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More Problems More Money? Does China Lend More to African Countries with Higher Credit Risk Levels?

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China has provided hundreds of billions of dollars in loans to developing countries. Researchers and pundits have focused on China's motivations for allocating development finance, particularly in Africa, due to debt sustainability concerns. This paper aims to contribute to the understanding of the ways in which creditworthiness impacts the Chinese government's development finance allocation decisions. In doing so, it examines the impact of African countries' creditworthiness levels on Chinese development finance commitments. It also explores the impact of African country creditworthiness on Chinese loan cancellations and forgiveness. This paper finds that a disproportionate share of Chinese government loan commitments to African countries are made to governments with high credit risk levels. It also finds that, as African countries' creditworthiness decreases, their likelihood of having Chinese loan commitments canceled increases. This underscores the importance of greater transparency from—and coordination with—China in its approach to debt sustainability and its attitude toward risk on the African continent, as well as the importance of building African debt management and capacity to ensure responsible borrowing. Finally, the paper finds negative, though weak, relationship between creditworthiness and Chinese loan forgiveness. In other words, as opposed to what the debt trap diplomacy hypothesis would suggest, Chinese loans to risky countries are more likely to be forgiven.

China ha proporcionado préstamos por valor de cientos de miles de millones de dólares a países en desarrollo. Los investigadores y los expertos se han centrado en las motivaciones que podría tener China para asignar este financiamiento para el desarrollo, particularmente en África, debido a las preocupaciones en materia de sostenibilidad de la deuda. Este artículo tiene como objetivo contribuir a la comprensión de las formas en que la solvencia influye sobre las decisiones en materia de asignación de financiamiento para el desarrollo por parte del Gobierno chino. Para ello, el artículo estudia el impacto que ejercen los niveles de solvencia de los países africanos sobre los compromisos de financiamiento para el desarrollo por parte de China. El artículo, también, explora el impacto que tiene el nivel solvencia de los países africanos sobre las cancelaciones y condonaciones de préstamos por parte de China. El artículo llega a la conclusión de que una parte desproporcionada de los compromisos de préstamos por parte del Gobierno chino a los países africanos se realizan a Gobiernos con altos niveles de riesgo crediticio. También concluye que, a medida que disminuye la solvencia de los países africanos, aumenta la probabilidad de que se cancelen los compromisos de préstamos por parte de China. Esto pone de relieve la importancia que tienen una mayor transparencia y coordinación por parte de China con respecto a la sostenibilidad de la deuda y a su actitud hacia el riesgo en el continente africano, así como la importancia de fomentar la gestión de la deuda africana y la capacidad para garantizar un endeudamiento responsable. Por último, el documento encuentra una relación negativa, aunque débil, entre la solvencia y la condonación de préstamos por parte de China. En otras palabras, y a diferencia de lo que sugeriría la hipótesis de la diplomacia de la trampa de la deuda, resulta más probable que China condone los préstamos a países de riesgo.

La Chine a prêté des centaines de milliards aux pays émergents. Les chercheurs et les experts se sont concentrés sur les motivations des attributions financières de développement chinoises, notamment en Afrique, car ils s'inquiétaient de la viabilité de la dette. Cet article vise à enrichir notre compréhension des effets de la solvabilité sur les décisions d'attributions financières de développement du gouvernement chinois. Ce faisant, il analyse l'incidence des niveaux de solvabilité des pays africains sur les engagements financiers de la Chine en matière de développement. Il examine par ailleurs l'effet de la solvabilité des pays africains sur l'annulation et l'exonération des prêts chinois. Cet article conclut qu'une part démesurée des engagements de prêt du gouvernement chinois aux pays africains sont pris en faveur de gouvernements au niveau de risque de crédit élevé. De plus, quand la solvabilité des pays africains diminue, la probabilité d'une annulation d'un engagement de prêt chinois augmente. Ainsi apparaît l'importance d'une plus grande transparence de la part de (et en coordination avec) la Chine dans son approche de la viabilité de la dette et son attitude à l'égard du risque sur le continent africain, ainsi que l'importance d'une mise en place d'une capacité et d'une gestion de la dette africaine pour garantir des emprunts responsables. Enfin, selon l'article, il existe une relation négative, bien que faible, entre la solvabilité et l'exonération de prêts chinois. Autrement dit, par opposition aux suggestions de l'hypothèse de la diplomatie du piège de la dette, les emprunts chinois en faveur de pays à risque ont plus de chance de se voir exonérés.

Introduction

When Zambia benefited from USD 3.8 billion in debt write-offs in 2005 as part of the Highly Indebted Poor Countries Initiative in 2005, it pledged to avoid taking new nonconcessional loans (Brautigam and Wang 2021). Despite that pledge, Lusaka borrowed heavily from China in the years that followed.[1] In fact, Zambian government and Zambian state-owned enterprises have since "entered into at least 77

[1]Zambia is among China's "oldest and closest friends in sub-Saharan Africa" (Brautigam 2009, p. 40). In fact, it was the main beneficiary of China's first development megaproject abroad, the Tanzania–Zambia Railway (TAZARA). The railway, which allowed Zambia to bypass apartheid South Africa to bring its copper to world markets, was financed through two CNY 494 million (USD 200 million) interest-free loans to Tanzania and Zambia (NA 2022).

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different loan contracts with Chinese financiers, many at commercial rates" and, "in 2012, 2014, and 2015, Zambia issued three Eurobonds totaling USD 3 billion, with interest rates as high as 8.97 percent" (Brautigam 2021, p. 5). By 2017, Zambia was once again identified by the International Monetary Fund (IMF) as being at "high risk" of debt distress (Brautigam and Wang 2021). That did not stop the flow of Chinese loans to the country—that year, Chinese banks agreed to USD 2.65 billion in new loans to Zambia (Custer et al. 2023). The following year, Zambia's then-President Edgar Lungu announced that nonpriority unfinished projects would be suspended, and that Zambia would sign no new loans (ibid. 2023). Much like Zambia's 2005 pledge to not take new nonconcessional loans, this commitment was short-lived. The very next year, Lusaka borrowed USD 187 million from Chinese banks to fund new army barracks (Brautigam and Wang 2021).

African countries make up half of the 50 countries most indebted to China as a percentage of gross domestic product (GDP) (Gandhi 2019; Horn, Reinhart, and Trebesch 2019). As of 2018, China was the continent's largest bilateral creditor, accounting for 22 percent of sub-Saharan Africa's public external debt stock (Huang and Brautigam 2020). In Zambia, that figure was 26 percent (ibid. 2020). China's emergence as a major financier of African infrastructure has coincided with renewed concerns about the continent's debt sustainability. As of 2019, 24 African countries had a debt-to-GDP ratio of more than 55 percent (Onyekwena and Ekeruche 2019), and the average cost of servicing debt as a share of government revenue on the continent has doubled from 5 to 10 percent between 2012 and 2017 (Coulibaly et al. 2019). Today, roughly a third of countries in sub-Saharan Africa are at high risk of debt distress (ibid. 2019). In light of these trends, observers have sounded the alarm over an impending debt crisis across Africa (Gill and Karkulah 2018). The implementation of debt relief initiatives, such as the 1996 Heavily Indebted Poor Countries Initiative and the 2005 Multilateral Debt Relief Initiative (MDRI), was followed by nearly a decade of reduced debt burdens. China's emergence as a major financier of infrastructure projects, and thus as a contributor to growing public debt, sparked renewed concern about sovereign debt sustainability.

Until recently, relatively little empirical research explored the determinants of Chinese development finance. This is largely due to the fact that Chinese development finance flows only ballooned in the past 20 years (see figure 1). However, even as Chinese loans mushroomed and piqued the interest of scholars, Beijing's opacity about development finance, and the fact that it does not report outflows in a systematic manner, made any empirical research on it particularly difficult. The emergence of databases such as those produced by the China–Africa Research Initiative (CARI) and AidData have equipped scholars with the tools needed to better understand Chinese finance. Similarly, the 2009 publication of Brautigam's *The Dragon's Gift* helped shape much of the subsequent research on Chinese development finance, which has since grown dramatically in scale and scope. That said, though the scholarship on Chinese finance has expanded, many questions remain unanswered, including when it comes to the critical link between borrower credit risk and Chinese lending. In aggregate terms, does China commit more loans to African countries with high levels of credit risk? Does Beijing disproportionately cancel its loan commitments to risky countries? And are less creditworthy countries more likely to see their Chinese loans forgiven? By answering these questions, this paper aims to contribute to the understanding of the ways in which creditworthiness relates to Chinese development finance.

In line with Dreher et al. (2018a), Landry (2021), and Hoeffler and Sterck (2022), this paper explores the determinants of Chinese finance in Africa, but does so with an added focus on the role of credit risk. More specifically, it tests the impact of African countries' creditworthiness levels on their loan commitments from China, the probability that their Chinese loan commitments are canceled, and the likelihood that their outstanding loans might be forgiven by Beijing. To do so, it employs gravity models borrowed from the trade literature (Isard 1954; Tinbergen 1962; Anderson 2011) and data on Chinese loans to Africa produced by the CARI at Johns Hopkins University (the Chinese Loans to Africa Database, which is now hosted at Boston University's Center for Global Development Policy Center) and AidData at the College of William and Mary (Version 1.0 of the Global Chinese Official Finance Dataset). While the loan commitment data used for some of the paper's models is freely available, the data on canceled and forgiven loans had to be compiled separately, with the invaluable help of both CARI and AidData researchers.

This paper finds that a disproportionate share of Chinese loan commitments to African countries are made to governments with high credit risk levels. It also finds that, as countries' credit risk levels decrease, so does their share of Chinese loan commitments that come to fruition—though the relationship only holds for the models that employ the CARI data. Finally, the paper finds that African countries' creditworthiness has a weak but negative association with Chinese loan forgiveness. In other words, countries with higher levels of credit risk are more likely to see their Chinese loan commitments canceled before they have materialized or forgiven after they have been disbursed. In sum, the paper finds no evidence of "debt trap diplomacy" in the patterns of Chinese lending to Africa. However, it does find that many Chinese loan commitments are made with too little regard for countries' credit risk levels, leaving risky countries that receive lofty loan commitments—the very countries that often face financing shortfalls—with a higher likelihood of seeing these loans cancelled.

Chinese Development Finance: Demand, Supply, and Risk

China stresses that its development finance is "demand-led" (Zeitz 2021). Bunte (2019), who explores the demand-side of sovereign credit using a mix of South American case studies, and a large-n statistical analysis, concludes that "the evidence strongly supports the argument that developing countries make choices among competing loan offers." Bunte's models suggest that societal coalitions—or the combinations of powerful interest groups—shape governments' decisions on where to look for funding. In Bunte's own words, "Policymakers try to satisfy the two most influential groups simultaneously by borrowing from the creditor that is jointly preferred by both groups" (p. 30) Bunte's models demonstrate that countries whose politics are dominated by coalitions that pair labor and industry at the expense of the financial sector are more likely to borrow from BRICs members than Western governments, multilateral institutions, and private creditors.

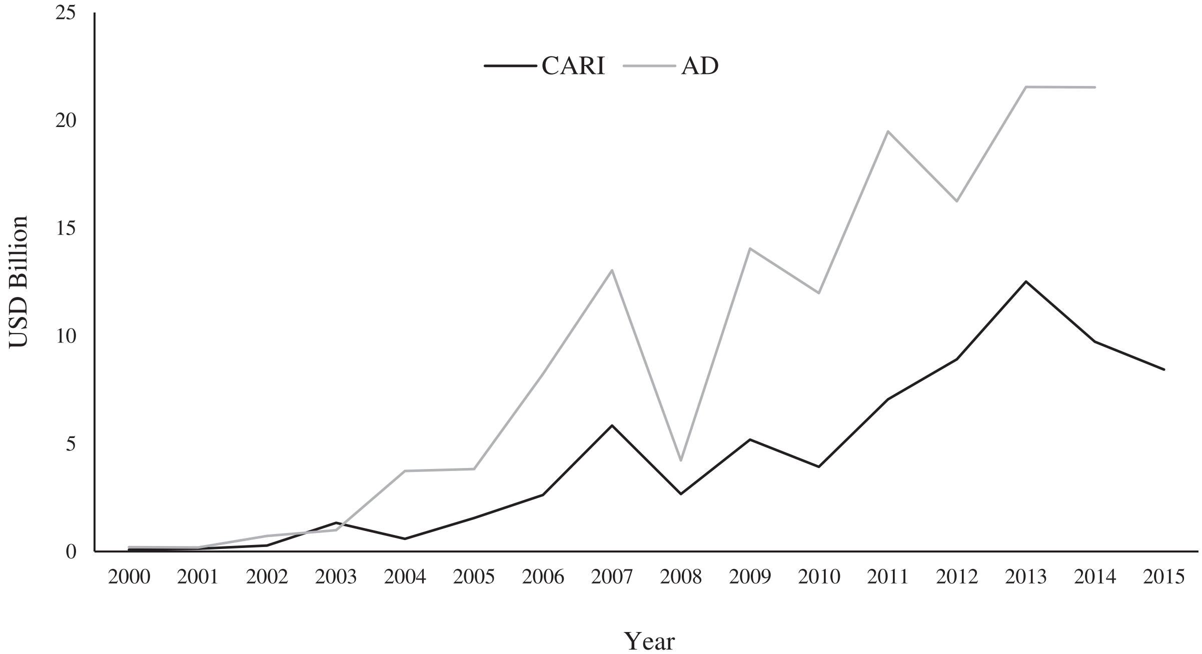

Figure 1. Yearly Chinese loan commitments to Africa.

Beyond the preferences of interest groups, Chinese loans can be useful for both national governments and individual leaders. First, as Chinese finance disproportionately targets infrastructure, it can serve as a solution for a host of unmet needs. In fact, according to the Chinese Loans to Africa database, USD 130 billion of the USD 170.1 billion in Chinese loans to Africa since 2000 have targeted the energy; transport; information and communication technology; and water, sanitation, and waste sectors alone. As Dreher et al. (2022, p. 125) point out, "Leaders of the developing world frequently lavish praise on the Chinese government for its willingness to bankroll the "hardware" of economic development—roads, railways, power plants, electricity grids, and telecommunication systems." This is particularly welcome in Africa, as an annual infrastructure financing gap of approximately USD 68–108 billion persists on the continent (NA 2018). As discussed by Swedlund (2017), this approach differs from that of many traditional donors, who in recent decades have prioritized social sectors. Second, Beijing is not concerned with governance quality issues among recipient countries, and it is largely indifferent to their policy framework choices—as long as they repay their loans. As Chin and Gallagher (2019) point out, when borrowing from China, many countries welcome the lack of policy conditionalities that often come with financing from the West. Kaplan (2021, p. 13) makes a similar observation: "China's patient capital, which is distinct from private financial capital, tends to endow national governments with greater policy discretion." Third, Chinese financiers are unencumbered by some of the environmental, social, and governance safeguards that often slow down Western finance, and offer relatively speedy loan delivery (see Swedlund 2017; Chen and Landry 2018; Zeitz 2021). Former Senegalese President Abdoulaye Wade (2008) put is as follows: "What makes China much more interesting to deal with, is that a contract that would take 5 years to discuss, negotiate, and sign with the World Bank takes 3 months when we have dealt with Chinese authorities." Finally, Chinese development finance can also be personally useful for leaders in recipient countries. As Dreher et al. (2019) demonstrate, the home regions of African political leaders receive disproportionate shares of their countries' development finance from China in the years when they hold power—and no such relationship exists for World Bank-financed projects (ibid. 2019). This suggests that Chinese finance is particularly attractive for leaders keen to practice pork barrel politics.

In *Banking on Beijing: The Aims and Impacts of China's Overseas Development Program*, Dreher et al. (2021) explore the supply-side of Chinese development finance and provide an excellent overview of the domestic factors that have contributed to the spike in Chinese lending that has taken place in the past 20 years. First and foremost, the adoption in 1999 of the Going Out policy, which prompted domestic firms with excess capacity to find new markets with the help of China's policy banks, led to a massive increase in Chinese finance abroad. This finance was intended to bolster demand for that excess Chinese capacity. In their words, "in the fifteen-year period (2000–14) following Beijing's adoption of the Going Out strategy, China's overseas development spending skyrocketed" (p. 4). In addition to the overproduction problem faced by bloated Chinese state-owned enterprises, Beijing faced a foreign exchange glut because of China's massive trade surpluses (ibid. 2021), which it could offload through development finance. Finally, Chinese authorities recognized that natural resources would be needed to fuel continued domestic growth, and lending could facilitate their acquisition (ibid. 2021).

In recent years, our understanding of what factors impact the distribution Chinese development finance has grown dramatically. Overall, 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 face debt distress turn to the IMF, establish that "China loan defaulters are not different from defaulters of non-Chinese creditors." In line with Western aid flows, which are largely driven by political and economic considerations,[2] Chinese finance is linked to UN General Assembly voting patterns (Taylor 1998; Brautigam 2009; Landry 2021; Hoeffler and Sterck 2022) 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. 2022; Landry 2021). Though similar factors drive Chinese development finance as that of the West, Landry (2021) finds that their relative importance varies. He finds that bilateral trade and UN voting alignment have a stronger impact on China's development finance than that of Western countries and that China allocates more development finance than the West to richer and more resource-dependent African countries. Finally, with regards to governance, he finds that "Western countries send more development finance than China to better governed African countries—those with lower corruption levels, better democratic outcomes, and a better human rights track record (though only the latter two have a negative relationship with Chinese development finance in absolute terms)" (p. 1).

The existing empirical literature convincingly demonstrates that Chinese development finance allocation follows Beijing's strategic political and economic interests, but questions remain regarding how Beijing responds to the prospect that its loans might go unpaid. For instance, how China weights credit risk when extending development finance to African countries? Two of the papers that address the determinants of Chinese development finance quantitatively includes credit risk (debt-to-GDP ratio) as a predictor variable (Dreher et al. 2018a; Hoeffler and Sterck 2022). Dreher et al. (2018a) find that debt-to-GDP ratio is negatively associated with nonconcessional Chinese finance, such as loans, while Hoeffler and Sterck (2022) find no significant relationship between the two. In both cases, however, the testing is limited to loan commitments.

Chinese loan commitments are not ironclad. Chinese creditors can approach them in a relatively cavalier way without exposing themselves to credit risk. However, when they do disburse loans, Chinese government creditors generally expect to be repaid. A rich literature shows that Chinese policy banks indeed prioritize "bankable" projects and assess loans based on commercial criteria (Brautigam 2009; Corkin 2011; Sun 2014). Indeed, according to one Chinese official with experience at both the China Export–Import Bank (CEIB) and the China Development Bank, "cancellation is not possible, even for concessional loans" (Brautigam and Hwang 2016). There are also instances where risk aversion manifested itself more directly in the actions of Chinese policy banks. In the Democratic Republic of Congo's infamous Sicomines deal, when Kinshasa rejected the changes it proposed to reduce its risk exposure, CEIB 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 putting a stop to projects, Chinese state lenders have a diverse set of tools at their disposal to protect their loans. First, in cases where a project's risk level is considered high, there is evidence that commercial loans from CEIB require insurance cover from Sinosure—China's official export credit insurance agency (Brautigam and Hwang 2016). Beyond that, Chinese lenders use what Dreher et al. (2021) 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). These tools include commodity-backed loans and escrow accounts. Analysing a set of 100 Chinese loans to twenty-four countries, Gelpern et al (2021) find that many Chinese loans feature clauses requiring the creation of collateral arrangements, like creditor-controlled accounts where government revenues are kept, or agreements to exclude debt from collective loan restructuring (ibid. 2021). They also find that some clauses in Chinese contracts entitle lenders to terminate loans and demand immediate full repayment on them 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). All of this suggests that, between loan commitments and disbursements, Chinese creditors likely pay much more attention to would-be borrowers' creditworthiness levels.

Finally, when it comes to responding to debt crises among borrowers, China generally adopts a "new money" strategy, instead of the debt forgiveness approach that many other donors now prone (Chen 2023). In her words, "China has written off zero-interest foreign aid loans capitalized by government revenue, which account for a rather small portion of its overseas development finance, but insists on not writing off bank loans, which represent the vast majority; while it has frequently restructured loans, it has rarely made changes in interest rates or reduced their principal." (ibid. 2023, p. 1760). In a similar vein, Horn et al. (2023) demonstrate that Chinese lenders respond to the challenges posed by debt distress and defaults through two main coping strategies: "first, bilateral sovereign debt restructurings—typically with maturity extensions but no face value cuts—and, second, rescue loans that allow debtors to avoid or delay default." More specifically, they demonstrate that Beijing is more likely to employ debt restructuring for low-income borrowers and rescue loans for emerging market countries. This suggests that debt forgiveness is rare and might be more likely to be extended to low-income borrowers with little prospects of being able to repay their loans.

Research Questions and Hypotheses

This paper explores China's responses to credit risk by testing whether the creditworthiness of African countries has an impact on Chinese government loan commitments as well as instances of Chinese loan cancellations and forgiveness. It tests the following hypotheses:

H1. *African countries' creditworthiness levels are expected to have no relationship with Chinese loan commitments.*

This hypothesis is informed by three points. First, given the fact that the allocation of development finance is integral to Chinese soft power, Beijing sometimes commit unrealistic sums of money when launching a diplomatic charm offensive. For instance, though it did not constitute a commitment per this paper's definition, China pledged USD 60 billion in new development finance at the 2018 Forum on Africa–China Cooperation (Sun 2018).[3] Second, Chinese government loan commitments are not ironclad—they can be subject to changes or outright cancellations. Thus, there is little reason to believe that assiduous risk assessments are

[2] 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).

[3] Thus far, this has been followed by less than USD 13 billion in actual new loan commitments, per the paper's definition.

carried out by Chinese financiers before they pledge these sums. Finally, as Chen (2023) observes, Chinese banks sometimes assess the creditworthiness of projects rather than that of the sovereign borrowers when disbursing loans. Therefore, no significant relationship between creditworthiness and Chinese loan commitments is expected.

H2. *African countries with higher credit risk levels are expected to experience more loan cancellations.*

Chinese state lenders expect to be repaid for their loans and are apt to take various measures to ensure they will not have to take haircuts (see Gelpern et al. 2021; Dreher et al. 2021). Therefore, they are also expected to be less cavalier about disbursing loans than about committing money to political and economic partners. The cases of the Democratic Republic of Congo and Kenya, where loans that had been committed for highly ambitious and visible projects were shelved in response to CEIB's risk considerations, support this hypothesis.

H3. *Chinese lenders are expected to forgive more loans to African countries with high credit risk levels.*

Instances of Chinese loans being forgiven are rare. Instead of forgiving loans, China practices what Chen (2023) calls a "new money approach" to debt-relief, which entails continued financing for existing projects. Despite Beijing's reluctance to forgive loans, less creditworthy countries are expected to experience insolvency—and therefore be in a position where they simply cannot repay their loans to China—more often than more creditworthy countries. In response, they are more likely to see outstanding loans forgiven by Beijing.

Methodology and Data

This paper tests the relationship between African countries' credit risk and development finance takes place through gravity models (Isard 1954; Tinbergen 1962; Anderson 2011), which are presented in the equation below. Because Angola accounts for a disproportionate share of Chinese lending activities in Africa, results that exclude Angola are also presented in Appendix A. Two distinct models are used for each specification (the preferred models are presented in the paper and the alternative models are presented in Appendix B). The paper's first question is tested using the Poisson pseudo-maximum-likelihood (PPML) estimation, which represents the preferred estimation technique.[4] The results of the alternative ordinary least squares (OLS) regression models are presented in the appendix. The dependent variable in these models is the total yearly value of Chinese loan commitments to individual African countries. The preferred estimation technique for the second and third questions of the paper is OLS,[5] and Logistical Regression (LOGIT) model results are presented in the appendix.[6] In these models, the dependent variable takes a value of one if a Chinese loan cancellation took place in the observed country-year and a value of zero otherwise.

All the paper's models control for various economic, political, and geographic factors, in addition to whether the borrowing country has borrowed from China in the past (See Data Table 1 and Data Table 2 for a complete list of included variables and their correlation coefficients). Year fixed effects are included in some models to account for time-specific factors, such as changes in Beijing's lending priorities, which may lead to substantial changes in aggregate lending activity over time. The models also control for country fixed effects to account for potential omitted time-invariant factors that could impact Chinese lending. To deal with potential issues of endogeneity, as well as to reflect the fact that the impacts of changes in predictor variables may take time to materialize, the independent variables are lagged in all the models, in line with Dreher et al. (2018b). Finally, to detect multicollinearity, a variance inflation factor test was run on all the paper's predictor variables. The highest result was 3.31 (population), which suggests that multicollinearity is not an issue in the models.

Equation:

$$y_{it} = \alpha x_{it-1} + \beta z_{it-1} + \gamma n_{it-1} + \varepsilon_{jt},$$

where:

- y_{it} is the total development finance commitments from China to African country i in year t (Q1); takes a value of one if a Chinese loan commitment to African country i was canceled in year t and a value of zero otherwise (Q2); takes a value of one if a Chinese loan to African country i was forgiven in year t and a value of zero otherwise (Q3).
- $X_{it\text{-}1}$ is a vector of United Nations (UN) voting pattern alignment, bilateral trade (log), and geographic distance (log) between China and African country i during year t–1.
- $Z_{it\text{-}1}$ is a vector of variables reflecting the economic and demographic characteristics of African country i—its population (log), GDP (log), GDP per capita (log), and resources wealth (as a percentage of GDP)—in year t–1.
- $n_{it\text{-}1}$ is a vector of variables reflecting the risk factors of the African country i—political risk and credit risk (the variable of interest)—in year t–1.
- ε_{it} is the error term.

The independent variable of interest—credit worthiness—refers to the degree of certainty that loans provided by official creditors to national governments will be repaid.[7] It is drawn from the OECD's Country Risk Classification index, which classifies countries based on the minimum premiums they can expect to pay to receive export credits.[8] This index was adopted because of its

[4]The PPML model, pioneered by Santos Silva and Tenreyro (2006), naturally deal with the multiple zeros in the dependent variable, essentially combining aspects of the extensive and intensive margin models in a single specification (Mityakov, Tang, and Tsui 2013). In other words, they capture whether development finance is sent to a country (the extensive margin) and how much (the intensive margin). Another advantage of the PPML estimation is that it is consistent in the presence of heteroskedasticity (ibid. 2013).

[5]The OLS linear probability model is preferred, even though it provides less consistent results than the LOGIT model on average, because the outcomes of interest in the models—loan cancellations and loan forgiveness—are quite rare. As Timoneda (2021) demonstrates, linear probability models produce more accurate estimates and predicted probabilities than maximum-likelihood specifications when fixed effects are included in models.

[6]The LOGIT Model is preferred to Probability Unit (PROBIT) Model because it is more flexible assumptions regarding the distribution of errors (Abe et al. 2004).

[7]Neither the index reflecting the creditworthiness of individual African receiving countries and the one capturing their political risk exhaustively capture how these phenomena that play out in the real world. That said, these variables do offer enough breadth to capture the variance in creditworthiness and political risk in different 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 the purpose of 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.

[8]This index, which is published on a monthly basis, ranges between values of 1 (lowest risk) and 7 (highest risk). This paper uses the first monthly country ratings

extensive coverage across African countries and over many years and because it relates specifically to the risk associated with export credit, which accounts for a substantial large share of Chinese loans to African countries.[9] The two alternative variables used to denote creditworthiness—debt-to-GDP ratio and the number of IMF arrangements being implemented in a country in a given year—are drawn from the WB and IMF Monitor, respectively. Debt-to-GDP ratio is included as a control in some of the paper's models, along with the creditworthiness index. The number of IMF arrangements in place in a country is used as an alternative to the OECD creditworthiness index in the models presented in Appendix C.

The variable reflecting African countries' political stability is generated using the WB's Worldwide Governance Indicator that captures "perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism."[10] The other variables reflecting the characteristics of the African countries sampled—their GDP, GDP per capita, population, and the importance of natural resource rents as a share of their economic output—all come from the WB.

The data reflecting bilateral factors specific to China and the fifty-four African countries explored in this paper come from various sources. The bilateral trade variable reflecting the total trade flows between two countries is drawn from the UN Comtrade Database. The dummy variables capturing country pairs' colonial and linguistic ties, as well as the data reflecting the distance between country pairs' respective capital cities, are all compiled by the Centre d"Etudes Prospectives et d"Informations Internationales (CEPII). Finally, the variable measuring the voting alignment of country pairs at the UN in a given year uses ideal point estimates compiled by Bailey, Strezhnev, and Voeten.[11] This variable reduces a highly complex phenomenon that takes place over the span of a year into a single digit indicator and should thus be interpreted with caution. That said, this limitation is particularly relevant when analyzing short time periods, though this is not the case in this paper.

In line with Ingram and Mosbacher (2018), development finance is defined as "the use of public sector resources to facilitate private sector investment in low- and middle-income countries where the commercial or political risks are too high to attract purely private capital, and where the investment is expected to have a positive developmental impact on the host country." This paper employs development finance data from two sources. The preferred data, collected by CARI, reflects Chinese government loans to individual African countries for the years 2000–2015.[12] While the CARI dataset contains Chinese loans from (and to) government and nongovernment sources alike, this paper employs government loans data only.[13] The models that feature the alternative data, collected by AidData, covers the years 2000–2014.[14] Using these two sources of data, three distinct datasets are compiled, on loan commitments, loan cancellations, and debt forgiveness.[15]

The first set of models presented in this paper explore the Chinese loan commitments, which represent the total yearly loan agreements reached between Chinese state actors and their African counterparts. In analyzing Chinese development finance, a careful distinction must be made between MOUs, commitments, and disbursements. At one end of the spectrum, MOUs represent nonbinding agreements, which are frequently canceled by one of their signatories long before a check is signed, dirt shoveled, or a ribbon cut. At the other, disbursements refer to those instances when money is transferred from Chinese coffers to recipient country accounts. While China's MOUs reflect lofty development finance objectives, they appear to infrequently move beyond that initial phase (Hurley et al. 2018). Recent estimates find that only two to four percent of MOUs actually lead to projects in Africa (Bello 2010). Commitments fall somewhere between nonbinding MOUs and in-the-bank disbursements. While, as previously discussed, they are not ironclad, they generally involve more certainty than MOUs, as they are reported by official sources. In the words of Brautigam and Hwang (2016): "We are reluctant to assume that a MOU, or even a project contract, with an announced intention to secure Chinese finance, is the same as a commitment."

The paper's second set of models explore the determinants of loan cancellations, which represent instances where commitments were made by official Chinese lenders and reported by credible sources, but where no disbursements took place. In total, according to the CARI database, USD 10.97 billion in Chinese government loans to African countries were canceled that way between 2000 and 2015.

The third set of models presented in this paper explore loan forgiveness, which represents instances where lines of credit were established but then written off. Between 2000 and 2019, China canceled at least USD 3.4 billion in African debt, often related to pledges made at the Forum on China–Africa Cooperation (Acker et al. 2020). China's first wave of debt forgiveness came in 2000, and targeted African countries with a backlog of delinquent or previously restructured zero-interest loans (ibid. 2020). Zero-interest loans, which are extended by the Chinese Ministry of Commerce instead of Beijing's policy banks, still make up the vast majority of forgiven debt (ibid. 2020).

Finally, it is worth noting that when loans are actually disbursed, their interest rates and even payment sched-

issued each year, which are transformed to positive values and standardized as follows: *standardized creditworthiness* = $[(7–credit\ risk)—\mu]/\sigma$.

[9]For instance, Brautigam and Gallagher (2014) state: "The bulk of Chinese finance is not subsidized and should be seen as export credits rather than foreign assistance."

[10]This yearly measure ranges from −2.5 (highest likelihood) to +2.5 (lowest likelihood). It is converted to a positive value and then standardized, as follows: *standardized political stability* = $[(political\ stability\ and\ absence\ of\ violence + 2.5)—\mu]/\sigma$.

[11]The figures are standardized as follows: *standardized UN voting alignment* = $[UN\ voting\ alignment\ ideal\ point\ estimates—\mu]/\sigma$.

[12]CARI researchers' data collection efforts represented the first effort to estimate Chinese loans in Africa from the bottom up, as opposed to relying on media reports to do so (Brautigam and Hwang 2014). The methodology employed by CARI features rigorous data collection, cross-verification, and cleaning, emphasizing the "official websites of central banks and ministries of finance, Chinese contractors, and personal contacts in China and in African countries" (ibid. 2014, p. 7). To ensure accuracy, CARI only counted loans of USD 25 million or more confirmed as signed "by a representative of the Chinese bank or the Chinese government, or an official commitment by a reliable source or official website" (ibid. 2014, p. 7).

[13]These are defined as loans from China's policy banks, including China Export–Import Bank and China Development Bank, as well as the Chinese Ministry of Commerce, to African governments and state-owned enterprises.

[14]This dataset encompasses all reported Chinese government loans (these are coded as "export credit," "loan" and "vague TBD" by AidData) to African governments (including specific government agencies and central banks). Chinese government loans include loans from the Chinese Ministry of Commerce, other government agencies, as well as China's policy banks.

[15]The comprehensiveness of these data is almost certainly limited. China makes little information regarding its development finance outflows publicly available. While this paper uses the most comprehensive sources available on Chinese development finance to African countries, neither captures the full slate of Chinese development finance loans to African countries—only full transparency on the part of Beijing could achieve that.

Data Table 1. Summary statistics of the data

Variables	*Mean*	*SD*	*Min*	*Max*	*Source(s)*
1. Loan commitments (CARI)	8.22e + 07	2.98e + 08	0	4.02e + 09	CARI
2. Loan commitments (AD)	1.62e + 08	6.31e + 08	0	9.65e + 09	AD
3. Loan cancellation (CARI)	1.27e + 07	1.50e + 08	0	3.10e + 09	CARI
4. Loan cancellation (AD)	1.20e + 07	2.11e + 08	0	5.90e + 09	AD
5. Loan forgiveness (CARI)	2,160,775	1.19e + 07	0	2.11e + 08	CARI
6. Loan forgiveness (AD)	2,094,685	1.32e + 07	0	2.11e + 08	AD
7. Credit worthiness (Index)	0	1	−0.610	3.01	OECD
8. Debt to GDP ratio	0.55	0.56	0.03	4.86	WB
9. IMF programs	7.70	23.25	0	143	IMF Monitor
10. Political stability (Index)	0	1	−2.15	1.93	WB
11. Population	1.82e + 07	2.62e + 07	81,131	1.82e + 08	WB
12. GDP per capita (PPP)	4,930	6,550	400	48,711	WB
13. Resources (percent of GDP)	15.17	16.221	0.00	81	WB
14. Bilateral trade	1.94e + 09	5.71e + 09	155,000	6.52e + 10	UN
15. Political alignment (Index)	0	1	−4.05	1.11	Bailey et al.
16. Geographic distance	10,642	1,516	7,551	12,967	CEPII
17. Past Chinese lending (CARI)	0.60	0.49	0	1	CARI
18. Past Chinese lending (AD)	0.67	0.47	0	1	AD

Data Table 2. Correlation coefficients

Variables	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
1. Credit worthiness (Index)	1									
2. Debt to GDP ratio	0.22	1								
3. IMF programs	0.13	0.05	1							
4. Political stability (Index)	−0.36	−0.08	−0.00	1						
5. Population	−0.11	−0.23	−0.05	−0.40	1					
6. GDP per capita (PPP)	−0.26	−0.22	−0.11	0.30	−0.10	1				
7. Resources (percent of GDP)	0.19	0.10	0.00	−0.32	0.13	0.29	1			
8. Bilateral trade	−0.27	−0.14	−0.06	−0.04	0.32	0.08	0.16	1		
9. Political alignment (Index)	0.02	0.07	0.04	0.16	−0.09	−0.20	−0.12	−0.02	1	
10. Geographic distance	0.09	0.17	0.10	0.22	−0.16	−0.16	0.06	0.11	0.25	1

ules may be revised. For instance, according to Hancock (2019), developing countries have renegotiated about USD 50 billion in Chinese loans over the past decade. Similarly, Hurley et al. (2018) point out that China has restructured or waved loans in at least 85 instances over the last 15 years. Such cases would not appear in the loan cancellation or debt forgiveness models presented in this paper.

Results

The models presented in Results Table 1 largely fail to support the paper's first hypothesis, which predicted that African countries' level of creditworthiness would simply not matter—one way or another—in predicting Chinese loan commitments. Instead, all the AidData models and the CARI models that do not feature fixed effects suggest that China commits to lending more money to African governments with higher credit risk levels. More specifically, according to Models 1 and 3 of Table 1, which feature the preferred CARI dataset, a standard deviation increase in creditworthiness among African countries—slightly more than the difference between Kenya and Zimbabwe in 2015—is effectively associated with a drop to zero in Chinese loan commitments (statistically significant at the 1 percent level).[16] What this suggests is that not only are Chinese creditors willing to make loan commitments to African countries with little regard for credit risk, they may even be risk-seeking in terms of their loan commitments.

Results Table 1 suggests that, controlling for year and borrowing country fixed effects, creditworthiness does not positively relate to Chinese loan commitments. But does creditworthiness—or, more specifically, a lack thereof—impact whether or not Chinese loan commitments that come to fruition? In other words, does it impact Chinese loan cancellations?

Results Table 2 addresses this question by testing whether or not China overpromises when it commits to lending funds to African countries only to reconsider its commitments to potentially insolvent debtor countries when the time comes to sign checks. The models presented in Results Table 2 partially support the paper's second hypothesis, which states that less creditworthy countries are more likely to see their Chinese loan commitments canceled. Though most of the AidData models fail to support the paper's second hypothesis, the models that employ the CARI data strongly suggest that, as African countries' level of creditworthiness declines, Chinese loan cancellationsincrease. Conversely, countries with relatively low levels of credit risk are exceedingly unlikely to have their Chinese loan commitments canceled.

[16]The implied response to changes in institutional quality is computed as $e(\beta_{\text{Creditworthiness}})-1$.

Results Table 1. Creditworthiness and loan commitments (PPML)

	CARI				AidData			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Creditworthiness (Index)	−0.699***	−0.245	−0.723***	−0.219	−0.621***	−1.130***	−0.679***	−1.216***
	(0.150)	(0.386)	(0.156)	(0.385)	(0.157)	(0.395)	(0.164)	(0.402)
Debt to GDP ratio			−0.351	−0.211			0.0857	1.323**
			(0.342)	(0.623)			(0.308)	(0.550)
Political stability (Index)	0.225	0.0207	0.225	−0.00737	0.316	−0.390	0.338	−0.270
	(0.145)	(0.304)	(0.150)	(0.323)	(0.281)	(0.260)	(0.299)	(0.271)
Population (Log)	0.348**	−5.096	0.317**	−5.771	0.587***	6.835	0.603***	6.695
	(0.147)	(7.199)	(0.149)	(7.328)	(0.165)	(6.119)	(0.181)	(5.842)
GDP per capita, PPP (Log)	−0.0626	−2.546*	−0.0400	−2.465	0.0180	−3.949***	0.0400	−4.926***
	(0.183)	(1.497)	(0.196)	(1.547)	(0.171)	(1.235)	(0.176)	(1.376)
Resources (percent of GDP)	−0.00839	0.00865	−0.00654	0.00888	−0.00178	0.00124	−0.000939	−0.00363
	(0.00888)	(0.0185)	(0.00911)	(0.0186)	(0.00812)	(0.0190)	(0.00866)	(0.0190)
Trade (Log)	0.598***	0.413	0.581***	0.436	0.459***	−0.514	0.483***	−0.426
	(0.111)	(0.404)	(0.113)	(0.419)	(0.0992)	(0.354)	(0.105)	(0.353)
UN voting (Index)	0.450	−0.487	0.454	−0.501	0.296	0.629	0.209	0.557
	(0.688)	(0.719)	(0.686)	(0.726)	(0.719)	(0.818)	(0.767)	(0.835)
Distance (Log)	−0.556		−0.675		1.166		0.980	
	(1.185)		(1.184)		(1.253)		(1.286)	
Past Chinese lending	2.444***	0.00890	2.317***	−0.0139	0.973*	−0.520	0.826	−0.624
	(0.431)	(0.559)	(0.443)	(0.557)	(0.543)	(0.685)	(0.551)	(0.611)
Year and recipient FE		Yes		Yes		Yes		Yes
observations	633	529	601	513	633	529	601	511
R-squared	0.188	0.406	0.186	0.406	0.136	0.594	0.138	0.604

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

Results Table 2. Creditworthiness and loan cancellations (OLS)

	CARI				AidData			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Creditworthiness (Index)	−0.0173**	−0.0537*	−0.0250***	−0.0672**	−0.00521	0.00626	−0.0111*	0.00489
	(0.00831)	(0.0276)	(0.00943)	(0.0292)	(0.00635)	(0.0135)	(0.00614)	(0.0136)
Debt to GDP ratio			0.00751	0.0445			0.0153*	0.00550
			(0.0180)	(0.0289)			(0.00837)	(0.0135)
Political stability (Index)	−0.00497	−0.0123	−0.000685	0.00362	0.00459	0.0108	0.00643	0.0108
	(0.00880)	(0.0254)	(0.00981)	(0.0261)	(0.00723)	(0.0156)	(0.00745)	(0.0166)
Population (Log)	0.00856	0.349*	0.0109	0.474**	0.0125**	−0.0421	0.0155**	−0.0353
	(0.00667)	(0.181)	(0.00723)	(0.222)	(0.00569)	(0.0740)	(0.00648)	(0.0863)
GDP per capita, PPP (Log)	0.0116	0.134*	0.0170	0.139	0.0151*	0.0447	0.0204**	0.0656
	(0.0121)	(0.0786)	(0.0141)	(0.0912)	(0.00816)	(0.0454)	(0.00936)	(0.0500)
Resources (percent of GDP)	0.000208	0.00385**	0.000525	0.00405**	−0.000100	0.000330	3.28e−05	0.000820
	(0.000609)	(0.00170)	(0.000766)	(0.00200)	(0.000304)	(0.000855)	(0.000345)	(0.000984)
Trade (Log)	−0.000282	−0.0112	−0.000357	−0.00742	−0.00287	−0.00590	−0.00242	−0.00812
	(0.00426)	(0.0182)	(0.00487)	(0.0212)	(0.00259)	(0.00679)	(0.00257)	(0.00656)
UN voting (Index)	0.00339	−0.0187	−0.00670	−0.0194	−0.0273	−0.0180	−0.0405	−0.0233
	(0.0420)	(0.0447)	(0.0458)	(0.0466)	(0.0352)	(0.0385)	(0.0397)	(0.0411)
Distance (Log)	0.0306		−0.00217		0.0498		0.0357	
	(0.0611)		(0.0632)		(0.0489)		(0.0567)	
Past Chinese lending	0.0323**	−0.0157	0.0269	−0.0155	0.0218**	−0.00425	0.0203**	−0.00458
	(0.0147)	(0.0300)	(0.0169)	(0.0307)	(0.00869)	(0.0146)	(0.0102)	(0.0151)
Year and recipient FE		Yes		Yes		Yes		Yes
observations	633	633	601	601	633	633	601	601
R-squared	0.023	0.149	0.031	0.159	0.019	0.122	0.027	0.125

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

As discussed in the previous sections of the paper, China has been reluctant to restructure and even forgive loans in recent years, and strongly prefers using a "new money" approach when dealing with debt distressed borrowers (Chen 2023). This helps explain the rarity of loan forgiveness. According to the CARI database, Chinese loan cancellations have taken place in 61 of the 864 country-years included in this paper's data.

Results Table 3 answers the paper's third question and helps elucidate whether less creditworthy countries are

Results Table 3. Creditworthiness and loan forgiveness (OLS)

	CARI				*AidData*			
	(1)	*(2)*	*(3)*	*(4)*	*(1)*	*(2)*	*(3)*	*(4)*
Creditworthiness (Index)	−0.0218*	0.0290	−0.0253**	0.0117	−0.0167*	−0.0211	−0.0183*	−0.0279
	(0.0113)	(0.0299)	(0.0126)	(0.0304)	(0.00860)	(0.0280)	(0.00958)	(0.0284)
Debt to GDP ratio			0.0550	0.0485			0.0213	0.00335
			(0.0334)	(0.0426)			(0.0268)	(0.0361)
Political stability (Index)	0.0238	0.0134	0.0318*	0.0258	0.00405	−0.0176	0.00714	−0.0185
	(0.0160)	(0.0221)	(0.0171)	(0.0228)	(0.0138)	(0.0237)	(0.0147)	(0.0250)
Population (Log)	0.0241**	−0.499**	0.0335***	−0.411*	0.0170	−0.183	0.0212*	−0.176
	(0.0121)	(0.199)	(0.0120)	(0.223)	(0.0109)	(0.119)	(0.0111)	(0.147)
GDP per capita, PPP (Log)	−0.00689	0.0364	0.00329	0.0265	0.00415	−0.0649	0.00835	−0.0872
	(0.0158)	(0.0817)	(0.0158)	(0.102)	(0.0141)	(0.0931)	(0.0143)	(0.115)
Resources (percent of GDP)	0.000803	0.000577	0.000909	0.000654	0.000273	−0.000400	0.000320	−0.000500
	(0.000755)	(0.00173)	(0.000890)	(0.00199)	(0.000525)	(0.00122)	(0.000663)	(0.00142)
Trade (Log)	−0.00590	0.000882	−0.00417	0.00649	−0.00695	−0.00184	−0.00670	−0.000420
	(0.00696)	(0.0221)	(0.00741)	(0.0226)	(0.00634)	(0.0163)	(0.00675)	(0.0179)
UN voting (Index)	−0.0508	−0.0116	−0.0691	−0.00494	−0.00553	0.0206	−0.0128	0.0352
	(0.0550)	(0.0724)	(0.0582)	(0.0754)	(0.0402)	(0.0492)	(0.0433)	(0.0523)
Distance (Log)	0.192***		0.210**		0.122**		0.131*	
	(0.0699)		(0.0850)		(0.0598)		(0.0696)	
Past Chinese lending	0.0245	0.0182	0.0307	0.0252	0.00972	−0.000299	0.0140	−0.00129
	(0.0243)	(0.0384)	(0.0266)	(0.0390)	(0.0234)	(0.0406)	(0.0255)	(0.0427)
Year and recipient FE		Yes		Yes		Yes		Yes
observations	633	633	601	601	633	633	601	601
R-squared	0.031	0.315	0.041	0.330	0.020	0.251	0.022	0.261

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

more likely to be on the receiving end of debt forgiveness from Beijing. The models presented therein provide limited support for the paper's third hypothesis, which predicts that creditworthiness is negatively associated with loan forgiveness. Though China appears more likely to forgive loans extended to countries that represent a significant insolvency risk (at the 5 or 10 percent level, for the CARI and AidData models alike), the relationship disappears once recipient country and year fixed effects are included in the models.

Though limited geographically and temporally, the fact that loans to countries experiencing debt distress can be canceled contradicts the most extreme version of the "debt trap" narrative that portrays China as seeking to ensnare poor countries through easy credit (unless the ruse is so elaborate as to involve debt forgiveness).

Discussion: The Zambian Case

Zambia's case, which was briefly explored in the opening section of the paper, is perhaps best placed to illustrate the findings presented in the previous section. As suggested in the introduction, Lusaka has often borrowed too aggressively on overly onerous terms, and Chinese creditors have often been too willing to indulge it. Between Zambia's 2005 debt write-off and the onset of the COVID pandemic in late-2019, Chinese state-controlled and/or state-owned banks reached ninety-seven loan agreements totaling more than USD 13 billion with Zambia (Custer et al. 2023). One of these loan packages, for the construction of the Kafue Gorge Hydroelectric Power Station project, totaled USD 1.53 billion and carried a whopping 10.33 percent interest rate (ibid. 2023).

The initial MOU for the Kafue project was signed in 2010. Just 2 years prior, in 2008, Zambia had resorted to an IMF Extended Credit Facility that had been accompanied by sixty-four programs (Kentikelenis and Stubbs 2023). At the time, Zambia's score on the OECD credit risk classification was six (the second-worst possible score) and it did not have a sovereign credit rating. The following year, on its first credit rating, Zambia was assigned a grade of "B+"—which is not "investment grade"—by both Fitch and Standard & Poor's (NA 2011). There was a change in government in Lusaka in 2011, the year a commencement ceremony for the project was supposed to take place, and the incoming Minister of Finance "questioned whether the project would be sufficiently beneficial to Zambia" (Custer et al. 2023). The project was stalled for a few years but, in 2017, Lusaka—though the Kafue Gorge Lower Power Development Corporation Limited—signed the USD 1.53 billion construction loan package with CEIB and Industrial and Commercial Bank of China (ICBC) (ibid. 2023). By that time, Zambia's credit rating had been downgraded to "B" by both Fitch and Standard & Poor's (NA 2017). Interestingly, as reported by Aid Data, "The final facility (loan) agreement included eighty-seven loan conditions, none of which has been made public [and] Sinohydro Corporation Ltd. reportedly pushed to help the Government of Zambia complete all conditions before the syndicate would commit to finalizing the facility agreement." (Custer et al. 2023).

The unsustainability of Zambia's debt position soon became apparent to Chinese lenders. As early as late-2019 and early-2020—before the devastating effects of the COVID pandemic became apparent—ICBC showed reluctance to continue making loan disbursements for the project because "the Government of Zambia had defaulted on its repayment obligations to several other external creditors" (Custer et al. 2023). Later in 2020, Kafue Gorge Lower Power Development Corporation Limited defaulted on its payment obligations to CEIB and

ICBC (ibid. 2023). It was subsequently reported that interest payments worth USD 312 million were capitalized "so that the borrower would not have to make loan repayments until the power plant began generating revenue" (ibid. 2023).

In 2020, Zambia became the first African country to default on its debts amidst the global COVID-19 pandemic (Thomas et al. 2023). In the aftermath, it became a test case for the debt restructuring framework of the Group of 20 (G20), which was initiated during the pandemic to streamline debt relief to debtor countries at risk of debt distress in the aftermath of the pandemic (Cash 2023). Much was at stake for Zambia, as an agreement was necessary for the IMF to be able to disburse USD 189 million in support to Lusaka (Cash 2023). Chinese loans to Lusaka made up the lion's share of the USD 6.3 billion in Zambian debt that needed restructuring as part of its 2020 default. In fact, almost two-thirds of the total was owed to CEIB alone (Thomas et al. 2023). It was also reported that the USD 1.53 billion Kafue loan package—owed to CEIB and ICBC—was part of the debt restructuring, though China had apparently requested for it to be "ring-fenced" (Hill 2023).

The case of Zambia—and the loan package that financed the Kafue project in particular—is a clear example of how Chinese financiers sometimes make loan commitments, which will often need revisiting, to countries with high credit risk levels. That said, as discussed above, if Beijing engaged in the most extreme type of debt-trap diplomacy sometimes described in the West, Zambia's loans would likely not have been restructured. It is also worth noting, however, that this case does not necessarily imply munificence on Chinese creditors' part. Another likely explanation is that, when borrowing countries are insolvent—something more likely among countries with lower levels of creditworthiness, like Zambia—Chinese creditors have little choice but to restructure or forgive loans.

Conclusions and Policy Recommendations

A widespread narrative about Chinese development finance—in Africa in particular—is the idea that Beijing offers "easy credit" (LaFraniere and Grobler 2009). Some accounts of Chinese development finance go as far as labeling it "debt trap diplomacy" (Chellaney 2017). In its most extreme form, the concept implies that China is using unsustainable loans to push countries into insolvency for geopolitical leverage over them and, often, vis-à-vis the West. Proponents of this narrative often cite the 2017 Hambantota Port case, whereby Sri Lanka signed over the strategically important port in a 99-year lease due to its inability to repay its loan.[17]

As this paper demonstrates, the dynamics of Chinese lending to African countries are more complex than that. On the one hand, the results of this analysis suggest that China may be more willing to make loan commitments to African countries with little regard for their creditworthiness. This is hardly surprising given the role these commitments play for advancing diplomatic ties between Chinese and African governments. On the other hand, the reality is different when it comes to loan cancellations and forgiveness—which contradict the debt-trap diplomacy narrative. The paper's preferred models linking creditworthiness and loan cancellations—those that employ the CARI database—demonstrate that African countries' creditworthiness levels impact the share of Chinese government loans that are ultimately disbursed. Overall, these results suggest that Chinese lenders are willing to make lofty loan commitments to risky African countries—perhaps because their risk calculus or hope for repayment differ from those of Western creditors. However, they appear to undertake some level of risk assessment before disbursing loans. And, therefore, potentially insolvent African countries are more likely to see a greater share of their Chinese loan commitments vanish than their more solvent counterparts. Finally, China appears more likely to forgive debt for risky borrowers, though the relationship is weak and disappears with the inclusion of country fixed effects. It is also worth noting that, as Kern and Reinsberg (2022) find, these rare instances of Chinese loan forgiveness are not sufficient to prevent countries that are borrowing from China from seeking bailout funding from the IMF.

While the debt-trap diplomacy continues to get a great deal of attention in Western policy circles, other (less ominous) hypotheses have been put forth to explain why China may be willing to disregard the creditworthiness of African countries. First, Chinese infrastructure loans open up opportunities for Chinese firms and workers, which addresses the problem of domestic overcapacity (Sun 2014). Second, it is possible that these loans aim to help secure a market for Chinese goods—which would be supported by the literature that finds a strong positive relationship between bilateral trade and Chinese development finance (Su 2017; Landry 2021). Third, China's financing to Africa may be linked to securing natural resources (Dreher et al. 2022). Finally, Chinese financiers use various tools to mitigate risk, including the use of escrow accounts and commodity-backing (Gelpern et al. 2021).

It is worth noting that China appears to be moving toward greater discipline with regards to avoiding causing unsustainable debt.[18] While these steps are commendable, key questions remain on whether they will lead to substantial change and more prudent lending. Furthermore, Chinese lenders should consider greater transparency in their attitude toward risk and their approach on debt sustainability, especially vis-à-vis multilateral institutions and individual African countries. They should also consider utilizing their DSFs to complement existing mechanisms, as opposed to encouraging competition (Morris and Plant 2019). Finally, in light of the results presented in this paper when it comes to loan cancellations, Chinese lenders should exercise more caution in making loan commitments, especially in light of the consequences of unrealized loans for would-be borrowing countries' public finances. The countries that are most likely to see their loan commitments evaporate—those with lower levels of creditworthiness—are often the same countries that face public finance issues.

Among Western actors, this research highlights the need for a more nuanced characterization of Chinese development finance activities in Africa by researchers, pundits, and policymakers. In the same vein, Western actors should craft policy responses to the phenomenon of Chinese develop-

[17]There is little empirical support for this narrative. For instance, poring over its 1,000 + loans database, CARI researchers have not come across any examples where China deliberately entangled an African country in debt and then used that debt to exact some strategic advantage (Brautigam 2019).

[18]For example, in November 2017, the China Banking Regulatory Commission issued its first ever regulations for Chinese policy banks, emphasizing greater risk controls (Hurley et al. 2018). At the 2019 Belt and Road Initiative Forum for International Cooperation, China released a debt sustainability framework (DSF) that is very similar to the one jointly produced by the WB and the IMF. Yet, the Chinese DSF differs from that of the two international financial institutions by specifying that a high debt distress risk rating may not be a barrier to lending if the Chinese government deems the project economically viable (Olander 2019).

ment finance that are fit for a more complex Chinese lending landscape than what popular narratives suggest. The results presented in this paper point to a need for greater coordination with China in responding to debt sustainability issues. If China commits more loans to countries with lower levels of creditworthiness than Western donors, not only does it risk opening itself up to debt sustainability issues, but it might impact the debt sustainability trajectories of African countries. From the point of view of Western donors, Chinese debt stocks are also noteworthy because of the contractual clauses highlighted by Gelpern et al. (2021), which aim to ensure that Chinese loans are favored when it comes to repayment.

Finally, the positive link between credit risk and loan commitment cancellations identified in this paper highlights a need for greater planning capacity and adaptability among African countries. Unrealized lending can leave African countries in vulnerable positions. This is especially salient in the case of MOUs, which rarely lead to projects (Bello 2010). Similarly, the lofty commitments made by Chinese officials might crowd out Western donors, only for loans not to come to fruition. As such, African countries should emphasize planning and transparency and make preparations for canceled loans. Furthermore, caution is warranted for African countries in evaluating Chinese loan rescheduling and forgiveness. Recent research published by CGD found that the Republic of Congo was made worse off by rescheduling debt to Beijing (Gardner et al. 2020). This underpins the importance of making agreements transparent and of capacity building among borrowing countries, which could enable them to negotiate on more favorable terms (ibid. 2020). Finally, while full transparency from China on its development finance would be ideal, African loan recipients could also report that information publicly and accurately. As Zambian President Hakainde Hichilema, shortly after being inaugurated in 2021, put it, “We had known for a long time that there was nonfull disclosure. (. . .) So now that we’re in, we are beginning to see that the debt numbers that were being talked about officially are not really the comprehensive numbers.” (Brautigam and Wang 2021, p. 1).

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Supplementary Information

Supplementary information is available in the *Global Studies Quarterly* data archive.

References

Abe, A., Y. Boztug, and L. Hildebrandt. 2004. “Investigating the Competitive Assumption of Multinomial Logit Models of Brand Choice by Nonparametric Modeling.” *Computational Statistics* 19 (4): 635–57.

Acker, K., D. Brautigam, and Y. Huang. 2020. *Debt Relief with Chinese Characteristics*. Washington, DC: China Africa Research Initiative.

Alesina, A., and D Dollar. 2000. “Who Gives Foreign Aid to Whom and Why?” *Journal of Economic Growth* 5 (1): 33–63.

Alves, A. 2013.“China’s “Win-win” Cooperation: Unpacking the Impact of Infrastructure-for-resources Deals in Africa.” *South African Journal of International Affairs* 20 (2): 207–26.

Anderson, J.E. 2011. “The Gravity Model.” *Annual Review of Economics* 3 (1): 133–60.

Berthelemy, J-C. 2006. “Bilateral Donors’ Interest vs. Recipients’ Development Motives in Aid Allocation: Do all Donors Behave the Same?.” *Review of Development Economics* 10 (2): 179–94.

Bello, R. Quoted in Zonensein, M. 2010. *Nigeria Secures Chinese Agreement for Refineries*. New York, NY: Engineering News Record.

Brautigam, D. 2009. *The Dragon’s Gift: The Real Story of China in Africa*. Oxford: Oxford University Press.

———. 2011. “Aid With Chinese Characteristics: Chinese aid and Development Finance Meet the OECD-DAC Regime.” *Journal of International Development* 23 (5): 752–64.

———. 2021. *How Zambia and China Co-Created a Debt “Tragedy of the Commons*.” Washington, DC: China Africa Research Initiative.

Brautigam, D., and K. Gallagher. 2014. “Bartering Globalization: China’s Commodity-backed Finance in Africa and Latin America.” *Global Policy* 5 (3): 346–52.

Brautigam, D., and J. Hwang 2014. "Eastern promises: New data on Chinese loans in Africa, 2000 To 2014." Washington, DC: China Africa Research Initiative.

Brautigam, D., and J. Hwang. 2016. *Eastern Promises: New Data on Chinese Loans in Africa, 2000 to 2014*. Washington, DC: China Africa Research Initiative.

Brautigam, D. 2019. "A critical look at Chinese ‘debt-trap diplomacy’: The rise of a meme." *Area Development and Policy* 1: 1–13.

Brautigam, D., and Y. Wang. 2021. *Zambia’s Chinese Debt in the Pandemic Era*. Washington, DC: China Africa Research Initiative.

Bunte, J. B. 2019. *Raise the Debt: How Developing Countries Choose their Creditors*. Oxford: Oxford University Press.

Burgos, S., and S. Ear. 2010. “China’s Strategic Interests in Cambodia: Influence And Resources.” *Asian Survey* 50 (3): 615–39.

Burnside, C., and D. Dollar 2000 “Aid, policies, and growth.” *American Economic Review* 90 (4): 847–68.

Cash, J. 2023. *Zambian President to Visit China, Seeks to Formalise June Debt Deal*. London: Reuters.

Chellaney, B. 2017. *China’s Debt-Trap Diplomacy*. New York, NY: Project Syndicate.

Chen, M. 2023. “China’s Rise and the Reshaping of Sovereign Debt Relief.” *International Affairs* 99 (4): 1755–75.

Chen, Y, and D Landry. 2018. "Capturing the rains: Comparing Chinese and World Bank hydropower projects in Cameroon and pathways for South-South and North South technology transfer." : *Energy Policy* 115: 561–571.

Chin, G., and K. Gallagher. 2019. “Coordinated Credit Spaces: The Globalization of Chinese Development Finance.” *Development and Change* 50 (1): 245–74.

Claessens, S., D. Cassimon, and B. Van Campenhout. 2009. “Evidence on Changes in aid Allocation.” *World Bank Economic Review* 23 (2): 185–208.

Corkin, L. 2011. “Redefining Foreign Policy Impulses Toward Africa: The Roles of the MFA, the MOFCOM and China Exim Bank.” *Journal of Current Chinese Affairs* 29 (2): 169–80.

Coulibaly, B., D. Gandhi, and L. Senbet. 2019. *Is Sub-Saharan Africa Facing Another Systemic Sovereign Debt Crisis?*. Washington, DC: Brookings Institution.

Custer, S., A. Dreher, T. B. Elston, B. Escobar, R. Fedorochko, A. Fuchs, and S. Ghose et al. 2023. *Tracking Chinese Development Finance: An Application of AidData’s TUFF 3.0 Methodology*. Williamsburg, VA: Aid Data.

Dollar, D., and V. Levin. 2004. *The Increasing Selectivity of Foreign Aid, 1984-2002*. Working Paper. Washington, DC: World Bank.

Dreher, A., A. Fuchs, R. Hodler, B. Parks, P. A. Raschky, and M. J. Tierney. 2019. "African Leaders and the Geography of China's Foreign Assistance." *Journal of Development Economics* 140: 44–71.

Dreher, A., A. Fuchs, B. Parks, A. Strange, and M. J. Tierney. 2018a. "Apples and Dragon Fruits: The Determinants of Aid and Other Forms of State Financing from China to Africa." *International Studies Quarterly* 62 (1): 182–94.

———. 2021. "Aid, China, and growth: Evidence from a new Global Development Finance Dataset." *American Economic Journal: Economic Policy* 13 (2): 135–74.

———. 2022. *Banking on Beijing: The Aims and Impacts of China's Overseas Development Program.* Cambridge: Cambridge University Press.

Gardner, A., J. Lin, S. Morris, and B. Parks 2020. "Bargaining with Beijing: A Tale of Two Borrowers.", *DC: AidData and Center for Global Development* Williamsburg: VA and Washington.

Gandhi, D. 2019. *Figure of the Week: China's 'hidden' Lending in Africa.* Washington, DC: Brookings Institution.

Gelpern, A., S. Horn, S. Morris, B. Parks, and C. Trebesch. 2021. *How China Lends: A Rare Look Into 100 Debt Contracts With Foreign Governments.* Williamsburg, VA: AidData.

Gill, I., and K. Karkulah. 2018. *Sounding the Alarm on Africa's Debt.* Washington, DC: Brookings Institution.

Guguyu, O. 2018. *Worry as China Puts SGR Funding on Hold.* Nairobi: The Standard.

Hill, M. 2023. *Zambia to Pay 1% Interest After 'Mission Impossible' Debt Deal.* New York, NY: Bloomberg.

Hancock, T. 2019. *China Renegotiated $50bn in Loans to Developing Countries.* London: The Financial Times.

Hoeffler, A., and O. Sterck. 2022. "Is Chinese aid Different?" *World Development* 156: 1–16.

Horn, S., C. Reinhart, and C. Trebesch. 2019. *China's Overseas Lending.* Working Paper. Cambridge, MA: National Bureau of Economic Research.

Horn, S., B. Parks, C. Reinhart, and C. Trebesch. 2023. "Debt Distress on China's Belt and Road." *AEA Papers and Proceedings* 113: 131–4.

Huang, Y., and D Brautigam. 2020. *Putting a Dollar Amount on China's Loans to the Developing World.* Washington, DC: The Diplomat.

Hurley, J., S. Morris, and G. Portelance. 2018. *Examining the Debt Implications of the Belt and Road Initiative from a Policy Perspective.* Working Paper. Washington, DC: Center for Global Development.

Isard, W. 1954. "Location Theory and Trade Theory: Short-Run Analysis." *Quarterly Journal of Economics* 68 (2): 305–22.

Ingram, G., and R. A. Mosbacher. 2018. *Development Finance: Filling Today's Funding Gap.* Washington, DC: Brookings Institution.

Kentikelenis, A., and T. Stubbs. 2023. *A Thousand Cuts: Social Protection in the Age of Austerity.* Oxford: Oxford University Press.

Kaplan, S. B. 2021. *Globalizing Patient Capital: The Political Economy of Chinese Finance in the Americas.* Cambridge: Cambridge University Press.

Kern, A., and B. Reinsberg. 2022. "The Political Economy of Chinese Debt and IMF Conditionality." *Global Studies Quarterly* 2 (4): ksac062.

LaFraniere, S., and J. Grobler. 2009. *China Spreads Aid in Africa, With a Catch.* New York, NY: The New York Times.

Landry, D. 2018. "The Risks and Rewards of Resource-for-Infrastructure Deals: Lessons From the Congo's Sicomines Agreement." *Resources Policy* 58: 165–74.

———. 2021."Under a Money Tree? Comparing the Determinants of Western and Chinese Development Finance Flows to Africa." *Oxford Development Studies* 49 (2): 149–68.

Maizels, A., and M. Nissanke. 1984. "Motivations for Aid to Developing Countries." *World Development* 12 (9): 879–900.

McGillivray, M. 1989. "The Allocation of Aid Among Developing Countries: A Multi-donor Analysis Using a Per Capita aid Index." *World Development* 17 (4): 561–8.

Mityakov, S., H. Tang, and K.S. Tsui. 2013. "International Politics and Import Diversification." *Journal of Law and Economics* 56 (4): 1091–121.

Morris, S., and M. Plant. 2019. *China's New Debt Sustainability Framework is Largely Borrowed from the World Bank and IMF. Here's Why That Could Be a Problem.* Washington, DC: Center for Global Development.

NA. 2011. *Zambia: Letter of Intent, and Memorandum of Economic and Financial Policies.* Washington, DC: International Monetary Fund.

———. 2017. *Zambia Economic Snapshot H2, 2017.* Amstelveen: KPMG.

———. 2018. *An Analysis of Issues Shaping Africa's Economic Future.* Africa's Pulse Volume 17. Washington, DC: World Bank.

———. 2022. *Chinese Government Cancels $37.5 Million USD of the Government of Tanzania's Outstanding TAZARA Debt Obligations (Linked to #73097).* Williamsburg, VA: AidData.

Olander, E. 2019. *China Says it Believes in Debt Sustainability, Just Not the Way Everyone Else Does.* Berkeley, CA: The China Africa Project.

Onyekwena, C., and M. Ekeruche. 2019. *Is a Debt Crisis Looming in Africa?* Washington, DC: Brookings Institution.

Santos Silva, J. M. C., and S. Tenreyro. 2006. "The Log of Gravity." *Review of Economics and Statistics* 88: 641–58.

Su, X. 2017. *Why Chinese Infrastructure Loans in Africa Represent a Brand-New Type of Neocolonialism.* Washington, DC: The Diplomat.

Sun, Y, 2014. *China's Aid to Africa: Monster or Messiah?.* Washington, DC: Brookings Institution.

Sun, Y. 2018. *China's 2018 Financial Commitments to Africa: Adjustment and Recalibration.* Washington, DC: Brookings.

Swedlund, H. J. 2017. "Is China Eroding the Bargaining Power of Traditional Donors in Africa?." *International Affairs* 93 (2): 389–408.

Taylor, I. 1998. "China's Foreign Policy Towards Africa in the 1990 s." *Journal of Modern African Studies* 36 (3): 443–60.

Timoneda, J. C. 2021. "Estimating Group Fixed Effects in Panel Data with a Binary Dependent Variable: How the LPM Outperforms Logistic Regression in Rare Events Data." *Social Science Research* 93: 102486.

Tinbergen, J. 1962. *Shaping the World Economy: Suggestions for an International Economic Policy.* New York, NY: The Twentieth Century Fund.

Thomas, L., J. Do Rosario, and C. Mfula. 2023. *Zambia Seals $6.3 Billion Restructuring in Breakthrough for Indebted Nations.* London: Reuters.

Zeitz, A. O. 2021. "Emulate or Differentiate? China's Development Finance and Traditional Donor Aid in Developing Countries." *Review of International Organizations* 16 (2): 265–92.

Zweig, D., and B. Jianhai. 2005. *China's Global Hunt for Energy.* Foreign Affairs. New York, NY: Council on Foreign Relations.

Landry, David (2024) More Problems More Money? Does China Lend More to African Countries with Higher Credit Risk Levels?. *Global Studies Quarterly*,
https://doi.org/10.1093/isagsq/ksae017