AN OFFER AFRICA CAN'T REFUSE?

A DISAGGREGATED ANALYSIS OF CHINESE VOTE BUYING AND AFRICAN DEBT PRESSURES IN THE UN

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Abstract:

Since the "Go Out Policy" in 1999, China has rapidly become one of the largest aid donors in Africa. Many scholars, politicians and journalists have raised the question if there are ulterior motives to this other than Chinese altruism. One common criticism of China is that they use development finance to get more support in foreign affairs. They have furthermore been accused of "debt trap diplomacy" by providing excessive credit to non-creditworthy countries to gain political influence. This thesis attempts to provide empirical input to this debate by analyzing how the level of Chinese official development finance receipts and debt in African countries affect their voting alignment with China in the United Nations General Assembly (UNGA). Using a dataset of 54 African countries over the period 2000-2014 and a panel regression with country-fixed effects, we find that Chinese official development finance has a significantly positive impact on Sino-African voting alignment in the UNGA. We also find a positive significant relationship between African countries' debt level and alignment to China; however, the magnitude of the relationship is limited.

Keywords:

Development finance, debt sustainability, China, Africa, UN General Assembly, Belt-and-Road Initiative

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Contents

1. Introduction

In recent years the global movement towards openness and cooperation has begun to falter. After a 70-year period of international cooperation that saw the establishment of institutions like the United Nations (UN), European Union (EU), and Organization for Economic Cooperation and Development (OECD), many major western powers have begun to distance themselves from international cooperation (Foroohar, 2018). 2016 marked the start of this shift for many countries. In Great Britain, British citizens voted to leave the European Union in the Brexit referendum. Shortly thereafter, Donald Trump won the U.S. presidential election running on a platform prioritizing protectionism to boost domestic industry (Jones, 2017). However, amidst this protectionist wave, China has increased its focus on globalism and foreign investment. In 1999, the Chinese government launched the 'Go Out Policy' which encouraged Chinese enterprises to invest overseas. Today, this strategy has developed into the Chinese Belt and Road Initiative (BRI), a trillion-dollar plan designed to revive the ancient silk roads and consequently place China at the center of modern global trade. Under this plan China will invest heavily in infrastructure projects in 65 countries that account for 30 percent of global gross domestic product (GDP), 62 percent of the world's population, and 75 percent of the world's known energy reserves. One of the main geographic corridors of investment in the BRI is a series of countries along the Indian Ocean that make up the new maritime silk road, a strategic imperative to Chinese dominance within maritime trade. Consequently, Africa has become one of the largest recipients of Chinese finance since 1999 (Pilling, 2017).

Traditionally, African countries have received both official finance[1] from western countries and the intergovernmental organizations, such as the IMF, responsible for the funding of infrastructure projects in the developing world. However, these finance packages have generally come attached with stringent ethical, social, and environmental covenants. Therefore, developing countries, especially ones failing to meet these criteria, have begun to prefer the finance offered by the Chinese for its flexibility (Dollar, 2017). However, many are concerned about the financial sustainability of this shift in preferences. Several UN representatives have voiced their opinion that China is abusing its financial power to place BRI countries in unsustainable debt situations that facilitate subservience, commonly referred to as debt-trap diplomacy. For example, in 2008 Sri Lanka received over $1 billion of debt from the state-owned Exim Bank of China to finance the construction of a deep-water shipping port in Hambantota. However, when the Sri Lankan government failed to repay its debt in 2017, China wrote off the debt and seized ownership of the port. Today over 30 other BRI ports, 14 of which are located in Africa, are facing similar pressures from their Chinese financier

[1] We will use the terms official finance, development finance and aid interchangeably throughout this thesis.

(Abi-Habib, 2018), spreading concerns of Chinese debt-trap diplomacy across the globe. Therefore, the UN has recently voiced cautionary advice for BRI countries regarding the risks of taking on large levels of debt and official finance from China (Chaudhury, 2017).

These events have sparked debate around Chinese development finance in Africa. Are there ulterior motives to China's liberal financing practices apart from the establishment of a strong trade network? Many claim for instance that China is using its liberal financing policies to acquire diplomatic allies ("A despot's guide", 2016). This practice is prevalent in the United Nations General Assembly (UNGA) where all 193 member states have one vote each, thus equal voting power (General Assembly of the United Nations, n.d. -a). In fact, the US Ambassador to the UN, Nikki Haley, openly declared vote-buying in the UN to be an integral part of American foreign policy stating, "President Trump and I are pushing to draw a closer connection between US foreign aid and how countries vote in the UN" in an address at the 2018 AIPAC Conference (Washington Post, 2018). With regard to Chinese development finance and voting alignment to China in the UNGA, studies have shown mixed results that varied depending on datasets. However, many studies have proved that more concessional forms of financing have a significantly positive relationship with loyalty to China, suggesting that Chinese vote buying efforts have gained traction in the UN. However, up until now most studies have focused on explaining what determines Chinese official finance allocation and not what drives voting loyalties to China in the UNGA. A study by Strüver (2012) did however analyze what drives voting similarities to China but on a global scale with all UN member states. Therefore, we would like to narrow the research to investigate UNGA voting similarities to China in Africa and also analyze how different types of aid affects loyalty to China.

With this in mind, our thesis intends to contribute to previous research by investigating if Chinese development finance in Africa increases Sino-African voting alignment, and if so, what types of development finance are the significant drivers of Sino-African voting alignment. We will also go one step further by assessing the impact that country-specific debt pressures have on voting alignment to China in the hopes of providing more insight to the debt trap diplomacy debate surrounding the BRI. Hence, we have structured this thesis to answer the following research question:

> *How does the level of Chinese official development finance receipts and debt in African countries affect their voting alignment with China in the UNGA?*

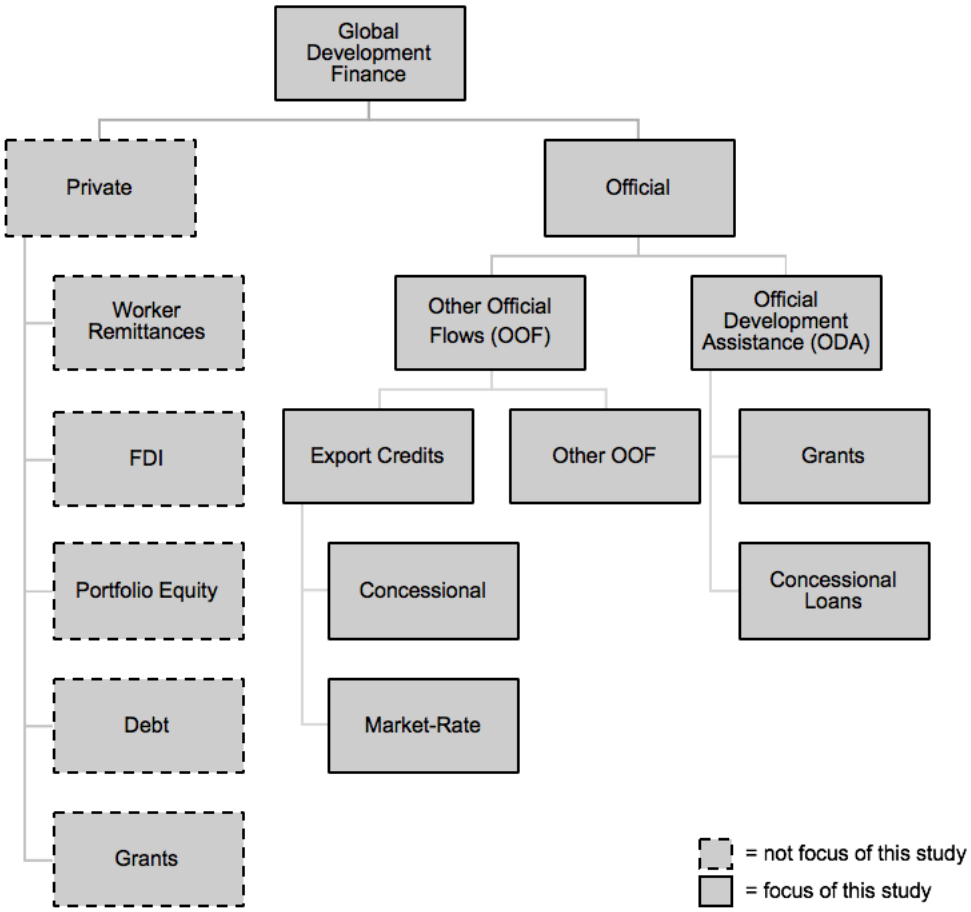
We attempt to answer this question by using pooled-time series OLS regressions to understand the relationship between Sino-African voting alignment and a country's Chinese Official Finance (OF) receipts, Chinese Official Development Assistance (ODA) receipts, Chinese Other Official Flows (OOF) receipts, share of development finance coming from China, debt level (Debt to GDP), and a set of controls and fixed effects. Our results identify a significant positive relationship between Chinese OF flows and voting alignment at the five percent level, supporting the notion that development finance increases voting alignment in the UNGA. When we disaggregate OF into ODA and OOF we also find that OOF flows have a slightly larger impact on voting alignment than ODA. Further, we find a strong positive correlation between African country's debt levels and voting alignment in the UNGA, significant at the 0.1 percent level. However, the magnitude of this relationship was not large. Overall, these findings confirm that China is gaining influence abroad through its intensive development finance activities; however, they only somewhat support the concerns about debt pressures in Africa having a large impact on African voting alignments.

2. Background

2.1. Global Development Finance

When discussing international financial flows for developmental purposes all finance falls under the umbrella of global development finance. Global development finance can be provided either through the private sector or officially through governments and multilateral institutions. Aid issued directly from one government to another is called bilateral aid. Multilateral aid is also funded by governments, but it is administered and distributed by the intergovernmental organizations like the World Bank or the IMF. A breakdown of the different types of global development finance is presented in Figure 1.

Figure 1. OECD Global Development Finance Categorizations



Source: Brautigam (2011)

This thesis will focus on bilateral official development finance as China does not consistently report private sector development finance (Brautigam, 2011). Further, Dreher, Fuchs, Parks, Strange, and Tierney (2015) showed that the disaggregation of

official finance is imperative to adequately understanding the relationship between Sino-African financial flows and voting alignment. Therefore, we will be disaggregating official development finance flows into ODA and OOF in our study as well.

2.1.1. Official Development Finance

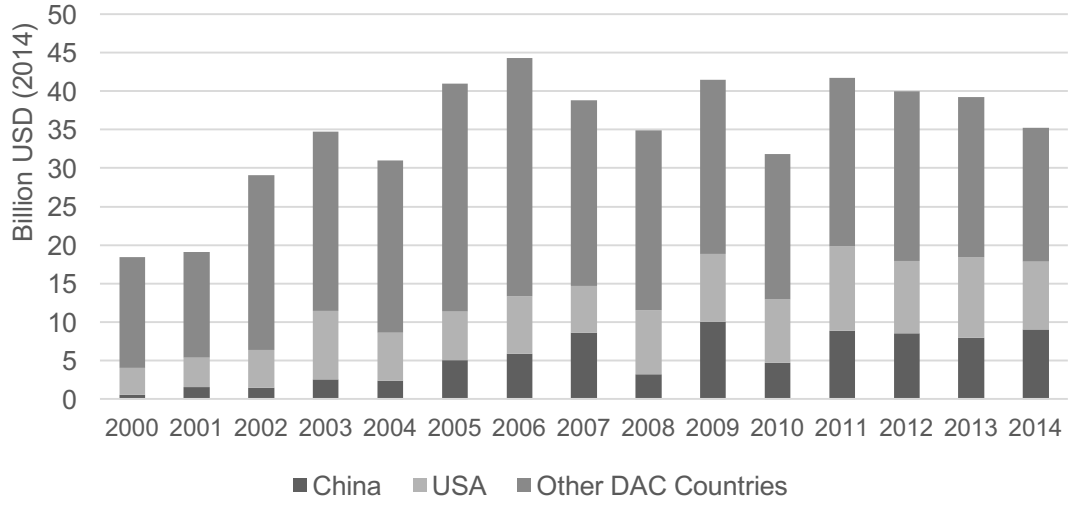
ODA, as defined by the OECD, is concessional funding given to developing countries primarily for promoting welfare and economic development in the recipient country. To qualify as ODA, funding must be 'concessional in character' either through containing some form of subsidy from the government donor or generous below-market terms. For instance, loans must have a grant element of at least 25 percent of the loan value to be classified as ODA. Therefore, grants as well as some concessional loans are considered to be ODA. Official funds that do not meet these criteria are considered OOF (Brautigam, 2011).

2.1.2. Other Official Flows

The OOF category includes government-provided funds that are 'not concessional in character'. This means that concessional loans below the 25 percent grant level, funds for firms from the donor country to help guarantee their investment abroad, military aid, and export credits are all categorized as OOF (Brautigam, 2011).

2.2. Chinese Development Finance in Africa

Figure 2. Bilateral Development Finance Distribution to Africa (2000-2014)



Source: AidData (2017) and OECD (2017)

The largest bilateral donor group to Africa has historically been the OECD's Development Assistant Committee (DAC). The committee consists of 30 OECD

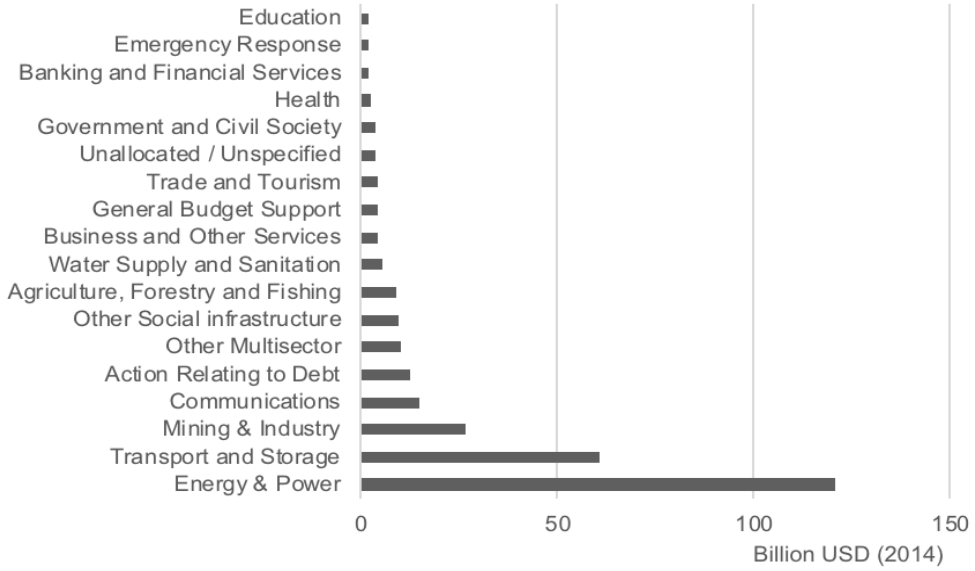
member-countries that have voluntarily joined the DAC as advocates for cooperation within international development projects. In Figure 2, we break down the dataset we use in our study to show total bilateral development finance flows to Africa from China and the DAC countries between 2000 and 2014. Since 2000, Africa has been the largest continental recipient of bilateral development finance in the world (OECD, 2017). During the period 2000-2014, the DAC countries and China provided a total of $520.9 trillion in bilateral development finance. However, the split of donors behind those funds has changed notably since 2000. Following the launch of the Go Out Policy in 1999 and BRI in 2013, China has become one of the largest foreign investors in Africa. In 2000, China provided a mere 3 percent of African bilateral development finance, but by 2014, this share increased eightfold to 25.7 percent. With the passing of the 2008 financial crisis and launch of the BRI, China has established itself as a major player in the African development finance field, providing 21.4 percent of all bilateral development finance to Africa between 2009 and 2014 (AidData, 2017)

2.2.1. Distribution of Official Chinese Development Finance by Country

When looking at the African recipients of development finance in figure A-1 in the appendix, it appears that China drives a different agenda than the DAC. Here we see that 11 countries received 79.4 percent of all Chinese development finance between 2000-2014. In that time period, China has allocated over $14bn, or 17.7 percent, of its development finance to Angola, compared to its 4.4 percent share of total finance coming from the DAC and China. Also, nine African countries received no reported development finance from China during that period. While the distribution of DAC donors' development finance is somewhat balanced, China is more focused and less equitable in its distribution of funds.

2.2.2. Sectoral Distribution of Chinese Development Finance

Figure 3. Chinese Development Finance Allocation by Industry (2000-2014)

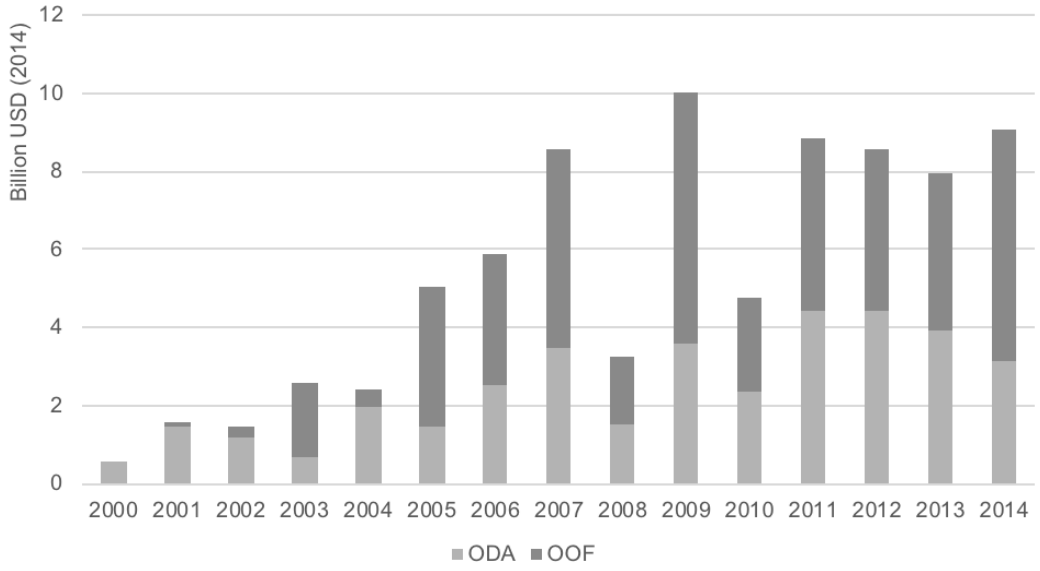


Note: Only largest development finance recipient sectors shown.
Source: AidData (2017)

In Figure 3 we present a sectoral breakdown of Chinese official finance to Africa from our dataset. Between 2000-2014, Chinese development finance has focused on investment opportunities that build the infrastructure necessary for Chinese trade to flourish through Africa and the maritime silk road (Dahir, 2018). Therefore, China has primarily invested in the African power and transport sectors in order to establish some of the quintessential pillars of modern trade: power grids, highways, railways, and ports (Dahir, 2018). The third-largest target of Chinese investment has been the mining sector as China seeks to satisfy domestic demand for copper and other precious materials used in its domestic production sector. In addition to investing in the development of African mining infrastructure, China also secures many of its African loans with natural resources as collateral (China Africa Research Initiative, 2011).

2.2.3. Chinese Development Finance Instruments

Figure 4. Chinese Official Finance Distribution to Africa (2000-2014)



Source: AidData (2017)

China provides the majority of its development finance to Africa through three financial instruments: grants, zero-interest loans, and concessional loans. The degree of concessionality of the flows determines if they are classified as ODA or OOF. As we see in Figure 4, Chinese development finance is predominantly classified as OOF, indicating a lesser degree of concessionality in Sino-African aid. The Chinese Ministry of Commerce presides over the distribution of grants and zero-interest loans, whereas the China Exim Bank and China Development Bank stand for the bulk of Chinese overseas finance in the form of concessional loans. As previously mentioned, China often offers more flexible loans than western multilateral organizations, especially when it comes to repayment. For example, Riesen (2007) reported that 90 percent of Chinese zero-interest loans to Africa are written off during their lifetime. Furthermore, China also employs an indirect resource-based lending scheme that allows for non-creditworthy countries to take on loans above their liquidity grade. This is mainly done by granting the value of an infrastructure development loan to Chinese companies to build the infrastructure in the African nation. In return, the African nation puts up natural resources and/or mining rights to Chinese companies as a repayment of the loan. This allows China to overextend loans to countries with little liquidity, a practice that can entrap borrowing nations in debt. For example, in 2004 the IMF, worried that Angola had amassed an unsustainable level of expensive debt, urged Angola's government to adopt certain debt policy reforms and open up its accounts for inspection. However, instead of adjusting to these reforms, Angola turned to China who granted them a $2 billion oil-backed line of credit without the reforms required by the IMF. This is a common example of how many illiquid African countries are looking

eastward for loans when their balance sheet begins to become unsustainable (China Africa Research Initiative, 2011).

2.2.4. Debt Pressures and Debt Sustainability in Africa

In 2017, 15 sub-Saharan African countries were classified as countries with high levels of debt-distress risk. Of the debt held by African countries, 85 percent is sovereign debt. Despite considerable reductions in public and external indebtedness in the early 2000s from debt relief programs, concerns around debt risks remain (World Bank, 2018). Furthermore, after years of intensive borrowing and trade with China, many countries have amassed considerable debts to China. For instance, as one of China's main BRI targets, 30 percent of the value of Angola's debt obligations between 2000-2017 was Chinese (Dahir, 2018). In the wake of recent Chinese debt forgiveness plans that saw the seizure of land in Tajikistan and a port in Sri Lanka, the UN has expressed concerns about the growing level of Chinese debt in Africa, advising countries to be prudent in their decisions to take on BRI debt (Abi-Habib, 2018). However, in recent years China has begun to communicate a proactive stance on improving the sustainability of BRI debt. At the Belt and Road Forum Summit in April 2019, the Chinese President Xi Jinping opened his keynote speech by declaring that the BRI must be green and financially sustainable for all parties involved in the future. He also doubled down on critics of the BRI, stating that the BRI is not seeking to entrap countries with debt. This has opened up hopes that 2019 could start a new era of the BRI more determined to create 'shared prosperity' (Goh & Cadell, 2019).

2.3. Voting in the UNGA

When analyzing states' influence in foreign affairs, voting behavior in the United Nations' General Assembly (UNGA) is often used as a proxy in the literature. Although the UN is often criticized for its inefficiency and limited power over sovereign states, it has been considered by many scholars as an arena where broader patterns of world politics can be observed (Voeten, 2012). All 193 UN member states have equal representation in the general assembly: one nation, one vote. This gives significant power to minor member states by endowing them with as much voting power as large states like China (General Assembly of the United Nations, n.d.-a). Therefore, the practice of attracting the allegiance of smaller members states has long been on the agenda of powerful countries like the United States. For instance, the US Department of State monitors UN voting closely (Dreher, Nunnenkamp & Thiele, 2006) and the current US ambassador to the UN has recently publicly acknowledged its efforts to gain influence in the UN with aid (Washington Post, 2018). It is important to note that the UNGA mostly covers resolutions on international security and humanitarian issues, thus

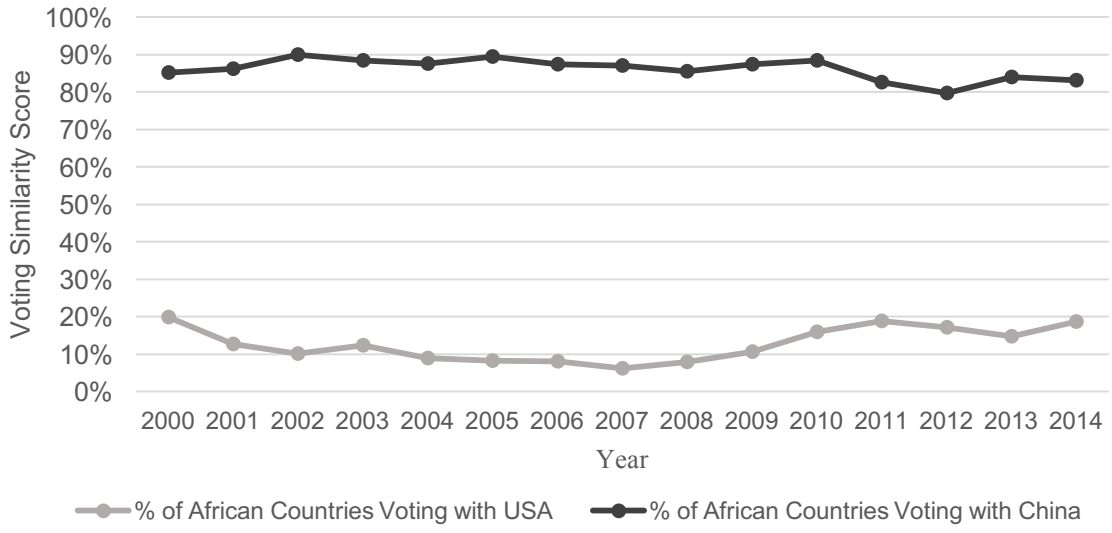
a high loyalty score to China will imply voting similar to them on solely these issues (Strüver, 2012). Assessing China's foreign influence on other issues like economic policy would need data from other organizations like the World Trade Organization.

2.3.1. Voting Procedures

Each September, all UNGA members convene for the General Assembly Session. Each annual session, members vote on a set of resolutions that can be passed by either simple majority or two-thirds majority depending on the importance of the issue (General Assembly of the United Nations, n.d.-a). A member state can either vote 'yes', 'no', or 'abstain' on a specific resolution. If a nation abstains, they are not considered "present and voting" and thus not included in the calculation of majority. A nation can also be deemed not "present and voting" if they are absent from the session (General Assembly of the United Nations, n.d.-b).

2.3.2. African Voting Patterns

Figure 5. African Foreign Policy Similarity, Measured by Votes in the UNGA (2000-2014)



Note: African countries' similarity score to the US and China is calculated using Lijparth's index of agreement. The African countries' votes are scored on the degree of similarity to China or the US where both voting identical equals 1, both disagreeing equals 0 and 0.5 if one abstains and the other does not. All voting scores for all countries a given year are summed and divided by the total number of votes that year, giving the voting similarity score on a scale from zero to 100 percent.
Source: Voeten (2009)

Figure 5 presents African voting similarities in the UNGA to China and the United States from the data used in our study. Here it becomes clear that the United States and China are often opposed to each other when it comes to voting in the UNGA. Therefore, African voting alignment with China is increasingly interesting to analyze as it implies contention with the United States, the largest bilateral aid donor to Africa (OECD,

2017). In our breakdown of African UNGA voting between 2000-2014 in Figure 5 we find that African countries each year, on average, have voted with China at least 80 percent of the time. Despite the fact that the US provides more development finance to Africa overall than China does (OECD, 2017), African countries appear to side with China in the UNGA (Voeten, Strezhnev & Bailey, 2009).

3. Previous Literature and Hypothesis Development

We encountered a rich set of literature within voting alignment and development finance studies that helped guide our thesis. Previous research has done extensive studies of voting alignment to the US in the UNGA and how American aid impacts alignment. In addition to this, we found a strong set of literature exploring Sino-African development finance and some literature explaining voting alignment to China in the UNGA.

3.1. Official Development Finance and Voting in the UNGA

Scholars have studied voting patterns in the UNGA for almost as long as the United Nations has existed. However, the focus of this research has mainly been from a US perspective (Voeten, 2012). The results of studies on US bilateral aid allocation and voting alignment with the US was summarized by Dreher & Sturm (2006) and are presented in Table A-1 in the appendix. According to them, the majority of the studies have shown that aid increases voting similarities to the US. However, some studies did not find a positive correlation between aid disbursements and voting similarities. Therefore, aid and US voting alignment should not be seen as a definite relationship as its prevalence has varied between time periods and country groups.

Many have also analyzed the effects of multilateral aid on voting alignment. Since the US is the biggest donor to the World bank (World bank, n.d.-a) and the IMF (IMF, 2019), Pinotti and Settimo (2011) analyzed if aid from these organizations influenced voting alignment to the US in the UNGA for the period 1980-2004 across the 143 US aid recipient countries. Their results showed that multilateral aid from the IMF and World Bank did not have a significant causal effect on voting. They interpreted this as bilateral aid being the more impactful form of finance when it comes to raising voting alignment in the UNGA.

As China has increased its presence in foreign affairs in recent years, scholars have shifted their attention to analyze how Chinese aid influences voting alignment. However, these studies are still scarce and most of them have been qualitative, focusing on a specific set of UN resolutions. For instance, Kastner (2010) did this by investigating how Chinese economic ties (e.g. FDI, exports) influenced other countries' support for key Chinese political issues, such as voting on the Taiwan's UN participation resolution in 2008, which he found no significant correlation with. On another note, Strüver (2012) used a quantitative approach and studied, among many factors, how aid drives voting similarities to China using UNGA voting records for the period 1990-2008 across all UN member states. He did this by measuring aid as a binary variable that took the value of one if China had provided financing for a country

in a specific year. However, a statistically significant causal link between aid and UNGA voting similarities was not found. While Strüver's quantitative study is interesting, its results might be affected by the fact that it treated aid as a binary variable, thus ignoring the size and nature of aid, and included all UN members, something the author also mentions. Our study will further contribute to the literature by focusing solely on the African countries but also studying the impact of different levels of aid, similar to the studies on US voting alignment. We therefore expect Chinese financial flows to raise African countries' alignment to them in the UNGA, much like the studies on US aid found. Our first hypothesis is therefore:

> **H1:** African countries with higher official development finance receipts (OF) from China will be more aligned with China in the UNGA.

3.2. Disaggregating Development Finance into ODA and OOF

Dreher et al. (2006) highlighted the need for a disaggregated analysis of development finance. Their study analyzed how different types of financial flows influenced voting alignment to the US in the UNGA for the period 1973-2002 across all 143 US recipient countries globally. The study's main finding was that more concessional financing, similar to ODA, was most likely to raise voting alignment with the US. The authors interpreted this as concessional financing being the most effective in increasing voting alignment with the US in the UNGA.

Furthermore, Dreher et al. (2015) conducted a disaggregated analysis for Chinese aid allocation. They specifically explored how China has allocated their African aid in 2000-2013 in relation to political interests (UNGA voting, official recognition of Taiwan), economic interest (e.g. trade, access to natural resources) and institutional quality (level of democracy and corruption). Their conclusion was that ODA, and not OOF, was mainly given to African countries with higher UNGA loyalties to China as an increase in voting similarity by 0.1 on a scale of zero to one, increased ODA by roughly 86 per cent. Regarding economic interests, the authors found that OOF flows were significantly and positively correlated to these but not to ODA flows, thus ODA was not considered as a mean to build economic partnerships. Furthermore, no significant correlation was found between ODA and institutional quality, which they interpreted as China disregarding domestic governing issues when providing African countries with ODA.

Guillon and Mathonnat (2019) further confirmed the findings of Dreher et al. (2015). Their study analyzed the drivers of Chinese aid allocation to different sectors in Africa

for 2000-2014. Their results also showed that UNGA voting and ODA were positively correlated on a general level across all sectors. They also found that this relationship was strongest in the social sector. They therefore interpreted this as the impact of voting alignment with China on ODA flows to be strongest in the social sector.

Instead of analyzing what factors drive Chinese aid allocation, our study will draw from the Dreher et al. (2006) US study and focus on what drives voting loyalties to China. In reference to the previous findings, we expect that ODA flows, and not OOF flows, will raise voting alignment to China. Thus, we develop our second hypotheses:

> **H2a:** African countries with higher ODA receipts from China will be more aligned with China in the UNGA.
>
> **H2b:** Chinese OOF flows to African countries will not have a significant impact on Sino-African voting alignment in the UNGA.

Based on our background research, we will add to previous literature an evaluation of the effects of debt levels in recipient countries and China's relative importance as a development financier on Sino-African voting alignment. In light of the recent shift of many debt-pressured African countries from multilateral loans to flexible Chinese loans, we predict that countries with higher levels of sovereign debt will be more loyal to China. In addition to this, we expect countries to show higher loyalties to China when China is their biggest aid donor. We therefore formulate the additional hypotheses:

> **H3:** African countries with higher debt to GDP ratios will be more aligned with China in the UNGA.
>
> **H4:** African countries with larger shares of development finance coming from China than other DAC countries will be more aligned with China in the UNGA.

3.3. Control Variables and The Lagging of Aid Flows

Previous research has also found that other variables have a significant impact on voting alignment in the UNGA. Firstly, the Dreher et al. (2006) study found that more democratic countries tended to vote with the US. The study also showed that countries with higher national capabilities, a proxy for how powerful a country is beyond just

GDP (e.g. by military, total population, energy consumption), tended to vote against the US. This they interpreted as more powerful countries being more resistant to foreign influence than less powerful countries. Furthermore, Strüver (2012) found similar relationships when studying China. He found that countries with higher national capabilities had a lower alignment to China and less democratic countries tended to vote more with China in his study. This study also found a significant positive correlation between a country's exports to China and voting alignment to China in the UNGA. Therefore, this study will control for a country's level of democracy, national capability and exports to China.

Furthermore, within the literature, the financial flows have often been measured with a temporal lag of one year as it is assumed that the existence of interstate linkages and similarity in state attributes has to precede the outcome of interest, in this case development finance packages (Strüver, 2012; Dreher et al., 2015; Guillon and Mathonnat; 2019). We apply the same assumption in this study.

4. Data and Methodology

4.1. Critical Discussion of Data

In the following sections we present the sources for our study's panel dataset. We compile data from these sources to create the dataset containing data for each explanatory variable (presented in method) in our model for the 54 countries in Africa during the period 2000-2014.

4.1.1. UNGA Voting Alignment

When analyzing Afro-Sino UNGA voting alignment, we collected data from Erik Voeten's United Nations General Assembly Voting dataset on the Harvard Dataverse. This dataset compiles all voting records from UN resolutions from which we extract Chinese voting loyalty scores for all African countries for the period 2000-2014.

In UNGA voting records, countries' absences are also registered. Voeten, however, chose not to include these in his dataset. This exclusion is based on previous research that has proven that countries usually are not absent due to their resentment of resolutions but due to temporary domestic issues, such as civil wars or coups, that inhibit them from sending a delegation to the UN (Voeten, 2012). In addition, when scholars have previously analyzed UNGA voting, there has been a discussion regarding which votes to select for research. In most cases, all votes have been chosen, while some papers used only "important" votes. However, labeling votes as "important" can be viewed as subjective if they are not based on an official categorization. The US State Department does categorize votes by importance, but China does not. Using the US alternative may result in biased results not taking into account Chinese interests (Dreher et al., 2006). Furthermore, Wittkopf (1973) found no substantial difference in overall alignment scores between the different selection of votes. Based on this, we will use Erik Voeten's dataset including all votes and not scoring absences.

4.1.2. Chinese ODA and OOF Flows

Gathering data on Chinese development finance is difficult since the Chinese government does not adhere to most international financial reporting standards. They are also not part of the OECD's Credit Reporting System, which makes it harder to distinguish Chinese ODA from OOF (Strange, Cheng, Russel, Ghose, & Parks, 2017), . To address this issue, AidData, a research lab at William & Mary's Global Research Institute, created the dataset Global Chinese Official Finance dataset, 2000-2014, version 1.0. The research lab uses a method called "Tracking Underreported Financial Flows" (TUFF) for gathering data on Chinese financial flows. Using official sources from Chinese ministries, embassies, non-governmental organizations, media reports,

ministries in recipient countries, and field research, the institute identifies potential Chinese development projects. These projects are then cross-checked with at least three different sources to determine their status and financial terms. A systematic quality control is then carried out in the last stage where projects are vetted, duplicates removed, and suspicious projects flagged. After this process, the 4,373 identified projects amounting to $354.4 billion in development finance are categorized into "OOF-like", "ODA-like"[2] and "vague" according to OECD reporting standards (Strange et al., 2017). Although this dataset is widely accredited, it is important to acknowledge that it has certain limitations. Since this dataset is based on openly available sources, some Chinese aid may be missing. Also, the dataset only uses English sources. Thus there might be an issue of underreporting in countries where the media, businesses, and politicians do not report in English. In addition, information on the financial nature of certain flows is sometimes limited, making it difficult to assign the flow to a specific OECD category. Despite these concerns, the dataset offers a more comprehensive coverage of Chinese development finance flows than other available alternatives, therefore making it the most appropriate choice for this study. Further, Muchapondwa, Nielson, Parks, Strange and Tierney (2016) tested the validity of the TUFF method in South Africa and Uganda through field-based data collection and found that their records had a high degree of similarity to the dataset.

We filtered the AidData dataset to only include development projects that were recommended for research and also removed flows labelled as "Other/Vague" to avoid misclassifications. Thus, we only extracted the "ODA-like" flows and the "OOF-like" flows that were recommended for research.

4.1.3. Debt to GDP

Gross government debt to GDP ratios were collected from the International Monetary Fund (IMF, 2015). Due to inadequate reporting standards in some African countries, data for certain years are missing. We address how we handle this in the method section 4.2.1.

4.1.4. US ODA and OOF Flows

Financial flows from the United States to Africa was obtained through the OECD statistics database. As a DAC member, the United States provides annual submissions of aid statistics according to the OECD's Creditor Reporting System standards. This data is then analyzed and verified by OECD staff before publication on the OECD statistics database (OECD, n.d.).

[2] In the following parts of this thesis, we will use OOF-like and ODA-like interchangeably with OOF and ODA respectively

4.1.5. Democracy Scores

The level of countries' democracy is gathered from the non-governmental organization, Freedom House. Democracy scores are pulled from their "Freedom in the World Reports" for 2000-2014. The ranking combines political rights (for instance free elections, the inclusion of minority groups and existence of a political opposition) and civil liberties (e.g. freedom of expression, independent judiciary, allowing for free economic activity) to generate an average democracy rating for a specific country for every year. The ratings are based on the UN's Universal Declaration of Human Rights and how well countries follow them (Freedom House, n.d.).

4.1.6. National Capability Index

The national capability index is given by measuring the relative power of African countries to each other based on six different factors. Statistics regarding total population, share of urban population, military expenditure and military personnel are gathered from the World Bank. Furthermore, the U.S. Energy Information Administration's data on international energy statistics is used for the total energy consumption. Steel production is compiled from the World Steel Association.

4.1.7. African Exports to China

We gathered data on yearly bilateral exports from African countries to China using the United Nations Commodity Trade Statistics Database. Over 170 countries provide their annual international trade statistics to this database and it currently gathers over 3 billion data records since 1962. National reporting standards impact the quality of statistics, and some missing values were found (UN Trade Statistics, 2016).

4.1.8. Gross Domestic Product

Data on African countries' GDP was gathered from the World Bank. The organization's Development Data Group compiles data from the countries' statistical systems and the functioning of these systems will affect the quality of the data (Worldbank, n.d.-a). Therefore, some values in the dataset were missing due to countries failing to meet reporting standards (e.g. Somalia). Also, some countries did not report data as their borders were not yet established (e.g. South Sudan).

4.2. Method

4.2.1. Background and Dataset Formulation

In order to accurately study the relationships between a group of explanatory variables and the Chinese voting alignment of multiple countries we must recognize that there are country specific effects that can impact a country's voting patterns. Therefore, we adopt

the same methodology as Dreher et al. (2015) and structure our data as a pooled time-series dataset (panel data) covering the years 2000-2014 to enable the use of fixed effects in our model. Thus, we create 54 country panels with 15 yearly data points for a total of 810 data points. We then clean this dataset for missing values.

The Cleaning Process

As mentioned in the data section, there are missing values in the dataset mainly due to countries not being UN members, not having established borders and/or failing to meet financial reporting standards in certain years. If one value of an explanatory variable for country i in year t is missing, we must exclude the observation from that country in that year. Cleaning and removing these values causes our panels to be unbalanced, meaning that each country does not have complete data for all years of the study. Therefore, we remove South Sudan and Somalia from the dataset as they are significantly underreported, only having complete data for zero and two years respectively. All other countries in the study have at least nine years of complete data on their panels. We motivate the abstention from further removal of countries with the issue of sample selection bias. Removing more undeveloped countries with poor reporting standards to marginally improve the balance of panels would effectively give us a biased dataset consisting of Africa's most financially and diplomatically developed states. This would have wide-reaching implications for the final results as it would not reflect the financial practices of many of the undeveloped nations that Chinese development efforts target. This decision is also consistent with the choice of Dreher et al. (2015) as well as Strüver (2012) who both removed a select few countries with significant data gaps. Further, in order to create perfectly balanced panels, we would have to remove 21 countries from our study. This would also reduce the applicability of our results since the aim of our study is to provide insight to the debate around Chinese development finance in all or most of Africa.

High- and Low-Debt Subsample Creation

For the second part of our study we further investigate the impact of a country's debt level on their susceptibility to be swayed by Chinese official finance. Therefore, we break the African countries into quartiles based on their level of indebtedness. To define the quartiles, we calculate the mean debt to GDP ratio of each country during the 2000-2013 period and divide the countries into four quartiles based on this. We then define the upper quartile as "high-indebted" and the lower quartile as "low-indebted" and run the regression on each of those groups of thirteen countries separately. A downside to this approach of defining quartiles by country is that a country's indebtedness level may vary throughout the period. However, we motivate this choice by the fact that it allows for more comparability between the original regressions on the full group and the regressions of the subsamples. Also, it would not be possible to account for country-fixed effects if we did not group quartiles based on country-specific indebtedness.

4.2.2. Regression Equations

We define our regression equation as:

$$\begin{aligned} &Chinese\ Voting\ Alignment_{it} \\ &\quad = \beta_0 + \beta_1 OFtoGDP_{it+1} + \beta_2 ChineseShareofAid_{it+1} \\ &\quad + \beta_3 DebttoGDP_{it} + \beta_4 ExportstoGDP_{it} \\ &\quad + \beta_5 Democracy_{it} + \beta_6 NationalCapability_{it} + \varepsilon_{it} \end{aligned} \quad (1)$$

When we disaggregate aid into ODA and OOF, the regression equation is defined as:

$$\begin{aligned} &Chinese\ Voting\ Alignment_{it} \\ &\quad = \beta_0 + \beta_1 ODAtoGDP_{it+1} \\ &\quad + \beta_2 OOFtoGDP_{it+1} + \beta_3 ChineseShareofAid_{it+1} \\ &\quad + \beta_4 DebttoGDP_{it} + \beta_5 ExportstoGDP_{it} + \beta_6 Democracy_{it} \\ &\quad + \beta_7 NationalCapability_{it} + \varepsilon_{it} \end{aligned} \quad (2)$$

Here, *Chinese Voting Alignment* represents the voting alignment score of a country i in year t; *OF to GDP* represents the ratio of OF to GDP for a country i received in year t+1 (lagged one period); *ODA to GDP* represents the ratio of ODA to GDP for a country i received in year t+1 (lagged one period); *OOF to GDP* represents the ratio of OOF to GDP for a country i received in year t+1 (lagged one period); *Chinese Share of Aid* represents the share of country i's development finance coming from China in year t+1 (lagged one period); *Debt to GDP* represents the debt pressure a country i in year t is under, measured in debt to GDP; *Exports to GDP* represents a country i's exports in year t going to China, scaled to GDP; *Democracy* represents the democracy score of country i in year t; *National Capability* represents the power score of a country i in year t; and epsilon is an error term.

In accordance with previous research, we estimate our model using Ordinary Least Squares (OLS). The model's independent variables for financial flows are all measured with a temporal lag of one year as it is assumed that the existence of interstate linkages and similarity in state attributes has to precede the outcome of interest, in this case development finance packages (Strüver, 2012). We choose a one year lag rather than a longer lag based on the assumption that China would promise development finance in the following year based on voting loyalty today, and repeat this process on an annual

basis. Since we lag financial flows, we cut the 2014 panel from our study as we do not have data on Chinese official finance flows in 2015.

4.2.3. Dependent Variable – Chinese Voting Alignment

As mentioned in section 2.3, we use UN votes as a proxy for foreign policy similarity. This variable measures voting alignment using Lijparth's index of agreement. Voting alignment between a state and China is quantified on a scale of zero to one on all UNGA votes. If a country agrees with China (e.g. they both vote "yes") the score equals one, and if it disagrees (one country voting "yes", the other "no"), the score is zero. The vote is given a score of 0.5 if one state votes "yes" or "no" and the other abstains since abstentions are not considered as strong a signal of approval or disapproval as a "yes" or "no" vote (Voeten, 2012). The country is then given an average alignment score, L_{it}, across all votes for that year (Bailey, Strezhnew & Voeten, 2017).

$$L_{it} = \frac{\sum_{n=1}^{N} l_{in}}{N_t} \tag{3}$$

In equation 3, L is the loyalty score for a given country, i, in year, t. The voting score is l, on a single vote, n, for country i. The sum is divided by the total number of votes, N for each year, t, resulting in a yearly loyalty score for each country between zero to one.

4.2.4. Independent Variables

The study's independent variables focus on identifying the relationship between key Sino-African financial linkages and voting alignment. We also include three control variables: exports to GDP, democracy and national capability, to help control for factors that could impact voting alignment.

Chinese OF

This variable is designed to evaluate the relationship between Chinese OF finance flows to a country and voting alignment. We scale the dollar value of OF total flows to GDP for a country i in year t to GDP in order to increase comparability between countries with different size economies. We then lag this variable one period to period t+1 as it is assumed that aid follows diplomatic alignment (Dreher et al, 2015; Strüver, 2012). The signage of the variable's coefficient will thus be easy to interpret: if the coefficient is positive and significant, then Chinese OF flows to Africa increase Sino-African voting alignment.

Chinese ODA

This variable disaggregates *Chinese OF* into the portion that is classified as ODA. It is designed in the same way as *Chinese OF* with the distinction that it looks at the relationship between ODA flows and voting alignment rather than OF flows. If this

variable is positive and significant it will indicate that Chinese ODA to Africa has a positive impact on Sino-African voting alignment.

Chinese OOF

This variable is designed in the same way as *Chinese ODA* with the distinction that it looks at the relationship between OOF flows and voting alignment rather than ODA flows. Thus it represents the portion of OF that is classified as OOF. If this variable is positive and significant it will indicate that Chinese OOF to Africa has a positive impact on Sino-African voting alignment.

Debt Level

To describe the debt level and pressure a country is under, we create a variable defined by a country's debt to GDP level. We do not lag this variable as it is designed to reflect the debt pressure a country is under at the time of the UNGA vote. If this variable is positive and significant it will indicate that countries under increased debt pressure will be more inclined to vote with China.

Chinese Share of Aid

Since we do not have access to the debt records of African countries, we could not create a variable that measures the level of Chinese debt to GDP that a country has. As a potential solution to this we try to evaluate the relative importance of Chinese development finance to a recipient country in year t by calculating what share of development finance coming from DAC countries and China was Chinese. This value is expressed as a decimal between 0 and 1. We then lag this variable one period to period t+1 following the assumption of aid following diplomatic alignment. If this variable is positive and significant, we can deduce that the larger the share of a country's development finance that comes from China, the more inclined that country will be to vote with China.

Exports to GDP

All of the previously mentioned financial variables assess the impact of direct official financial flows on voting alignment. Therefore, we include the control variable Exports to GDP to analyze the impact of existing trade linkages on voting alignment. This takes the yearly value of an African country's exports to China and scales it to their GDP in the corresponding year. This variable acts as an indicator of and control for the role of trade relations on Sino-African voting alignment. A significant positive coefficient for this variable would indicate that the higher the level of Chinese exports an African country has, the more loyal it will be to China in the UNGA.

Democracy

Our second control variable is the level of democracy from Freedom House's rankings. The lowest possible score is one, meaning the country is considered as "free" with a high level of democracy. The higher the score the more authoritarian the country is considered, and at the maximum score of seven, the country is considered "not free". Therefore, a significant positive coefficient for this variable would indicate that less democratic countries vote with China.

National Capability

Lastly, we control for the national capability level of a country. We include this to control for the fact that the national capability of a country can impact its ability to vote independently of foreign country pressures (Dreher et al., 2006). The national capability measure developed by Singer, Bremer and Stuckey (1972) is often used as a proxy to measure national power, beyond GDP in global studies. The score is generated by averaging countries' relative global position on six different power indicators; total population, urban population, steel and iron production, energy consumption, military expenditure and military personnel. Since our study focuses on Africa, the figures are proportioned to the African continent, meaning that it scores how powerful African countries are on a scale of zero to one in relation to each other. The higher the score is, the more powerful a country is considered being. A significant positive coefficient would indicate that more powerful countries tend to vote with China.

Fixed Effects

While we do attempt to control for significant differences in political and economic characteristics between different African countries, it is still likely that there are other unobserved individual characteristics that may impact their overall voting alignment levels. Therefore, we include country-specific fixed effects in our model in order to account for other country-specific factors that could impact voting alignment following Dreher et al. (2015). Further, we choose fixed rather than random effects as our dataset is not a random sample of a larger population. Even when we look at the high- and low-debt subsamples we will be drawing conclusions solely about the full population of high- and low-indebted countries in Africa that we have defined.

5. Results

5.1. Descriptive Statistics

In Table 1 we present descriptive statistics of the mean value of all variables used in our study by year. We also present the same mean summary statistics by country in appendix Table A-2 as well as the number of observations, mean, standard deviation, minimum, and maximum values of the variables overall in Table A-3.

Table 1. Descriptive statistics of all variable mean values by year.

	Chinese Voting Alignment	OF to GDP $_{t+1}$	ODA to GDP $_{t+1}$	OOF to GDP $_{t+1}$	Chinese Share of Aid $_{t+1}$	Debt to GDP	Exports to GDP	Democracy	National Capability
2000	85.6%	.013	.01	.003	9.9%	.973	.002	4.648	.021
2001	86.0%	.002	.002	0	6.8%	.962	.003	4.5	.021
2002	89.7%	.007	.005	.003	7.1%	1.021	.002	4.304	.017
2003	88.1%	.009	.008	.001	6.2%	.961	.002	4.229	.019
2004	87.4%	.009	.007	.002	9.6%	.935	.003	4.225	.019
2005	89.5%	.018	.012	.006	15,0%	.807	.003	4.202	.019
2006	87.3%	.016	.013	.003	20.1%	.666	.004	4.284	.019
2007	87.0%	.006	.005	.001	9.1%	.515	.016	4.31	.02
2008	85.3%	.01	.005	.005	14.0%	.518	.012	4.298	.019
2009	87.4%	.006	.003	.002	9.8%	.482	.015	4.404	.019
2010	88.4%	.009	.007	.003	15.1%	.424	.017	4.404	.019
2011	82.8%	.007	.005	.001	13.3%	.405	.019	4.275	.019
2012	80.2%	.007	.006	0	14.0%	.399	.02	4.304	.019
2013	84.5%	.005	.003	.002	11.2%	.411	.021	4.275	.019

Note: All values are means of all the countries observed in each year (without Somalia and South Sudan). Chinese Voting Alignment is the alignment of a country's voting with China on the Lijparth's index. OF to GDP is all official finance flows from China, lagged one year, scaled to GDP. ODA to GDP and OOF to GDP represent the disaggregation of OF to GDP to official development assistance and other official flows, respectively. Chinese Share of Aid is the Chinese share of a country's aid that comes from the DAC and China, lagged one period and measured in%. Debt to GDP is a country's debt to GDP ratio. Exports to GDP is the ratio of the value of a country's exports to China to GDP. Democracy rates a country's level of democracy on a scale of 1-7, where 1 is "free" and 7 is "not free". National Capability scores a country's national power relative to other African states between 0-1.

In Table 1 we notice that alignment with China has fluctuated around 86.4 percent throughout the study period. Further, average development finance flows have fluctuated in size relative to GDP throughout the period with no clear trend. China's average share of African exports has increased tenfold since 2000. Overall debt levels in Africa have fallen to more sustainable levels since 2000.

Table 2. Descriptive statistics of the overall group and subsamples.

	Overall Group			High-Debt Group			Low-Debt Group		
	N	Mean	St.Dev	N	Mean	St.Dev	N	Mean	St.Dev
Chinese Voting Alignment	697	86.4%	.071	168	87.5%	6.4%	176	85.4%	8%
OF to GDP $_{t+1}$	697	.009	.025	168	.012	.029	176	.003	.011
ODA to GDP $_{t+1}$	697	.007	.021	168	.01	.028	176	.002	.007
OOF to GDP $_{t+1}$	697	.002	.014	168	.002	.011	176	.001	.009
Chinese Share of Aid $_{t+1}$	697	11.6%	21.7%	168	10%	20.4%	176	10.1%	21.7%
Debt to GDP	697	.668	.582	168	1.253	.801	176	.271	.203
Exports to GDP	697	.01	.039	168	.016	.061	176	.007	.011
Democracy	697	4.329	1.566	168	4.774	1.427	176	4.051	1.808
National Capability	697	.019	.037	168	.008	.011	176	.033	.053

Note: N is the number of observations. Overall Group is the entire 52-country dataset (without Somalia and South Sudan). High-Debt Group consists of the 13 countries in the upper quartile of mean debt to GDP between 2000-2013. Low-debt group is the same except for the 13 countries in the lower quartile. Chinese Voting Alignment is the alignment of a country's voting with China on the Lijparth's index. OF to GDP is all official finance flows from China, lagged one year, scaled to GDP. ODA to GDP and OOF to GDP represent the disaggregation of OF to GDP to official development assistance and other official flows, respectively. Chinese Share of Aid is the Chinese share of a country's aid that comes from the DAC and China, lagged one period and measured in%. Debt to GDP is a country's debt to GDP ratio. Exports to GDP is the ratio of the value of a country's exports to China to GDP. Democracy rates a country's level of democracy on a scale of 1-7, where 1 is "free" and 7 is "not free". National Capability scores a country's national power relative to other African states between 0-1.

In Table 2 we present descriptive statistics of the overall 52-country group as well as the high- and low-debt subsamples. We observe some noteworthy differences between the subsamples and Africa overall. We notice that the mean voting alignment with China is higher in the high-debt group than in Africa overall. Likewise, the low-debt group is on average less aligned with China than Africa overall. Further, the high-debt countries, on average, received more official finance from China than low-debt countries and Africa overall. However, China's share of aid was slightly lower in the high-debt group than Africa overall.

5.2. OLS Regression Results

On the next page we present the results of the OLS regression on our panel data. Regression (a) is our model without disaggregating OF into ODA and OOF. In regression (b) we disaggregate OF into ODA and OOF. In regressions (c) and (d) we apply our model to the "high-debt" and "low-debt" countries respectively.

Table 3. OLS Panel Regression Results

	(a) Chinese Voting Alignment	(b) Chinese Voting Alignment	(c) Chinese Voting Alignment	(d) Chinese Voting Alignment
OF to GDP_{t+1}	0.253*			
	(0.103)			
ODA to GDP_{t+1}		0.240*	0.229	-0.964
		(0.115)	(0.248)	(0.797)
OOF to GDP_{t+1}		0.285*	0.376	0.120
		(0.120)	(0.256)	(0.316)
Chinese Share of Aid_{t+1}	-0.0308	-0.0309	-0.0193	-0.0519
	(0.0187)	(0.0188)	(0.0461)	(0.0336)
Debt to GDP	0.0232**	0.0232**	0.0245***	0.100
	(0.00682)	(0.00685)	(0.00546)	(0.0608)
Exports to GDP	0.0440	0.0440	-0.0434	0.158
	(0.0735)	(0.0738)	(0.0770)	(0.329)
Democracy	-0.00900	-0.00899	-0.00862	0.00741
	(0.00948)	(0.00949)	(0.00833)	(0.0135)
National Capability	-0.511	-0.507	-3.089	0.508
	(0.535)	(0.536)	(4.048)	(1.117)
Constant	0.898***	0.898***	0.910***	0.786***
	(0.0450)	(0.0451)	(0.0520)	(0.0871)
N	697	697	168	176
R^2	0.044	0.044	0.127	0.201
Country FE	Yes	Yes	Yes	Yes

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: Regression a is model without disaggregation of aid. Regression b is with disaggregation of aid. Regression c is run on the high-debt countries, and d is run on the low-debt countries. Chinese Voting Alignment is the alignment of a country's voting with China on the Lijparth's index. OF to GDP is all official finance flows from China, lagged one year, scaled to GDP. ODA to GDP and OOF to GDP represent the disaggregation of OF to GDP to official development assistance and other official flows, respectively. Chinese Share of Aid is the Chinese share of a country's aid that comes from the DAC and China, lagged one period and measured in%. Debt to GDP is a country's debt to GDP ratio. Exports to GDP is the ratio of the value of a country's exports to China to GDP. Democracy rates a country's level of democracy on a scale of 1-7, where 1 is "free" and 7 is "not free". National Capability scores a country's national power relative to other African states between 0-1.

In the first model without disaggregation of financial flows we find that there is a statistically significant positive correlation between OF in the next year and Chinese voting alignment in the current year. A one standard deviation increase in OF receipts to GDP will increase an African country's voting alignment score by 2.6 percentage points. This relationship is significant at the five percent level. Furthermore, we find that there is a positive relationship between a country's debt to GDP and Chinese voting alignment, significant at the 1 percent level. However, the magnitude of the relationship is minimal. A country one standard deviation above the mean level of indebtedness will be 0.02 percent more aligned with China. Interestingly, the signage of the Chinese Importance variable is negative. However, this relationship is not statistically significant. Similarly, we do not find a significant relationship between any of the control variables and voting alignment.

In the second regression we disaggregate OF in to ODA and OOF. Here the statistically significant positive correlation between finance and voting alignment remains for both ODA and OOF. These relationships are both significant at the five percent level. In fact, the OOF-coefficient is larger than that of ODA. When we scale this to their respective standard deviations, we find that a one standard deviation increase in OOF will increase voting alignment by 3.42 percent compared to 2.76 percent for ODA.

In the third and fourth regressions we look at the differences between high- and low-debt countries. Here, the significant positive relationship between ODA and voting alignment as well as OOF and voting alignment dematerializes when analyzing both the high- and low-debt countries. However, it is worth commenting upon the difference in coefficients between the high- and low-debt groups. The high-debt group's ODA and OOF coefficients are positive and larger than those of the low-debt group. Nevertheless, this relationship is trivial as it is not statistically significant. Interestingly, the positive relationship between debt to GDP and Chinese voting alignment strengthens to the 0.1 percent level for the high-debt group. The relationship's significance dematerializes completely upon analysis of the low-debt group.

5.3. Robustness Tests

We employ a set of tests for heteroskedasticity, multicollinearity, and autocorrelation to verify the robustness of our results as well as make any needed adjustments to our model. We present the results and the corresponding adjustments made to our model below.

5.3.1. Heteroskedasticity Tests

Since we are analyzing panel data, we employ a Wald test for group wise heteroskedasticity in the place of a Breusch-Pagan test. As seen in Table A-4 in the

appendix, the test shows that all the data groups are heteroskedastic. Therefore, we have used robust standard errors in our statistical model to account for heteroskedasticity.

5.3.2. Multicollinearity Tests

To test our variables for multicollinearity we first run a correlation matrix of all our variables. We present the results for the overall 52-country group in Table A-5 as well as the correlation matrices for the high- and low-debt groups in Table A-6 and Table A-7 in the appendix. Overall there are few variables that are significantly correlated with each other that raise an alarm for multicollinearity issues. However, the correlation coefficients between our *Chinese Share of Aid* and *ODA* is above 0.5 in all three tables. Also, the correlation coefficients between *Chinese Share of Aid* and *OOF* are moderately high in the overall and high-debt groups. This can partially be explained by the fact that the *Chinese Share of Aid* variable uses the sum of *ODA* and *OOF* in the calculation of China's total share of a country's development finance receipts. Therefore, we calculate the variance inflation factors (VIF) of our variables to further investigate the issue of multicollinearity. As can be seen in Table A-8 in the appendix, there are no abnormally large VIFs amongst the variables in our model. All VIFs are less than 3. Therefore, we conclude that our model is not significantly burdened by multicollinearity issues.

5.3.3. Autocorrelation Tests

Since we are using panel data in our study, we run a Wooldridge test for autocorrelation on our panel data. As can be seen in Figure A-9 in the appendix, we cannot dismiss the null-hypothesis that there is no autocorrelation. Therefore, we conclude that our model does not have significant issues with autocorrelation that require any adjustments of our data or model.

6. Interpretation & Discussion

6.1. Interpretation of Results

6.1.1. Chinese Official Finance Increases African Voting Loyalty to China

In regards to our research question, our results show that an increase in future Chinese official finance increases African voting alignment with China in the UNGA. This confirms our first hypothesis. With respect to our assumption of aid following voting alignment, we interpret this result as support for the diplomatic practice of voting with China in the UNGA in order to help secure more Chinese development finance in the future. By the same token, it can be interpreted as support for the notion that China uses future development finance to increase voting alignment. Interestingly, this result differs from Strüver (2012) who found no significant correlation between Chinese aid and voting alignment to China. However, his study analyzed the voting behavior of all UNGA members, instead of just Africa, and treated aid as a binary variable. By looking at the dollar-to-GDP value of aid we provide a more nuanced picture on the impact of aid that takes into account how much aid you receive rather than just if you receive aid. It is also interesting to compare our results with the previous studies presented in Table A-1 that have shown that US aid increases voting loyalty to the US in the UNGA. Given the fact that both China, via our study, and the US, via prior research, have shown significantly positive correlations between aid and voting alignment, we deduce that they both gain support in the UNGA by using development finance. Moreover, if we compare previous research, our results, and our comparison of the distribution of Chinese and American development finance in Africa by country (Figure A-1 in appendix), we find a potential explanation for this phenomenon: both countries successfully exert influence in the UNGA with aid by targeting different countries. For instance, between 2000-2014, China provided more development finance to Zimbabwe than all DAC countries combined. During this period, Zimbabwe has been China's closest ally in terms of voting alignment, voting with China 90.2 percent of the time on average. Similarly, the US provided significantly more development finance than China to its three most loyal African voting allies in the same period: South Africa (41.3 percent alignment), Liberia (34.8 percent alignment), and South Sudan (24.6 percent alignment). These differences in development finance levels in specific countries help explain the veracity of our findings in relation to other studies. Therefore, we can reconcile the idea that both countries' development finance allocations increase recipient voting alignment in the UNGA.

When disaggregating Chinese official finance into ODA and OOF, our results showed that future ODA flows to an African country increase voting alignment with China, which is in line with the findings of Dreher et al. (2015) and Hypothesis 2a. This

positive relationship was significant at the five percent level. However, we also found the same relationship to exist between OOF flows and voting alignment, significant at the five percent level. Thus, we reject hypothesis 2b. In regards to Dreher et al. (2015), this difference in findings could be explained by fundamental differences in our statistical models. One large contributor to this difference could be the fact that some of the independent variables unique to our study contained missing values for certain countries which removed certain observations from the study. Perhaps the most interesting insight from the disaggregated aid regression was that for any given African country, a one standard deviation increase in OOF (scaled to GDP) in the next period will increase voting alignment today by 3.42 percent compared to 2.76 percent for ODA. This indicates that OOF has a larger per-dollar impact on voting alignment than ODA. We interpret this to be evidence that OOF is more effective an instrument in influencing a nation's voting patterns than more concessional forms of finance such as ODA. As seen with the recent asset seizures in the BRI, less concessional forms of finance carry tougher forgiveness policies and graver default consequences than ODA. Therefore, we find that our results are in line with the notion that larger amounts of Chinese amounts of less-concessional debt will make African countries more loyal to them in the UNGA.

6.1.2. Highly Indebted African Countries Are Slightly More Aligned with China

Our analysis shows that African countries with higher debt to GDP ratios are more inclined to vote with China in the UNGA. This positive relationship is significant at the 1 percent level. However, it is important to note that the magnitude of this relationship is minimal in terms of standard deviations, indicating that a country's overall debt level is only a significant driving factor of voting alignment for abnormally indebted countries. For instance, if a country's debt as a percentage of GDP increases by 10 percentage points, then their alignment with China is only expected to be 0.2 percent higher. Therefore, we conclude that the small magnitude of the relationship between debt to GDP and Chinese voting alignment does not provide significant support for our third hypothesis and the idea that overall debt pressures influence voting in the UNGA.

However, we do find some more support for the importance of debt in abnormally high debt level situations when we analyze the high- and low-debt quartiles of African countries. Here the positive relationship between debt to GDP and voting alignment grows and strengthens to the 0.1 percent level for the highly indebted quartile of African countries. The relationship dematerialized completely for the low-debt quartile. This gives some support for our third hypothesis. Furthermore, as seen in the descriptive statistics in Table 2, the high-debt quartile of African countries is more aligned with China than the low-debt quartile and Africa overall. These high-debt countries, on average, have a debt to GDP ratio that classifies them as "high debt-risk" countries according to the IMF debt sustainability framework for low-income countries. Table 2

also shows that the low-debt group and Africa overall do not classify as "high debt-risk" countries in this framework (IMF, 2018). Collectively, these details can be seen as evidence supporting the previously mentioned trend of countries under abnormally high debt pressure increasing their relations with China in order to get access to additional financing from China in lieu of stricter covenant-heavy western financing (Dollar, 2017).

However, what sobers these results in regard to Chinese debt pressure is that our study found no significant support for our fourth hypothesis. We found no significant link between countries with larger shares of aid coming from China and voting alignment. We know that highly indebted countries are more loyal to China, however we are not sure if those countries are primarily indebted to China or someone else. Therefore, we cannot draw conclusive statements about the impact of Chinese debt on African voting loyalty. Unfortunately, there is no readily available data on the nationality shares of African countries' lenders.

6.1.3. No Significant Link Between Exports, Democracy and National Capability to UNGA voting

Our results differ from Strüver (2012) and Dreher et al. (2006) in that we did not find a significant correlation between any of the control variables and voting loyalty to China in the UN. This is, however, perhaps not as surprising since these studies analyzed different time periods (1990-2008, and 1973-2002 respectively) and a greater number of countries (193 and 143). As presented in Table A-1 in the appendix, changing samples and periods can impact the significance of results. This can explain why our results differ from studies in different periods. Furthermore, the more recent Dreher et al. (2015) study, which used a similar time period, 2000-2013, and also focused on Africa found no significant correlation between democracy levels and Chinese voting alignment thus we are in accordance with their results.

6.2. Limitations

Overall, one of the greatest limitations of our study was data. Our panel dataset consisted of unbalanced panels due to missing values for dependent variables for certain countries and years. While the non-perfect balance in the country panels is not ideal, our study is concerned with Africa as a whole. This, combined with the sample selection bias associated with only choosing well-reported countries, made it inadvisable to eliminate 21 countries from the dataset to balance our data. Therefore, we can reconcile this imbalance in data panels. Furthermore, this dataset does not cover financial flows after 2014. Therefore, our results must be qualified by the fact that they only observe the early stages of the BRI when discussing current events.

Another aspect of the data that is worth discussing is the AidData dataset. Since China does not report its official finance flows, this thesis relied on the dataset created by AidData. Due to the issues presented in the data section of this thesis, there may be a problem of underreporting of financial flows from China to Africa, which may reduce the overall applicability of our results. In addition, since China does not categorize its aid into ODA and OOF, we have relied on AidData's categorization methodology, which might also affect our results.

As previously mentioned, our model was not able to evaluate the level of Chinese debt in a country. This limited our ability to comment on the allegations of Chinese debt trap diplomacy. Also, our *Chinese Share of Aid* variable only compared Chinese aid levels to DAC countries. This could have impacted our results as there could be other significant providers of development finance to Africa that are not DAC members such as Russia and Saudi Arabia. Moreover, our *Chinese Voting Alignment* variable only covers UNGA votes. The UNGA mostly covers issues on international security and humanitarian issues, thus our voting alignment score only captures this and the results might not be applicable to other political issues.

6.3. Implications for the BRI Debate

Our study provides an interesting set of insights to the current debate surrounding the Chinese BRI initiative that is permeating Africa and Asia. We show that there is merit to the notion that Chinese development finance increases Sino-African political loyalties in the UNGA. This supports the current allegations of China gaining influence throughout Africa with their significant development finance disbursements. However, our study does not find significant support for the UN's concerns surrounding debt sustainability in the BRI. The significant link between debt to GDP and Chinese voting alignment solely provides evidence that abnormally debt pressured African countries, such as the case with Angola, would increase alignment with China in order to get access to China's liberal development finance packages. Collectively, these findings have some implications from the perspective of western multi- and bilateral donors. In the coming years these institutions may struggle to get the most severely pressured African countries to adopt increased transparency and debt sustainability in their national accounting as long as China is willing and able to continue to spend on Africa at its current rate.

From an international politics perspective, our finding that OF is an effective instrument for increasing voting alignment in the UNGA shows that development finance could continue to be used to maintain future Sino-African voting alignment in the UNGA. Ultimately, this could mean that China will be able to create more voting allegiances in the UNGA through the BRI and therefore have a greater sway over UN resolutions. It will be interesting to follow how the geopolitical dynamics in the world will develop

now that the current US administration has opened up to using US aid to buy influence in the UNGA. Will China and the United States' geopolitical race for influence in foreign affairs be driven by development finance?

6.4. Further Research

Based on the distribution of Chinese aid by country in Figure A-1, China appears to focus its aid allocations inequitably. It would therefore be interesting in another study to perhaps focus on the largest recipients of Chinese aid and see what effect this has on our results. It would also be interesting to test how our results hold in describing the aid's effect on voting alignment in other intergovernmental organizations, such as the World Trade Organization, that handle other political issues.

Based on the findings in our regressions, we believe that future research should focus on further investigating the relationship between less concessional financial flows from China to Africa, more specifically Chinese debt and private sector investment, and Afro-Sino voting alignment. One specific metric that would be interesting to study is the impact of the Chinese share of a country's debt on voting alignment. Due to lacking reports from Chinese and African agencies, there is currently a research and data gap in this field. The publishing of an updated dataset on Chinese official finance flows to include data post-2014 via the TUFF Methodology or a larger effort to integrate China into international finance reporting systems would therefore be invaluable to the research field. Filling this research and data gap is crucial to understanding how Chinese debt and debt sustainability in the BRI impacts African governmental behavior. As China continues to lend and the BRI continues to grow, demand for studies in this field will continue to grow as well.

7. References

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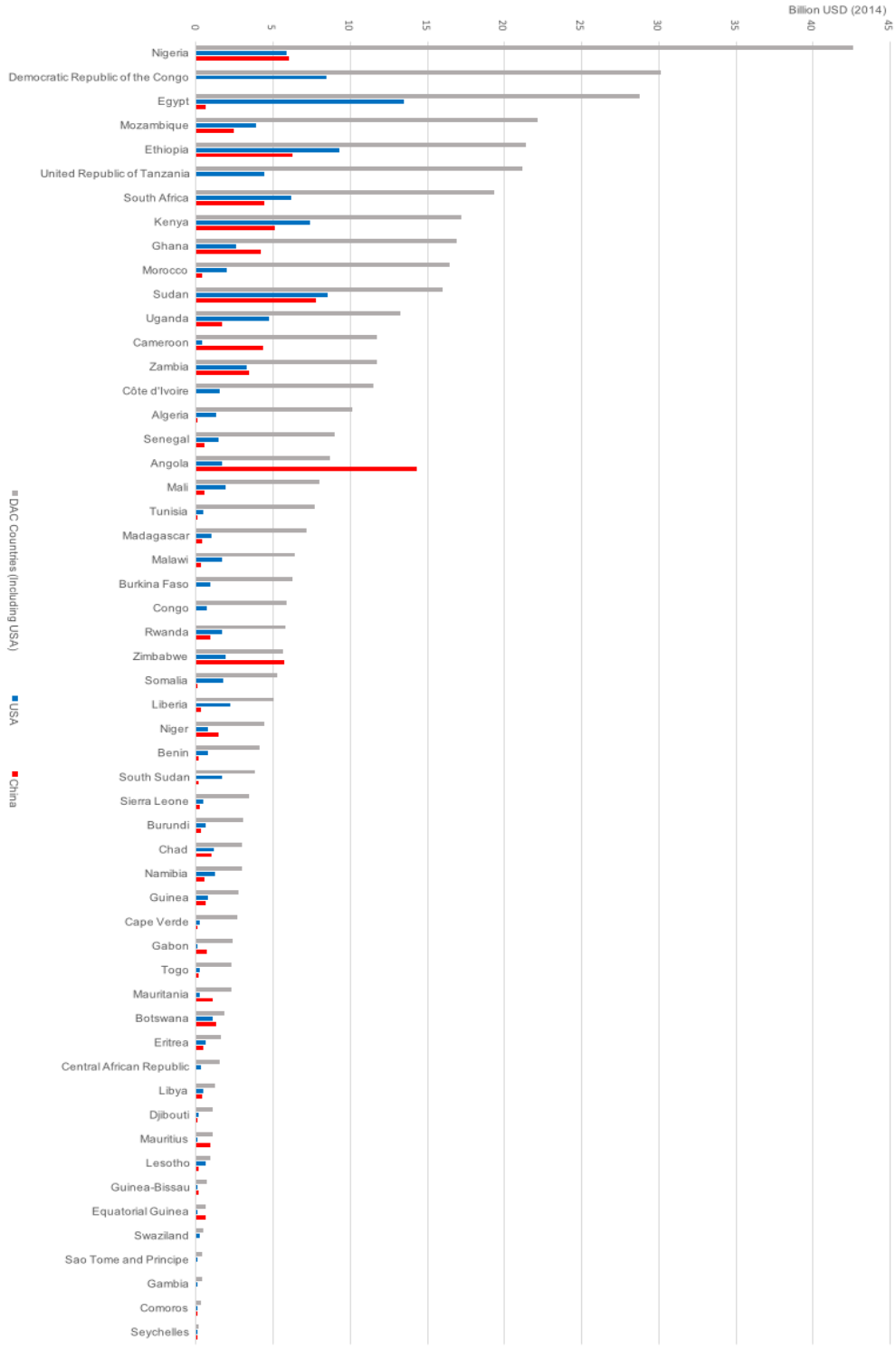
8. Appendix

Figure A-1. Total Bilateral Development Finance to Africa by Recipient (2000-2014)



Source: OECD (2017) and AidData (2017)

Table A-1. Studies of Voting in the UN General Assembly and Aid

Study	Period	Sample	Main Focus	Results
Kato (1969)	1961-64	60 countries	Voting with USA	Aid has no impact on voting
Bernstein and Alpert (1971)	1961-68	126 countries	Voting with USA	Aid increases voting coincidence
Rai (1972)	1961-65	66 countries	Voting with USA	Aid increases voting coincidence
Wittkopf (1973)	1962-67	96 countries	Voting with OECD countries	Aid increases voting coincidence
Rai (1980)	1967-76	71-84 countries	Voting with USA	Aid increases voting coincidence
Kegley and Hook (1991)	1984-89	71-84 countries	Voting with USA	Aid has no impact on voting
Sexton and Decker (1992)	1988	146 countries	Voting with USA	Aid has no impact on voting
Lundborg (1998)	1948-1979	Non-communist UN members	Voting with USA	Aid increases voting coincidence
Wang (1999)	1984-93	65 countries	Voting with USA	Aid increases voting coincidence
Morey and Lai (2003)	1950-91	All UN members	Voting with USA	Aid has no impact on voting

Table A-2. Summary statistics of variable means by country

	Chinese Voting Alignment	OF to GDP	ODA to GDP	OOF to GDP	Chinese Share of Aid	Debt to GDP	Exports to GDP	Democracy	National Capa-bility
Algeria	91.1%	0	0	0	1.9%	.281	.005	5.5	.087
Angola	85,0%	.016	.002	.014	55.3%	.432	.107	5.571	.026
Benin	86.1%	.001	.001	0	2.6%	.395	.011	2.077	.004
Botswana	85.2%	.01	.002	.008	19.9%	.127	.004	2.179	.004
Burkina Faso	87.2%	0	0	0	0,0%	.362	.001	4.036	.008
Burundi	83.6%	.02	.02	0	9.2%	1.04	0	4.964	.006
Cameroon	65.5%	.012	.01	.003	21.6%	.393	.009	6.036	.011
Cape Verde	87,0%	.007	.007	0	3.1%	.794	0	1.115	0
Central African Rep.	80.8%	0	0	0	0,0%	.525	.004	5.227	.002
Chad	91.1%	.007	.005	.001	9.1%	.404	0	6.036	.008
Comoros	90,0%	.011	.011	0	14.2%	.674	0	3.964	0
Congo	88.6%	0	0	0	0,0%	1.075	.123	5.179	.004
Cote d'Ivoire	79.1%	0	0	0	0,0%	.733	0	5.643	.013
Dem. Rep. of Congo	85.1%	0	0	0	0,0%	.918	0	5.964	.036
Djibouti	89.1%	.011	.004	.007	8.7%	.534	0	5.036	.001
Egypt	91.6%	0	0	0	4,0%	.795	.002	5.538	.18

Equatorial Guinea	85.3%	.004	.004	0	22.6%	.085	0	6.714	.001
Eritrea	88.5%	.036	.036	0	19.8%	1.563	0	6.55	.013
Ethiopia	85,0%	.017	.011	.006	16.8%	.68	0	5.286	.045
Gabon	88.4%	.003	.003	.001	20.8%	.444	.029	5,00	.002
Gambia	88.5%	0	0	0	0,0%	1.045	.001	4.893	.001
Ghana	86.6%	.015	.01	.005	21.5%	.563	.004	1.786	.011
Guinea	88.9%	.008	.004	.004	12.7%	1.006	.001	5.464	.006
Guinea-Bissau	88.1%	.018	.018	0	9.5%	1.743	0	4.333	.001
Kenya	85.5%	.008	.003	.005	12.5%	.477	.001	3.786	.021
Lesotho	85.2%	.009	.009	0	17.2%	.618	0	2.821	.002
Liberia	84.9%	.023	.019	.005	8.3%	2.054	0	3.667	.001
Libya	89.5%	.001	0	.001	9.7%	.053	.014	6.45	.027
Madagascar	86.3%	.004	.003	.002	7.6%	.613	.005	3.821	.008
Malawi	79.7%	.004	.004	0	4.4%	.83	.004	3.615	.005
Mali	87.8%	.006	.006	0	5.7%	.374	.005	2.75	.006
Mauritania	89.4%	.024	.024	0	19.9%	1.278	.069	5.214	.003
Mauritius	83.8%	.009	.008	0	28.7%	.512	.001	1.423	.001
Morocco	89,0%	0	0	0	1.9%	.574	.002	4.607	.047
Mozambique	88.1%	.016	.016	0	10.9%	.613	.008	3.429	.011
Namibia	87.5%	.005	.005	0	16.9%	.225	.011	2.179	.003
Niger	89,0%	.02	.018	.002	13,0%	.439	.003	3.625	.006
Nigeria	87.7%	.002	.001	.001	18.5%	.27	.003	4.143	.064
Rwanda	76.1%	.016	.016	0	10.9%	.545	.001	5.714	.006
Sao Tomé & Principé	87.3%	0	0	0	0,0%	1.728	0	1.958	0
Senegal	89.1%	.003	.002	.001	5.7%	.428	.001	2.692	.007
Seychelles	86.5%	.007	.007	0	16.2%	1.316	0	3,00	0
Sierra Leone	86.6%	.007	.007	0	6.9%	1.028	0	3.393	.002
South Africa	85.2%	.001	0	.001	11,0%	.355	.015	1.786	.188
Sudan	90.9%	.018	.003	.015	28.1%	1.016	0	7,00	.026
Swaziland	87.5%	0	0	0	0,0%	.158	.011	5.893	.001
Togo	87.5%	.003	.003	0	6.2%	.811	.003	4.964	.005
Tunisia	90.6%	0	0	0	0.4%	.502	.001	5.179	.011
Uganda	81.6%	.009	.008	.001	10.3%	.467	.001	4.714	.016
Rep. of Tanzania	85.9%	0	0	0	0,0%	.405	.009	3.423	.022
Zambia	87.2%	.018	.009	.008	19.5%	.732	.029	3.75	.008
Zimbabwe	91.1%	.061	.035	.027	37,0%	.512	.01	6.077	.012[i]

Note: All values are means for the country for all observations between 2000-2013 (without Somalia and South Sudan). Chinese Voting Alignment is the alignment of a country's voting with China on the Lijparth's index. OF to GDP is all official finance flows from China, lagged one year, scaled to GDP. ODA to GDP and OOF to GDP represent the disaggregation of OF to GDP to official development assistance and other official flows, respectively. Chinese Share of Aid is the Chinese share of a country's aid that comes from the DAC and China, lagged one period and measured in%. Debt to GDP is a country's debt to GDP ratio. Exports to GDP is the ratio of the value of a country's exports to China to GDP. Democracy rates a country's level of democracy on a scale of 1-7, where 1 is "free" and 7 is "not free". National Capability scores a country's national power relative to other African states between 0-1.

Table A-3. Summary statistics of all variables across all countries and years

	N	Mean	St.Dev	Min	Max
Chinese Voting Alignment	697	86.4%	7.1%	33.3%	100%
OF to GDP	697	.009	.025	0	.32
ODA to GDP	697	.007	.021	0	.296
OOF to GDP	697	.002	.014	0	.249
Chinese Share of Aid	697	11.6%	21.7%	0%	95.5%
Debt to GDP	697	.668	.582	.005	4.875
Exports to GDP	697	.01	.039	0	.344
Democracy	697	4.329	1.566	1	7
National Capability	697	.019	.037	0	.212

Note: N is the number of observations. All values are means for all countries in the dataset between 2000-2013 (without Somalia and South Sudan). Chinese Voting Alignment is the alignment of a country's voting with China on the Lijparth's index. OF to GDP is all official finance flows from China, lagged one year, scaled to GDP. ODA to GDP and OOF to GDP represent the disaggregation of OF to GDP to official development assistance and other official flows, respectively. Chinese Share of Aid is the Chinese share of a country's aid that comes from the DAC and China, lagged one period and measured in%. Debt to GDP is a country's debt to GDP ratio. Exports to GDP is the ratio of the value of a country's exports to China to GDP. Democracy rates a country's level of democracy on a scale of 1-7, where 1 is "free" and 7 is "not free". National Capability scores a country's national power relative to other African states between 0-1.

Table A-4. Test for group-wise heteroskedasticity results from Stata

Modified Wald Tests for Group-Wise Heteroskedasticity in Fixed Effects Model			
Overall Group ND	Overall Group D	High-Debt Group	Low-Debt Group
H0: Sigma(i)^2 = sigma^2 for all i	**Ho:** Sigma(i)^2 = Sigma^2 for all i	**Ho:** Sigma(i)^2 = Sigma^2 for all i	**Ho:** Sigma(i)^2 = Sigma^2 for all i
Chi^2 (52) = 3160.85 Probability > Chi^2 = 0.0000	Chi^2 (52) = 3154.48 Probability > Chi^2 = 0.0000	Chi^2 (13) = 336.97 Probability > Chi^2 = 0.0000	Chi^2 (13) = 451.56 Probability > Chi^2 = 0.0000
Result: There is group-wise heteroscedasticity.	**Result:** There is group-wise heteroscedasticity.	**Result:** There is group-wise heteroscedasticity.	**Result:** There is group-wise heteroscedasticity.

Note Overall Group ND is the entire 52-country dataset (without Somalia and South Sudan) with non-disaggregated aid. Overall Group D is the same group of countries but with disaggregated aid. High-Debt Group consists of the 13 countries in the upper quartile of mean debt to GDP between 2000-2013. Low-debt group is the same except for the 13 countries in the lower quartile. Based on the results, we use robust errors to account for the presence of heteroscedasticity.

Table A-5: Correlation matrix for all variables included in the model.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Chinese Voting Alignment	1.000								
(2) OF to GDP	0.040	1.000							
(3) ODA to GDP	0.020	-	1.000						
(4) OOF to GDP	0.044	-	0.028	1.000					
(5) Chinese Share of Aid	-0.049	0.641	0.501	0.420	1.000				
(6) Debt to GDP	0.137	0.089	0.131	-0.037	-0.087	1.000			
(7) Exports to GDP	0.005	-0.006	-0.029	0.033	0.160	-0.098	1.000		
(8) Democracy	-0.026	0.075	0.045	0.070	0.047	0.021	0.097	1.000	
(9) National Capability	0.075	-0.078	-0.089	-0.009	-0.028	-0.112	-0.007	0.023	1.000

Note: The number on the top axis corresponds to the variable number on the left axis. Chinese Voting Alignment is the alignment of a country's voting with China on the Lijparth's index. OF to GDP is all official finance flows from China, lagged one year, scaled to GDP. ODA to GDP and OOF to GDP represent the disaggregation of OF to GDP to official development assistance and other official flows, respectively. Chinese Share of Aid is the Chinese share of a country's aid that comes from the DAC and China, lagged one period and measured in%. Debt to GDP is a country's debt to GDP ratio. Exports to GDP is the ratio of the value of a country's exports to China to GDP. Democracy rates a country's level of democracy on a scale of 1-7, where 1 is "free" and 7 is "not free". National Capability scores a country's national power relative to other African states between 0-1. ODA and OOF to GDP are removed since the variables are never included in the same model.

Table A-6: Correlation matrix for all variables in high-debt group.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Chinese Voting Alignment	1.000							
(2) ODA to GDP	0.076	1.000						
(3) OOF to GDP	0.112	-0.040	1.000					
(4) Chinese Share of Aid	0.112	0.658	0.439	1.000				
(5) Debt to GDP	0.270	0.167	0.007	0.006	1.000			
(6) Exports to GDP	-0.035	-0.036	-0.048	-0.026	-0.207	1.000		
(7) Democracy	0.103	0.054	0.176	0.152	-0.174	0.135	1.000	
(8) National Capability	-0.017	0.083	0.163	0.047	-0.187	-0.105	0.632	1.000

Note: The number on the top axis corresponds to the variable number on the left axis. Chinese Voting Alignment is the alignment of a country's voting with China on the Lijparth's index. OF to GDP is all official finance flows from China, lagged one year, scaled to GDP. ODA to GDP and OOF to GDP represent the disaggregation of OF to GDP to official development assistance and other official flows, respectively. Chinese Share of Aid is the Chinese share of a country's aid that comes from the DAC and China, lagged one period and measured in%. Debt to GDP is a country's debt to GDP ratio. Exports to GDP is the ratio of the value of a country's exports to China to GDP. Democracy rates a country's level of democracy on a scale of 1-7, where 1 is "free" and 7 is "not free". National Capability scores a country's national power relative to other African states between 0-1.

Table A-7: Correlation matrix for all variables in low-debt group.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Chinese Voting Alignment	1.000							
(2) ODA to GDP	-0.402	1.000						
(3) OOF to GDP	-0.101	0.047	1.000					
(4) Chinese Share of Aid	-0.318	0.571	0.370	1.000				
(5) Debt to GDP	0.047	-0.036	-0.086	-0.189	1.000			
(6) Exports to GDP	-0.050	-0.035	0.131	0.061	-0.077	1.000		
(7) Democracy	-0.146	0.058	-0.061	0.046	-0.230	-0.086	1.000	
(8) National Capability	0.097	-0.153	-0.025	-0.021	0.120	0.119	-0.223	1.000

Note: The number on the top axis corresponds to the variable number on the left axis. Chinese Voting Alignment is the alignment of a country's voting with China on the Lijparth's index. OF to GDP is all official finance flows from China, lagged one year, scaled to GDP. ODA to GDP and OOF to GDP represent the disaggregation of OF to GDP to official development assistance and other official flows, respectively. Chinese Share of Aid is the Chinese share of a country's aid that comes from the DAC and China, lagged one period and measured in%. Debt to GDP is a country's debt to GDP ratio. Exports to GDP is the ratio of the value of a country's exports to China to GDP. Democracy rates a country's level of democracy on a scale of 1-7, where 1 is "free" and 7 is "not free". National Capability scores a country's national power relative to other African states between 0-1.

Table A- 8. Variance inflation factors of all variables.

	Overall Group ND		Overall Group D		High-Debt Group		Low-Debt Group	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
Chinese Share of Aid	1.836	.545	1.845	.542	2.958	.338	1.895	.528
OF to GDP	1.807	.553	-	-	-	-	-	-
ODA to GDP	-	-	1.511	.662	2.485	.402	1.629	.614
OOF to GDP	-	-	1.3	.769	1.86	.538	1.243	.804
Debt to GDP	1.061	.943	1.068	.936	1.858	.538	1.122	.891
Exports to GDP	1.064	.94	1.064	.94	1.684	.594	1.117	.895
National Capability	1.019	.981	1.02	.98	1.16	.862	1.111	.9
Democracy	1.018	.983	1.019	.982	1.147	.872	1.047	.955
Mean VIF	1.301		1.261		1.879		1.309	

Note: 'Overall Group ND' is the variance inflation in the non-disaggregated aid group, where ODA to GDP and OOF to GDP are excluded since they are not included in that model's regression. OF's VIF is only calculated in this group as it is not used in the other regressions. Overall Group D is the same group of countries but with disaggregated aid variables. VIF is the variance inflation factor of a variable. Chinese Voting Alignment is the alignment of a country's voting with China on the Lijparth's index. OF to GDP is all official finance flows from China, lagged one year, scaled to GDP. ODA to GDP and OOF to GDP represent the disaggregation of OF to GDP to official development assistance and other official flows, respectively. Chinese Share of Aid is the Chinese share of a country's aid that comes from the DAC and China, lagged one period and measured in%. Debt to GDP is a country's debt to GDP ratio. Exports to GDP is the ratio of the value of a country's exports to China to GDP. Democracy rates a country's level of democracy on a scale of 1-7, where 1 is "free" and 7 is "not free". National Capability scores a country's national power relative to other African states between 0-1.

Table A-9: Tests for autocorrelation results from Stata.

Wooldridge Tests for Autocorrelation in Panel Data			
Overall Group ND	Overall Group D	High-Debt Group	Low-Debt Group
H0: no first-order autocorrelation	**Ho:** No first-order autocorrelation	**H0:** No first-order autocorrelation	**H0:** No first-order autocorrelation
F(1, 51) = 0.213 Probability > F= 0.6461	F(1, 51) = 0.193 Probability > F = 0.6619	F(1, 12) = 1.530 Probability > F = 0.2397	F(1, 12) = 0.723 Probability > F = 0.4118
Result: No autocorrelation in our model.	**Result:** No autocorrelation in our model.	**Result:** No autocorrelation in our model.	**Result:** No autocorrelation in our model.

Note: Overall Group ND is the entire 52-country dataset (without Somalia and South Sudan) with non-disaggregated aid. Overall Group D is the disaggregated aid group. High-Debt Group consists of the 13 countries in the upper quartile of mean debt to GDP between 2000-2013. Low-debt group is the same except for the 13 countries in the lower quartile. Based on the results, we use robust errors to account for the presence of heteroscedasticity.