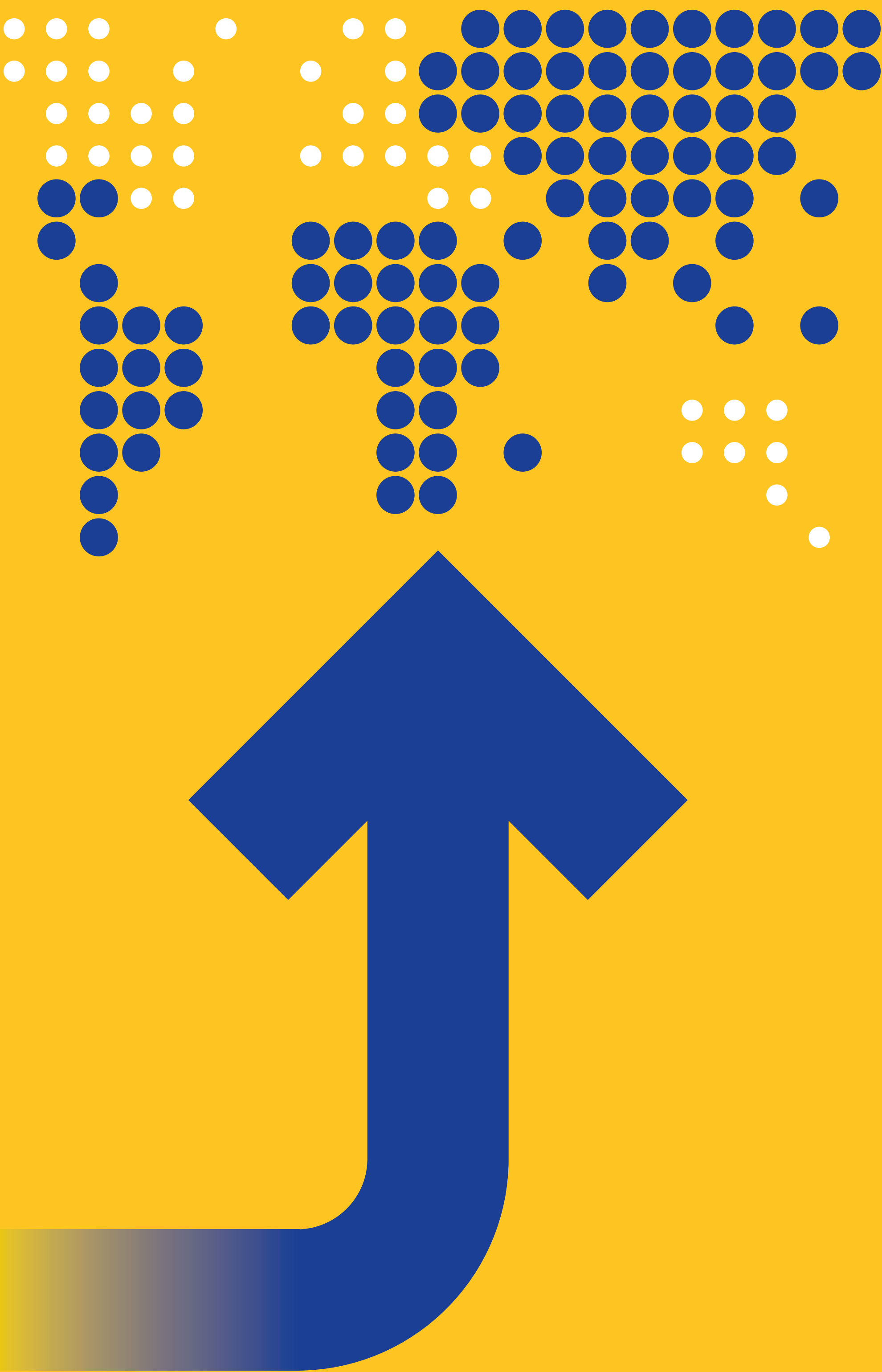

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An Economic Perspective on the BRI: Five Years after its Launch

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Background Paper

Emerging Markets Forum

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Introduction

To date the vast majority of external commentaries on the BRI have focused on its geo-political aspects. There have been few dispassionate analyses of the economic aspects of the BRI. This note attempts to fill this gap; it focuses on the economic and social issues that may affect BRI countries. The note does not touch upon geopolitics, which lies outside the expertise of the Emerging Markets Forum (EMF).

The note is based on an ongoing EMF study being carried out by a team of 14 economists and development experts based in 11 different countries. As part of this study, EMF has conducted an extensive literature survey of what has been written on the BRI in different parts of the world, and commissioned papers seeking perspectives from selected BRI countries. It has also cross-checked and analyzed various independent databases on BRI projects publicly available. Finally, the EMF team is interviewing people knowledgeable about the BRI.

What is BRI?

The concept of the BRI, also referred to as the Silk Road Economic Belt (SREB) and the 21st Century Maritime Silk Road (MSR), was proposed by Chinese President Xi Jinping to develop a wide network of connectivity and cooperation spanning the entire Eurasian landmass and parts of Africa, including Central Asia, Southeast Asia, South Asia, the Middle East, Europe, and North and East Africa.

Originally unveiled in 2013 at the Nazarbayev University in Astana as "One Belt, One Road," the initiative is now officially referred to as the Belt and Road Initiative or the BRI. It is strongly associated with President Xi's personal leadership.

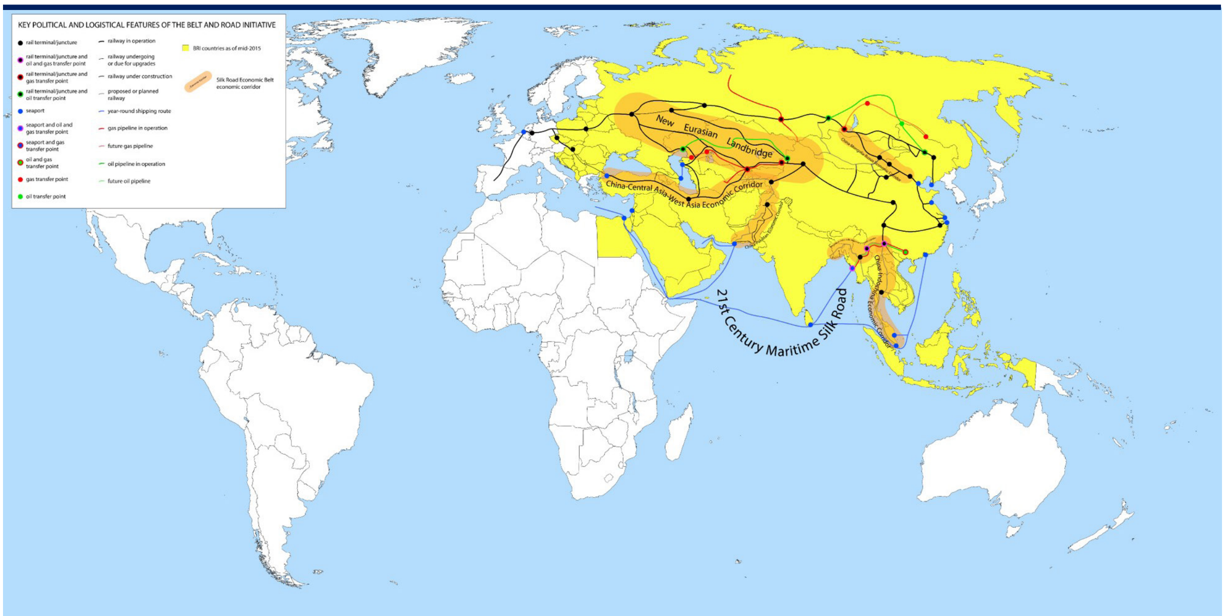
Under the terminology of the Belt and Road Initiative, the "Belt" refers to surface connectivity (through the Silk Road Economic Belt) and the "Road" to maritime routes (through the Maritime Silk Road). The Silk Road Economic Belt in turn consists of six economic corridors: one in Southeast Asia, two in South Asia, two in Central Asia and Europe, and one in North Asia. These six corridors, along with the Maritime Silk Road, comprise BRI's seven original corridors. More recently, a "Polar Road" and a "Cyber Route" have been announced. In the meantime, the official list of BRI countries has grown from 65 in 2013 to 85 as of now through the addition of 20 more countries in Africa and Latin America plus Greece in Europe[1].

The magnitude of investments anticipated under the BRI is staggering. According to some Chinese sources, hundreds of billions of dollars worth of investments have already been made under the BRI umbrella. Some foreign press reports have estimated total Chinese investment of as much as \$3-4 trillion over the course of the initiative through 2049. These are order of magnitude numbers, however, as no official lists of current or future BRI projects have been released as discussed later in this paper.

Chinese authorities are actively encouraging parallel financing of BRI and related activities by other parties. For example, in September 2017, the Chinese Prime Minister hosted a meeting of the heads of six international institutions—including the IMF, World Bank, and OECD—to discuss their financial and technical support for the BRI. Most multilateral development banks (MDBs) have responded positively. These developments suggest that the BRI could ultimately evolve beyond being a Chinese-financed initiative and involve partnerships with international financial institutions and the private sector.

1. EMF counts the following 85 countries as BRI participants on the basis of their approval of bilateral cooperation agreements with China, their appearance in the Belt and Road Portal, or both: Afghanistan, Albania, Antigua and Barbuda, Armenia, Austria, Azerbaijan, Bahrain, Bangladesh, Belarus, Bhutan, Bolivia, Bosnia and Herzegovina, Brunei, Bulgaria, Cambodia, China, Croatia, Czech Republic, Dominica, Egypt, Estonia, Ethiopia, Georgia, Greece, Guyana, Hungary, India, Indonesia, Iran, Iraq, Israel, Jordan, Kazakhstan, Kenya, Kuwait, Kyrgyzstan, Laos, Latvia, Lebanon, Libya, Lithuania, Macedonia, Madagascar, Malaysia, Maldives, Moldova, Mongolia, Montenegro, Morocco, Myanmar, Nepal, New Zealand, Niue, Oman, Pakistan, Palestine, PNG, Panama, Philippines, Poland, Qatar, Romania, Russia, Saudi Arabia, Senegal, Serbia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Sri Lanka, Syria, Tajikistan, Thailand, Timor-Leste, Trinidad and Tobago, Turkey, Turkmenistan, Tunisia, Ukraine, Uruguay, United Arab Emirates, Uzbekistan, Vietnam, and Yemen.

Figure 1: Seven BRI corridors at its launch in 2013



Source: Emerging Markets Forum

Official descriptions of the BRI mention five thematic areas of focus:

- Policy coordination: Planning and supporting large-scale infrastructural development;
- Facilities connectivity: Building facilities to enable connectivity along the Belt and Road;
- Trade and investment: Facilitating cross-border investments and supply chain cooperation;
- Financial integration: Enhancing financial policy coordination and bilateral financial cooperation;
- Cultural exchange: Promoting people-to-people bonds and cooperation.

Currently, the five thematic areas are largely conceptual. There appears to be no official blueprint, concrete list of projects, or precise timetable. Nor is there a known formal and distinct organizational structure associated with the various projects or investments, as yet. Despite this, some institutions associated with the Chinese government have suggested that nearly 1,700 BRI projects are currently underway. However, it has not been possible to obtain a list of these projects.

Perhaps due to the BRI's still fluid (or flexible) nature the Chinese government now terms this possibly historic undertaking with global implications as an "initiative." Another explanation of this recent new nomenclature could be that China does not want to appear too assertive or deterministic toward potential partners.

Potential contributions to the global community, and challenges

As mentioned, the Belt and Road Initiative encompasses 85 countries as of September 2018. These countries combined account for roughly 35% of global GDP, over 40% of global merchandise trade, and more than two thirds of the world's population today[2]; with emerging markets (particularly in Asia) growing much faster than the advanced economies, the weight of BRI countries in the world economy is likely to rise steadily in the coming decades.

The international development community already sees the BRI as one of the most transformative development programs launched by any single country or group of countries since the creation of the Bretton Woods Institutions after the Second World War. The scale and geographic coverage of the BRI are all the more impressive considering that it has been conceived and financed mainly by a country that is still classified as a developing economy.

Within five years of its announcement, the BRI has emerged as by far the largest and most ambitious example of "south-south cooperation" in history. The speed at which BRI has picked up momentum has also drawn the keen attention of the traditional development agencies, and of political observers worldwide.

Given the above, the fundamental questions that arise are: what gaps in the global development and economic landscape is the BRI expected to fill? And, what is the value added of such a massive Chinese initiative to the global community?

2. EMF estimates.

Simply put, the basic idea behind the BRI is visionary and potentially transformational.

It proposes to invest a massive amount of financial resources (both debt and equity) and technical knowhow simultaneously to more than one third of the nations of the world. It thus intends to do so on a larger scale and at a faster pace than the traditional development assistance agencies are willing and able to do.

Through the BRI, China is exhibiting an extraordinary degree of confidence in the future development prospects and financial viability of BRI countries, many of which are currently not considered creditworthy by the international financial markets. The country exposures being assumed by the Chinese (policy) banks and many of the projects they support sometimes extend well beyond those that traditional development banks are willing to finance.

But, this bold Chinese initiative will ultimately be judged successful only if the vast majority of BRI countries themselves feel that there is sustainable value added to their own economies and provided China successfully recoups its investments with an acceptable rate of return.

Obviously, the above criteria for success are the economic metric given the focus of this paper as stated in the introduction. It must be recognized that within China there may also be additional factors (geo-political, security, military) that also enter the calculus. An interesting question is how these different dimensions complement each other, or possibly stand in conflict in individual instances (countries or projects).

Potential contributions to the global community

A well-conceived and implemented BRI can make a significant contribution to the global community by:

- Providing significant amount of external capital to a large number of developing countries on a scale they are unable to obtain otherwise, thus helping them overcome a key constraint to their development. This should in turn facilitate improvements in their overall investment rates and lift economic growth.
- Focusing BRI investments on three areas that are widely considered crucial to the long-term development of most developing countries: infrastructure, agriculture and industry. In all these areas China has a successful track record. It can offer its knowhow and technology to complement its investments. In many cases, it could also offer technical and managerial solutions that are more cost-effective and suitable to developing economies.
- Creating regional and transcontinental transport corridors and other infrastructure networks. These transport networks in turn could help reduce dramatically the cost of surface transportation and thus facilitate trade and investment flows between and amongst economies associated with the BRI.
- Laying the foundations of a new multi-route, multi modal transportation and logistics network between East Asia and the rest of the World to serve the needs of the new global economy whose center of gravity is gradually shifting back to Asia.
- Reducing risks to trade flows between East Asia and the rest of world because of potential temporary blockage (due to terrorism, piracy or conflicts) of the Strait of Malacca, the Strait of Hormuz or the Gulf of Aden by creating alternate transport routes to bypass these maritime choke points (this will also provide risk insurance to China itself given its heavy dependence on world trade).
- Helping raise global investment rates and thus, on the margin, facilitating an increase in global productivity and economic growth of the world economy given the massive size of the BRI, and finally,
- Recycling a part of China's large financial and production capacity surpluses while helping other developing countries.

This bold program thus clearly has the potential to create valuable global public goods while simultaneously helping directly a large number of developing countries.

Challenges

China and its BRI partners at the same time face many daunting challenges in realizing this program. These challenges also explain why BRI countries have historically not been able to obtain similar levels of capital from traditional sources of development finance, or from the private sector. The major challenges facing BRI include the following:

- A large number of BRI countries are currently not considered creditworthy by the financial markets.
- Countries only have limited fiscal headroom to take on significant additional debt burdens without assured additional revenue flows.
- Domestic governance/political environment in BRI countries due to poor domestic governance, extraction of benefits by the elites, lack of transparency etc. This could lead to political backlash after regime changes (as recent developments in Sri Lanka and Malaysia demonstrate).

- Unlike China, most BRI countries have weak domestic institutional capacity to develop, implement and operate complex projects, particularly large infrastructure projects.
- The large investments impose a significant fiscal and institutional burden of operation and maintenance (O&M) on the recipient countries, which often have difficulties already in effectively operating and maintaining their preexisting infrastructure assets.
- The ability of many BRI countries to assess demand for and evaluate risks associated with large investment projects is limited or nonexistent.
- The domestic policy and institutional environment in some countries are such that international private investors and multilateral development partners have tended to operate cautiously. Without significant improvements on this front, progress on BRI thematic areas like trade, investment and financial integration will be difficult; also, the financial (commercial) sustainability of many infrastructure projects will remain dubious. In such circumstances, the policy coordination theme of the BRI would be of utmost importance.
- The physical design and construction of large infrastructure and energy projects (including managing their environmental and social impact) in developing countries is complex by itself. But the experience of other development institutions shows that an even a bigger challenge lies in the soft infrastructure aspects (logistics, behind-the-border barriers to trade, institutional). These soft infrastructure obstacles must be overcome to reap the full benefits of physical investments.
- Some of the most ambitious BRI projects cut across many national boundaries. Coordinating their design, implementation and operations with multiple national authorities used to working independently will be a big challenge.
- Finally, winning the hearts and minds of the local population and authorities and assuring that BRI projects would indeed lead to win-win outcomes for all concerned will be crucial for the long-term sustainability of both individual projects and for the global impact of the BRI as a whole.

Three major common misconceptions about BRI

Before moving forward with taking stock of where the BRI stands today, how this initiative may best contribute to the development of BRI countries and its likely future direction, it is useful to note three common misconceptions about the BRI within the international community:

- The BRI is basically about connecting China with Europe through the ancient "Silk Routes" across Central Asia. Perhaps because it is commonly known as the New Silk Road, many outside observers think of the BRI as an initiative to connect the Eurasian continent through land routes traversing Central Asia. The reality is that only two of the original seven corridors pass through Central Asia and the Caucasus and only eight of 85 BRI countries belong to this sub-region. Also, the bulk of the BRI investments to date have occurred outside this sub-region (actually in South East and South Asia) as discussed below. As the BRI's footprint gradually extends into more countries in Africa, and perhaps Latin America, its reach will extend far beyond the ancient silk routes and make it an increasingly transcontinental, if not a global initiative.
- The BRI consists primarily of infrastructure construction. Perhaps because infrastructure bottlenecks (power shortages, lack of paved roads, modern port and rail facilities to facilitate international trade) are the most obvious constraints to development in most countries and also require large capital investment, China's support for infrastructure projects under the BRI have become the most visible component of the initiative. The result is that very often, the BRI is equated with infrastructure to the exclusion of its remaining four themes. While infrastructure is the bedrock of development, and China has a particular comparative advantage in assisting developing countries in finding cost-effective ways to develop it, the other four components of the BRI may have larger payoffs for most participating countries over the long term. Also, as the relative emphasis on infrastructure projects comes down, the initiative may not require similar amounts of official Chinese finance.
- Being a Chinese initiative, the BRI must be based on a long-term strategy and detailed master plan. Most observers outside China believe that like all flagship Chinese economic programs, the BRI must have a well-conceived long-term strategic plan that in turn would have been converted into a detailed medium-term implementation plan, and even a detailed road map of BRI–such as a list of

projects under each of its themes and associated costs. The non-availability thereof is leading to misunderstandings. This problem is further compounded by the lack of basic information even on BRI projects already underway since 2013.

Status Five Years after its launch

There is wide consensus within and outside China that the size of ongoing and anticipated investments under the BRI is massive. Yet, a striking finding of our study is that there is very little hard information about the BRI's costs and benefits despite its high profile and existence for five years as of now. While it may be too early to estimate benefits for most projects, it should be possible to at least calculate the costs. That has been the focus of our work in the past few months.

According to a senior Chinese source, by April 2018 Chinese banks had already committed some US$200 billion worth of loans have under the BRI umbrella[3]. Additionally, the Chinese Ministry of Commerce reports that in the five-year period 2013-2017, actual FDI outflows were around US$70 billion. On the other hand, an international database that regularly tracks announcements of Chinese FDI in BRI countries[4] reported FDI commitments totaling US$ 174 billion during the same period. This is twice the number reported by the Ministry of Finance; so far it has not been possible to reconcile this large difference. Finally in the past, many press reports have suggested that the ultimate total of Chinese investments in the BRI may be as much as US$2-4 trillion through 2049. The above numbers can be regarded only as illustrative since, as mentioned, there is no authoritative source of information on either the ongoing or planned future BRI investments.

In order to seek a more granular understanding of the nature and scope of the BRI, beyond the press stories about individual BRI projects—that may have been completed or have run into difficulties—our study team delved carefully into various independent databases that are publicly available and that report consistent data on Chinese investments in BRI (and other) countries. The initial findings of our still ongoing work are summarized below; the data is given in Annexes 1-4.

Before presenting our preliminary results, it is important to note three provisos. First, that we have used data from different sources. Second, that it has not been possible to obtain data for all categories for every year between 2013-2017. And third, that for these reasons, it is not appropriate to add up the numbers into a single table as it may mislead the reader. Still, given the almost total dearth of granular data on the BRI, we believe that even the imperfect presentation below sheds some interesting insights into the direction of the BRI to date.

In putting together consistent data on Chinese BRI investments it is important to first define what is a BRI investment. In our work, we have tried, to the extent possible, to identify Chinese investments in BRI countries (originally 65 in 2013, gradually expanded to 85 by September 2018) made after 2012. In other words, Chinese investments in non-BRI countries in Europe (purchase of Syngenta in Switzerland, or Pirelli Tires in Italy), Africa or Latin America (Mozambique, Brazil, Venezuela, Ecuador or Bolivia) were excluded. This may explain why the numbers reported below may be much smaller than those often quoted in the popular press that sometimes seems to equate all Chinese investments around the world with the BRI.

Some of the most transparent and complete data reported by Chinese sources is by the Silk Road Fund (SRF) (Annex 1). Established in 2014 with an initial capital of $10 billion, it had invested $7.4 billion through April 2018. Its largest investments are in Russia (oil and gas), Kazakhstan (a diversified fund) and UAE (power). It has also invested in a coal-based power project in Pakistan. Additionally, it took a large stake in the Piraeus port in Greece before the country formally became a member of BRI (in 2018). SRF also has some investments in non-BRI countries (Italy).

Data on China's other, much larger, equity investments (FDI) is less clear cut (Annex 2). According to the Ministry of Commerce, China's annual outward FDI flows ranged between $13.2-18.9 billion during the 2013-2017 period and totaled around $70 billion during these five years. But, as mentioned above, an independent database maintained by a US based think tank comes up with an estimate that is more than double this amount. It has not been possible so far to find any logical explanation for this wide variation, either in terms of their country coverage or definition of FDI. However, despite this discrepancy, it is possible to discern some common trends between the two data sets. Most of the FDI has gone into export-oriented projects that will generate hard currency revenues (oil and gas, tourism, ports) and in credit worthy countries such as Singapore, South Korea, Russia, Kazakhstan and Malaysia. Very little FDI has gone into infrastructure projects with long

3. Remarks by a senior NDRC official at High Level UNDP Conference in Guangzhou in April 2018.
4. China Global Investment Tracker.

gestation periods and revenues in local currency, and into countries with poor credit ratings.

With regards to loans, the most robust data concerns lending by the two China based multilateral development banks (MDBs): the Asia Infrastructure Investment Bank (AIIB); and the New Development Bank (NDB). Between them the two institutions lent a total of $10 billion (Annex 3); AIIB's total lending to BRI countries amounted to $5.4 billion and NDB's $4.5 billion. India, Indonesia, Azerbaijan and Turkey were the four largest borrowers of AIIB, in that order. Energy was the biggest sector followed by transport. In the case of NDB, India, Russia and China were the largest borrowers (it only has four borrowers, with energy, water and transport as the most important sectors being supported). However, in terms of the overall size of their lending volume, these MDBs account for a small proportion of total debt financing of BRI projects.

Overseas lending by Chinese state banks (mainly the two policy banks) forms the backbone of the BRI. However, the Chinese government does not publicly disclose how much its state owned banks have loaned to foreign borrowers. Some foreign academic institutions and think tanks have sought to fill this void by compiling their own database. One of the best such open-source database is maintained by AidData, a research center based at the College of William and Mary. AidData's public database currently contains observations through 2014, which are used in Annex 4; data for years 2015 through 2017 may be released in the next few months, at which time Annex 4 will be updated.

The value of Chinese official lending[5] (COL) to the Belt and Road countries (BRCs) amounted to $45.6 billion of COL in 2013-14; it was 63.7 percent of total COL worldwide. two infrastructure sectors—transport and energy generation—absorbed almost 85 percent of Chinese lending to BRI countries. Pakistan was the largest borrower for energy and transport projects. Other major recipients for energy projects included (in descending order) South Africa, Cambodia, and Indonesia. In the transport sector, other major recipients were Ethiopia, Kenya, Iran, and Sri Lanka.

Based on a review of this disparate data, admittedly imperfect, it is possible to draw three tentative conclusions, which are subject to refinements (or even correction) as our work moves forward:

1. The overall size of total Chinese investments (equity and loans) in BRI countries since the announcement of the initiative in 2013 appear to be significantly smaller than the numbers commonly reported in the popular press. Total annual investments in 2013 and 2014, the years for which we have data for all categories, averaged around $ 45 billion a year. And the pace of investments during 2015-17 does not seem to have picked up significantly (FDI even declined somewhat according to the government). At this pace, total Chinese investments in BRI countries between 2013-17 would come to roughly around $200 billion. This rough estimate carries a large margin of error. The actual numbers may come down as some of the agreed projects may get reconfigured or even cancelled (Malaysia, Myanmar, even Pakistan).
2. Despite the name of the initiative (the New Silk Road), only a small part of total investments have so far been directed into BRI countries in the Central Asia and Caucasus region. Instead, the bulk of investments to date have been in East Asia, South Asia and Russia.
3. In terms of sectors, oil and gas together with power projects have been the major beneficiaries of both FDI and loans. Real estate in relatively high-income countries such as Singapore, South Korea and Malaysia received a significant amount of FDI.

International perceptions and reactions so far

Given the massive size and wide geographic coverage of the BRI, as well as the intense global publicity it is generating, it is not surprising that the initiative is also attracting a wide range of reactions around the world.

Within the BRI recipient countries, the reactions so far have been generally positive, especially in official circles and official pronouncements. Projects such as the high-speed railways services (between Ethiopia and Djibouti, and between Budapest and Belgrade, to name a few), the new transport hub Khorgos dry port in Kazakhstan, the Piraeus Port in Greece, some of the transport projects in the Balkans, and the prospects of the China Pakistan Economic Corridor (CPEC) eliminating Pakistan perennial power shortages in the near term have all received good local press and solid high level political support.

In a few countries, however, elements of the civil society, political opposition parties and the press have started to raise questions similar to those often associated with large infrastructure projects (their ability to create jobs in

5. AidData reports loans and export credits separately. In these figures, loans and export credits as reported by AidData have been combined and are referred to collectively as lending.

the local community, impact on the environment and displaced people, affordability of services etc.). In some other instances, installation of new government leaders after elections have resulted in controversies that some projects were too expensive or not in the country's best interest (Sri Lanka, Malaysia). But so far, such instances are relatively few amongst hundreds of BRI projects spread over 85 countries. But many more such cases would increase the reputational risk to China. The only way to contain this risk is create win-win situation with as many BRI countries as possible (see below).

In many developed countries (particularly members of the G-7), the narrative has become much more mixed in recent months. There are two reasons for this. First, a few negative instances (the handover of Hambantota Port in Sri Lanka that cost over $1.3 billion, Malaysia's recent suspension of 700 km high-speed rail and oil pipelines costing some $20 billion, concerns about Pakistan's debt sustainability under CPEC that is expected to cost around $60 billion, etc.) have received wide publicity in western press. Second, these reports are dominating the current narrative in the OECD countries because of a lack of factual information about the overall BRI program, and especially about projects that are going well. If made public, such factual information about all BRI projects underway would allow dispassionate analysts to view projects with mixed outcomes in a broader context and come out with a more balanced evaluation. In the absence of more complete information, reports about the inevitable failures of a few BRI projects in high-risk countries could damage the reputation of the entire initiative. This will be most unfortunate and do a great disservice to BRI countries as a whole. It will also increase reputational risks to China.

BRI's broader economic and social impact: Some emerging concerns and issues

In our review of the BRI so far, the following six concerns and issues about the broader economic and social impact of BRI have emerged:

1. Fit with domestic development plans and strategies: Our country specific work suggests that local ownership and satisfaction with the BRI to date is related to the extent to which the BRI projects fit or are integrated with the national development plans and strategy. This is also understandable economically, since only such an approach would avoid duplication and waste and maximize the long-term development impact of the BRI projects on the domestic economies. It is also consistent with the experience and practices of the multilateral development institutions.
2. Potential impact on debt sustainability and fiscal stability of countries: Many BRI countries are still low or lower-middle income economies with modest growth rates and fragile national balance sheets. They only have a limited capacity to absorb large amounts of external debt at or near market rates, unless their borrowings can be serviced by additional revenues in foreign exchange generated by the projects financed with such debt. While this is not be an issue for quick-gestating, export-oriented projects in the energy sector (oil, gas) or projects financed primarily through equity (say those financed by the Silk Road Fund), a country's fiscal stability and debt sustainability could be an issue for large infrastructure projects with long gestation periods and uncertainties about future revenue streams that are funded mainly through high cost debt. These risks are relevant not only to the host countries, but also to the Chinese lenders/investors and ultimately to the Chinese government.
3. Economic and financial viability of projects and risk assessment: The fundamental risks relating to BRI, both to the recipient countries and ultimately to China arise from the basic economic and financial viability of the projects being supported by the initiative. The much-publicized problem projects highlighted above, all seem to have two common threads. First, in retrospect the projects did not seem to have adequate demand (in terms of traffic or revenue stream) to make them economically and financially viable. In some cases, the projects may also have been proposed by host country agencies without due diligence because of political pressures and/or weak local institutional capacity; some projects ended up being overdesigned for prestige reasons without enough attention to their viability. And second, the difficulties with the projects became public after a change in the regime. The main lesson from these cases is that there is need for both more rigorous due diligence during project selection and appraisal and for greater risk assessment to ensure that projects are both economically and financially viable.[6]

6. There may be cases where a project is economically viable but not financially viable if financed on purely commercial terms. This does not always mean that the project should not go ahead. In such cases some sort of viability gap support may be justified from the public sector. It could involve

4. Environmental sustainability and social impact: A common question being raised by the global development community about projects under the BRI is whether they follow internationally acceptable environmental standards and support sustainability. In some respects, it is ironic that this issue is being raised about China's flagship global initiative. China is today acknowledged as the global leader in promoting and defending the COP-21 agreement on climate change. It is also widely seen to be making far-reaching changes in its domestic economy, including in its future energy mix, to reduce carbon emissions and reliance on fossil fuels. The questions about the BRI's environmental sensitivity arise at two levels. First, in many countries (i.e. Pakistan, UAE, Russia), Chinese investors are developing coal-based power plants and new oil production capacity in sharp contrast to China's domestic emphasis on renewable energy sources. Second, because of the speed at which large infrastructure projects under BRI are approved and built, it is not clear whether their environmental and social impact is reviewed and mitigated to the same degree that projects financed by traditional development lenders are. Again, the processes being followed by the AIIB in this respect may be of relevance, and if adopted by the Chinese domestic banks could help defuse these concerns within the international community. The obvious challenge will be how to do so while at the same time ensuring speedy project implementation, which BRI countries consider as China's competitive advantage over the MDBs.
5. Do the recipient countries adequately benefit from the BRI? This again is a question that frequently arises in most bilateral assistance programs. It is not surprising that it is also coming up in the case of the BRI. There are three specific reasons—aside from the debate about China's geopolitical ambitions—that these questions arise in the case of the BRI, perhaps with somewhat greater intensity. First, by now the legislation behind almost all bilateral aid programs of OECD countries requires public disclosure of the basic terms (size, payment period, interest rate, procurement rules) of their support for individual projects and programs. Under the BRI, such information does not seem to be publicly available, at least on a systematic basis. Second, Chinese financing for BRI projects is often contingent on the use of Chinese contractors, labor, suppliers and even operators after project completion. While such "tied" financing is not totally absent in bilateral aid of other countries, the apparent lack of competition under most BRI projects fuels doubts about whether projects are cost-effective and maximally beneficial to the local economy (in terms of job creation and knowledge transfer). Tied financing also reinforces the impression that the BRI is designed partly to export China's surplus capacity in sectors like construction, steel and cement[7]. Finally, there is always the question of how foreign investment can most effectively generate domestic jobs and long-term economic growth. Chinese leaders have rightly emphasized their desire to create win-win outcomes for both the recipient countries and China. Realizing this objective will be the biggest challenge for the BRI's long-term success and international reputation.
6. Financial risks to China: Given the BRI's massive size, the nature of its participant countries, and the speed at which projects have been initiated, a fundamental concern that arises from the limited information available about the initiative is the financial risk to which China is potentially exposed. The basic assumption of this paper is that Chinese financing of the BRI—whether in the form of FDI or loans—is essentially investment of its citizens' savings in other developing countries, and that it is not charity. Given that, China, like any investor, should expect to recover its capital plus a reasonable return on its overall portfolio of BRI projects. If a non-negligible share BRI projects are unable to produce adequate revenues in a timely manner and their host countries are unable or unwilling to fulfill their financial obligations, China's own initiative could become a drain on its resources. For example, even if only 10 percent of BRI investments fail to meet expectations—and assuming that the BRI will cost about US$2 trillion in public funds (conservatively taking the lower end point of the often quoted $2-4 trillion cost of BRI) between now and 2049—the investment at risk could amount to some US$200 billion. Since many BRI countries

strategic use of concessional funds provided by China or one of the MDBs.

7. Concerns about China's surplus industrial capacity may well have influenced Chinese policymakers' decisions during the first few years of BRI. These concerns probably do not inform BRI projects today, however, because China's surplus industrial capacity from 2013 should have been depleted by the time of writing or should be used up soon given China relatively high economic growth rate (6-8% since 2013).

are considered high credit risks by the markets and have weak institutions, this assumed 10 percent failure rate may be optimistic and in reality, a higher value of Chinese investments may be at risk. The strategic question before the Chinese policymakers therefore is how best to mitigate and manage this risk.

Importance of creating win-win outcomes

The publicly available data about BRI projects suggests that energy and transport infrastructure projects comprise the largest proportion of BRI investments to date. This is appropriate at the early stages of the BRI rollout, since infrastructure bottlenecks are endemic in almost all recipient countries and are the binding constraints to their economic development.

At the same time, in their design and operation, infrastructure facilities can and need to be conceived in a broader economic context of the areas they serve in order to yield the greatest benefits to the local economy, people and businesses. For example, transport projects should not only aim to provide point-to-point logistical links, but also, where possible, should be designed as economic corridors, even if it requires some re-routing as this could yield higher economic returns to the country.

Similarly, the BRI's connectivity projects could become powerful means to promote regional trade, investment and creation of value chains, in addition to facilitating transcontinental transportation. Equally important, significant involvement of local suppliers and contractors could create jobs in host economies and bolster support for the BRI amongst the public at large. Investments in complementary infrastructure (secondary and tertiary roads), industrial estates, SMEs etc. could yield permanent economic rewards for the local communities and make them strong allies of the BRI.

So far it seems that BRI projects are mostly country specific—driven by country specific priorities and corporate or political priorities of the Chinese agencies involved. But for regional connectivity to be effectively established, there need to be careful regional planning and implementation mechanisms that ensure that the requirement of efficient regional networks is being met. Linked to this is the need for regional cooperative institutional platforms. This is a big challenge as demonstrated by the limited success of even the MDBs (cf. CAREC etc.).

Over the longer term, the real prize of the BRI may lie in the four non-infrastructure components of this landmark initiative, particularly policy coordination, trade and investment, and financial integration. It is therefore important that the BRI gradually moves beyond infrastructure and entices multinational and private Chinese companies to do business in participant countries. This will have the added advantage of leveraging official Chinese financing and sharing risks with private sector actors. But, this will require much stronger and deeper institutional capacity within China as well as collaboration with multilateral development institutions which have long standing expertise in this field (see below).

Future direction and implementation of BRI

Geographic expansion

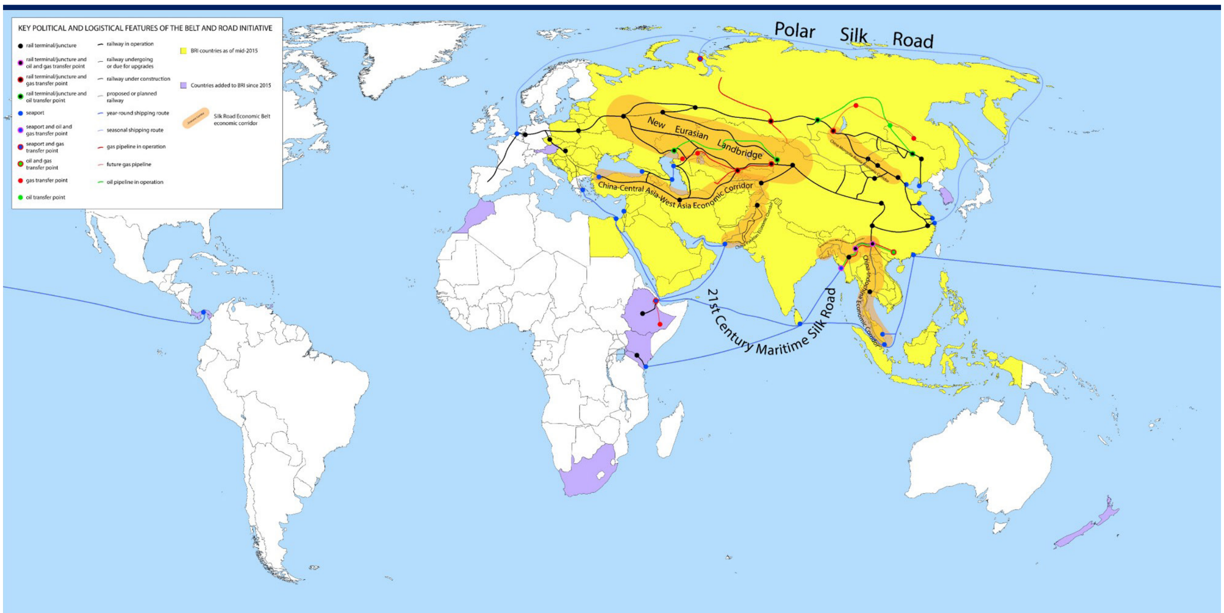
The map below shows the reach of BRI in early 2018 before the addition 10 more countries in Africa and Latin America (plus Greece in Europe) in recent months. At its current rate of expansion, it is conceivable that the BRI might encompass, in the next few years, as many 100 countries in all continents of the world except North America. The following paragraphs discuss the practical implications of such expansion:

Africa is rightly beginning to receive stronger attention under the BRI, as the recent addition of more African countries suggests. This is consistent with statements by the Chinese leadership that the BRI is also intended to support achievement of the Sustainable Development Goals (SDGs) agreed at the UN. But to support these global goals, China will need to add many more countries in Sub-Sahara Africa to the BRI. While desirable from a global perspective, this expansion of the BRI would increase the overall risk profile of the BRI portfolio, as the realization of successful projects would not be easy in many Sub-Saharan countries. The question is should China build specialized knowhow and capacity to tackle intricacies of Sub Saharan economies, or should it partner with other institutions like the World Bank to tap their specialized knowledge?

On the other hand, the addition of some more countries in Latin America—also a region in need of additional capital (including in infrastructure) to raise its currently inadequate savings and investment rates—could balance the risk profile by adding countries with higher income levels and more mature domestic institutions. However, it would also have huge practical implications in terms of organizational and financial resources needed to operate successfully in this much more sophisticated region.

The fundamental question to be answered before any further geographic expansion, whether in Africa or Latin America, concerns China's institutional capacity to

Figure 2: BRI corridors in 2018



Source: Emerging Markets Forum

manage the financial risks involved in this massive program and the speed at which it can put in place the due diligence mechanisms.

Operating in 100 plus countries simultaneously will be a herculean task. It must be undertaken after a very careful consideration of all its practical implications.

Partnerships with International Financial Institutions (IFIs)

As mentioned, in the past year Chinese leaders have held meetings with the heads of the key international financial institutions (IMF, World Bank, EBRD, AIIB, ADB, etc.) to explore ways to develop partnerships for implementing the BRI. The response of most IFIs has been positive. This is an encouraging development.

At this stage of the BRI's evolution, these institutions can provide valuable knowledge, expertise and insights to help resolve almost all of the issues outlined above. This knowledge and expertise would be of particular value as China emphasizes thematic areas of policy coordination, trade and investment and financial flows.

Equally important, more active and visible involvement of IFIs (including AIIB and the New Development Bank) in BRI projects can help ease many of the international concerns discussed above. Such partnerships would prove even more important if China decides to further scale up the BRI by expanding into more countries in Sub Sahara Africa and Latin America.

Balance between five BRI themes

Over time, in order to maximize the development impact of the BRI, all five themes of the initiative would need to be emphasized in most countries and the current dominance of infrastructure projects gradually reduced.

As the relative weight of trade, investment and financial integration components in the total BRI portfolio rises, the need for long-term loans from China's policy banks will come down, with increased risk capital by Chinese investors. By creating more direct jobs and business opportunities in BRI countries this will create greater win-win possibilities. It will also help reduce sovereign financial risk exposure for China.

However, a precondition to achieving such a strategic balance will be more conducive policy and institutional environment in individual BRI countries. Without a reasonable business environment, Chinese (and international private) businesses are unlikely to invest large amounts of long-term capital in fixed assets. This could be done either on a bilateral basis by strengthening internal Chinese expertise, or in partnership with multilateral development banks as discussed above.

A final word: Ongoing internal review within China

Earlier this year, top Chinese policy makers (the State Council) launched a comprehensive review of BRI as the initiative reached its fifth anniversary. The review is being coordinated by the National Development and Reform Commission (NDRC).

In addition to inputs from various government bodies, the NDRC has asked for inputs from leading Chinese think tanks and academics. It has also invited views from selected foreign experts. Importantly, the government has asked international institutions for advice and assistance. For example, with active support of the IMF, the People's Bank has opened a joint institute in Beijing to study fiscal and debt issues in BRI countries. There are also reports that the government is in the process of implementing earlier decisions to strengthen internal coordination and reporting of BRI activities, perhaps through NDRC.

Hopefully, many of the issues outlined earlier in this paper will be addressed under this ongoing internal Chinese review.

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Annex 1: The Silk Road Fund Investments in BRI Countries

The Silk Road Fund (SRF) was established in late 2014 through a capital injection of $10 billion from four Chinese state-owned financial bodies[8]. Under the direction of these four initial investors and China's top planning institutions[9], SRF "gives priority to promoting the implementation of the [Belt and Road Initiative (BRI)]," to which end it "invests in infrastructure, resources and energy development, industrial capacity cooperation and financial cooperation along the Belt and Road." However, the Fund has made significant investments outside of the Belt and Road, chiefly in Italy's transport sector[10]. Though often referred to as a sovereign wealth fund (SWF), SRF rejects this moniker in light of its focus on project investment (as opposed to the more diverse operations of most SWFs) and its openness to overseas investors.

SRF's Articles of Association permit the Fund to invest in equity and debt, jointly establish funds with domestic and overseas institutions, manage entrusted assets, and commission others to invest. By the end of 2017,the SRF had made commitments worth more than $9 billion, according to EMF research. According to SRF officials, the Fund had invested $7.4 billion as of April 2018, of which 70 percent had funded infrastructure projects. As concerns its investments in BRCs alone[11], EMF research could confirm around $6.2 billion worth of commitments.

Table A1 below gives a breakdown of SRF commitments to BRCs by financing instrument. It should be noted that only one of SRF's six investment cooperation agreements with BRCs has resulted in a confirmed investment project.

Table A2 subdivides SRF's contracts in BRCs by sector and financing instrument and shows the Fund's commitments by sector. In this context, "finance" mainly refers to SRF participation in subsidiary funds; the two largest of these—the China-Kazakhstan Production Capacity Cooperation Fund (CKPCCF) and the China-EU Co-Investment Fund—received SRF investments of $2 billion and EUR 250 million, respectively.

Table A3 lists SRF commitments by recipient country. In Russia, SRF's commitments have focused on energy. In 2015, SRF committed almost $2 billion of equity and debt[12] for the Yamal LNG project, from which China has secured a long-term offtake of 195 billion cubic feet per annum. The Fund also holds a $1.15 billion minority stake in SIBUR, a diversified Russian company with assets in the energy and petrochemical sectors. By contrast, Kazakhstan's single commitment from the SRF—the Fund's largest commitment yet—financed the creation of CKPCCF, which

8. This capital injection was provided by the State Administration of Foreign Exchange (65 percent), the China Investment Corporation (15 percent), the Export-Import Bank of China (15 percent), and the China Development Bank (5 percent)

9. NDRC and the ministries of finance, commerce, and foreign affairs each hold a directorship on SRF's board.

10. These two commitments are a nearly $2 billion equity investment in tire maker Pirelli and an approximately $1 billion equity investment in highway administrator Autostrade per l'Italia.

11. This includes regional investments that may include BRCs.

12. In fact, SRF extended its only known loan, worth $792 million, for Yamal LNG.

Table A1: SRF Commitments to BR Countries by Financing Instrument

Type	Number	Estimated Total SRF Commitment (USD billions)
Equity Investment	5	3.1
Investment Cooperation Agreement	6	n/a
Jointly Managed Fund	2	2.3
Loan	1	0.8
Subscription Agreement	3	unknown

Source: Emerging Markets Forum

Table A2: SRF Contracts in BR Countries by Sector and Investment Instrument

Type	Energy	Finance
Equity Investment (number)	3	1
Investment Cooperation Agreement (number)	4	2
Jointly Managed Fund (number)		2
Loan (number)	1	
Subscription Agreement (number)		3
Total (number)	8	8
Estimated Total SRF Commitment (USD billions)	3.8	2.4

Source: Emerging Markets Forum

Table A3: SRF Commitments by Country

Country	Estimated Total SRF Commitment (USD billions)	Principal Sectors
Russia	3.1	Energy (extraction)
Kazakhstan	2	Industry, Technology
UAE	0.7	Energy (generation)
Pakistan	unknown*	Energy (generation)

* The Karot hydropower station project, in which SRF holds an equity stake of indeterminate size, has a reported total cost of $1.65 billion.
Source: Emerging Markets Forum

in turn invests in areas critical to Kazakhstan's economic diversification, namely industrial capacity, innovation, and information technology. Meanwhile, the Fund's investments have supported the construction of a coal power plant in the UAE and a hydropower plant in Pakistan. SRF has additionally reached investment agreements with institutions in countries or regions not listed in Table A3; however, the details of these agreements are often too vague to discern whether or not financial commitments arose from them.

Annex 2: Chinese Foreign Direct Investments in BRI Countries

China's Ministry of Commerce (MOFCOM) describes FDI as a core area of economic cooperation with major countries along the Belt and Road.

As Table A4 below shows, Chinese outward FDI in BRCs appears to have peaked in 2015, though its share of Chinese outward FDI worldwide may be growing. Additionally, Chinese companies merged with or acquired firms in 62 countries in 2017. According to this official data, these transactions were valued at $8.8 billion, up from $6.6 billion in 2016. Singapore, Malaysia, and Indonesia were the top recipients of non-financial Chinese outward FDI in both 2016 and 2017. Other major recipients were Cambodia, India, Laos, Pakistan, Russia, Thailand, the UAE, and Vietnam.

Independent estimates of Chinese outward FDI to BRCs differ significantly from MOFCOM's figures. The China Global Investment Tracker (CGIT), maintained by Derek Scissors of the American Enterprise Institute, is one such independent estimate. CGIT tracks outbound Chinese investments with a reported value greater than $100 million each.

Table A5 shows the sectoral distribution of Chinese outward FDI received by BRCs during the first five years of BRI. It also shows each sector's share of Chinese outward FDI received by BRCs in its penultimate column, as well as the share of Chinese outward FDI in each sector globally that was received by BRCs. According to these figures, BRCs received 26.4 percent of China's outward FDI between 2013 and 2017. Almost 45 percent of China's investment in BRCs focused on the recipients' energy sectors, and BRCs received nearly half of all Chinese investment in energy globally. By contrast, Chinese investments in BRCs' transport and logistics sectors together made up less than 18 percent of Chinese FDI receipts by BRCs; however, BRCs absorbed almost 40 percent of China's overseas investments in logistics. Meanwhile, the utilities sector made up only one percent of Chinese

Table A4: Chinese Investment in BRCs, 2013-2017

	2013	2014	2015	2016	2017
Foreign Direct Investment					
All FDI (US$ bln.)	13.2	14.5	18.9	15.3	
Non-Financial FDI					
Number of Recipient Countries				53	59
US$ bln.			14.8	14.5	14.4
Share of global total				8.50%	12.00%

Source: MOFCOM

Table A5: Chinese outward FDI in BRCs by sector, 2013-17

Sector	2013	2014	2015	2016	2017	2013-2017	Share of total B&R FDI receipts, 2013-17	Share of sectoral FDI receipts globally, 2013-17
Agriculture	2,220	1,870	640	2,120	280	7,130	4.10%	10.20%
Chemicals	110	0	0	0	0	110	0.10%	2.00%
Energy	19,250	8,620	20,420	12,300	17,190	77,780	44.80%	47.40%
Entertainment	0	500	0	5,160	1,050	6,710	3.90%	19.10%
Finance	200	320	2,730	2,380	460	6,090	3.50%	15.30%
Logistics	300	800	650	190	10,090	12,030	6.90%	39.70%
Metals	1,920	1,420	2,850	410	1,160	7,760	4.50%	18.00%
Other	650	530	1,470	1,720	4,890	9,260	5.30%	25.50%
Real estate	4,480	1,380	5,390	3,270	3,160	17,680	10.20%	23.50%
Technology	110	3,260	1,900	100	1,240	6,610	3.80%	15.40%
Tourism	450	1,840	0	180	0	2,470	1.40%	6.90%
Transport	610	930	5,490	6,010	5,340	18,380	10.60%	24.40%
Utilities	0	800	730	140	0	1,670	1.00%	45.00%
Total	30,300	22,270	42,270	33,980	44,860	173,680	100.00%	26.40%

Source: Scissors (2018). All non-percentage figures in US$ millions.

investment in BRCs, but 45 percent of Chinese investment in utilities overseas.

Table A6 shows the distribution of Chinese FDI during the first five years of the BRI among the 48 BRCs for which CGIT reported at least one investment. Based on these figures, Russia appears to have received more Chinese FDI than any other BRC between 2013 and 2017; most of this investment targeted Russia's energy sector. Singapore ranked a close second; the great plurality of the city state's Chinese FDI receipts went into its logistics sector, while more than 10 percent of these receipts wound up in real estate. Malaysia ranked third, with its energy sector forming the plurality of its Chinese FDI receipts and the transport and real estate sectors making up much of the difference in equal measure. Other significant recipients of Chinese outward FDI in BRCs were Israel, Pakistan, South Korea, Indonesia, Kazakhstan, and India (in descending order).

However as noted earlier, the data reported by Scissors varies very significantly from that reported by the Chinese Ministry of Commerce. Actually, it is consistently 2 to 3 times higher for almost every year between 2013 and 2017. It has not been possible to find any logical explanation for this wide variation either in terms of country coverage or definition of FDI. So, in our opinion it will be prudent to use official Chinese figures in absence of further clarity.

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Sources for Annex 2

MOFCOM (2017). Investment and Cooperation Statistics about Countries along Belt and Road in 2016.

MOFCOM (2018). Situation about China's Investment and Cooperation in Countries along the Belt and Road Routes in 2017.

Scissors, Derek (2018). China Global Investment Tracker.

Table A6: Chinese Outward FDI in BRCs by Country, 2013-2017

Country	2013	2014	2015	2016	2017	2013-2017	Share of total B&R FDI receipts, 2013-2017
Antigua and Barbuda	0	740	0	0	0	740	0.40%
Austria	0	0	0	0	230	230	0.10%
Bangladesh	0	0	750	780	110	1,640	0.90%
Belarus	0	0	500	0	0	500	0.30%
Bosnia	0	0	0	0	310	310	0.20%
Brunei	3,440	0	0	0	0	3,440	2.00%
Cambodia	410	0	0	480	0	890	0.50%
Czech Republic	0	0	200	1,330	0	1,530	0.90%
Egypt	3,600	0	190	0	0	3,790	2.20%
Ethiopia	0	300	0	350	0	650	0.40%
Greece	300	0	0	1,330	2,310	3,940	2.30%
Hungary	0	0	0	0	210	210	0.10%
India	0	600	2,810	910	3,130	7,450	4.30%
Indonesia	420	2,520	3,370	450	1,310	8,070	4.60%
Iran	0	350	0	600	730	1,680	1.00%
Iraq	1,250	0	0	0	0	1,250	0.70%
Israel	240	1,560	2,090	5,800	170	9,860	5.70%
Jordan	0	0	350	950	0	1,300	0.70%
Kazakhstan	5,300	1,620	470	180	110	7,680	4.40%
Kenya	0	0	120	240	310	670	0.40%
Kyrgyzstan	0	710	0	0	0	710	0.40%
Laos	180	130	100	1,360	2,560	4,330	2.50%
Malaysia	3,200	580	7,370	2,560	930	14,640	8.40%
Maldives	0	0	0	0	110	110	0.10%
Mongolia	0	0	2,450	100	0	2,550	1.50%
Myanmar	100	0	0	2,100	0	2,200	1.30%
Nepal	250	0	250	1,200	140	1,840	1.10%
New Zealand	180	1,110	200	180	450	2,120	1.20%
Oman	0	0	0	370	0	370	0.20%
Pakistan	1,650	640	4,400	580	1,480	8,750	5.00%
Panama	0	0	0	900	0	900	0.50%
Papua New Guinea	0	0	300	0	0	300	0.20%
Poland	0	0	340	140	110	590	0.30%
Romania	0	0	0	0	350	350	0.20%
Russian Federation	6,250	3,530	3,600	2,230	10,070	25,680	14.80%
Serbia	0	1,200	0	120	260	1,580	0.90%
Singapore	1,370	2,450	2,810	3,590	13,220	23,440	13.50%
Slovenia	0	0	0	0	1,050	1,050	0.60%
South Africa	110	230	110	1,290	0	1,740	1.00%
South Korea	1,110	1,600	4,770	260	570	8,310	4.80%
Sri Lanka	260	390	0	1,430	980	3,060	1.80%
Thailand	0	880	160	0	230	1,270	0.70%
Turkey	0	320	1,300	210	0	1,830	1.10%
Turkmenistan	0	600	0	0	0	600	0.30%
UAE	450	0	0	1,360	2,660	4,470	2.60%
Ukraine	0	0	0	180	0	180	0.10%
Uzbekistan	0	0	0	0	300	300	0.20%
Vietnam	230	210	3,260	420	460	4,580	2.60%
Total	30,300	22,270	42,270	33,980	44,860	173,680	100.00%
share of global total	36.1%	21.4%	37.3%	20.0%	24.20	26.4%	

Source: Scissors (2018). All non-percentage figures in US$ millions.

Annex 3: Lending by China Based MDBs to BRI Countries

China based multilateral development banks (MDBs) offer an important, though not the dominant, source BRI debt financing vehicle.

As Figure A7 shows, the Asian Infrastructure Investment Bank (AIIB) has provided more than $5.4 billion of financing to projects in Belt and Road Countries (BRCs). AIIB's investment in these projects is well leveraged: taken together, they boast a price tag of more than $26.8 billion. Around half of these projects are in the energy sector. India has absorbed by far the most AIIB financing of any country. Interestingly, transport projects have accounted for most AIIB financing in India—this despite India not being on a major BRI corridor.

The New Development Bank (NDB), informally also known as the "BRICS bank," is another such China-based MDB. As Figure A8 shows, NDB has loaned almost $4.5 billion to its four BRC members. Though not as well leveraged as AIIB, NDB also finds co-financiers for all of its projects. NDB has likewise lent more to India than to any other BRC, and again, most of this lending was for transport projects. However, unlike AIIB, NDB has lent heavily for projects in the water sector, also largely in India.

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Table A7: AIIB Financing by BRC and Sector (US$ millions)

	Energy	Multi-Sector	Telecoms	Transport	Water	Total country financing
Azerbaijan	600 (8600)	-	-	-	-	600 (8600)
Bangladesh	285 (986)	-	-	-	-	285 (986)
China	250 (761)	-	-	-	-	250 (761)
Egypt	210 (825)	-	-	-	-	210 (825)
Emerging Asia	-	150 (640)	-	-	-	150 (640)
Georgia	-	-	-	114 (315)	-	114 (315)
India	260 (874)	250 (1350)	-	804 (3787)	-	1314 (6011)
Indonesia	-	442 (2449)	-	-	250 (578)	692 (3027)
Oman	-	-	239 (467)	265 (353)	-	504 (820)
Pakistan	300 (824)	-	-	100 (273)	-	400 (1097)
Philippines	-	-	-	-	208 (500)	208 (500)
Tajikistan	60 (350)	-	-	28 (106)	-	88 (456)
Turkey	600 (2735)	-	-	-	-	600 (2735)
Total sectoral financing	2585 (15955)	842 (4439)	239 (467)	1311 (4834)	458 (1078)	5434 (26774)

Source: AIIB. Parenthetical values report total project costs, and non-parenthetical values report AIIB's approvals. Note that AIIB's $20 million contribution to an energy project in Myanmar whose total cost is unknown is included in the non-parenthetical sums in the bottom row.

Table A8: NDB Financing by BRC and Sector (US$ millions)

	Energy	Social Infra-structure	Sustainable Development	Transport	Urban Infra-structure	Water	Total country financing
China	379 (855)	-	500 (748)	-	300 (569)	-	1179 (2171)
India	250 (500)	-	-	700 (1000)	-	815 (1165)	1765 (2665)
Russia	100 (162)	460 (601)	-	69 (609)	220 (275)	320 (400)	1169 (2047)
South Africa	180 (225)	-	-	200 (643)	-	-	380 (868)
Total sectoral financing	909 (1742)	460 (601)	500 (748)	969 (2252)	520 (844)	1135 (1565)	4493 (7751)

Source: NDB. Parenthetical values report total project costs, and non-parenthetical values report NDB's approvals.

Annex 4: Official Chinese Lending to BRI Countries

Overseas lending by Chinese state banks forms the backbone of BRI. However, the Chinese government does not publicly disclose how much its lending entities have loaned to foreign borrowers. Academic and private sector sources have sought to fill this void (with varying degrees of success) by compiling their own databases of projects outside of China that received funding from Chinese official lenders.

The preeminent open-source database of such projects is maintained by AidData, a research center based at the College of William and Mary. AidData's public database contains currently does not have any observations after year 2014. We understand that data for years 2015 through 2017 may be released in the next few months.

Table A9 below shows the value of Chinese official lending[13] (COL) to BRCs by sector during the first two years of BRI, according to AidData's figures. According to this data, the belt and Road countries (BRCs) received $45.6 billion of COL in 2013-14, or 63.7 percent of COL worldwide. BRI's two leading infrastructure sectors—transport and storage on the one hand; energy generation and supply on the other—absorbed almost 85 percent of COL to BRCs during this period. In fact, COL to BRCs' transport and energy sectors comprised more than half of all COL worldwide in 2013-14.

Tables A10 on the following two pages show COL receipts by BRC and by sector during the first two years of BRI. According to AidData's figures, 31 BRCs[14] absorbed COL in 2013 or 2014; of these, Pakistan received the most by a factor of three. Pakistan's COL receipts were split approximately 2-to-1 between energy and transport. Other major recipients of COL for energy projects included (in descending order) South Africa, Cambodia, and Indonesia; in the transport sector, other major recipients included Ethiopia, Kenya, Iran, and Sri Lanka.

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13. AidData reports loans and export credits separately. In this annex, loans and export credits as reported by AidData have been combined and are referred to collectively as lending.

14. Some BRCs included in these figures had not yet joined BRI in 2013 or 2014.

Table A9: Chinese Official Lending to BRCs by Sector, 2013-2014

Sector	2013	2014	2013-2014	Share of Chinese Official Lending to BRCs, 2013-2014	Share of Chinese Official Lending Worldwide, 2013-2014
Agriculture, Forestry and Fishing	344	12	356	0.80%	0.50%
Banking and Financial Services	49	20	69	0.20%	0.10%
Business and Other Services	3,000	100	3,100	6.80%	4.30%
Communications	44	100	144	0.30%	0.20%
Education	7	0	7	0.00%	0.00%
Energy Generation and Supply	6,599	11,021	17,620	38.60%	24.60%
Government and Civil Society	154	0	154	0.30%	0.20%
Health	168	15	183	0.40%	0.30%
Industry, Mining, Construction	532	1,035	1,567	3.40%	2.20%
Other Multisector	18	562	580	1.30%	0.80%
Trade and Tourism	70	0	70	0.20%	0.10%
Transport and Storage	7,138	13,633	20,771	45.50%	29.00%
Unallocated / Unspecified	0	16	16	0.00%	0.00%
Water Supply and Sanitation	935	30	965	2.10%	1.30%
Total	19,057	26,544	45,601	100.00%	63.70%

Source: AidData. All non-percentage figures in US$ millions.

Table A10: Chinese Official Lending to BRCs by Country and Sector, 2013-2014

Country: Sector	2013	2014	2013-2014	Share of Chinese Official Lending to BRCs, 2013-2014	Share of Chinese Official Lending World-wide, 2013-2014
Africa, regional: Water Supply and Sanitation	322	0	322	0.70%	0.40%
Africa, regional: Total	322	0	322	0.70%	0.40%
Bangladesh: Energy Generation and Supply	0	224	224	0.50%	0.30%
Bangladesh: Government and Civil Society	133	0	133	0.30%	0.20%
Bangladesh: Industry, Mining, Construction	0	87	87	0.20%	0.10%
Bangladesh: Transport and Storage	240	0	240	0.50%	0.30%
Bangladesh: Water Supply and Sanitation	291	0	291	0.60%	0.40%
Bangladesh: Total	664	311	975	2.10%	1.40%
Belarus: Business and Other Services	3,000	0	3,000	6.60%	4.20%
Belarus: Energy Generation and Supply	324	0	324	0.70%	0.50%
Belarus: Transport and Storage	76	53	129	0.30%	0.20%
Belarus: Total	3,400	53	3,453	7.60%	4.80%
Bolivia: Industry, Mining, Construction	0	344	344	0.80%	0.50%
Bolivia: Transport and Storage	0	492	492	1.10%	0.70%
Bolivia: Total	0	836	836	1.80%	1.20%
Bosnia-Herzegovina: Energy Generation and Supply	0	886	886	1.90%	1.20%
Bosnia-Herzegovina: Total	0	886	886	1.90%	1.20%
Cambodia: Agriculture, Forestry and Fishing	244	0	244	0.50%	0.30%
Cambodia: Energy Generation and Supply	1,670	8	1,678	3.70%	2.30%
Cambodia: Transport and Storage	340	156	496	1.10%	0.70%
Cambodia: Total	2,254	164	2,418	5.30%	3.40%
Dominica: Education	7	0	7	0.00%	0.00%
Dominica: Trade and Tourism	70	0	70	0.20%	0.10%
Dominica: Total	77	0	77	0.20%	0.10%
Ethiopia: Health	18	0	18	0.00%	0.00%
Ethiopia: Other Multisector	18	0	18	0.00%	0.00%
Ethiopia: Transport and Storage	3,743	288	4,031	8.80%	5.60%
Ethiopia: Total	3,780	288	4,068	8.90%	5.70%
Indonesia: Energy Generation and Supply	930	614	1,544	3.40%	2.20%
Indonesia: Transport and Storage	0	863	863	1.90%	1.20%
Indonesia: Total	930	1,477	2,407	5.30%	3.40%
Iran: Transport and Storage	0	2,143	2,143	4.70%	3.00%
Iran: Total	0	2,143	2,143	4.70%	3.00%
Kenya: Energy Generation and Supply	175	0	175	0.40%	0.20%
Kenya: Transport and Storage	0	3,233	3,233	7.10%	4.50%
Kenya: Total	175	3,233	3,408	7.50%	4.80%
Kyrgyz Republic: Energy Generation and Supply	386	0	386	0.80%	0.50%
Kyrgyz Republic: Transport and Storage	698	0	698	1.50%	1.00%
Kyrgyz Republic: Total	1,084	0	1,084	2.40%	1.50%
Laos: Industry, Mining, Construction	0	82	82	0.20%	0.10%
Laos: Water Supply and Sanitation	92	0	92	0.20%	0.10%
Laos: Total	92	82	174	0.40%	0.20%
Macedonia, FYR: Transport and Storage	580	0	580	1.30%	0.80%
Macedonia, FYR: Total	580	0	580	1.30%	0.80%
Maldives: Other Multisector	0	57	57	0.10%	0.10%
Maldives: Total	0	57	57	0.10%	0.10%

Source: AidData. All non-percentage figures in US$ millions.

Table A10: Chinese Official Lending to BRCs by Country and Sector, 2013-2014 (continued)

Country: Sector	2013	2014	2013-2014	Share of Chinese Official Lending to BRCs, 2013-2014	Share of Chinese Official Lending World-wide, 2013-2014
Mongolia: Agriculture, Forestry and Fishing	0	12	12	0.00%	0.00%
Mongolia: Health	0	15	15	0.00%	0.00%
Mongolia: Industry, Mining, Construction	0	432	432	0.90%	0.60%
Mongolia: Total	0	459	459	1.00%	0.60%
Montenegro: Transport and Storage	0	911	911	2.00%	1.30%
Montenegro: Total	0	911	911	2.00%	1.30%
Morocco: Business and Other Services	0	100	100	0.20%	0.10%
Morocco: Energy Generation and Supply	300	300	600	1.30%	0.80%
Morocco: Total	300	400	700	1.50%	1.00%
Myanmar: Agriculture, Forestry and Fishing	100	0	100	0.20%	0.10%
Myanmar: Industry, Mining, Construction	92	0	92	0.20%	0.10%
Myanmar: Total	192	0	192	0.40%	0.30%
Nepal: Transport and Storage	35	216	251	0.60%	0.40%
Nepal: Total	35	216	251	0.60%	0.40%
Pakistan: Communications	44	0	44	0.10%	0.10%
Pakistan: Energy Generation and Supply	448	8,032	8,480	18.60%	11.80%
Pakistan: Transport and Storage	0	3,943	3,943	8.60%	5.50%
Pakistan: Total	492	11,975	12,467	27.30%	17.40%
Russia: Other Multisector	0	505	505	1.10%	0.70%
Russia: Total	0	505	505	1.10%	0.70%
Serbia: Energy Generation and Supply	0	608	608	1.30%	0.80%
Serbia: Total	0	608	608	1.30%	0.80%
South Africa: Energy Generation and Supply	2,200	0	2,200	4.80%	3.10%
South Africa: Total	2,200	0	2,200	4.80%	3.10%
Sri Lanka: Banking and Financial Services	49	0	49	0.10%	0.10%
Sri Lanka: Transport and Storage	725	1,278	2,003	4.40%	2.80%
Sri Lanka: Water Supply and Sanitation	230	0	230	0.50%	0.30%
Sri Lanka: Total	1,004	1,278	2,282	5.00%	3.20%
Tajikistan: Banking and Financial Services	0	20	20	0.00%	0.00%
Tajikistan: Energy Generation and Supply	0	349	349	0.80%	0.50%
Tajikistan: Government and Civil Society	21	0	21	0.00%	0.00%
Tajikistan: Industry, Mining, Construction	140	0	140	0.30%	0.20%
Tajikistan: Transport and Storage	0	57	57	0.10%	0.10%
Tajikistan: Total	161	426	587	1.30%	0.80%
Trinidad & Tobago: Health	150	0	150	0.30%	0.20%
Trinidad & Tobago: Total	150	0	150	0.30%	0.20%
Uruguay: Water Supply and Sanitation	0	30	30	0.10%	0.00%
Uruguay: Total	0	30	30	0.10%	0.00%
Uzbekistan: Communications	0	100	100	0.20%	0.10%
Uzbekistan: Energy Generation and Supply	166	0	166	0.40%	0.20%
Uzbekistan: Industry, Mining, Construction	300	90	390	0.90%	0.50%
Uzbekistan: Transport and Storage	700	0	700	1.50%	1.00%
Uzbekistan: Total	1,166	190	1,355	3.00%	1.90%
Yemen: Unallocated / Unspecified	0	16	16	0.00%	0.00%
Yemen: Total	0	16	16	0.00%	0.00%
BRI GRAND TOTAL	19,057	26,544	45,601	100.00%	63.70%

Source: AidData. All non-percentage figures in US$ millions.

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