Mean	Std. Dev.	Min	Max
Political Violence Index, V-DEM	1938	.025	1.32	-2.984	3.376
Liberal Democracy Index, V-DEM	1938	.29	.215	.006	.861
Political Corruption Index, V-DEM	1938	.693	.211	.05	.967
Voice and Accountability Index, WB	2001	-.588	.816	-2.233	1.191
Political Stability and Absence of Violence Index, WB	1998	-.594	.902	-2.81	1.35
Control of Corruption Index, WB	1994	-.703	.584	-1.673	1.477
IMF Arrangements, IMFM	2003	4.654	19.585	0	154
Resource Backing, Dummy	2003	.117	.321	0	1
Insurance, Dummy	2003	.098	.298	0	1
UN General Assembly Disagreement Index, CEPII	1994	.4	.358	0	3.089
Gross Government Debt, % of GDP, WB	1968	44.856	29.975	.488	450.955
Financial Development Index, IMF	1956	.206	.142	.026	.665
Loan Amount, Nominal	1908	3.358e+08	1.691e+09	228500	5.000e+10
Interest Rate, %	2003	2.846	2.644	0	33
GDP, Current, WB	1904	1.816e+08	4.180e+08	150041.7	2.480e+09
GDP per Capita, Current, WB	1904	3.539	4.02	.121	33.276
Trade Reported by Destination Country, COMTRADE, CEPII	1976	4782067.1	9910004.5	.05	54422252
Resource Rents, % of GDP, WB	1987	11.846	13.764	0	87.577
Country Risk Classification Index, OECD	1890	5.85	1.432	0	7
6-Month LIBOR Rate at Year Open, MT	2003	1.82	1.837	.35	6.21
Loan Amount, Log	1908	17.767	1.876	12.339	24.635
Loan Type	2003	3.52	.969	2	6

Descriptive Statistics (GDP Center)

Variable	Obs	Mean	Std. Dev.	Min	Max
Political Violence Index, V-DEM	651	.34	1.157	-2.984	2.495
Liberal Democracy Index, V-DEM	651	.285	.21	.006	.712
Political Corruption Index, V-DEM	651	.69	.209	.149	.967
Voice and Accountability Index, WB	651	-.631	.782	-2.198	.983
Political Stability and Absence of Violence Index, WB	651	-.615	.881	-2.665	1.201



Table 1: Summary Statistics of the Data**Descriptive Statistics (GDP Center)**

Variable	Obs	Mean	Std. Dev.	Min	Max
Control of Corruption Index, WB	651	-.746	.613	-1.608	1.245
IMF Arrangements, IMFM	651	4.771	18.522	0	142
Resource Backing, Dummy	651	.224	.417	0	1
UN General Assembly Disagreement Index, CEPII	651	.325	.252	0	1.419
Gross Government Debt, % of GDP, WB	649	44.616	29.59	.754	219.06
Financial Development Index, IMF	635	.152	.11	.027	.634
Loan Amount, Nominal	650	136.972	305.057	1	3000
Interest Rate, %	651	2.396	2.31	0	10
GDP, Current, WB	617	45123680	81486029	516962.9	5.220e+08
GDP per Capita, Current, WB	617	2.294	2.46	.121	15.949
Trade Reported by Destination Country, COMTRADE, CEPII	646	2593518.7	4415454	.344	33561896
Resource Rents, % of GDP, WB	649	17.741	16.268	.001	59.584
Country Risk Classification Index, OECD	642	6.101	1.286	2	7
6-Month LIBOR Rate at Year Open, MT	651	2.314	1.873	.35	6.21
Loan Amount, Log	650	3.548	1.681	0	8.006
Loan Type	651	6.504	2.724	1	10

Source: Authors' analysis using AidData 2.0 and GDP Center Chinese Loans to Africa Database (2023).

While our large-N analysis provides a good overview of the general pattern for the risk perception of Chinese overseas lending, we support our regression results with qualitative evidence based on RBL cases from the Democratic Republic of Congo, Ecuador and Ghana, which were based on semi-structured field interviews conducted between 2016-2023. The field research in the Democratic Republic of Congo (2016) and Ghana (2022) was conducted for separate projects, but remote follow-up interviews were conducted in 2023 as part of this work. The field research in Ecuador (2023) was conducted specifically for this project.

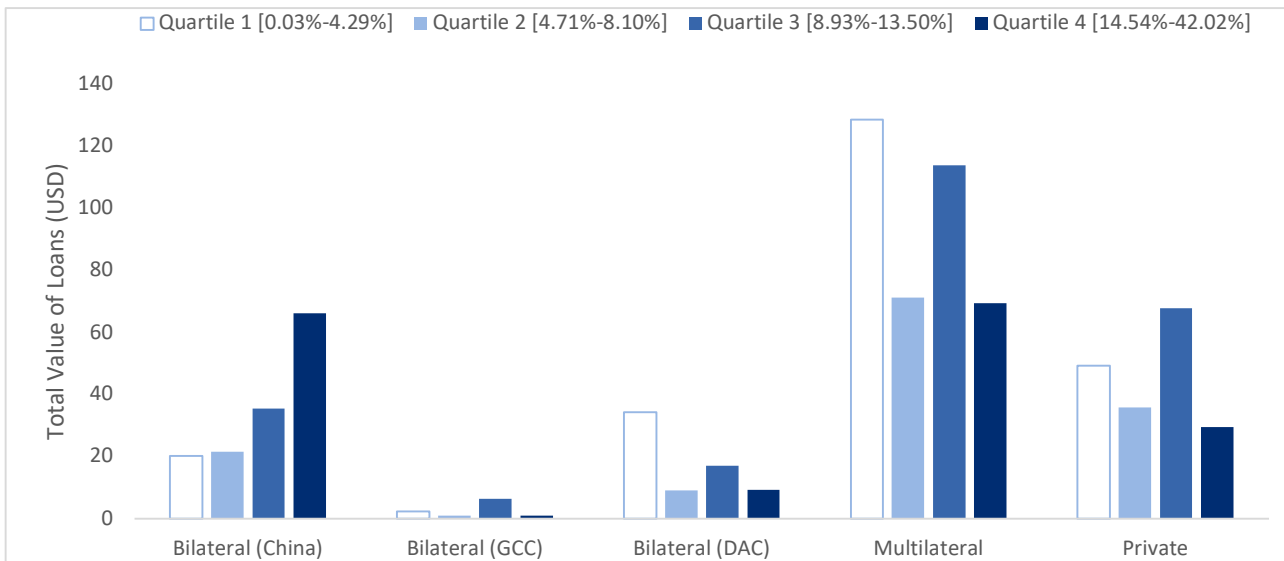
EMPIRICAL RESULTS

Descriptive Data

Does China lend more to resource-rich countries? In line with Landry (2021), Figure 1 demonstrates that Chinese loans are concentrated in resource-rich countries. Roughly half of China's loan commitments to African countries between 2000-2020 were extended to countries whose resource rents accounted for more than 14.54 percent of GDP, on average, during those years. The data illustrated in Figure 1 reflects the total amount of loans extended to categories of creditors—China, members of the GCC, members of OECD-DAC, multilateral lenders and private lenders, as reflected in the Africa Debt Database. The quartile breakdown reflects natural resource rents as a share of GDP, as compiled by the World Bank. As Figure 1 demonstrates, Chinese loans are more concentrated in resource-rich African countries than those of other creditors.



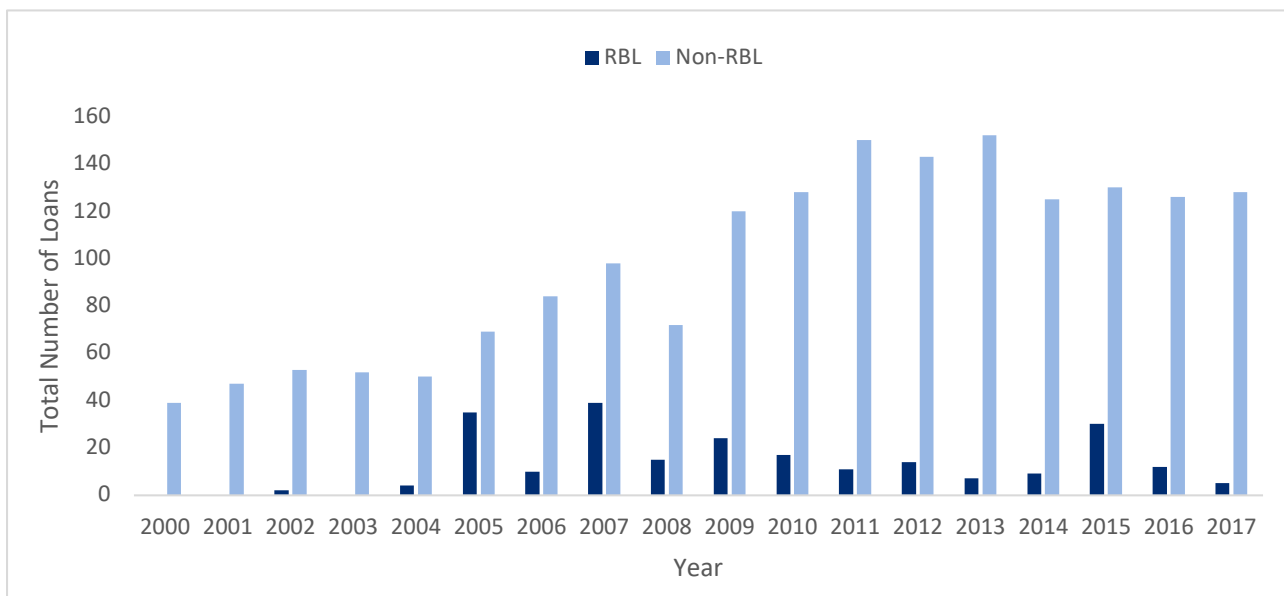
Figure 1: Total Loans to African Countries (USD) by Natural Resources Wealth (% of GDP), 2000-2020



Source: Authors' analysis using data from Africa Debt Database (Mihayi and Trebesch 2023).

How are Chinese loans structured? Figures 2 and 3 suggest that only a small subset of the loans committed by China between 2000-2017 were resource-backed. As discussed, only 234 of the AidData loans contained in our analysis are coded as RBLs (out of a total of 2,003 loans). In other words, only 12 percent of Chinese loans were structured as RBLs. In monetary terms, however, RBLs account for a much larger share of Chinese loans, accounting for 43 percent of the \$640 billion in Chinese loans comprised in our sample from the AidData database. This means that, on average, much larger loans tend to be resource-backed, which is hardly surprising given that these larger loans also come with additional risks.

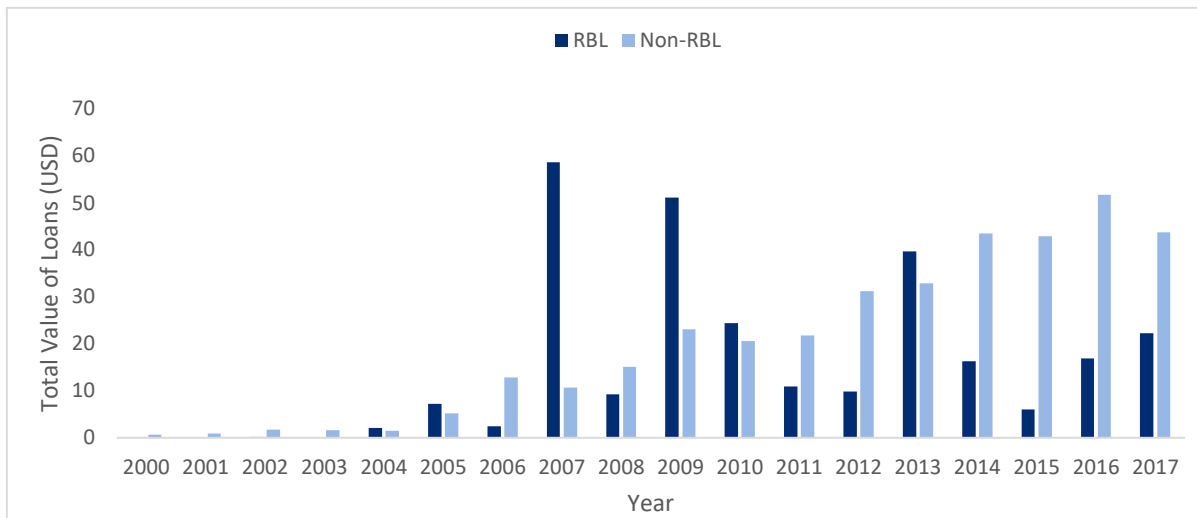
Figure 2: Total Number of Chinese Loans, Non-RBL vs. RBL, 2000-2020



Source: Authors' analysis using AidData 2.0.



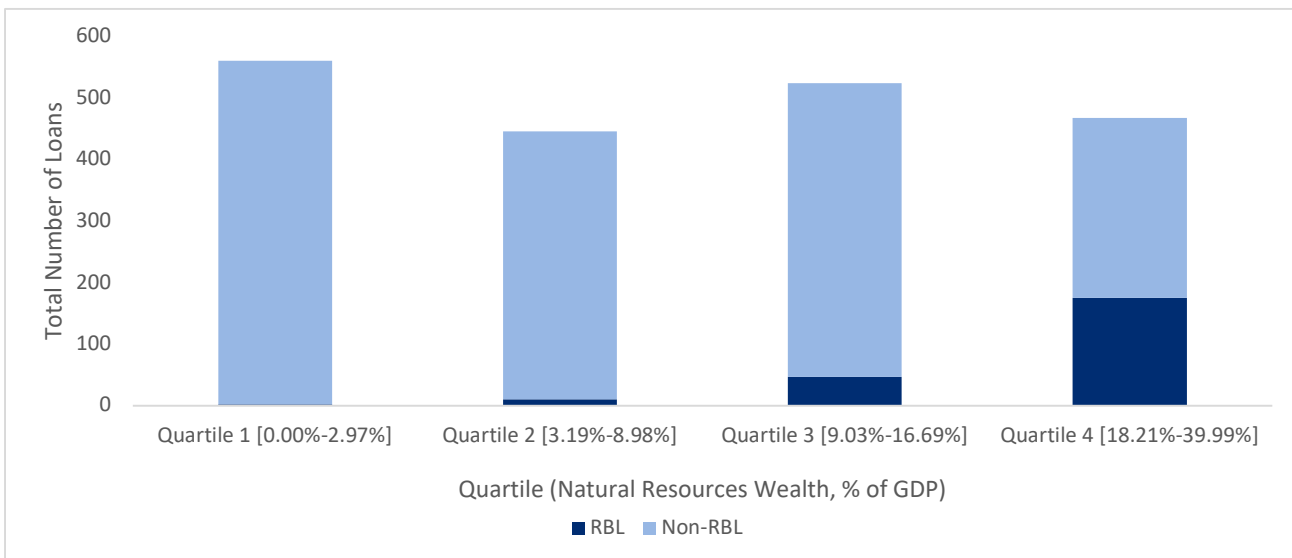
Figure 3: Total Value of Chinese Loans (USD), Non-RBL vs. RBL, 2000-2020



Source: Authors' analysis using AidData 2.0.

Are resource-rich countries more reliant on resource-backing to obtain Chinese financing? Given that natural resources are a prerequisite for resource-backing, the answer is yes. As shown in Figure 4, just two of the 561 Chinese loans extended to resource-poor countries (countries whose natural resource rents account for 2.97 percent or less of GDP) were resource-backed. Both were extended to Tajikistan. On the other hand, almost 40 percent of Chinese loans committed to resource-rich countries (whose natural resource rents account for 18.21 percent or more of GDP) were resource-backed. In terms of loan values, the difference is even more stark. As Figure 5 demonstrates, RBLs represent roughly 0.1 percent of the value of Chinese loans extended to resource-poor countries and more than 63 percent of those to their resource-rich counterparts.

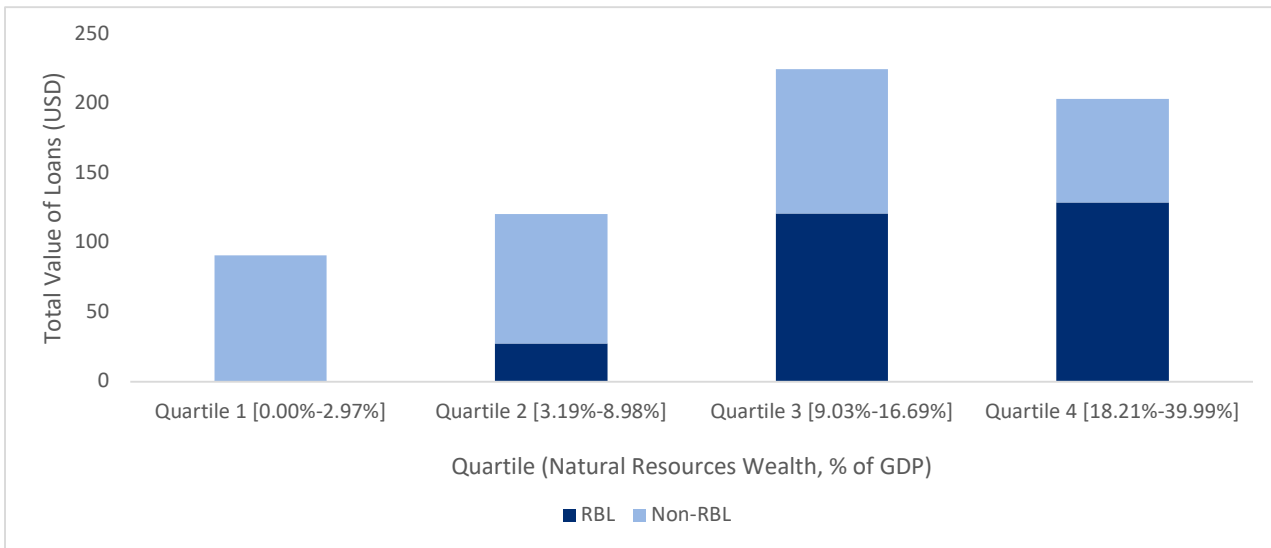
Figure 4: Number of Chinese Loans by Recipients' Natural Resources Wealth (% of GDP), Non-RBL vs. RBL, 2000-2020



Source: Authors' analysis using AidData 2.0.



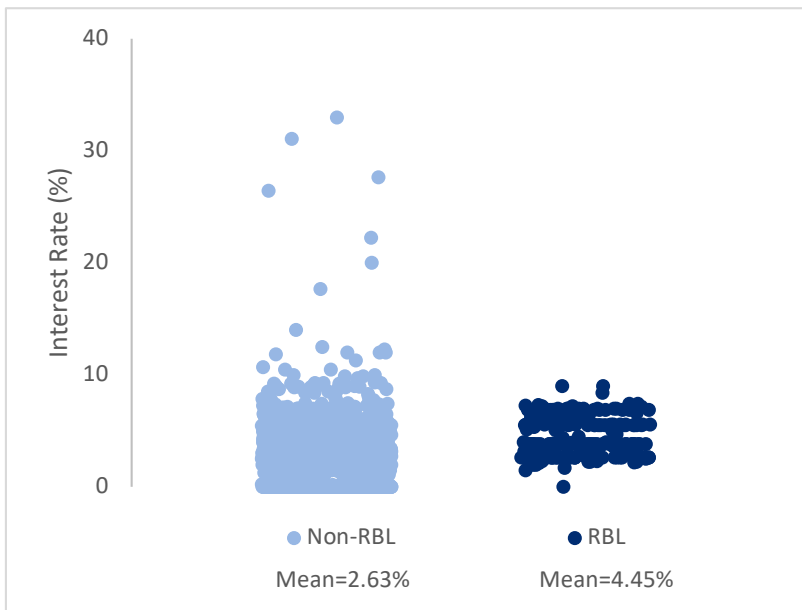
Figure 5: Total Chinese Loans (USD) by Recipients' Natural Resources Wealth (% of GDP), Non-RBL vs. RBL, 2000-2020



Source: Authors' analysis using AidData 2.0.

Finally, how do the costs of RBLs and non-RBLs compare? Surprisingly, RBLs carry a higher price tag, on average, than non-RBLs. As demonstrated in Figure 6, the average interest rate of non-RBLs is 2.63 percent, while that of RBLs is 4.45 percent.

Figure 6: Chinese Loans' Interest Rates (%), Non-RBL vs. RBL, 2000-2020



Source: Authors' analysis using AidData 2.0.

WHY USE RBLs?

The first question we investigate is why some Chinese loans are backed by resources while others are not. In the models presented, the dependent variable is the dummy RBL variable. As shown in Table 2 and Figure 7, which provides a visualization of the first model presented in Table 2, the



Table 2: Factors Determining whether a Loan is Resource-Backed

Data Source	AidData				GDP Center Data	
Dependent Variable	Is the loan backed by resources?					
Model Type	OLS	LOGIT	OLS	LOGIT	OLS	LOGIT
Country Risk Index (OECD)	0.0419*** (0.0134)	1.512*** (0.567)	0.0429*** (0.0133)	1.419*** (0.527)	0.0379** (0.0172)	1.419*** (0.527)
Insurance	0.0343 (0.0264)	1.725** (0.719)				
Gross Government Debt, % of GDP	-0.000258 (0.000334)	0.00120 (0.0196)	-0.000238 (0.000334)	-0.000908 (0.0193)	0.000120 (0.000365)	-0.000908 (0.0193)
GDP per Capita, Current	0.00389 (0.00987)	-0.417* (0.242)	0.00382 (0.00984)	-0.389* (0.213)	0.0133* (0.00775)	-0.389* (0.213)
GDP	-2.97e-11 (9.53e-11)	2.08e-09 (1.71e-09)	-2.90e-11 (9.46e-11)	1.92e-09 (1.54e-09)	2.27e-10 (4.41e-10)	1.92e-09 (1.54e-09)
Resource Rents, % of GDP	0.00736*** (0.00189)	0.0909* (0.0470)	0.00756*** (0.00190)	0.111** (0.0431)	-0.00212 (0.00179)	0.111** (0.0431)
Control of Corruption Index	0.0443 (0.0416)	1.289 (2.174)	0.0435 (0.0417)	0.459 (2.004)	-0.0541 (0.0362)	0.459 (2.004)
Political Stability and Absence of Violence Index	0.0412** (0.0179)	2.619** (1.030)	0.0415** (0.0180)	2.593** (1.011)	0.0444* (0.0253)	2.593** (1.011)
Voice and Accountability Index	-0.0499 (0.0423)	-7.563*** (2.384)	-0.0474 (0.0426)	-7.196*** (2.489)	0.0652 (0.0434)	-7.196*** (2.489)
Trade Volume (Log)	0.0133** (0.00549)	1.214*** (0.439)	0.0138** (0.00546)	1.128*** (0.425)	0.0218*** (0.00755)	1.128*** (0.425)
UN General Assembly Disagreement Index	0.0150 (0.0290)	0.701 (1.142)	0.0181 (0.0288)	0.882 (1.121)	0.00760 (0.0312)	0.882 (1.121)
Loan Amount (Log)	0.0242*** (0.00467)	0.900*** (0.152)	0.0244*** (0.00461)	0.863*** (0.150)	-0.00664 (0.00750)	0.863*** (0.150)
Loan_Dummy	0.0255* (0.0132)	0.799 (0.716)	0.0194 (0.0155)	-0.0651 (0.596)	0.0448 (0.0867)	-0.0651 (0.596)
Supplier's Credit_Dummy	0.0494 (0.0453)	2.427 (1.854)	0.0466 (0.0456)	1.911 (1.880)	0.283*** (0.103)	1.911 (1.880)
Year FX	Yes	Yes	Yes	Yes	Yes	Yes
Country FX	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.405** (0.186)	-56.50*** (10.95)	-0.397** (0.185)	-53.63*** (10.77)	-0.393** (0.179)	-53.63*** (10.77)
Observations	1,681	582	1,681	582	600	582
R-squared	0.625		0.625		0.924	

Robust standard errors in parentheses

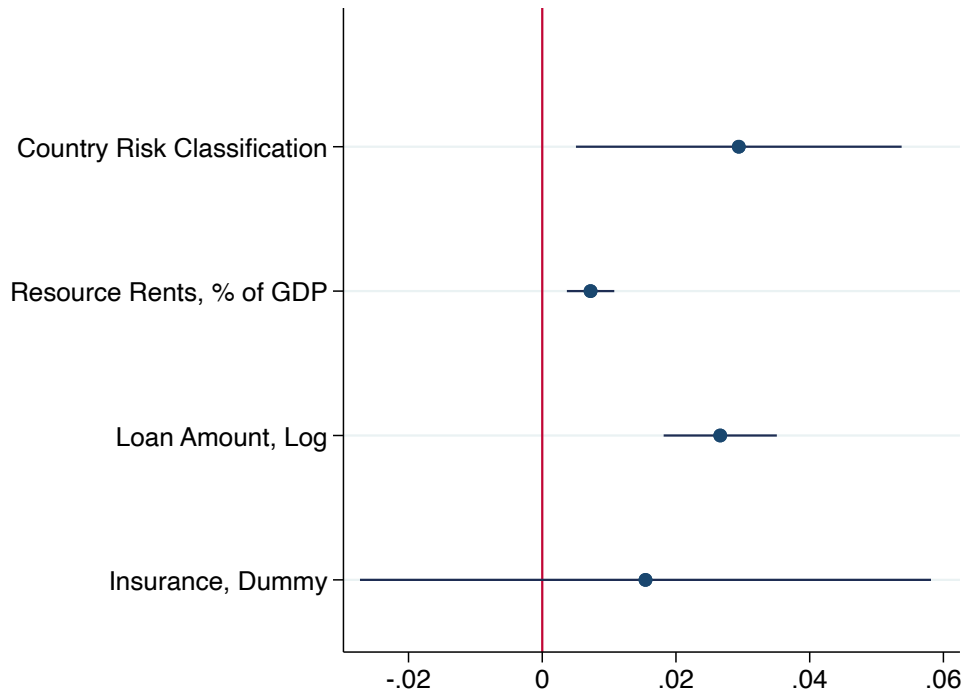
*** p<0.01, ** p<0.05, * p<0.1

Source: Authors' analysis using AidData 2.0 and GDP Center Chinese Loans to Africa Database (2023).



coefficient of the impact of credit risk on resource-backed in each of the tested models is negative.⁸ This indicates that, all else equal, the higher the underlying borrower default risk, the more likely a Chinese loan is to be resource-backed. Unsurprisingly, another key predictor of whether a loan is resource-backed is the level of dependence on natural resources of the borrowing country's economy. In terms of loan-specific features, larger loans are more likely to be resource-backed, as are loans that are insured by Sinosure. This suggests that if a resource-rich country with few alternatives to borrow money from (as reflected by its credit risk level) wants to secure a large loan from China, the loan is likely to be resource-backed, in addition to being insured, to mitigate risk.

Figure 7. Predictors of Resource-Backing (95% C.I.)



Source: Authors' analysis using AidData 2.0.

ARE RBLs CHEAPER?

Table 3 and Figure 8, which reflects the first model presented in Table 3, estimate the effects of resource-backing on interest rates, holding everything constant. It demonstrates that, surprisingly, given that resource-backing represents a risk-mitigation strategy, Chinese financiers charge higher interest rates as risk premiums for RBLs. In fact, RBLs carry, on average, interest rates more than one percentage point higher than their non-resource-backed counterparts.⁹ To explain finding, we propose three potential risk channels that might be particularly salient in the case of RBLs.

⁸ The results are robust to the inclusion of the IMF programs dummy variable or the IMF financial development index as replacements for the OECD country risk classification as a financial risk measure and to the inclusion of the V-Dem political violence, political corruption and liberal democracy indices as replacements for the World Bank's political stability and absence of violence, corruption controls and voice and accountability indices as governance measures.

⁹ The results are robust to the inclusion of the IMF programs dummy variable or the IMF financial development index as replacements for the OECD country risk classification as a financial risk measure and to the inclusion of the V-Dem political violence, political corruption and liberal democracy indices as replacements for the World Bank's political stability and absence of violence, control of corruption and voice and accountability indices as governance measures.



Table 3: Factors Determining Loans' Interest Rates

Data Source	AidData		GDP Center Data
Dependent Variable	Interest rate of the loan		
Model Type	OLS		
Resource Backed Loan	1.117*** (0.269)	1.132*** (0.268)	0.119 (0.423)
Country Risk Index (OECD)	0.121 (0.132)	0.130 (0.131)	-0.262* (0.143)
Insurance	0.325 (0.307)		
Gross Government Debt, % of GDP	-1.34e-05 (0.00219)	0.000181 (0.00219)	0.00213 (0.00303)
GDP per Capita, Current	-0.0353 (0.0606)	-0.0361 (0.0604)	-0.0386 (0.0452)
GDP	-6.95e-11 (6.50e-10)	-6.19e-11 (6.59e-10)	-8.39e-10 (1.74e-09)
Resource Rents, % of GDP	0.0220* (0.0129)	0.0238* (0.0128)	0.0145 (0.0129)
Control of Corruption Index	-0.449 (0.433)	-0.456 (0.433)	-0.177 (0.331)
Political Stability and Absence of Violence Index	0.0148 (0.163)	0.0163 (0.163)	0.477** (0.229)
Voice and Accountability Index	0.543 (0.430)	0.568 (0.428)	-0.603 (0.443)
Trade Volume (Log)	-0.0118 (0.0685)	-0.00804 (0.0687)	-0.0505 (0.0653)
UN General Assembly Disagreement Index	-0.221 (0.359)	-0.192 (0.367)	0.722*** (0.243)
Loan Amount (Log)	0.103** (0.0506)	0.104** (0.0508)	0.00854 (0.0457)
Loan_Dummy	0.236* (0.137)	0.178 (0.149)	-6.822*** (0.553)
Supplier's Credit_Dummy	1.950*** (0.311)	1.923*** (0.316)	-4.855*** (0.775)
Year FX	Yes	Yes	Yes
Country FX	Yes	Yes	Yes
Constant	-0.911 (1.687)	-0.835 (1.689)	13.08*** (1.747)
Observations	1,681	1,681	600
R-squared	0.438	0.437	0.878

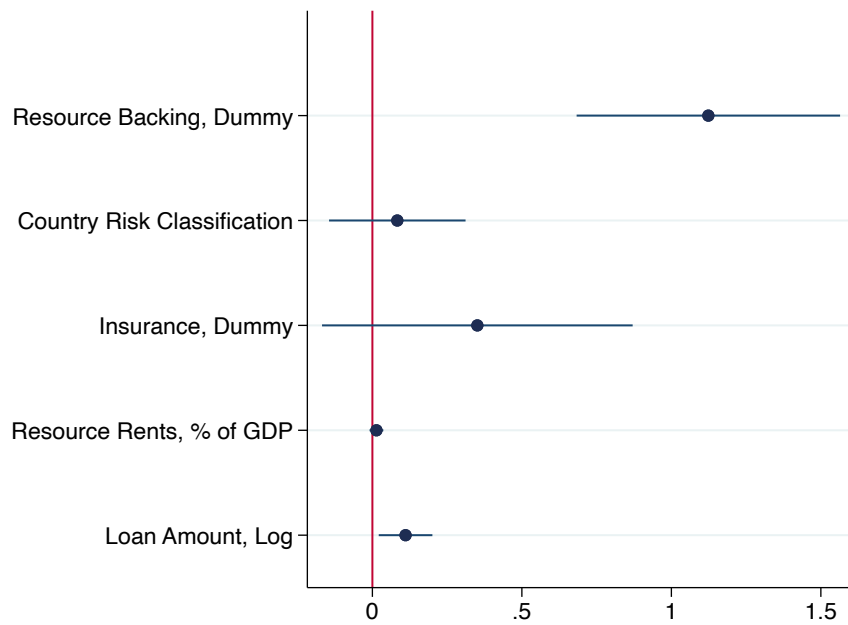
Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Authors' analysis using AidData 2.0 and GDP Center Chinese Loans to Africa Database (2023).



Figure 8: Predictors of Interest Rates (95% C.I.)



Source: Authors' analysis using AidData 2.0.

Mechanism 1: Political Corruption (Ecuador Case Study)

Previous research on emerging markets, such as Gupta et al. (2008), indicates that political risks, and expropriation risk in particular, significantly raise the cost of sovereign borrowing. We use the World Bank's Control of Corruption Index to explore whether the relationship between resource backing and interest rates differs on the basis of governance. By interacting the RBL dummy variable with country-year control of corruption levels, we find that the better control a government has on corruption, the lower the interest rate it pays on Chinese RBLs.¹⁰ On average, a one point improvement in the control of corruption index—roughly the difference between the respective scores of Angola (-1.444) and Ethiopia (-0.442) on the index in 2016—is accompanied by a 0.9 percentage point decrease in an RBL's interest rate.

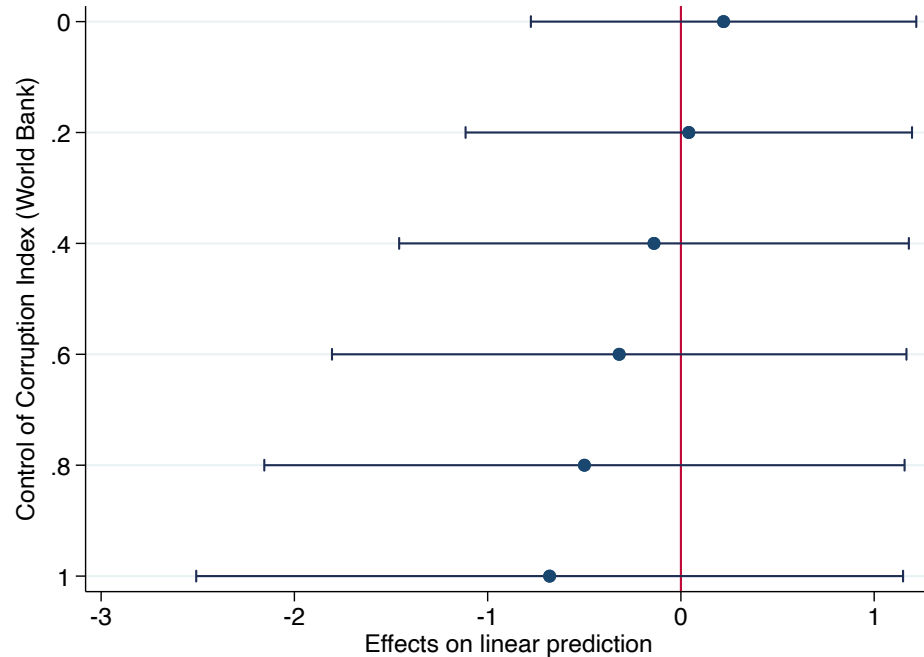
In April 2007, less than four months into his presidency, Ecuadorian President Rafael Correa ordered the expulsion of the World Bank's Quito representative (Weitzman 2007). Correa and the financial institution had a bitter history, as he had resigned from his position as Minister of Economy and Finance under the previous administration after the Bank had refused to disburse a \$100 million loan to Ecuador in response to some economic policies he was pursuing (Martínez 2005). The very next year, in December 2008, Correa announced that Ecuador would intentionally default on billions of dollars of foreign debt on the basis that it was illegitimate. The move was staunchly criticized by financial experts, who argued that there was "no economic necessity for default at the time, as Ecuador's debt stock was relatively moderate" (Bunte 2019). Ecuador's relations with the wider West continued to deteriorate when Correa decided to offer WikiLeaks founder Julian Assange refuge in its London embassy and subsequently granted him asylum.

Over the same period, Correa presided over a dramatic rapprochement with China. The crux of the relationship was China's willingness to loan huge amounts of money—at high interest rates—to Correa's government. Most of the loans financed ambitious infrastructure projects that formed the

¹⁰ The result is robust to the inclusion of the V-Dem political corruption index as a replacement for the World Bank's control of corruption indicator.



Figure 9: Average Marginal Effects of Resource-Backing at Different Levels of Control of Corruption



Source: Authors' analysis using AidData 2.0.

backbone of Correa's development vision for Ecuador. For instance, between 2007-2011, Quito signed loan agreements with CHEXIM and CDB for the financing of at least six hydropower projects, with a total price tag of more than \$5 billion (Custer et al. 2021). In total, between 2007-2017, Quito borrowed tens of billions of dollars from Chinese government agencies and state-owned banks. One series of loans—structured as resources-for-infrastructure agreements (RFIAs), a subset of RBLs whereby the loans are automatically repaid using revenues from the extractives sector—obliged Ecuador to supply petroleum to PetroChina (and later to China International United Petroleum & Chemicals) as a repayment mechanism for China's infrastructure loans (Ibid.). These loans, which totaled just over \$7 billion, carried a (weighted) average interest rate of 6.91 percent (compared to 4.21 percent for its \$12.8 billion of non-RBLs over the same period). By 2013, largely through these RFIA, Chinese firms had secured control over roughly 90 percent of the oil shipments that would leave Ecuador in subsequent years—a "rare feat in today's diversified oil market" (Schneyer and Perez 2013).

While the Ecuadorian government was negotiating large RBLs with CDB, a massive corruption scandal unfolded, in what *The Economist* has referred to as "Ecuador's trial of the century." The *Arroz Verde* ("Green Rice") case, which was eventually renamed *Sobornos* (which simply means "Bribes") saw the payment of millions of dollars in bribes by many multinational energy and construction companies—including Sinohydro (*The Economist* 2020). The payments were used to illegally fund the political campaigns of Correa's political party between 2012-2016 in exchange for the award of millionaire contracts. The trial, which was concluded in 2020, saw Correa and Jorge Glas—his Vice President between 2013-2018—sentenced to eight years in prison each. Glas served four and a half years of the sentence while Correa, who resides in Belgium, has not spent any time behind bars.

A separate corruption case, dubbed *The Sinohydro Case*, recently captured the attention of the Ecuadorian public. As part of the case, an indictment that was unsealed in March 2023 alleges that defendants—including Lenin Moreno, who served as Correa's Vice President between 2007-2013



and then as President from 2017-2021—received bribes of up to \$76 million to help advance a massive hydropower project. The bribes were allegedly paid as part of the Coca Codo Sinclair hydroelectric dam project, which was financed by Ecuador’s largest non-resource-backed Chinese loan. The \$1.7 billion project, which carried an interest rate of 6.9 percent, was constructed by Sinohydro (hence the name of the corruption scandal). An Ecuadorian journalist interviewed in Quito in 2023 as part of this research revealed that a former Chinese ambassador to Quito—who returned to Ecuador as a Sinohydro representative after his ambassadorial appointment ended—was deeply involved in the scheme.

The two corruption cases underscore some of the risks—which are particularly salient in the case of RBLs—that could impact interest rates. RBLs, by virtue of being uniquely complex and opaque, pose significant corruption risks (Landry 2018). These risks are naturally more acute in the context of countries marked by high levels of corruption. This important economic and reputational risk might lead financiers to adjust the interest rates they charge on RBLs. Corruption might also impact the interest rates of RBLs on the borrowing country’s side: corrupt government officials who might stand to personally benefit from large-scale projects through kickbacks or embezzlement, as Lenin Moreno allegedly did in the Sinohydro Case, might not be incentivized to negotiate their terms aggressively. This, in turn, might also lead to higher interest rates.

Mechanism 2: Political Business Cycle (Democratic Republic of Congo Case Study)

Chinese RBLs, because they combine sovereign borrowing, infrastructure development and future natural resource rents, carry huge levels of political importance in the countries that sign them. In both the Ecuadorian case and the Congolese case, multiple opposition politicians vowed to revise or cancel their countries’ RBLs if elected. In contrast, incumbents have claimed credit for the Chinese projects they secured. As Parks et al. (2023) suggest, political transitions in host countries may lead to significant alterations in the nature, extent and pace of China’s involvement. When a new leader assumes power and adopts a less confrontational stance toward China, Beijing actively works to solidify bilateral relations, which often involved delivering prominent infrastructure projects for which the leader can claim credit. Due to their inherent complexity and substantial volume, many RBLs involve protracted negotiations that culminate in the signing of framework agreements. These negotiations often occur independently of election cycles, which makes it impractical to rely solely on election years as a proxy for capturing changes in risk perception and borrowing costs in quantitative models. Instead, we leverage a detailed case study to exemplify the heightened risks associated with RBLs due to their political salience.

After the assassination of Congolese President Laurent Kabila by his bodyguards in 2001, his son Joseph, when aged 29, became the world’s youngest head of state. In 2006, Kabila won the Democratic Republic of Congo’s first democratic election in over four decades. As part of his election campaign, he announced his ambitious *Cinq Chantiers* (“Five Construction Sites”) program, which focused on infrastructure, job creation, education, water and electricity, and health. After the election, Kabila began looking for funds to bring his *Cinq Chantiers* to life. In the West, Kabila’s pleas for the billions of dollars in financing needed fell on deaf ears. In the words of a minister in the Kabila government interviewed in 2016, Western actors wanted “zero risk.” As a Congolese senator also interviewed in 2016 pointed out, “The Congolese government gets 5-year mandates. It needed to deliver something *now*.” It was against this backdrop that, in 2007, Kabila’s government signed an enormous RFI valued at over \$9 billion with China Railway Engineering Corporation (CREC). As part of the deal, the Chinese consortium led by CREC would secure the financing of \$6.565 billion worth of infrastructure projects of a public goods nature, such as roads and hospitals, and invest about \$3 billion in the mining project itself. In exchange, the consortium would obtain the rights to two mining licenses for vast copper and cobalt deposits. By 2009, after multiple rounds of negotiations, a final agreement



that would deliver the \$3 billion worth of infrastructure and \$3 billion in investment for the mine itself was reached. The interest rate on the infrastructure loans was agreed to be 6 months US Libor + 1 percent per annum. At the time, this RFIA was the largest RBL ever signed by a Chinese financier.

The Sicomines loans package was instrumental in shaping the political career of Joseph Kabila and constituted a major part of his 2011 re-election campaign. It was also seized upon by prominent members of the Congolese opposition as part of their election campaigns, many of whom vowed to renegotiate or outright cancel the deal. Notably, Felix Tshisekedi, the son of one of the Congolese politicians who had vowed to revisit the Sicomines agreement, was eventually elected president in 2018. It was his father, Étienne Tshisekedi, who had promised, as part of his own 2011 presidential campaign, to revise *les contrats chinois* (“the Chinese contracts”). Until recently, it did not appear as though he would re-negotiate the Sicomines agreement. But, more than four years after assuming power, Tshisekedi traveled to Beijing in 2023 to renegotiate the Sicomines contract. Something similar has happened as part of the Ecuadorian case, as President Guillermo Lasso also travelled to Beijing in 2022—the year before Tshisekedi did—to renegotiate his country’s loans. In the Ecuadorian case, President Lasso’s visit was followed by an announcement that his country had reached an agreement to restructure \$4.4 billion in debt, which would save Quito \$1 billion from 2022-2025. During his visit, President Tshisekedi asked for the Congolese state to be allocated 70 percent of the Sicomines venture (up from 32 percent as it was initially agreed) (N.A., 2024). In early-2024, it was announced that, following the negotiations, “Chinese construction companies will invest up to \$7 billion in infrastructure projects” (Ibid.), though little is known about the structure of these investments.

These political business cycle risks can exist as part of any sovereign debt agreement, but they are particularly salient in the case of RBLs due to these loans’ size and the fact that they have implications for future natural resource rents. As both Ecuador and the Democratic Republic of Congo’s presidents visited China to renegotiate the terms of their countries’ respective RBLs, the repayment risks posed by borrowing countries’ political business cycles are not negligible. It would therefore be unsurprising if they were reflected in higher interest rates.

Mechanism 3: Resource Security (Ghana Case Study)

Resource-backing is used as a risk-mitigation strategy, but how much risk is mitigated by such a loan structure directly depends on the value and security of the underlying resource. The case of Ghana’s \$2 billion Master Project Support Agreement (MPSA), which was repaid with proceeds from Ghana’s underdeveloped bauxite industry, demonstrates why not all RBLs have the same risk mitigation effects.

In May 2018, the Government of Ghana and Sinohydro Co. Ltd. signed the MPSA, which encompassed various projects aimed at improving critical infrastructure in Ghana, including rural electrification, construction of hospitals, bridges, roads, affordable housing and fishing landing sites. The projects funded under the MPSA are to be repaid from proceeds generated from the sale of refined bauxite, following a predefined deferred payment schedule for each project. According to the terms of the MPSA, Sinohydro finances 85 percent of the total construction costs, with the Government of Ghana contributing the remaining 15 percent. The first wave of MPSA projects carried a price tag of \$646.6 million. The underlying loans amounted to \$550 million and carried an interest rate of six months US Libor + 2.8 percent per annum. As the borrower, the newly formed Ghana Integrated Aluminum Development Corporation (GIADC), operates as an independent entity established by the Ghanaian government to manage bauxite resources and repayment, with no direct financial liability placed on the government (N.A., 2018).



Under the MPSA, Ghana will repay Sinohydro using proceeds from refined bauxite sales, to develop an integrated bauxite-aluminum industry, rather than merely exporting raw bauxite (Purwins 2023). However, an interview with a representative of the Ghanaian Ministry of Finance, who participated in the negotiation process with Sinohydro in Beijing, revealed that from the point of view of the Chinese, though the loan was to be repaid using bauxite, the bauxite resource itself was not considered collateral for the loan. This is primarily due to the volatility of Ghana's bauxite production. As a former economist at the Ghanaian Ministry of Finance interviewed in 2022 explained: "The Chinese did not view bauxite as a 'safe' resource for loan collateral. Chinese banks mostly assessed regular macroeconomic indicators, such as fiscal space, when evaluating the risk of this loan. The bauxite mine operates as a joint venture between Sinohydro and a Ghanaian firm, and the Chinese were cautioned about the productivity of the bauxite mine due to the joint-venture nature of the partnership. Another factor is that, unlike well-established resources like cocoa or gold, there is no guarantee of the total reserves of Ghana's bauxite mine."

This case highlights the rationale behind China's decision to apply higher interest rates to the loan despite having resources to serve as collateral, particularly in the context of the instability in natural resource extraction. While the loan is repaid using the proceeds of bauxite sales, the interest rate remains pegged at the commercial level. This can at least partly be attributed to the uncertain nature of Ghanaian bauxite production.

CONCLUSION

Resource-backed loans comprise almost 43 percent of the roughly \$843 billion in Chinese state finance from 2000-2017, for which interest rates are available. By combining lending—which is predominantly used to finance Chinese-provided infrastructure—and resource extraction, RBLs have greater economic and political implications than their non-RBL counterparts. Rather unsurprisingly, the models presented in this working paper demonstrate that resource backing itself is impacted by resource wealth, economic risk and loan size. (Large) Chinese loans to risky resource-rich countries are much likelier to employ this contractual structure than smaller loans to solvent countries with few natural resources. More surprisingly, our models also demonstrate that loans that are insured by Sinosure are disproportionately likely to be resource-backed—which means that these loans are *de-risked* through both resource-backing and insurance. More surprisingly still, the second set of models presented in the paper demonstrates that even though resource-backing represents a risk-mitigating strategy, loans that are resource-backed nevertheless carry significantly higher interest rates than non-RBLs. In other words, Chinese loans are often subjected to a triple risk mitigation strategy—resource-backing, insurance and high interest rates.

This working paper explores three possible mechanisms, which are expected to impact RBLs differently than non-RBLs, to explain this finding. The first mechanism explored relates to corruption. As discussed, Chinese loans to the resource-rich are more likely to be resource-backed. Resource-rich countries are also more likely to suffer from high corruption levels. The risks associated with corruption are especially marked in the case of RBLs, as the agreements weave together complex financial and extractive agreements, often in utmost secrecy. There are two possible mechanisms through which corruption could drive up the cost of Chinese RBLs. First, financiers might recognize the risks inherent to working with corrupt governments and adjust interest rates. Second, government officials who might stand to personally benefit from large-scale RBLs, through kickbacks or embezzlement, might not be incentivized to negotiate their terms aggressively. The second such mechanism is the political business cycle. RBLs, by combining large financing packages with resource extraction, are often extremely politically contentious. This was the case for all three case studies explored in this paper. Furthermore, in both Ecuador and the Democratic Republic of Congo specifically, opposition



politicians vowed to cancel their countries' loan agreements with China if elected. In fact, both the Congolese and Ecuadorian presidents recently traveled to Beijing to renegotiate their RBLs in recent years. Finally, the paper explores the relationship between the security of the resources that are used as collateral for RBLs and interest rates. RBLs that are underpinned by uncertain resource deposits from Beijing's standpoint—whose extraction might lag or whose deposits may not meet expectations—may be subject to higher interest rates than other RBLs, as in Ghana.

These findings contribute to the study of Chinese foreign policy and economic statecraft, the literature on the political risks of sovereign lending and the broader literature on international political economy by demonstrating that Chinese state capital is not as different from global private capital in terms of risk tolerance as has been argued in the existing literature. Much like global private capital, Chinese state lenders seek to reduce their risk exposure, and resource-backing—along with higher interest rates and loan insurance—is a way to do so.

REFERENCES

- Alden, C., & Large, D. (2015). On Becoming a Norms Maker: Chinese Foreign Policy, Norms Evolution and the Challenges of Security in Africa. *The China Quarterly*, 221, 123-142.
- Alves, A. C. (2013). Chinese Economic Statecraft: A Comparative Study of China's Oil-backed Loans in Angola and Brazil. *Journal of Current Chinese Affairs*, 42(1), 99-130.
- Bailey, M. A., Strezhnev, A., & Voeten, E. (2017). Estimating Dynamic State Preferences from United Nations Voting Data. *The Journal of Conflict Resolution*, 61(2), 430-456.
- Boston University Global Development Policy Center. (2023). Chinese Loans to Africa Database. Retrieved from <http://bu.edu/gdp/chinese-loans-to-africa-database>.
- Brautigam, D. (2009) *The dragon's gift: The real story of China in Africa*. Oxford, UK: Oxford University Press.
- Brautigam, D. (2011). Aid with Chinese characteristics: Chinese aid and development finance meet the OECD-DAC regime. *Journal of International Development*, 23(5), 752-764.
- Brautigam, D., & Gallagher, K. P. (2014). Bartering Globalization: China's Commodity-backed Finance in Africa and Latin America. *Global Policy*, 5(3), 346-352.
- Brautigam, D., Huang, Y., & Acker, K. (2020). *Risky Business: New Data on Chinese Loans and Africa's Debt Problem* (Research Report 03/2020). China Africa Research Initiative (CARI), School of Advanced International Studies (SAIS), Johns Hopkins University.
- Bunte, J. B. (2018). Sovereign lending after debt relief. *Review of International Political Economy*, 25(3), 317-339.
- Bunte, J. B. (2019). *Raise the Debt: How Developing Countries Choose their Creditors*. Oxford, UK: Oxford University Press.
- Burgos, S. and Ear, S. (2010). China's strategic interests in Cambodia: Influence and resources. *Asian Survey* 50(3)m 615-639.
- Chalmers, A. W., & Mocker, S. T. (2017). The end of exceptionalism? Explaining Chinese National Oil Companies' overseas investments. *Review of International Political Economy*, 24(1), 119-143.
- Chen, M. (2020). Beyond Donation: China's Policy Banks and the Reshaping of Development Finance. *Studies in Comparative International Development*, 55(4), 436-459.



- Chen, M. (2023A). China's rise and the reshaping of sovereign debt relief. *International Affairs*, 99(4), 1755-1775.
- Coppedge, M., Gerring, J., Knutsen, C., & Lindberg, S. (2023). *V-Dem Codebook v13. Varieties of Democracy Project*. [dataset].
- Custer, S., Dreher, A., Elston, T.-B., & Fuchs, A. (2021). *Tracking Chinese Development Finance: An Application of AidData's TUFF 2.0 Methodology*. [dataset].
- Dollar, D. (2018). Is China's Development Finance a Challenge to the International Order? *Asian Economic Policy Review*, 13(2), 283-298.
- Dreher, A., Fuchs, A., Parks, B., Strange, A. M., & Tierney, M. J. (2018). Apples and Dragon Fruits: The Determinants of Aid and Other Forms of State Financing from China to Africa. *International Studies Quarterly*, 62(1), 182-194.
- Foster, V., Butterfield, W., Chen, C., & Pushak, N. (2009). *Building Bridges: China's Growing Role as Infrastructure Financier for Sub-Saharan Africa*. Washington, DC: World Bank.
- Gallagher, K. P., & Irwin, A. (2015). China's Economic Statecraft in Latin America: Evidence from China's Policy Banks. *Pacific Affairs*, 88(1), 99-121.
- Gbohoui, W., Ouedraogo, R., & Some, Y. (n.d.). *Sub-Saharan Africa's Risk Perception Premium: In the Search of Missing Factors*. Washington, DC: International Monetary Fund.
- Gelpern, A., Horn, S., Morris, S., Parks, B., & Trebesch, C. (2022). How China Lends: A Rare Look into 100 Debt Contracts with Foreign Governments. *Economic Policy*, eiac054.
- Gupta, S., Mati, A., & Baldacci, E. (2008). *Is it (Still) Mostly Fiscal? Determinants of Sovereign Spreads in Emerging Markets*. Washington, DC: International Monetary Fund.
- Hoeffler, A. and Sterck, O. (2022). Is Chinese aid Different? *World Development*, 156, 1-16.
- Horn, S., Reinhart, C. M., & Trebesch, C. (2021). China's overseas lending. *Journal of International Economics*, 133, 103539.
- Kaplan, S. B. (2021). *Globalizing Patient Capital: The Political Economy of Chinese Finance in the Americas*. Cambridge University Press.
- Kaplan, S. B., & Thomsson, K. (2017). The Political Economy of Sovereign Debt: Global Finance and Electoral Cycles. *The Journal of Politics* 79(2): 605-623.
- Kern, A. and Reinsberg, B. (2022). The Political Economy of Chinese Debt and IMF Conditionality. *Global Studies Quarterly*, 2(4), ksac062.
- Kose, M. A., Kurlat, S., Ohnsorge, F., & Sugawara, N. (2022). A cross-country database of fiscal space. *Journal of International Money and Finance*, 128, 102682.
- Landry, D. (2018). The risks and rewards of resource-for-infrastructure deals: Lessons from the Congo's Sicomines agreement. *Resources Policy*, 58, 165-174.
- Landry, D. (2021) Under a money tree? Comparing the determinants of Western and Chinese development finance flows to Africa. *Oxford Development Studies* 49(2): 149-168.
- Landry, D. and Portelance, G. (2021). More Problems More Money? Does China Lend More to African Countries with Higher Credit Risk Levels? Center for Global Development. <https://www.cgdev.org/publication/more-problems-more-money-does-china-lend-more-african-countries-higher-credit-risk>



- Lee, C. K. (2018). *The Specter of Global China: Politics, Labor, and Foreign Investment in Africa*. University of Chicago Press.
- Meidan, M. (2016). *China's loans for oil: Asset or liability?* Oxford, UK: Oxford Institute for Energy Studies.
- Mihalyi, D., Hwang, J., Rivetti, D., & Cust, J. (2021). *Resource-Backed Loans in Sub-Saharan Africa*. Washington, DC: World Bank.
- Morris, S., Parks, B., & Alysha, G. (2020). Chinese and World Bank Lending Terms: A Systematic Comparison Across 157 Countries and 15 Years. Washington, DC: Center for Global Development.
- Moses, O., Springer, C., & Gallagher, K. P. (2023). *Demystifying Chinese Overseas Lending and Development Finance: Why China Became the World's Largest Official Bilateral Lender*. Boston University Global Development Policy Center.
- N.A. (2018). *Report of the Finance Committee on the Master Project Support Agreement (MPSA) between the Government of the Republic of Ghana and Sinohydro Corporation Limited for an Amount up to Two Billion United States Dollars (US\$2.00 Billion) for the Construction of Priority Infrastructure Projects*. Accra, GH: Parliament of Ghana.
- N.A. (2024). *Chinese companies to invest up to \$7 billion in Congo mining infrastructure*. Reuters.
- Naim, M. (2009, October 15). Rogue Aid. *Foreign Policy*.
- Parks, B. C., Malik, A. A., Escobar, B., Zhang, S., Fedorochko, R., Solomon, K., Wang, F., Vlasto, L., Walsh, K. & Goodman, S. 2023. Belt and Road Reboot: Beijing's Bid to De-Risk Its Global Infrastructure Initiative. Williamsburg, VA: AidData at William & Mary.
- Purwins, S. (2023). Same Same, but Different: Ghana's Sinohydro Deal as Evolved 'Angola Model'? *Insight on Africa*, 15(1), 46-70.
- Rudyak, M. & Chen, Y. (2021). *China's lending landscape and approach to debt relief*. London, UK: Overseas Development Institute.
- Salah Ovadia, J. (2018). State-led industrial development, structural transformation and elite-led plunder: Angola (2002-2013) as a developmental state. *Development Policy Review*, 36(5), 587-606.
- Schneyer, J., & Perez, N. (2013, November 26). Special Report: How China took control of an OPEC country's oil. *Reuters*.
- Shi, W. (2015). *The Political Economy of China's Outward Direct Investments* [Ph.D.] San Diego, CA: University of California.
- Soto, A. (2008). Ecuador foreign investment tumbles, outlook murky. *Reuters*.
- Stone, R. W., Wang, Y., & Yu, S. (2022). Chinese Power and the State-Owned Enterprise. *International Organization*, 76(1), 229-250.
- The Economist*. (2020). Ecuador's trial of the century opens. Retrieved from: <https://www.economist.com/the-americas/2020/02/06/ecuadors-trial-of-the-century-opens>
- Taylor, I. (1998). China's foreign policy towards Africa in the 1990s. *Journal of Modern African Studies* 36(3), 443-460.
- Vizcarra, C. (2009). Guano, Credible Commitments, and Sovereign Debt Repayment in Nineteenth-Century Peru. *The Journal of Economic History*, 69(2), 358-387.
- Weitzman, H. (2007, March 28). Ecuador lawmaker dismissals 'illegal.' *Financial Times*.
- Zweig, D. and Jianhai, B. (2005). China's global hunt for energy. *Foreign Affairs*.



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