ECONOMIC BULLETIN

NO. 1 2017

CHINA★AFRICA RESEARCH INITIATIVE

The Commodity price slump since 2014 continues to impact China-Africa economic relations, reducing Chinese FDI and loans to Africa, as well as shrinking African export values to China.

Diversification can be observed in both trade and loan financing. Agricultural products and manufactured goods from Africa are playing an increasingly larger role in trade, while Chinese loans are moving beyond infrastructure projects to finance more industrial projects.

The Commodity price slump may impede African governments from borrowing more Chinese loans despite the sweeping FOCAC pledges made in December 2015.

JOHNS HOPKINS
SCHOOL of ADVANCED INTERNATIONAL STUDIES

Challenges of and opportunities from the commodity price slump

Lucas Atkins, Deborah Brautigam, Yunnan Chen, and Jyhjong Hwang

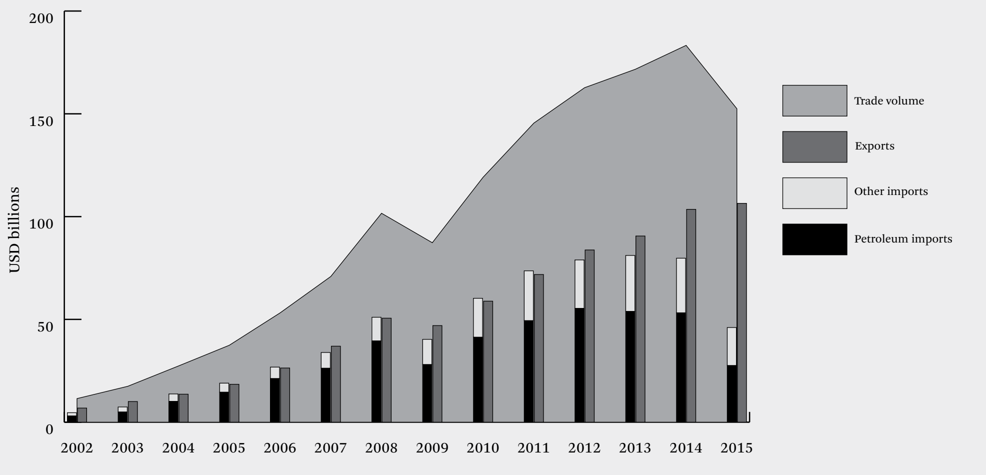
THIS FIRST EDITION OF THE CHINA-AFRICA ECONOMIC BULLETIN provides a comprehensive overview of the key channels of China-Africa economic engagement over the last decade, with a focus on shifting economic trends in the past five years. The collapse of global commodity prices beginning in 2014, tied with the domestic slowdown in China, has significant implications for the tenor and nature of China's economic relationship with African countries going forward. Our data shows most recent figures up to 2015, as well as the broader economic trends: bilateral trade; Chinese outward direct investment to Africa; Chinese labor and contract values; and Chinese loans to African governments. The effect of low commodity prices has been salient in almost every aspect of China-Africa economic relations, most visibly in trade, and may indicate a shift away from the intensive trade-based relationship that characterized the height of China-Africa relations in the 2000s.

- Between 2014 and 2015, Chinese imports of African goods dropped by 42%, from US$79.8 billion to US$46.1 billion. This is due primarily to lower oil export values, which constitutes China's top import from Africa, though other import products also declined in value.
- FDI flows in 2015 from China to Africa fell to US$3.0bn from the previous high of US$3.4bn in 2013. This may reflect the effect of falling commodity values on investor confidence, as well as China's domestic slowdown.
- The total number of Chinese workers in Africa in 2015 is estimated at 263,508, and has risen gradually over the previous five years from 187,400 in 2009. Two countries, Algeria and Angola, host the majority of recorded Chinese laborers on the continent.
- Total Chinese loans from both government and commercial sources totaled US$11.8bn in 2015, constituting a US$1.7bn decrease compared to 2014. This is the second year in a row where Chinese loans to Africa decreased, due in part to the commodity price slump that hindered African countries' ability to borrow using resources as securities.

CHANGES IN TRADE

For the trade analysis we use UN Comtrade data[1] with China as the reporter and each African country as the partner for import and export flows, except in the case of South African exports.[2] This allows standardization of reporting practices, but it is important to keep in mind that there can be large discrepancies between reporters. [3]

Figure 1: China-Africa trade value, 2002 - 2015



China has been Africa's largest trading partner since 2009, when it surpassed the United States. In recent years, however, the value of African exports has markedly decreased, leading to a growing trade imbalance between Africa and China. Since 2012, China's trade surplus with respect to Africa has been growing in magnitude, reaching US$60.4bn in 2015. While exports from China to Africa remained stable between 2014 and 2015, reaching US$106bn in 2015 with a concentration in machinery and construction related products, imports from Africa to China fell from US$79.8bn in 2014 to US$46.1bn in 2015—a 42% drop. This is largely a casualty of the global oil price collapse, driven in part by falling demand from emerging economies, as well as new energy supplies from fracking in the U.S. and Canadian shale oil.[4] Lower investment and economic slowdown in China and other emerging economies has also led to falling commodity values for other imports, including copper and other minerals.

Table 1: Top 5 African exporters to China

Rank	2014 origins (US$ bn)		2015 origins (US$ bn)	
1	Angola	31.11	Angola	16
2	S. Africa	8.68	S. Africa	5.8
3	Congo	5.48	Sudan	3.06
4	S. Sudan	4.33	D. R. C.	2.66
5	Eq. Guinea	3.22	Congo	2.62

Table 2: Top 5 African export products to China

Rank	2014 imports (US$ bn)		2015 imports (US$ bn)	
1	Oil	53.21	Oil	27.54
2	Ores	11.07	Ores	6.35
3	Copper	4.13	Copper	3.35
4	Wood & timber	2.44	Wood & timber	1.98
5	Pearls & Gems	1.46	Oil seeds	1.13

CHINESE IMPORTS FROM AFRICA

The top 5 African exporters to China in 2015 were Angola, South Africa, Sudan, the Democratic Republic of the Congo (DRC), and the Republic of Congo. Meanwhile, the top 5 export products in 2015 were petroleum, ores,[5] copper, wood & timber,[6] and oilseeds. While relative rankings between 2014 and 2015 have not changed significantly, absolute values of these exports have decreased dramatically. From 2014 to 2015, the total value of exports from Angola, South Africa, and Congo fell at least 30%, and the value of oil, ores, copper, and pearls and gems all decreased year on year in 2015. Pearls & gems saw a drastic drop in value from US$1.5bn in 2014 to just US$412.9 million in 2015, in part due to cooling demand from markets in Asia.[7]

The top African exporters to China are commodity-rich economies: Angola remains China's largest African oil exporter, while the Congo (Brazzaville) is another exporter of oil. As the second largest exporter to China, South Africa produces a more diverse basket of exports, including ores (US$3.4bn in 2015), iron & steel articles (US$723.3mn), pulp of wood pulp (US$316.7mn), and copper (US$286.1mn). The DRC, like South Africa, mostly

Table 3: Top 5 African buyers of Chinese products

Rank	2014 destinations (US$ bn)		2015 destinations (US$ bn)	
1	S. Africa	15.7	S. Africa	15.88
2	Nigeria	15.39	Nigeria	13.72
3	Egypt	10.46	Egypt	11.96
4	Algeria	7.4	Algeria	7.6
5	Angola	5.98	Kenya	5.92

Table 4: Top 5 Chinese products exported to Africa

Rank	2014 exports (US$ bn)		2015 exports (US$ bn)	
1	Electrical Machinery	15.04	Electrical Machinery	16.77
2	Machinery	12.09	Machinery	11.41
3	Vehicles	7.21	Vehicles	5.85
4	Iron & Steel Articles	4.97	Iron & Steel Articles	5.18
5	Furniture	4.72	Not-knitted Clothing	4.68

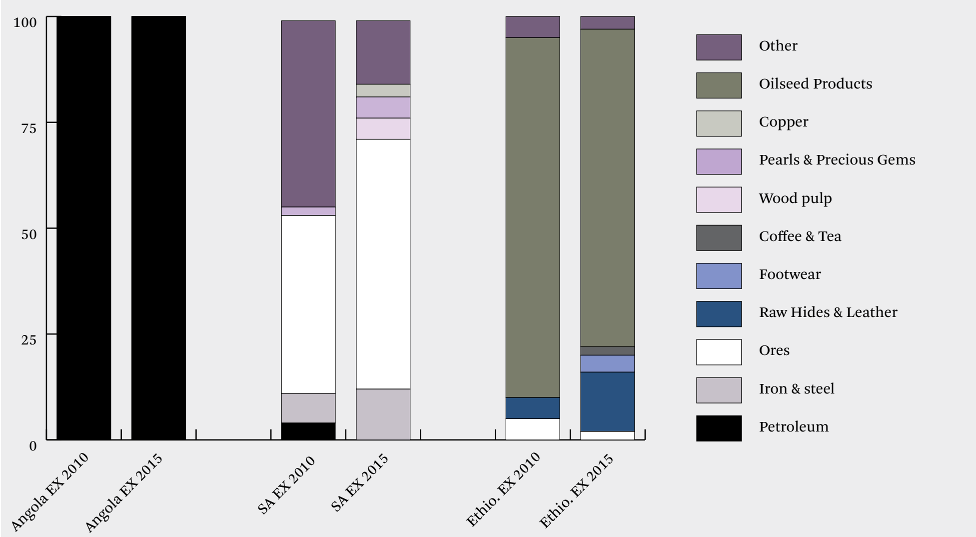
exports copper (US$1.3bn in 2015), base metals (US$746.4mn), and ores (US$496.7mn).

CHINESE EXPORTS TO AFRICA

In contrast, exports from China to Africa have been stable even as imports declined in 2015. Total exports from China to Africa grew modestly by US$3bn between 2014 and 2015 at a rate of 2.8%. This has been the slowest rate of growth since the 2009 recession, where Chinese exports to Africa fell by 7.1%, and remains far below the average growth rate of 24.6% between 2002 and 2015. In 2015, the top 5 exports from China to Africa were electrical machinery, machinery, vehicles, iron & steel articles, and not-knitted apparel, the only change being furniture exports slipping to 6th place.

South Africa continues to be China's preferred export market in Africa. The top Chinese exports to South Africa in 2014 and 2015 were machinery and electrical machinery, at a value of US$3.0bn and US$2.3bn respectively, which may be related to construction contracts financed by export credit.

Figure 2: African export diversity

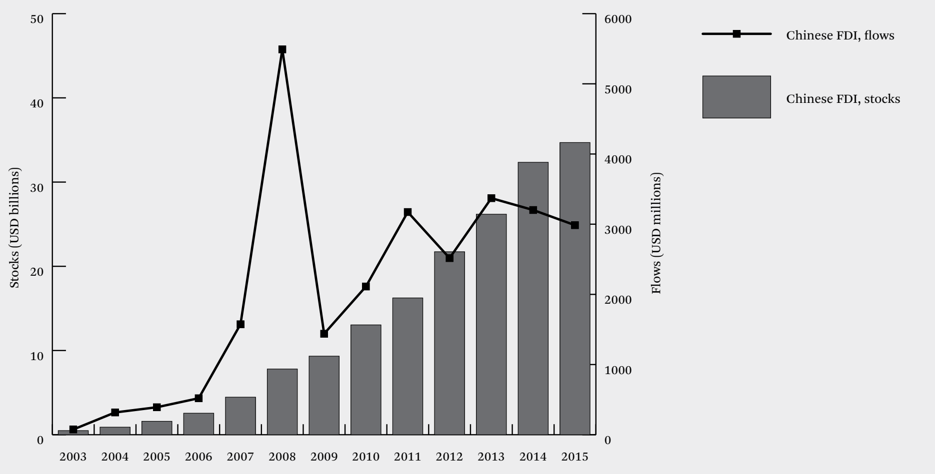


SPOTLIGHT 1: Export Diversity

One important aspect of China's trade with African countries is the lack of diversity of Chinese imports from Africa. Angola, though China's largest trading partner, has one of the least diverse trade balances with China. Over 99% of its 2010 and 2015 exports to China are petroleum products. South Africa has a similar export diversity problem: ores rose from 42% of exports in 2010 to 59% of exports by 2015. Ethiopia is not a major exporter of ore or petroleum, and while its exports are still dominated by a single export, the composition has seen some favorable changes: oilseed products made up 85% of Ethiopian exports in 2010, but 72% of exports in 2015, while leather and hides, Ethiopia's second largest export, were 5% in 2010 and 14% in 2015. The diversity of African exports to China remains a major issue in China-Africa trade relations, as the value of resource commodities decline.

CHINESE FOREIGN DIRECT INVESTMENT TO AFRICA

Figure 3: Chinese OFDI to Africa, 2003 - 2015



FDI TRENDS

Chinese FDI stock in Africa continued to grow at a steady rate, reaching US$34bn in 2015, from previous levels of US$32bn in 2014 – an increase of US$2bn. This is a smaller rate of growth than the US$7bn increase between 2013 and 2014, where stock leapt from US$26bn to US$32bn (Fig. 3).[8]

It is still early to say if this represents a trend of slowing growth in Chinese FDI investment. FDI flows to Africa fell to US$3.0bn in 2015 from previous highs of US$3.4bn in 2013, reflecting global trends of falling commodity values as well as China's domestic economic slowdown. Historically, Chinese FDI in Africa peaked in 2008 at US$5.5bn (Fig. 3). However, much of this can be attributed to the 20% purchase of South Africa Standard Bank shares that year, and is anomalous to the broader trend.

Our FDI figures come with a caveat: as well as some discrepancies between different sources,[9] reported numbers are likely to be underestimates. FDI statistics do not report Chinese flows that are parked in offshore financial centers, which include the British Virgin Islands, Cayman Islands and Hong Kong, much of which then go on to third destinations. Neither do the figures account for Chinese acquisitions of African assets that took place in another jurisdiction. As such, reported FDI values should be taken with a grain of salt, as these statistics may not necessarily reflect the true extent of Chinese investment on the ground.

WINNERS AND LOSERS

While in 2014, Algeria was the top destination for Chinese FDI in Africa, accounting for 20% of flows that year, it was overtaken in 2015 by Ghana, Kenya, South Africa, Tanzania and the DRC. Kenya has risen to one of the top 5 destinations for Chinese FDI in Africa since 2013, while other prominent economies and resource exporters that consistently featured in the top 5 in previous years, including Nigeria, Zambia and Zimbabwe, have slipped down the rankings.

CHINESE FDI TO AFRICA IN GLOBAL PERSPECTIVE

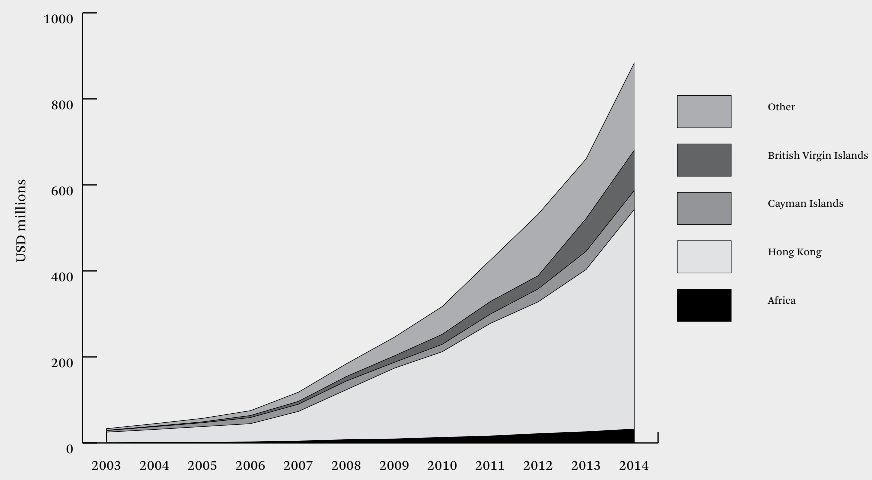
In 2015, FDI to Africa represented 3.7% of China's total outward investment stock. As a proportion of its global outward investment, Chinese FDI stock in Africa constitutes a low share: the vast bulk of investment continues to go to Hong Kong, which not only serves as an entrepot[10] for trade but also for financial

Table 5: Top 5 African recipients of Chinese FDI, 2011 - 2015 (US$ mn)

Rank	2011		2012		2013		2014		2015	
1	Sudan	912	Angola	392	Zimbabwe	518	Algeria	666	Ghana	283
2	Zimbabwe	440	D. R. C.	344	Zambia	293	Zambia	425	Kenya	282
3	Mauritius	419	Nigeria	333	Kenya	231	Kenya	278	S. Africa	233
4	Zambia	292	Zambia	292	Angola	224	Congo	239	Tanzania	226
5	Nigeria	197	Zimbabwe	287	Nigeria	209	Nigeria	200	D. R. C.	214

flows from China to the rest of the world, as we note in Figure 4 below.

Figure 4: Chinese FDI abroad, stock



CHINESE LABOR IN AFRICA

Our data derives from a range of Chinese official sources that report on the numbers of China's overseas contract workers.[11] This measure accounts for all Chinese expatriate workers in Africa on specific construction projects. It does not include Chinese private citizens, traders and other small entrepreneurs, who migrate of their own initiative.

The total number of Chinese workers in Africa is estimated at 263,659 in 2015, while in 2009 it was 195,716 (Fig. 5). The number of workers experienced a drop in 2011 before gradually recovering over the next 4 years.

While a common perception is that Chinese projects in Africa bring significant numbers of Chinese labor, the data shows divergent realities: Chinese laborers are concentrated in a small number of African countries. The top 5 countries with the highest numbers of Chinese workers in 2015 were Algeria and Angola, followed by Ethiopia, Equatorial Guinea and Rep. of Congo. Fifty-one percent of all Chinese workers reported in Africa are based in Algeria and Angola alone.

Figure 5: Number of Chinese in Africa by the end of the year

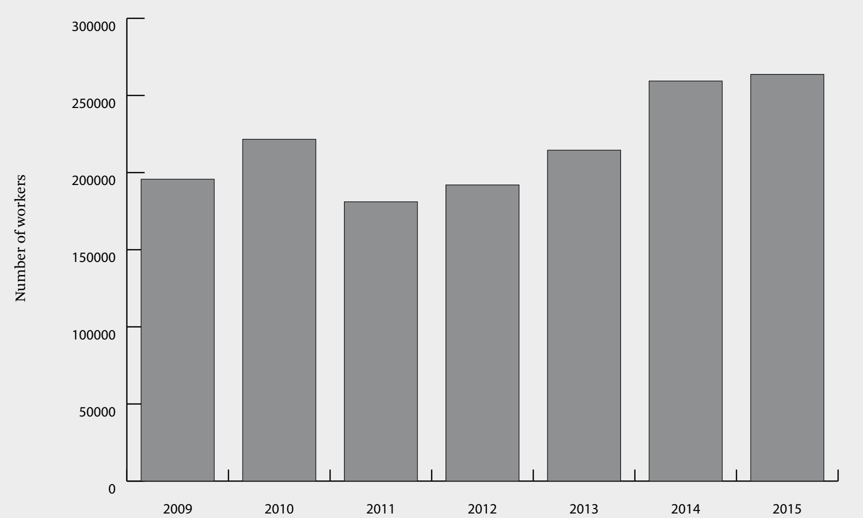
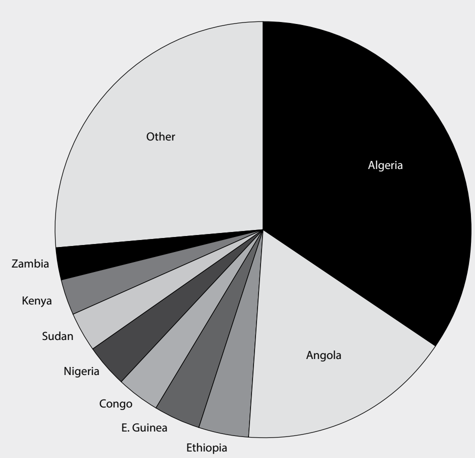


Figure 6: Geographic concentration of Chinese contract labor, 2000 - 2015

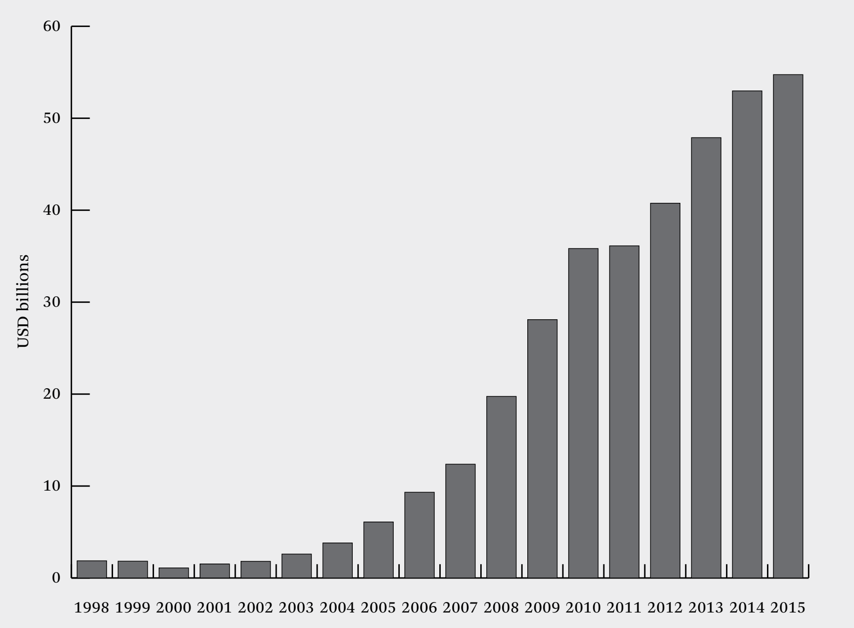


REVENUE FROM CONSTRUCTION CONTRACTS

The National Bureau of Statistics also reports on the turnover of Chinese construction projects in Africa. Most recent figures from 2015 show the total gross annual revenue of Chinese contractors in Africa was US$54.7bn.[12] Turnover growth rate grew fastest between the years 2005-2008, where revenues grew at a rate of 51%, though this has slowed down since 2010, when the average revenue growth rate was 10%.

In 2015, the countries where Chinese companies reported the highest annual revenue are Algeria, Ethiopia, Angola, Kenya, and Nigeria. These five countries account for around 48% of all total construction revenue across Africa.

Figure 7: Gross annual revenues of Chinese contractors in Africa



CHINESE LOANS TO AFRICA

In December 2015, Chinese President Xi Jinping announced large funding pledges during the 6th Forum on China Africa Cooperation (FOCAC) meeting in Johannesburg. The pledges included a combined US$35bn in a basket of concessional foreign aid loans, preferential loans, and non-preferential export buyers' credits, US$5bn in grants and zero-interest loans, and a US$6bn China Development Bank Special Loan for African Small-Medium Enterprise Development.. These pledges will be part of a number of cooperation plans to be rolled out over the next 3 years.[13]

Given trends of the previous year, this represents a significant increase in pledged future commitments. According to CARI data, total Chinese loans to African governments totaled US$13.1bn in 2015, constituting a slight US$632mn decrease compared to 2014. Total Chinese loans from both government and commercial sources to African governments totaled US$11.8bn in 2015, constituting a US$1.7bn decrease compared to 2014. Only 21 countries received Chinese loans in 2015, a decrease from 24 countries in 2014.

In absolute terms, largest recipient of Chinese loans in 2015 was Kenya, who received US$2.54bn. This is followed by Uganda (US$2.1bn), Senegal (US$1.1bn), Ethiopia (US$1.0bn), and Djibouti (US$1.0bn). 2015 is the first time since 2010 that Angola dropped out of the top 5 Chinese loan recipients.

In 2015, the top 3 sectors financed by Chinese loans in Africa were power (US$5.6bn), transportation (US$4.6bn), and industry (US$700mn). 2015 was also the first time since 2011 that mining in Africa did not see any Chinese loan financing.

CARI's loan figures include: Chinese policy bank loans (China Export-Import Bank, China Development Bank), loans from the Ministry of Commerce of China, loans from commercial banks such as the Industrial and Commercial Bank of China, and loan financing from Chinese companies. To learn more about our research and accounting methods on Chinese loans in Africa, see our research guidebook.[14]

WHERE THE LOANS GO

Kenya was the largest recipient of Chinese loans in 2015. The Standard Gauge Railway (SGR) Phase II sub-phase I was financed by a US$1.5 billion Eximbank loan. This project extends the SGR another 120.4km from Nairobi to Naivasha and was contracted to China Communications Construction Company (CCCC). SGR Phase I spans from Mombasa to Nairobi and was also financed

Figure 8: Chinese loans to Africa, 2000 - 2015

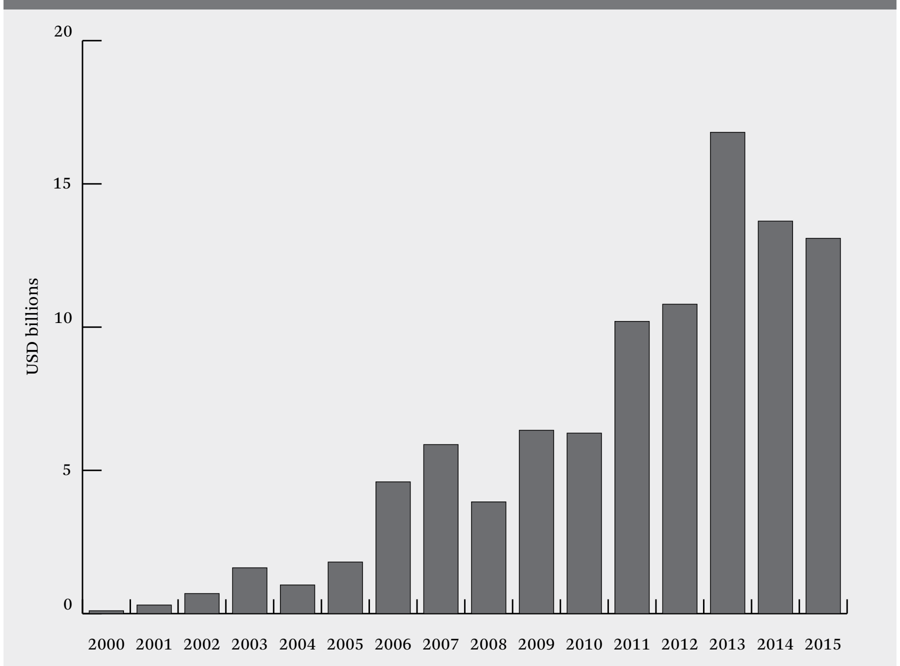
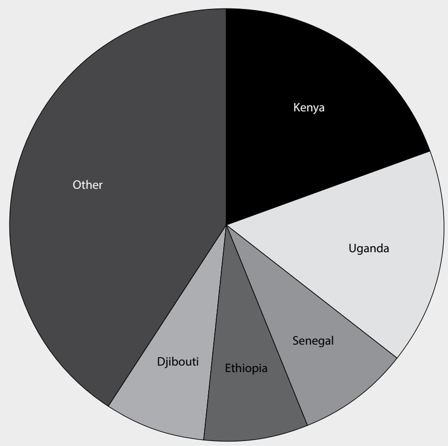


Figure 9: Chinese loans to Africa, by country, 2015 (USD millions)



by a 2014 loan of US$3.6 billion by Eximbank. The next segment of the SGR stretching from Naivasha to Kisumu has already been contracted to CCCC, yet there is no indication of any Chinese loan financing yet. The other major Chinese loan financed project in Kenya in 2015 was the 1,050 megawatt Lamu Coal Power Plant, financed with a US$900mn loan from the Industrial and Commercial Bank of China (ICBC). The project is contracted to Power Construction Corporation of China.

Uganda was the second largest recipient of Chinese loans in 2015, with most of the US$2.13bn worth of loans going towards two hydropower projects: Karuma hydropower project received US$1.445bn in Eximbank loans, and the Isimba hydropower project received US$483mn in Eximbank concessional loans. Both projects include related transmission lines and substations, and both loan agreements were signed in 2014, with financial closure announced in early 2015. However, the Ugandan Parliament did not approve the Isimba loan until March 15th 2015, followed by the approval of Karuma two weeks later. Karuma had a troubled contracting history; it was originally contracted to China International Water & Electric Corp. (CWE), but in March 2013, the Ugandan Inspectorate of Government issued a report on the alleged procurement corruption by the original contractor CWE. Karuma was subsequently re-contracted to Sinohydro in June 2013. However, CWE was still able to sign the Isimba contract with the Ugandan government in September 2013.

The only verified loan received by Angola in 2015 was the Soyo I Combined Cycle Gas Power Plant, financed by a US$838mn loan from the ICBC and contracted to China Machinery Engineering Corporation (CMEC). This amount is comparatively much smaller than its 2014 figures of US$2.44bn, most of which was a CDB commercial loan to Angola's state-owned oil company Sonangol. In 2015, Sonangol signed another US$2bn line of credit with CDB, most of which will go towards building a refinery in Lobito. However Lobito refinery was suspended in August 2016; the official Angola News Agency reported that while Lobito refinery is important, Sonangol must take "into account the new reality facing Angola, particularly in the oil sector, a situation that involves a thorough review of its development, phasing and financing."[15] This indicates that most of the US$2bn CDB credit will not be drawn down in the near future.

Low oil prices since 2013 have greatly reduced Angola's state revenues. The Angolan government's official website reported on Jun 11th 2015 that during a recent visit to China, Angolan President José Eduardo dos Santos requested 1) a 2 year moratorium on repayment of Chinese debts, 2) approval of new lines of credit, and 3) expansion of existing lines of credit.[16] This meeting was followed by a multi-sector infrastructure line of credit of US$6bn which was signed with CDB in late 2015. Even so, this does not

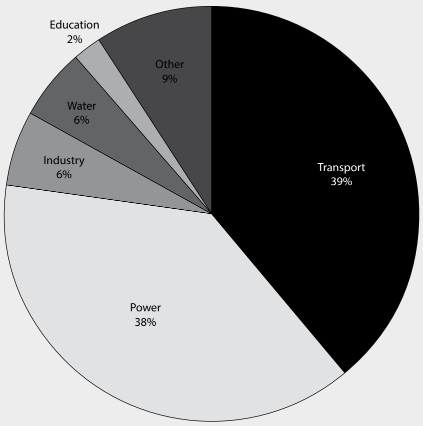
SPOTLIGHT 2: FOCAC Pledges

Will the FOCAC pledges made in December 2015 be realized? Looking back at the 5th FOCAC in July 2012, China also introduced a host of financial commitments, including US$20bn worth of credits for infrastructure development, agriculture, manufacturing and SMEs.[17] Between 2013 and 2015, the Chinese government committed US$43.5bn, exceeding the pledge, even narrowly defined.[18] This record would suggest that the 2015 FOCAC pledges are credible, although not guaranteed. The sustained slump in commodity prices since 2011 has greatly impacted the ability of African governments to take on more debt. Eximbank's concessional loans generally have a 5 year grace period, and several loans made since 2013 will begin repayment soon. If commodity prices remain low, governments may be constrained from further borrowing as Chinese policy bank loans often carry conditions that require the African governments to contribute 15% of the project cost. Low commodity prices also limit the use of natural resource-backed security for loans.

constitute debt until the credit line is drawn down. No disbursements from this credit line were made in 2015, though about US$3.85bn was drawn down in 2016. This is the 7th infrastructure credit line Angola received from China since 2004, and the third credit line provided by CDB. It is also the largest credit line Angola has ever received from a Chinese policy bank.

Finally, 2015 is the first year that the South African government received Chinese government loans. The South African state-owned railway company, Transnet, signed a US$2.5bn credit line with CDB, of which US$411mn was disbursed in the same year.

Figure 10: Chinese loans to Africa, by sector, 2015 (USD millions)



WHAT THE LOANS FUND

The transport sector was the top sector recipient of Chinese loans in 2015 (US$4.59bn), followed by power (US$4.51bn), industry (US$700mn), and water (US$649mn).

In total, Chinese loans financed 12 transportation projects across 7 countries, which included four airports, four roads, two ports, and two railways. Within the power sector, Chinese loans financed 7 power projects across 5 countries, including two hydropower projects, one gas power plant, three electric power transmission and distribution projects, and one general purpose power infrastructure project. The industry sector consists entirely of one loan financed project in 2015: an ICBC US$700mn loan for the Omo-Quraz 5 Sugar Plant in Ethiopia.

Besides these major sectors, other projects financed with smaller loans include potable water projects, telecom projects, stadiums, and CDB loans to African banks for lending to local SMEs.

SPOTLIGHT 3: Chinese Government Loans to Private Enterprises in Africa

CARI's data focuses on Chinese loans to African governments or their state-owned enterprises. More recently, we have also begun collecting loan information on Chinese loans to private businesses. These private businesses include African enterprises, private banks in Africa, China-Africa joint ventures (JV), and Chinese subsidiaries operating in Africa. Some of these high profile loans include a US$59mn CDB loan for the Zambia-China Economic & Trade Cooperation Zone, a JV between China Nonferrous Metals Company (CNMC) and NFC African Mining Plc, with CNMC holding a 95% stake; two US$100mn CDB loans to Wesizwe Platinum, a South African mining business with Chinese shareholders; and a US$500mn CDB loan to the palm plantation operated by Golden Veroleum Ltd. in Liberia, a subsidiary of the Singaporean private company Golden Agri-Resources, which sells most of its palm oil products in China.

LOOKING FORWARD

Low commodity prices pose economic challenges to Africa in almost every area. However, low commodity prices may be the impetus African countries need to diversify their economies, and there are signs that this is already happening. Ethiopia's exports to China in 2015 (Fig. 2) demonstrate that even land locked, resource-poor countries can have a vibrant export sector. Similarly, targets of Chinese FDI continue to diversity away from mining, and turning increasingly to manufacturing sectors. Finally, the value of Chinese loans going towards industrial projects in Africa have increased over time since 2010. This diversification does not necessarily reflect a direct reaction to low commodity prices or even a deliberate policy direction, but indicates that, even amidst a commodity slump, there are opportunities for Africa. Finally, IMF forecasts that commodity prices including oil, metals, and agricultural products will recover in 2017,[19] suggesting a recovery in all aspects of China-Africa economic relations. ★

Appendix 1: Top 10 Chinese-financed projects in 2015

Country	Financier	USD mn	Purpose
Kenya	Eximbank	1,500	SGR Phase II Nairobi to Malaba - sub-phase 1, Nairobi to Naivasha section, 120.4km
Uganda	Eximbank	1,445	Karuma hydropower project 600MW with transmission lines and substations
Angola	ICBC	838	Soyo I Combined Cycle Power Plant 750MW
Ethiopia	ICBC	700	Omo-Quraz Sugar Plant - 5
Senegal	Eximbank	666	Thies-Touba Toll Highway, 113km
DRC	Eximbank	660	Busanga hydropower project - Sicomines
Cameroon	Eximbank	649	Yaounde potable water supply project
Cote d'Ivoire	Eximbank	602	National power grid upgrade project Tranche A
Djibouti	Eximbank & CCECC	596	Hassan Gouled Aptidon International Airport & Ahmed Dini Ahmed International Airport in Obock
Kenya	ICBC	900	Lamu Coal Power Station, 1,050MW, between Karuma and Soyo I

ENDNOTES

1. United Nations Statistics Division, "UN Comtrade," *United Nations,* accessed April 16, 2017, https://comtrade.un.org.
2. China reports huge amounts of unspecified imports (trade code 99) from South Africa for a total of US$14.9 billion out of more than US$30bn in 2015, while South Africa only reports US$5.9 million in exports out of US$5.8bn for unspecified products in the same period. Due to the size of the discrepancy and the opaqueness of what China is claiming under the unspecified imports from South Africa, we use South Africa as the reporter and China as the partner only for South African exports to China for a more robust analysis. For more discussion on this issue, see the CARI blog entry: Deborah Brautigam, "Mysterious Chinese Imports from Africa?," accessed April 22, 2017, http://www.chinaafricarealstory.com/2014/04/mysterious-chinese-imports-from-africa.html.
3. United Nations Statistics Division, "Commodity Trade Statistics Database (COMTRADE)," *United Nations*, accessed April 22, 2017, https://comtrade.un.org/db/help/uReadMeFirst.aspx.
4. Greg DePersio, "Why did oil prices drop so much in 2014?" *Investopedia*, March 3, 2015, http://www.investopedia.com/ask/answers/030315/why-did-oil-prices-drop-so-much-2014.asp.
5. Ores include unprocessed metal and mineral ores, slag from the manufacture of metal, and ash (including seaweed ash).
6. Wood includes timber and wood products, but not wood pulp, paper products or cork products.
7. James Wilson, "Diamonds Suffer from Oversupply, Price Falls in New Era," *Financial Times*, March 16, 2016, https://www.ft.com/content/9f937268-c35b-11e5-808f-8231cd71622e.
8. SAIS-CARI FDI data comes from the China Statistical Bulletin. See "Data: Chinese and American FDI to Africa," *China-Africa Research Initiative*, accessed April 20, 2017, http://www.sais-cari.org/data-chinese-and-american-fdi-to-africa/.
9. FDI data is collected by the China Commerce Yearbooks and China's Statistical Bulletin. However, the two sources only provide data respectively for the years before and after 2007; both also use slightly differing definitions of outward direct investment.
10. An "entry-point": a port, city or other center where goods are brought for import and export, collection and distribution. Hong Kong has long played this role in Chinese history

11. SAIS-CARI data on labor is compiled from a range of source. Labor data from 2011 to 2015 are from the National Bureau of Statistics, while 2009 and 2010 data are from the 2013 China Trade and External Economic Statistical Yearbook.
12. See "Data: Chinese Contracts and Workers in Africa," *China-Africa Research Initiative*, accessed April 20, 2017, http://www.sais-cari.org/data-chinese-workers-in-africa/.
13. "Xi Announces 10 Major China-Africa Cooperation Plans for Coming 3 Years," *Forum on China-Africa Cooperation*, December 8, 2015, http://www.focac.org/eng/ltda/dwjbzjjhys_1/t1322068.htm.
14. CARI's figures do not include undisbursed credit lines from Eximbank and CDB, nor joint-venture investments by CDB's CAD-Fund. Undisbursed credit lines are no longer considered loans, since they do not represent liability and can be canceled or become expired if not used. See Deborah Brautigam and Jyhjong Hwang, "China-Africa Loan Database Research Handbook," *China-Africa Research Initiative*, 2016, https://static1.squarespace.com/static/5652847de4b033f56d2bdc29/t/58ac6353f7e0ab024bcc665c/1487692628411/guidebook+draft+v.26.pdf.
15. "Angola: Sonangol Announces Suspension of Refinery Construction Works - Economy - Angola Press - ANGOP," *Agência Angola Press (ANGOP)*, August 19, 2016, http://www.angop.ao/angola/en_us/noticias/economia/2016/7/33/Angola-Sonangol-announces-suspension-refinery-construction-works,3c912db1-0c7c-4661-9f70-4361252989e8.html.
16. "Neste contexto, frisou que o Estado angolano pretende renegociar os actuais termos da dívida, solicitando uma moratória de pelo menos dois anos no pagamento, negociar nos acordos de financiamento, uma vez que os recursos da linha de crédito da China têm sido uma das principais fontes de financiamento das acções executadas e a executar no sector público e privado." See "Presidente pede moratória no pagamento da dívida à China," *Portal Oficial do Governo de Angola*, November 6, 2015, http://www.governo.gov.ao/VerNoticia.aspx?id=28064.
17. "THE FIFTH MINISTERIAL CONFERENCE OF THE FORUM ON CHINA-AFRICA COOPERATION BEIJING ACTION PLAN (2013-2015)," accessed April 20, 2017, http://www.focac.org/eng/zxxx/t954620.htm.
18. This estimates includes 2013, 2014, and 2015 loans from Eximbank, CDB (including SME loans), and Mofcom to African governments, funding projects in the sectors of agriculture, business, communication, power, transport, and water.
19. "Industrial Commodities Prices to Surge in 2017," *World Bank*, January 24, 2017, http://www.worldbank.org/en/news/press-release/2017/01/24/industrial-commodities-prices-to-surge-in-2017-world-bank.

AUTHORS

LUCAS ATKINS is a Research Assistant at CARI. **DEBORAH BRAUTIGAM** is the Director of CARI. **YUNNAN CHEN** is a Ph.D. candidate at Johns Hopkins SAIS. **JYHJONG HWANG** is the Senior Research Assistant at the China-Africa Research Initiative (CARI).

Editor: Jessica Lasky-Fink

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

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

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

Carnegie CORPORATION OF NEW YORK