

CREDIT IMPLICATIONS OF CHINESE INVESTMENT IN LATIN AMERICA

Presented by

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Executive summary

This study assesses the credit implications of Chinese investment in Latin America in the period 2008-2018, with FDI and bilateral loans as the main financing flows under analysis. By using a two-pronged approach to measure the exposure of Latin American countries to Chinese financing, and its economic relevance among the region, a sample of four countries is selected: Argentina, Brazil, Ecuador and Peru. After this process, an in-depth analysis of the most relevant trends in Chinese financing during the last decade is conducted. The impact of this financing trend is then assessed through the four pillar framework of Moody's Investors Service to assess the relative creditworthiness of a sovereign borrower.

Our findings are summarized as follows. First, Chinese financing has neutral credit implications for our sample of four countries. Specific concerns in the institutional and fiscal front are offset by the long-term potential economic gains of Chinese infrastructure investments in these countries. In addition, for countries that heavily relied in Chinese loans - as Argentina and Ecuador - we find that China acted as a supplementary borrower under situations of fiscal distress, and in a context of salient political shifts that pushed for changing the countries's traditional sources of funds. In case of the countries that were financed mainly by FDI, we see a common trend of China's strategy to ensure its access to natural resources, specifically, agricultural and metal commodities. In the case of Peru and Brazil, the better credit worthiness of these countries coupled with China's interest in extractive industries like oil and mining explain the FDI inflows. In the case of Brazil, the FDI financing is also motivated by gaining access to an attractive domestic market.

All in all, China's incursion in Latin America follows the pragmatic approach of a corporate state. This is a trend we see in China's previous incursion in other regions of the world. Also, similar to China's trends in financing seen across the world, the preference for a specific type of financing will depend on the nature of the project's returns in absolute profitability or strategic terms and, most importantly, in the initial conditions of each country. Here, the inner productive and institutional structure, as well as the economic dynamics, matter.

In the same reasoning line, countries with weak economic and institutional fundamentals are more prone to display bad outcomes stemming from Chinese investments. In this sense, Latin America shares similarities to other experiences of large-scale Chinese investments around the world, where the starting point of the countries mattered in determining the outcome. While we have analyzed the implications of China's financing on four countries in Latin America, there is scope to replicate the efforts for other countries in the Latam region and other regions of the world. To identify potential sources of distress for a sovereign, we recommend an examination of the kind of financing (FDI or loans, if loans how does interest rate compare to market rate). Further, the initial conditions of the country - summarized as the state of the economic fundamentals - and the relative size of the financing flows in relation to the economy are key variables to follow.

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I. BRI Brief Introduction

The Belt and Road Initiative (BRI) was first proposed by the Chinese government back in 2013. It originated from two historical routes, namely, the Silk Road Economic Belt and the 21st Century Maritime Silk Road, along which China established commercial and diplomatic relations with the surrounding countries. On April 27th 2019, this initiative again became an interesting talk point as Beijing invited many heads of state to the second BRI cooperation forum. At the time of initiation, BRI seems to be mostly pivoting around Central and Southeast Asia, Eastern Europe and Africa. However, its scope has expanded significantly in recent years, growing from regional to global and covering more than 80 countries and regions in the world. As a matter of fact, BRI became so widely used presently that most Chinese projects abroad, be it past or present, are now reframed as BRI projects.

Latin American and Caribbean countries, as the Chinese government says, are "natural extensions" and "indispensable participants" in BRI. Such idea was firstly brought forward during President Xi's visit to Argentina in 2017. In 2018, during the China – Latin American and Caribbean Forum, China reiterated the above ideas and officially included the region into the BRI scheme in the *China-CELAC Special Declaration*. So far, Panama has already signed an MoU with China and Peru will soon become the second. It is expected that other countries will subsequently sign the MoUs and officially join the initiative.

BRI Dichotomy

BRI was based on the idea of open economy, and it resembles a gigantic development fund. Similar to globalization, people formed divided views toward this initiative over the past years.

From the bright side, BRI strikes the world as a mutually beneficial and cooperative development strategy. With orderly and proper implementation, BRI can bring in fresh capitals for investment destinations. It also helps to improve infrastructure, create more jobs and fuel growth for the local economy. In the latest BRI forum, a number of governments like Pakistan, Russia and Greece appreciated the BRI benefits. Meanwhile, China also expects potential gains. In some policy documents, the government has acknowledged that through BRI, the country hopes to expand its export market, to promote RMB as an international currency, and also to reduce trade frictions.

Apart from the above, there are also some less articulated benefits for China. Firstly, infrastructure projects like railroads, highways and hydropower stations can help Chinese state-owned enterprises (SOEs) use BRI projects to resolve their excess capacities that were built up during the last decade of China's aggressive growth. Secondly, BRI projects will widen up the channel for China's capital outflow, thus enabling the country to diversify its 3 trillion USD foreign reserve portfolios, and bring down its astonishing 46% national saving rate. Thirdly, with BRI, China gains more access to raw materials and natural resources.

However, from the dark side, which is mostly represented by Washington and New Delhi, BRI may come as a trap. Loans given by Chinese Banks might be attached with various conditions that cripples a country's fiscal strength. They are also worried that Chinese SOEs have low social and environmental standards and may jeopardize the overall industrial ecology. For them, Acquiring Chinese finance through BRI projects seems like quenching a thirst with poison. These money, especially in less-developed countries, will be poorly managed and may aggravate the political chaos.

Before probing into Latin America as a new extension of the BRI, we believe it is necessary to refer to completed BRI projects in other regions, so as to establish base cases and thresholds for later analysis. Here, we will examine the Port of Piraeus project in Greece and Hambantota Port in Sri Lanka, to understand both the bright and dark side of BRI projects.

The port of Piraeus in Greece is widely recognized as a successful BRI project. China COSCO shipping, as the major investor, invested 500 million euro in upgrading the port infrastructure. The company also acquired 67% of the port and obtained the right to operate the port for 35 years. The project was first objected by the Greek government, local dockers also went on strike for fear of China seizing the port, but since Greece has to fulfill its bailout package which requires a 4 billion privatization, the project was eventually agreed. In the end, Piraeus port became the 38th largest container(originally 93rd), 2000 new jobs were added, and there are also subsequent investment from COSCO going on in the region.

However, the Hambantota port in Sri Lanka is a different story. the project was first signed with the old government and mainly invested by China Harbor Engineering company. It was first suspended as the new government steps in. But because Sri Lanka's external debt to China is so large, that it had to reopen the project and transfer the port to China with a 99 year leasing period as a form of debt relief. To Many, Hambantota port now looks like debt trap devised for Sri Lanka. The original feasibility report actually suggests that the project is not viable. And now the port is indeed suffering losses. Suspicion has long existed that the former president was bribed to approve the project, investigations show that the project fund was channeled to sponsor the president's election campaign in Sri Lanka. Also, BRI has incurred lots of unsustainable debt for Sri Lanka, as a result, China gains more bargaining power on the table. For example, China has been asking more favorable treatments in negotiating with Sri Lanka on the country's free trade agreement.

II. Methodology and country selection criteria

We base our analysis of China's financing trends in Latin America on two types of flows: Foreign Direct Investment and bilateral credit. This selection is based in the fact that most BRI projects are financed with the above two sources; in addition, we focus in flows with larger

potential credit implications for a sovereign, either from a fiscal or an economic long-term perspective. A couple of precisions are needed regarding the nature and source of the flows considered. First, by Chinese FDI we refer to China's long-term capital investment in Latam countries, both from private and public sectors. Our main source is the China Investment Tracker, supplemented by reports and documents issued by each country's Central Bank.¹ Second, by Chinese loans we refer to credit granted by Chinese policy banks, such as China Development Bank (CDB) and the China Export Import Bank (Exim Bank), as well as state-owned commercial banks like Industrial and Commercial Bank of China (ICBC). Our main source is the China-Latin America Finance Database from The Dialogue², and the countries' Ministry of Finance information when available.

Some remarks regarding data shortcomings are needed. In the case of loans, the main source (The Dialogue) reports all the approved credit lines from China to the Latin American countries, with no specific mention to the outstanding amount of liabilities. Hence, we are using this data as the main means to assess the countries' exposure to Chinese financing, for the sake of an easier comparison. In the case of FDI, it is important to stress that the flows might be understated due to the fact that Chinese investment is also coming from Hong Kong and countries considered as Tax Haven by companies. Lastly, we acknowledge the large differences of data availability among countries, with the case of Argentina and Ecuador as two extreme examples³.

The process of country selection was conducted in two stages, by the use of quantitative and qualitative criteria. In recognition of the large degree of variability among the 33 countries in Latin American and the Caribbean (due to economic, political and institutional features), we conducted a first screening round, based exclusively in what we define as the absolute of relative exposure of the countries to China's finance, that is, the sum of the FDI flows and loans from China between the years 2008-2018⁴. As a result, eight countries were screened as the ones with the highest exposure to China. A second round of qualitative criteria was applied for shorten the list from eight to four countries. Here, features as location in South America, size of the market (defined as nominal GDP), and other specific elements were considered. After the process, four countries were selected: Argentina, Brazil, Ecuador and Peru.

The general framework of our analysis is first the elaboration of credit implications from Chinese investment, in a country-case basis, for the four countries selected in the previous stage. In the first stage, the country-by-country approach will focus in identifying which is the dominant Chinese finance flow (that is, FDI or loans), for then conducting the following analysis:

¹ <http://www.aei.org/china-global-investment-tracker/>

² https://www.thedialogue.org/map_list/

³ For instance, most of the information for Argentina's loans comes from The Dialogue and media sources, whereas the information for Ecuador is available in the Finance Ministry public debt statistics.

⁴ The sources of data for the screening are the Chinese Investment Tracker for FDI, and the China-Latin American Database, for FDI and loans respectively. In the case of Ecuador, a cross-validation was made with data from the Central Bank and the Ministry of Finance.

- Main sectors recipients of financing from China
- Overall conditions of the largest or most representative financing flows. For instance, in the case of loans, cover details such as time to maturity, cost of funding, or other conditionalities (if present). In the case of FDI, an industry-wise characterization will be conducted, with focus in specific projects (if possible).

Based on the above information, credit implications for each country will be elaborated, on the basis of Moody’s sovereign credit framework. Specifically, we will analyze how the loans and FDI conditions impact in a country’s economic, fiscal and institutional strength.

Finally, the second stage will consist in a general assessment of the overall impact of Chinese financing in Latin America. Based in the findings of the country-case analysis, we will answer the question of to what extent is Chinese financing in Latin America affecting the relative creditworthiness of the countries in the region.

III. Overview of Countries Selected

The analysis of China’s financing trends in Latin America requires a previous description of the basic economic conditions of the group of countries selected for this study. A brief opening discussion on the starting point of each country is presented below Table 1.

Table 1: Overview of the Countries Selected

	Argentina	Brazil	Ecuador	Peru
GDP 2018 (\$ Billion)	518	1868	108	225
Real growth (CAGR, 2008-2018)	1.2	1.5	3.1	4.8
Country’s Top 2 exports to China	Soybean (55%) Crude oil (11%)	Soybeans (42%) Iron Ore (22%)	Crude Oil (46%) Crustaceans (12%)	Copper ore (61%) Fishmeal (9.9%)
External debt 2018 (% of GDP)	53%	32%	41%	36%
Credit Rating (Moody’s)	B2	Ba2	B3	A3

Source: IMF WEO Database, Moody’s, UNCTAD.

The sample of four countries (Argentina, Brazil, Ecuador and Peru) display a large degree of variability regarding their market size and their recent economic performance. This can

be seen by comparing the differences in the size of GDP between Brazil and the other three countries; in a similar fashion, while Argentina and Brazil have grown at a modest pace in the last decade (in comparison to the average of the Emerging Markets), Peru has had a remarkable performance. In terms of export linkages to China, it can be seen that all the four countries follow the standard pattern of trade integration with the Asian country. For instance, we find that agricultural and metal commodities are the main exports to China. Finally, the relative size of the external liabilities of each country and the credit rating by Moody's - as an indicator that accurately synthesizes the state of the economic fundamentals - are shown.

We now present a brief overview of the economic and political conditions of each country in the last decade. This overview is important to understand the context where each country strengthened its financial ties with China.

ARGENTINA

The limited financing sources placed the Kirchner administration in a delicate situation. Argentina had been shut out of international credit markets for years following its sovereign default in late 2001. During the Kirchner period, the President launched a domestic quest for new budgetary resources, which included nationalizing the country's private pension systems in 2008, reforming domestic laws to redirect central bank reserves towards financing national accounts in 2010, and unwinding some of the government's utility subsidies that same year (Kaplan 2014).

Argentina's relationship with China originated through the trade sector. Benefiting from China's global emergence after its 2001 WTO entry, Argentina's trade with China increased from 3.8% in 2000 to 10.8% of total exports by 2010 (UNCTAD 2018). The Argentinean government took advantage of China's booming demand to increase export taxes for primary commodities (Richardson 2008). This helped the country source funds from its trade relationship with China. By comparison, Argentina received relatively little FDI or loans from China during this period.

The slowdown of the commodity boom alongside Argentina's expansionary fiscal agenda set the stage for an increased Chinese presence in the form of bilateral loans. To avoid further fiscal retrenchment, Argentina sought out China. In 2010, China agreed to a US\$ 10 billion loan, equivalent to 5% of its GDP, to update Argentina's national railways with Chinese machinery and equipment. These additional resources relieved some of the budgetary pressure by raising external capital for much needed infrastructure. Most importantly, this left the Kirchner administration with more fiscal space to maintain an expansionary policy stance in her successful 2011 reelection bid (Kaplan 2014).

Argentina's 2014 technical default on its global bond holdings solidified the country's ties with China. Soon after the Court's July ruling, the two countries agreed to a fresh installment of

US\$7.5 billion of loans to the Argentine government for energy and railway projects, as well as a US\$11 billion currency swap agreement between their central banks (UNR 2015).

Despite the change in administration, Argentina's relationship with China is business as usual. The country's re-insertion in international capital markets increased Chinese FDI since 2016. Yet, bilateral loans and currency swaps remain strong. It is estimated that the Macri administration has signed more agreements with China than the two previous governments combined, including 30 new agriculture and investment deals and another USD 8.6 Billion currency swap line (New York Times 2019). Most recently, the terms for a fresh loan of USD 12.5 billion to finance a nuclear energy power plant (Atucha III) are being finalized (Reuters 2019; NBN 2019).

In sum, the limited access to international capital markets and the political necessity to finance an expansionary fiscal policy under Kirchnerism placed Argentina down a similar path to Ecuador. The country's relationship with China has been since entered principally through bilateral credit.

ECUADOR

Ecuador's insertion in the international system has been marked by its condition of a natural resource rich country. The country transitioned from an agricultural exporter to an oil exporter economy in the 1970s (Acosta, 2001). From then on, oil played an important role in Ecuador's fiscal accounts. For example, according to the data available in the Central Bank of Ecuador, in 2007 the oil sector generated 13% of the Gross Added Value of the economy, 45% of the total exports, and 24% of the total public revenues⁵. Since then, oil price movements became one of the main determinants of gross national income, and gave space to some extent to a particularly volatile domestic politics. More recently, Ecuador has led the table with the highest number of presidents in the past 25 years, with 3 disrupted terms⁶. This is the context where China began to strengthen its economic linkages with Ecuador. Even though the trade relationship between the two countries started in the early years of the 2000 decade, the relevant starting point for our analysis is 2007 onwards, where the two countries began to celebrate several bilateral agreements of strategic cooperation in economic issues (Rodas Saa 2018).

Salient political shifts bolstered Ecuador's relationship with China since 2007. Rafael Correa was elected in democratic elections as president in 2007, under a platform that promised to develop the "Socialism of XXI century". This new political period stimulated China's expansion in Latin America (Ray and Chimenti 2016). As one of his main campaign promises, he managed to materialize the domestic expectations of independence from US and the International Financial

⁵ Information retrieved from <https://www.bce.fin.ec/>.

⁶ Information retrieved from <http://pdba.georgetown.edu/Executive/Ecuador/pres.html>.

Institutions, and foster South-South relations. Principles contained in the Plan Nacional del Buen Vivir 2009-2013 are with the following initiative. Firstly, as one of first concrete demonstrations, the government defaulted in its debt in 2008, in a movement perceived mainly as an unwillingness to pay instead of a situation of serious fiscal distress (Porzecanski 2010). Moreover, as a consequence of all these developments, the reliance in China as a bilateral creditor and main partner in Ecuador's insertion to the rest of the world rapidly increased. (See Table 1, Appendix).

These changes set the path for specific domestic policies. In 2008, the Ecuadorian government decided to diversify its energy matrix as a national priority. To do this, the government signed loan agreements with China for building 8 energy projects in the context of the plan for developing energetic sufficiency, with specific conditionalities as tied to construction contracts by China companies and oil sales. In addition, complimentary loans for financing the fiscal budget were obtained, which was crucial in the aftermath of the 2008 default and in 2015 after the international oil price collapsed. However, the lack of complete information in the transactions fed the narrative of secrecy regarding these public issues. After Lenin Moreno took power, the situation gradually started to reverse, in an open recognition that the patterns of public expenditure and the debt dynamics – among other policies – were jeopardizing the dollarization regime in the country. With an IMF program of \$4.2 billion in course (IMF 2019), the expansion of new bilateral credit between China and Ecuador has ceased.

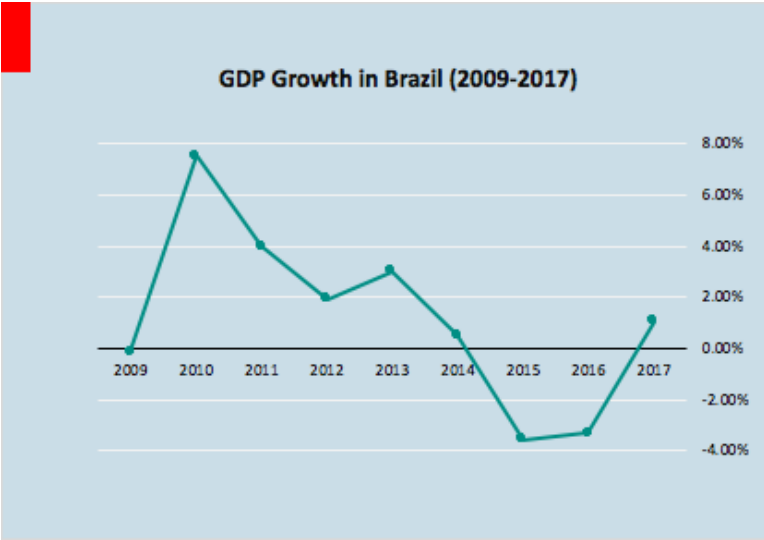
The sum of all these developments put Ecuador in a different cluster regarding China's strategy for increase its trade and financial linkages with Latin America, that is, the group of countries that are not able to borrow easily in the capital markets (Gallagher et al., 2012).

BRAZIL

Brazil is a large and diversified emerging economy that attracts worldwide attention. With a GDP of \$ 1.9 trillion (2018), Brazil's economy is the eighth largest economy in the world. It is the largest economy in Latin America and accounts for 40% of Latin America's GDP. Brazil has abundant natural resources and a relatively diversified economy. It is the world's largest producers of coffee, sugar cane and orange, and is one of the world's largest producers of soy and timber. Despite a rich agriculture base, agriculture contributes only 5.5% to GDP and represents 40% of exports. The country is also a large industrial power, and has benefited greatly from its mineral ore wealth. The country is the world's main producers of aluminum, iron and coal. The country's size, plentiful resources and conducive policies have made Brazil the largest renewable energy market in Latin America and one of the top 10 in the world. Further, recent oil discoveries in the pre-salt layer have boosted Brazil's plans of becoming energy independent in the near future. From World Bank data source, the industry sector and service sector contribute 27.5% and 67% to the Brazilian GDP.

After almost a decade of strong growth (2002-2010), Brazil's economy decelerated and entered into the worst recession in its history in 2015 and 2016 (graph below). This economic crisis was due to the fall of commodity prices and a drop in consumption⁷. The economy has recovered, driven by a recovery in domestic consumption and investment. GDP grew by 1 % and 1.8% in 2017 and 2018 respectively. The IMF growth forecast for 2019 is 2.5%, indicating that the trend of recovery continues.

Figure: 3 GDP Growth in Brazil (2009-2017)

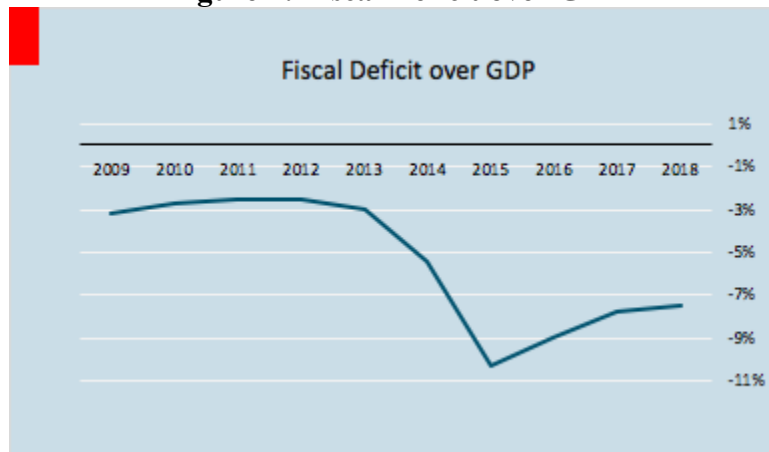


Source: World Bank

With trade flows averaging 25 percent of GDP (World Bank), Brazil is one of the world's least-open economies. In addition to high average tariff rates, the use of non-tariff barriers is rampant. Brazil's a high fiscal deficit of 9 % coupled with historic low savings and investment rates, continue to curtail government spending and investments. This coupled with low productivity, has resulted in low participation in global value chains, denying Brazil the benefits of booming global trade over the past several years.

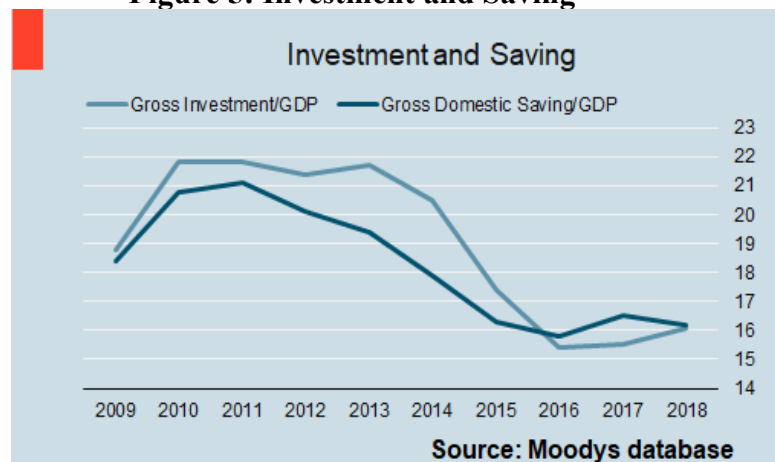
⁷ Data Source: World Bank

Figure 4: Fiscal Deficit over GDP



Source: Moody's

Figure 5: Investment and Saving



Source: Moodys database

Source: Moody's

Trade between Brazil and China

The abundant resources of Brazil coupled with China's import requirements make Brazil and China natural trade partners. Driven by China's increasing global influence and strongly encouraged by Lula da Silva's and Dilma Rousseff's administrations, China-Brazil trade relations deepened significantly in the 21st century. The exports to China have been steadily growing and China is Brazil top trading partner accounting for 26.8% of Brazil's total exports. Brazil has the largest trade surplus with China amounting to USD 29.5 billion.

Figure 6: Brazil's Expanding Trade Surplus with China



Source: Central Bank of Brazil

Brazil's top exports to China are soybeans (42%), iron ores (22%) and crude petroleum (15%). While the main imports by Brazil from China are industrial products, high end consumer goods, textile and footwear, in recent years the trend is moving towards high end consumer goods such as cars, motorcycles and consumer appliances. In this sense, the terms of trade are detrimental to Brazil since it mainly exports commodities while importing manufactured goods (Frischtak and Soares 2013, 30). While one narrative blames this entirely on China, the inability of Brazil to compete in high end industrial goods and technology are related to the domestic environment of low productivity and poor business process.

Politics

China is Brazil's largest trading partner and the countries have deep ties owing to the same. China's investments via FDI and/or loans, are indifferent to the ruling Government. China as an investor is indifferent to the ruling party regime and its decisions to invest are led by its strategic interests. This is most evident in the recent change of power in Brazil where the new President Bolsonaro made anti-China remarks, particularly in the run-up to the elections. However, China has continued to take a rational and strategic perspective of its investments, recognizing the interdependencies between these two countries.

External Sector Strength and Capital flows

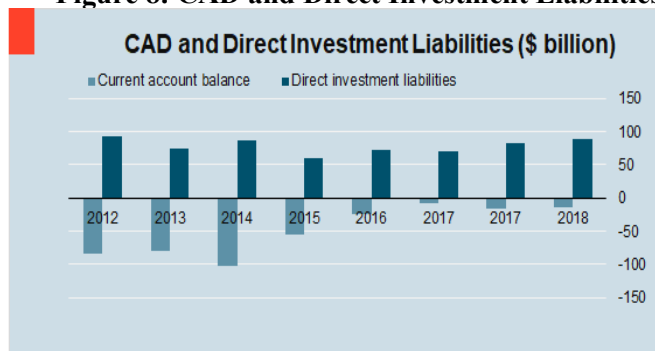
Brazil has a strong external sector as exhibited by its growing forex reserves (figure 7&8), strong capital inflows and shrinking current account deficit. These factors led Brazil to have a healthy External Sector Vulnerability Index ^{*8} score of 42.

⁸ Short-Term External Debt + Currently Maturing Long-Term External Debt + Total Nonresident Deposits Over One Year)/Official Foreign Exchange Reserves

Figure 7 Foreign Reserves



Figure 8: CAD and Direct Investment Liabilities



While China became Brazil's largest trading partner in 2009, it currently ranks 13th in terms of China's FDI investment in Brazil.

PERU

Peru has witnessed one of the greatest economic progress in Latam during the last decade. Peru's democratic regime and relatively stable market-friendly economic policies - in spite of a poor-developed political system - have created a favorable environment for the country's growth (Vergara and Encinas 2016). Between 2002 and 2013, Peru enjoyed an average GDP growth rate of 6.1% annually. From 2014 to 2017, due to the global decline in commodity prices, GDP growth lowered to an average of 3.0% annually, leading to lower private investment, less fiscal income and weak consumption. Despite a diminishing current account balance, the country adopted prudent fiscal and monetary policies to counter fiscal weakness. Meanwhile, a surge in the country's mining projects have picked up the country's export volume. Government of Peru is rated A3 by Moody's, which is a preferable rating in Latam. Government Debt over GDP ratio has increased since 2013, but still below 30%.

Peru's investment and trade relationships with China is overwhelmingly concentrated in the mining sector. Commodities like copper, iron, gold and other minerals account for around 60% of Peru's total exports. In the Meantime, China has become the leading market for the above resources since early 2000s. Such relationship grew stronger over the decade. In 2009, these two countries established a Free Trade Agreement, which allowed 83.5% of Peruvian exports to China with zero tariffs. Up until 2015, Chinese firms were holding 30% of Peru's total investment portfolio. As such, Peru has developed a strong dependency on mineral exports, especially the mineral demand from Chinese market.

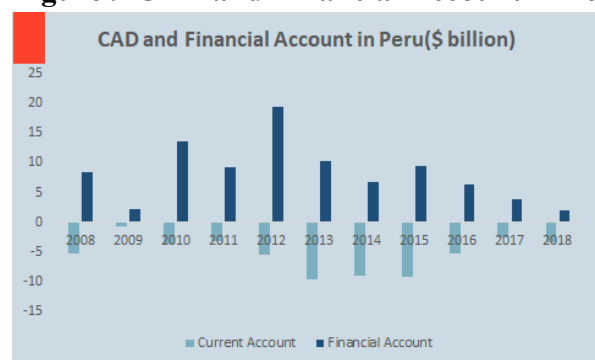
From a political and institutional standpoint, Peru now regards China as a good trade partner and will most likely to engage proactively in China's Belt and Road Initiative. In 2018, when warned by the U.S. Secretary of State Rex Tillerson against Peru's excessive reliance on Chinese economy, the Peruvian government officially defended China and expressed their satisfaction with its recent trade liberalization deal with China. On April 24th, China's ambassador Peru will sign a

Memorandum of Understanding(MoU) to join China's ambitious Belt and Road infrastructure initiative in coming days, despite recent warnings from the United States about the Beijing's rise in Latam (Marco Aquino, 2019). The fact is, Peru has a well-functioning and stable government. This is proved by its salient policies that maintained price stability and debt sustainability over the past years. This has enabled Peru to leverage its strong institutional capacity against risks arising from Chinese investments. Moreover, in recent years, Peru has been carrying out reforms in its extractive industry, these include areas such as revenue distribution and transparency, labor regulations, environmental rules and so on. These has laid out a relatively clear standard to regulate Chinese SOEs in fitting into Peru's line of business without disrupting the market.

External Sector Strength and Capital flows

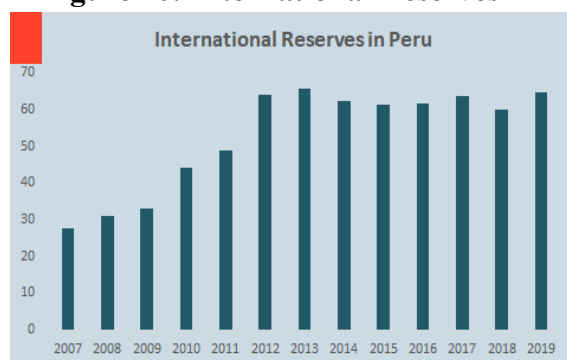
Peru has strong external sectors, its external debt over GDP ratio has fluctuated around 35% recent years. According to Moody's estimation, its external vulnerability is expected to be 27.1, which is the lowest in the 4 Latam countries selected. The Current Account deficit decreased after 2015 and international reserves in the Central Bank of Peru are stable in recent 6 years.

Figure 9 CAD and Financial Account in Peru



Source: Moody's

Figure 10: International Reserves in Peru

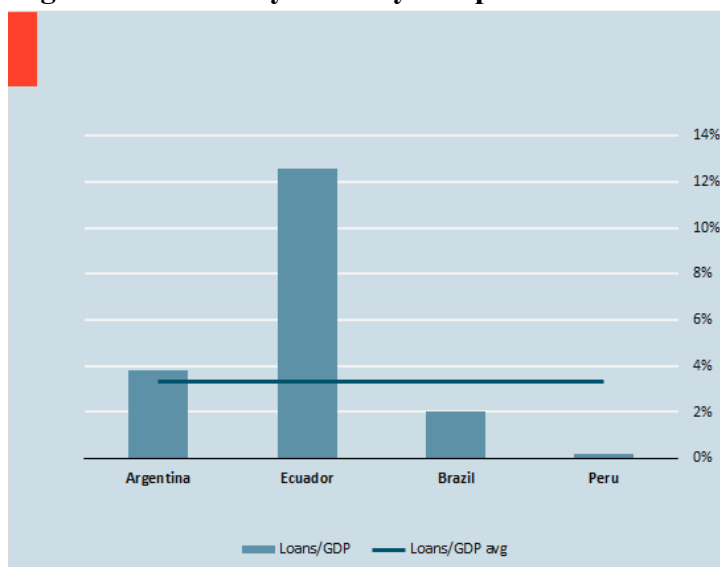


IV. Cluster analysis: Countries Where Loans Outweigh FDI. Ecuador and Argentina

In what follows, we proceed to separate our sample of four countries in two subgroups, based in the China's financing trends of the last decade. To the extent that FDI and loans have specific and different implications for the relative creditworthiness of a sovereign, we rely in the criteria explained in Section II to separate the countries.

Ecuador and Argentina are the first cluster of countries under analysis, due to their above-the-average relative size of loans received from China. For instance, we compare the relative size of the loans for the average country in Latam for the last decade, and find that Ecuador and Argentina exceed this benchmark (See Figure 11).

Figure 11: Loans by Country compared to Latam



Trends and Characterization of Financial Flows

Ecuador

Between 2008 and 2018, Ecuador received USD 14.5 Billion (13.4% of 2018 GDP) in loans and FDI from China. For Ecuador, the sum of the FDI flows received from China between the years 2008 and 2018 equals USD 813 Million. In contrast, the total amount of bilateral loans awarded by China in that same period equals USD 13.6 Billion. It is important to say in the case of the latter transactions that, even though the government is improving its standards for disclosing information in its debt transactions (in hand with its recent agreement with the IMF), there is a non-low risk of underestimation of the total amount of loans and agreements made in that period.

The sum of FDI flows between the years 2008-2018 has been relatively small, considering that it represents 0.8% of 2017 GDP. In general, the vast majority of Chinese investment from abroad has been allocated in the mining and quarrying sector. These transactions were mostly mergers and acquisitions of existing investments in the mining and quarrying sector (Ray and Chimenti, 2016). More recently, there have been an increase in the flows to construction and services sector, but they are still representing significantly small amounts when compared to mining.

In the case of the loans, between the years 2008-2018 the Ecuadorian government received USD 13.6 Billion from China, which represents 12.6% of 2018 GDP⁹. With no official register

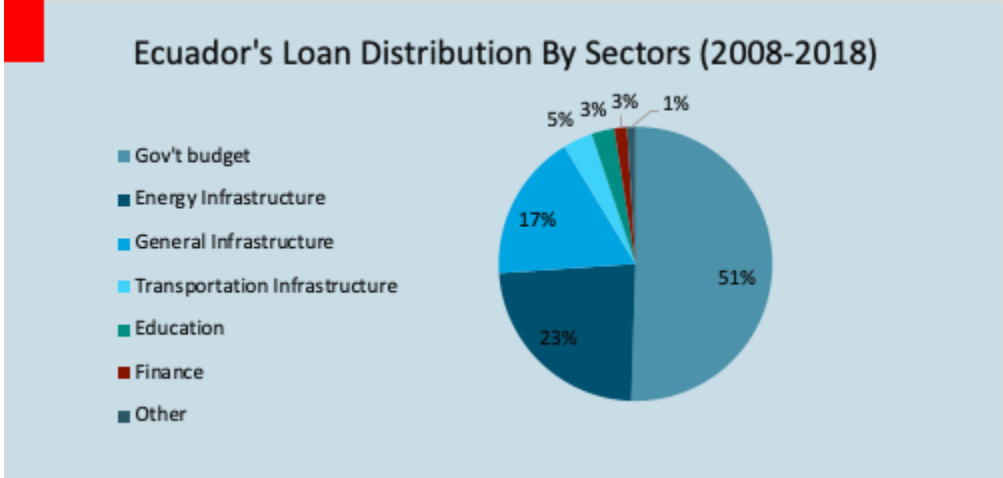
⁹ Data retrieved from the Ecuador's Public Debt Statistical Bulletin. <https://www.finanzas.gob.ec/deuda-publica/>

of Chinese loans before 2007, it is fair to say that the signature of credit agreements began during the Rafael Correa presidential term. During the last decade, at the peak of the financial relations between the two sovereigns, China held 42% of Ecuador’s the total external debt. More recently, the reduced frequency of loan agreements and some early payments made by Ecuador reduced the importance of China in the external debt (currently holds around 19% of it).

The loans were used mainly for financing the public budget and developing energy projects.

First, they covered the periodic funding needs that the Ecuadorian government had. For instance, 50% of the loans awarded between 2008 and 2018 were destined to finance the Annual Investment Plan, and it was not until very recently (2018) that the government publicly announced that the loans of China were supposed to cover the fiscal needs of the next years (Public Debt Statistical Bulletin, December 2018). The second largest sector that received loans was the infrastructure for energy. In this case, there are five loans officially registered that equal 23% of the total amount of loans from China. Among them, we find different investments in both the generation and transmission of hydraulic energy, in a context of a broader plan from the Correa administration to diversify the energy matrix and ensure enough supply of energy for the future. The largest loan is, by large, the credit for the construction of the Coca-Codo Sinclair hydroelectric project (USD 1.7 Billion).

Figure 12: Ecuador’s Loan Distribution by Sectors (2008-2018)



Analysis of the Financing Flows from China

China Development Bank (CDB) and China EximBank are the largest lenders, and loans are fair to slightly cheap under a market-based interest rate comparison. From 2010 to 2018, 26 credit agreements have been negotiated with China for a total of \$13.6 billion (Data source: Ministry of Finance, Ecuador). The China Development Bank (CDB) has been the largest lender with a total of \$8 billion, followed by the China EximBank with a total of \$3.5 billion. More than 60 percent of Chinese loans have an interest rate larger than 6 percent and over 50 percent of

Chinese loans have a no more than eight-year term. The interest rates and terms of Chinese banks are less attractive than those provided by other development banks and international organizations, whose interest rates typically vary from 2 percent to 4 percent and from twelve to twenty-five years (Peters et al., 2018). However, compared with the market interest rate, these loans are still cheaper. (See the table below, here we use the EMBI + US 10-year treasury rate to estimate the market interest rate). Another point is that loans issued by China EximBank are usually lower than loans issued by China Development bank. That's because most loans issued by EximBank are used for large hydropower projects which are construct by Chinese companies.

Table 3: Chinese Loans to Ecuador

Year	Lender	Amount (\$ Million)	Interest Rate	EMBI+US Treasury 10-year
2010	China EximBank	1683	6.90%	12.47%
2010	China Development Bank (CDB)	1000	6.00%	12.47%
2011	China Development Bank (CDB)	1400	7.16%	11.02%
2011	China Development Bank (CDB)	600	6.25%	11.02%
2011	China EximBank	571	6.35%	11.02%
2012	China Development Bank (CDB)	1400	7.19%	9.94%
2012	China Development Bank (CDB)	300	7.19%	9.94%
2012	China Development Bank (CDB)	300	6.87%	9.94%
2013	China EximBank	80	2.00%	8.72%
2013	China EximBank	312	LIBOR a 6 Months +4.00%	8.72%
2013	Bank of China Limited and Deutsche Bank China	299	LIBOR a 6 Months +3.50%	8.72%
2014	China EximBank	509	LIBOR a 6 Months +4.20%	7.64%
2014	Bank of China Limited and Deutsche Bank AG	312	LIBOR a 6 Months +3.50%	7.64%
2015	Bank of China Limited and Deutsche Bank AG	86	LIBOR a 6 Months +3.50%	12.09%
2016	Industrial and Commercial Bank of China Limited (ICBC)	970	LIBOR a 3 Months +6.20%	11.82%
2016	China EximBank/ Shanghai Pilo	198	3.00%	11.82%
2016	China Development Bank (CDB) Loan "A"	1500	7.50%	11.82%

2016	China Development Bank (CDB) Loan “B”	500	6.70%	11.82%
2016	China EximBank	103	3.00%	11.82%
2016	Bank of China Limited	167	LIBOR a 6 Months +3.50%	11.82%
2017	China Development Bank (CDB) Loan “A”	120	6.50%	8.54%
2017	China Development Bank (CDB) Loan “B”	80	6.50%	8.54%
2017	Industrial and Commercial Bank of China Limited (ICBC)	150	LIBOR a 3 Months +6.20%	8.54%
2018	China Development Bank (CDB)	675	6.60%	9.30%
2018	China Development Bank (CDB)	223	6.20%	9.30%
2018	China EximBank	69	2.00%	9.30%

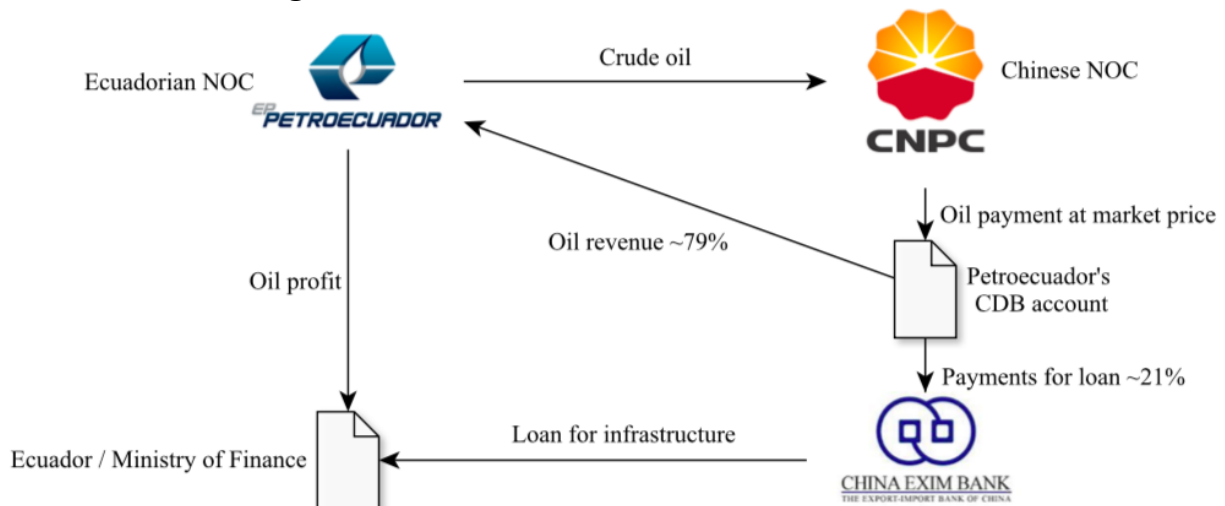
Most Chinese loans have between a two to four years grace period include conditionalities such as hiring Chinese companies and oil repayment. Most Chinese loans have between a two to four year grace period. Loans for infrastructure projects (hydroelectric plants and dams) have the highest grace periods because the estimated time for these projects to start generating profits (hydroelectric) or allow savings in the face of flood disasters (hydro canals) was considered to be longer than other projects. According to the grace period, hydroelectric financing began to be paid in 2015 (Sopladora) and the first semester of 2017 (Coca Codo Sinclair and Minas San Francisco) (Peters et al., 2018).

Many Chinese loans have conditionalities on either hiring Chinese companies and labor or oil repayment. China generally makes three types of loans to Ecuador: 1) public debt loans for construction of infrastructure projects (mostly hydropower, but also in the transportation and education sectors) whose financing package is conditional on hiring Chinese companies, labor, equipment, supplies, and technology; 2) freely available public debt loans, whose financing is not conditioned, and are freely available for use; and 3) financial advances for the sale of oil, which officially do not meet the definition of foreign debt because their payment is given in advance through commitments to buy and sell oil (Peters et al., 2018).

To explain more on the oil-backed loans, as Alves (2013) states, contrary to popular belief, oil-backed loans are not repaid through oil shipments. Rather, they are guaranteed by the proceeds of oil sales, which are required to be deposited into the borrower’s account as a means of guaranteeing repayment. A certain amount of oil normally set in barrels per day (BPD) throughout the loan repayment period is sold to a specified Chinese national oil company (NOC), usually the China National Petroleum Company (CNPC). The Chinese NOC is required to deposit the payment in the borrower’s account with the Chinese lending institution e.g. China Exim Bank,

which is then used to service the loan. This arrangement allows China to limit lending risks, it also serves China’s energy-security purposes by ensuring a continuous flow of oil over the repayment period. For the case of Ecuador, CNPC deposits 79% of the oil revenue into Petroecuador’s CDB account and diverts the remaining 21% to pay back the loan (Crooks and Rodriguez Pons 2011). The mechanics of the oil-for-loan are depicted below.

Figure 13 Oil-backed-loan Mechanics for Ecuador



Case study

Overview of hydro projects in Ecuador

During past years, China helped Ecuador finance approximately \$3 billion to build seven of the eight hydro projects built by Chinese firms: Coca Codo Sinclair, CCS (1,500 MW), Sopladora (487 MW), Minas-San Francisco (270 MW), Toachi-Pilatón (254 MW), Delsintanisagua (180 MW), Quijos (50 MW), and Mazar-Dudas (21MW) as well as one wind power project, Villonaco (16MW) (Peters et al., 2018). Generally speaking, Chinese investment in dams and power plants contribute a lot to Ecuador’s energy transition. The sum of the hydroelectric energy production of the mentioned projects aimed to add 2,762 MW to the Ecuadorian energy matrix by the end of 2017. This would not only double the electricity capacity installed in the country but also diversify the sources of electricity, because while in 2006, 53 percent was hydroelectric and 46 percent thermal, by 2018, 90 percent is expected to be hydroelectric and only 8 percent thermal (National Energy Agenda, 2016). Also, new hydropower projects are presented as a way to generate extra income for Ecuador through reducing the imports of refined petroleum products and from exporting electricity. Moreover, these projects increase labor employment and provide social programs to the local people.

However, there are also several side effects of these projects. The large hydropower projects, especially tropical hydropower projects, bring environmental risks. Moreover, in all hydroelectric projects there is a variation between the original estimated cost and the final cost. The projects with the lowest percentage increase are Coca Codo Sinclair (7 percent), Sopladora (9 percent), and Toachi Pilatón (14 percent); while the projects with the highest increase are Manduriacu (68 percent) (the only project built and financed by Brazil), Mazar-Dudas (66 percent), and Delsitanisagua (55 percent) (Peters et al., 2018). Also, some projects turn out to have technical deficiencies and delay in the schedule. In addition, Ecuador now faces the problem of overproduction of electricity. It has excess electricity that was destined for export to Columbia and Peru in the last several years, however, since Columbia and Peru are promoting and developing hydro projects as well, they may not need electricity import anymore in the future.

Coca Codo Sinclair project

The Coca Codo Sinclair (CCS) is the biggest hydropower project in Ecuador and was inaugurated in November 2016 by Presidents Correa and Xi Jinping. The project aims to produce 1,500 MW of electricity. The project consists of a system of 25km of tunnels built up to 500 meters under the mountains. These tunnels are projected to transport approximately 220 cubic meters of water per second and channel it through two pressure pipes 620 meters long to the engine room, where eight generators will produce 1,500 megawatts of electricity. The entire project occupies an area of 3,600 square kilometers.

The project generates many benefits to Ecuador. According to CELEC EP, the construction of CCS has benefited the population affected by the project in Napo and Sucumbíos with a total investment of US \$25 million towards conservation, health, education, sanitation, social and economic programs, electricity, infrastructure and roads. Former Minister of Electricity and Renewable Energy of Ecuador, Esteban Albornoz, asserted that the project would save Ecuador US \$600 million per year (El Telégrafo, 2016). In terms of environmental impacts, CELEC EP argues that the project can reduce CO₂ emissions by 3.45 million tons per year, or 4.43 million tons according to President Correa (CELEC EP/Coca Codo Sinclair website). Therefore, it can displace inefficient thermoelectric generation, which is equivalent to the pollution produced by 2.2 million light vehicles (Saturday Weekly Broadcast No. 416, 2015).

However, the project also faces various drawbacks. Firstly, the aimed 1500 MW capacity cannot be fully produced. In an October 2015 interview, Ecuadorian technical personnel at the project site pointed out that “power capacity and the dates to finish the project are more political declarations than reality, indicating that CCS will have a stable production of 800 MW, and for only 4 hours a day will be able to generate 1,500 MW (Garzón, Salazar, and Andrade, 2015). What's more, the project causes environment concerns such as water security and ecosystem

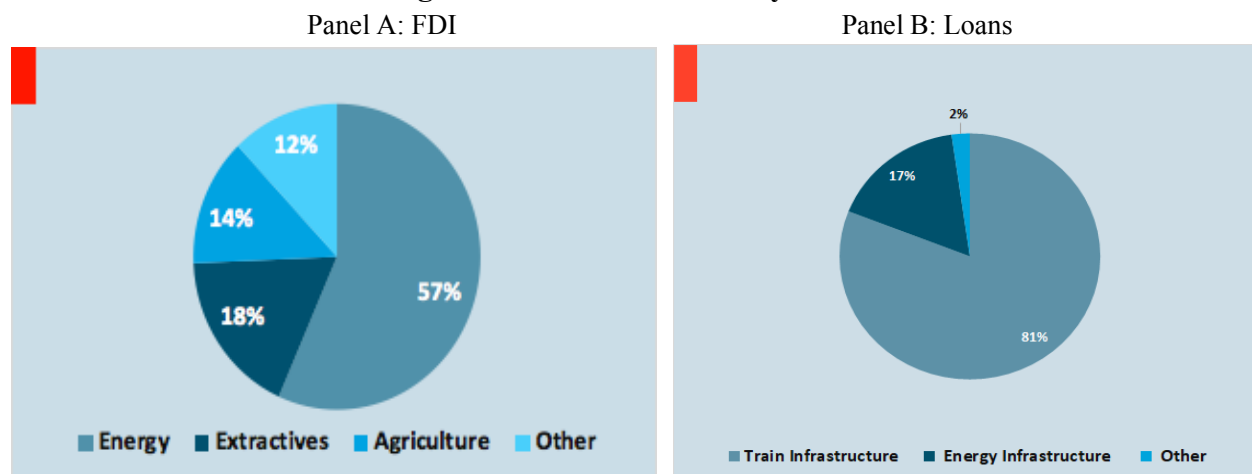
damage. For example, changes in the cycles of sediment discharge may lead to trophic changes and thus affect the reproductive cycles of different species.

Argentina

Between 2007 and 2018, Argentina received an estimated USD 17.9 Billion (3.46% of 2018 GDP) in loans and FDI from China. The size of the FDI is relatively small, adding up to roughly USD 1 Billion over the same period, while bilateral credit conforms the bulk of the financing. The large difference is attributed to Argentina's limited access to capital markets in the early 2000's. However, due to the lack of transparency surrounding dealings with China, it is probable that these figures be understating the total amount of loans and agreements made during the 2007-2018 period.

FDI targets energy and mining sectors, while loans target energy and transportation infrastructure. FDI is of both resource- and efficiency-seeking. Hence, most of the flows between 2010 and 2017 were brownfield investments in the energy sector (57%) and extractive sector (18%) (Figure 14, Panel A). This type of investments tap into the expertise of existing companies and projects with a large operational component. In contrast, loans target projects that have a large construction component. Over the same period, these projects have been concentrates in train and energy infrastructure (Figure 14, Panel B).

Figure 14: FDI and Loans by Sector



Source: *The Dialogue* and *The China Global Investment Tracker*

China Development Bank (CDB) and China Export-Import Bank are the largest lenders, and loans are fair to slightly cheap under a market-based interest rate comparison. From 2010 to 2018, 11 credit agreements were negotiated with China for a total of \$16.9 billion. Exact

amounts from each participating bank are not available, but we estimate that roughly CDB loans accounts for 89% of the total, while China ExIm Bank accounts only for 11% of the total. The latter bank provides loans at a rate closer to those of development banks and international organizations, yet all loans for which data was available were found to be below the market interest rate (Table 4). Specifically, and on average, chinese loans were found to be 416 basis points below market at the time when the loans were extended.

Table 4: Chinese loans to Argentina (2007-2018)

Year	Lender	Amount (USD Million)	Interest Rate	EMBI + US Treasury 10 yr
2007	China Development Bank	30	N/A	7.74%
2010	China Development Bank	30	N/A	10.56%
2010	CDB and others	10,000	L+6%	10.56%
2010	CDB and CITIC	273	N/A	10.56%
2012	China Development Bank	200	N/A	11.68%
2014	China Development Bank	2,500	L+3.8%	9.07%
2014	CDB, ICBC	2,100	7.10%	9.07%
2014	China Ex-Im Bank	162	N/A	9.07%
2017	China Development Bank	150	N/A	6.12%
2017	China Ex-Im Bank	331	3%	6.12%
2018	China Ex-Im Bank	1,100	3%	9.55%
2019	China Development Bank	1,100		7.81%

Note: The EMBI + US 10-year treasury rate was used to estimate the market interest rate

Source: The Dialogue and different sources for the interest rate

Chinese loans come with stringent conditionalities that operate like risk premia and support the Chinese economy. One such conditionality is the cross-default clause that accompanies all agreements. That is, if one project is canceled (i.e. Santa Cruz Dams), the banking conglomerate suspends the financing of all the other projects (i.e.: Belgrano Cargas) (Dussel 2018). A second conditionality is that, depending on the nature of the project, either goods need to be imported from China (i.e.: Belgrano Cargas) or services need to be procured from Chinese companies (i.e.:

Santa Cruz dams). Together, these conditionalities ensure a market for China to export its excess capacity and behave like risk premia.

China is not a dominant lender for Argentina. Although China has become an important lender for Argentina, it only represents 6% of the total external debt for Argentina.¹⁰ Largely, this is due to the recent IMF relief package, which increase the amounts borrowed from multilateral organizations significantly.

Credit Implications- Ecuador and Argentina

Ecuador

Fiscal strength – neutral

- The loans from China are not more expensive than market loans. However, the conditionalities (oil-backed loans and finance tied to construction agreements) are additional features of the loans that are difficult to monetize.
- A positive side from China loans is that it helped Ecuador to finance during a time where capital markets were closed for the country (2009 to 2014).
- With an IMF assistance program on its way, Ecuador could repay the debt with less credit default risk
- Ecuador might try to renegotiate part of its debt agreements with China including terms, interest rates, etc, to release its fiscal stress
- For the long run, Ecuador still needs to improve its productivity to strengthen its fiscal situation

Economic strength: as a balance positive, but long term perspectives are from neutral to negative (especially for energy infrastructure case)

- Investments in other fields such as health, education, sanitation, transportation from Chinese companies during the construction of hydro projects benefit the local economy
- The hydro projects producing excess electricity provides Ecuador another way of exportation revenue, but the exportation might not be sustainable since the export destinations such as Columbia and Peru are also building hydro plants
- The hydro projects cause environmental concerns, which might leads to economic loss
- Projects in the energy sector were mainly financed by loans, and there are increasing doubts that they will be able to attain the ex-ante expected levels of “profitability”/benefits to the population. For instance, capacity could not be fully utilized, construction costs were higher than expected, and maintenance costs might increase in the future.

Institutional strength: negative

- The process for obtaining a credit from China lacks of the several oversight and evaluation steps that other financing strategies have (ie debt issuance, budgeting and presenting to Congress, etc). Hence, the bilateral agreements might have weakened the checks and balances of Ecuador.

¹⁰ Approved lines credit according to *The Dialogue*.

- There are increasing allegations of corruption and bribery in some of the infrastructure projects developed.
- A good thing is that obtaining loans from China kind of reduces Ecuador's credit default risk in the international market, for the fact that Ecuador defaulted its loans in 2008

Event risk: neutral to negative

- Heavily reliance on China increases Ecuador's external vulnerability, with Chinese economy slowdown, China might require less import from Ecuador or refuse to renegotiate the loans (although with IMF program, Ecuador now has the last resort)

Argentina

Fiscal strength – Neutral

- The loans from China have been cheaper than the market loans when they were approved. However, they have conditionalities of purchase of Chinese trains and machinery from CNR (China Northern Locomotive & Rolling Stock Industry) and CMEC (China Machinery Engineering Corporation). These conditionalities could be the reason of cheaper funding, but overvalued or low-quality purchases will require more spending in the future increasing the real cost of the interest rate. Also, it could affect the fiscal deficit of the Government.
- A positive side from China loans is that it helped Argentina to finance during a time where capital markets were restricted for the country (2003-2015). Ninety percent (91%) were given during this period. After 2015 Chinese loans are one more option to get funding in the foreign markets diversifying the base of lenders.
- The swaps signed with the People's Banks of China in 2017 and their complementary in 2018 for \$10.375 and \$8.7 million¹¹, respectively, increased the foreign reserves of Argentina to finance current account deficit and private outflows. At December 2018, Chinese swaps represents 29% of the total gross international reserves¹².
- The IMF assistance given in June 2018 for \$50billion and extended for \$7bn in Sep 2018 have allowed Argentina to reduce the strains in the balance of payments and building foreign reserves to make the country less vulnerable to capital outflows and making sustainable and solvent in the long term to pay their debts included the Chinese Loans. Argentina must improve their primary deficit in order to reach a sustainable debt in the long term.
- Chinese loans represent only 6% of the total external debt (2018),¹³ which makes China one more lender over a broader of lenders.

Economic strength: as a balance positive to neutral

¹¹ Both mature in 2020 but it could be renewable.

¹² We consider the total amount of the swap agreement and not the activated amounts.

¹³ We use approved lines (The Dialogue)/total external debt (IMF)

- Argentina has deficit of infrastructure of \$26bn¹⁴ (4% GDP, 2018). So, the Chinese loans are mostly infrastructure, which could increase the economic growth in the long term.
- Improvement in the commercial trade. The investment in railways is going to improve competitiveness in the agriculture sector due to this is going to connect the products in the provinces to the main ports in Argentina.
- Some infrastructure projects could have more costs than benefit i.e. Hydroelectric dam Santa Cruz. According to some estimations,¹⁵ this project only would produce 8% of all the electricity produced in Argentina, but the environmental damages in the water and the nature could be higher than the benefit.
- The conditionalities on the loans on purchases of Chinese technology reduces the impact of the investment in the domestic economy.
- Argentina is a direct competitor in the exports of manufacturing products to the world, the increasing trade deficit and the concentration of the basket of exports to China, mostly soybeans, could reduce their manufacturing share even more and allocate as an exporter of commodities.

Institutional strength: negative

- The credits obtained for Argentina lack transparency. There is no publicly available information about the characteristics of the loans. This weakens the checks and balances system, keeps the financing vulnerable to corruption and difficults any assessment of the true Argentinian liabilities to China.
- The conditionalities of the loans restricts the action of the government to make an auction and get the best option in terms of price and quality to buy railways or hire companies to develop the projects in infrastructure.

Event risk: neutral to negative

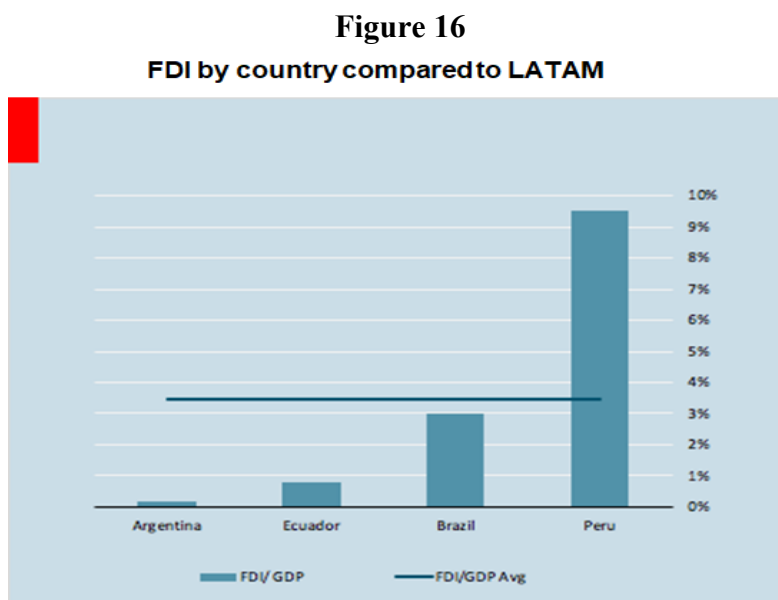
- The Chinese loans have cross-default clauses which aim to prevent the cancellation of any one project. As much as this measure is stringent, it also ensures continuity despite a change in government.
- Reliance on Chinese loans and swaps lines increase the vulnerability of Argentina to renegotiate the conditions of the loans.
- Overall economic dependence on China, on trade, loans and swap lines, is large. Hence, Argentina may suffer if Chinese growth slows down significantly.

¹⁴ Katerina Labrousse and Joseph Losavio. "How Argentina Aims To Bridge Its \$358 Billion Infrastructure Gap As Investors Hesitate To Return". November 30, 2018. <https://www.forbes.com/sites/worldeconomicforum/2018/11/30/how-argentina-aims-to-bridge-its-358-billion-infrastructure-gap-as-investors-hesitate-to-return/#4735ea8d6d69>

¹⁵ Sergio Federovisky. "Represas en la Patagonia: un proyecto que amenaza glaciares y un ave única en el mundo". January 14, 2019. <https://www.infobae.com/tendencias/ecologia-y-medio-ambiente/2019/01/14/represas-en-la-patagonia-un-proyecto-que-amenaza-glaciares-lagos-y-un-ave-unica-en-el-mundo/>

V. Cluster analysis: countries where FDI outweigh Loans. Brazil and Peru

Brazil and Peru are the second cluster of countries under analysis, due to their above-the-average relative size of FDI received from China. For instance, we compare the relative size of the loans for the average country in Latam for the last decade, and find that Brazil and Peru exceed this benchmark (See Figure 15).



Source: IMF, Moody's, Investment Tracker

Financial Flow Analysis

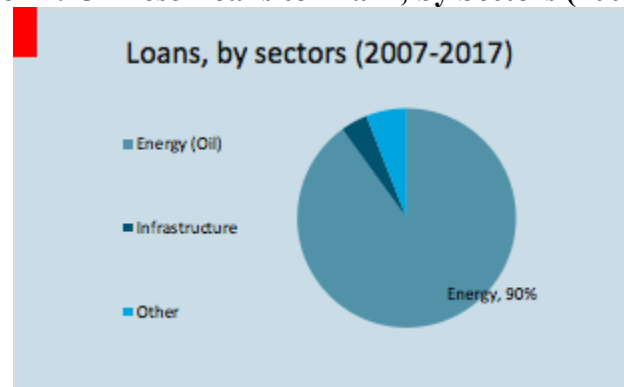
Brazil

Investments by China : FDI outweighs Loans

In the last decade, Brazil received 29 USD billion in loan and 57 USD billion FDI (3.0% of 2018 GDP) from China. And graph 16 below shows the flow of FDI and loans in the last decade. Within Latin America and Caribbean region, while Brazil is the largest received of FDI from China in absolute terms, the amount relative to its large GDP is small.

Brazil's external financing requirement are well met in the global markets owing to the strong external sector. Thus, its need for loans from China are limited. The loans from China are concentrated in the energy sector (90%), specifically oil sector. Further, the main borrower is Petrobras, Brazil's semi-public multinational corporation in the petroleum industry. Petrobras received 10 billion US dollars loans from China's Development Bank (CDB), primarily for supporting oil production and technology development.

Figure 17: Chinese Loans to Brazil, by Sectors (2007-2017)



Source: *the Dialogue*

While information on the details of loans were unavailable, select information on the loans to Petrobras was available from Petrobras’s balance sheet. The loan by Petrobras came in the midst of a period where the company was mired in Operation Carwash, Brazil’s biggest corruption investigation. During this¹⁶ time, the scandal coupled with the fall in crude prices led to higher borrowing costs for Petrobras in the international debt markets. During this period, access to loan from China at a concessional rate, but backed by a simultaneous oil sale agreement to China was a win-win for both parties. The interest rate charged by CDB was Libor + 280 bp, marginally higher than the rates provided by the World Bank but lower compared to the market price at that time. The loan is backed by an oil purchase agreement at market price, which would both secure China’s oil supply and protect China from any potential default by Brazil.

Brazil is the largest recipient of FDI from China in LAC in absolute terms. While trade remains the driving bond, in the last eight years, in sync with China’s Going Global Strategy, FDI investments by China into Brazil are also increasing.

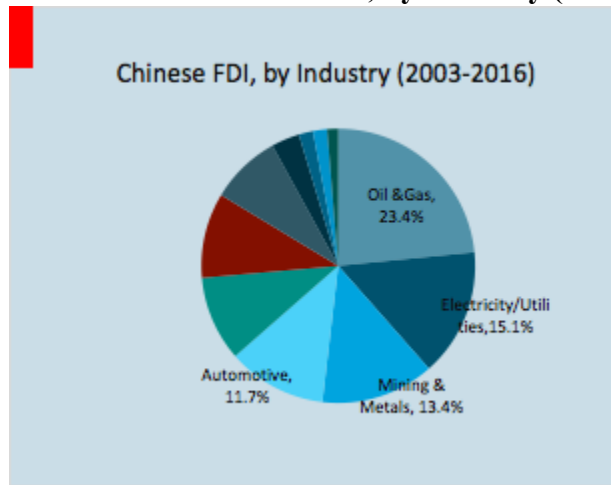
China is not a dominant FDI investor in Brazil. That said, owing to Brazil’s closed economy and high domestic consumption potential, Brazil attracts FDI into services and industry sector, from various countries. As per a report on FDI in Brazil by Brazil’s Central Bank, FDI by China in 2016, on an ultimate investor country basis ranked 13th, reflecting the diverse FDI investors in Brazil.

FDI : Sector & Trends Analysis

A sector analysis of the FDI (stock) by China into Brazil reveals that FDI is focused in oil, alternative energy, mining and electricity.

¹⁶ More details information are shown in table 2 in Appendix.

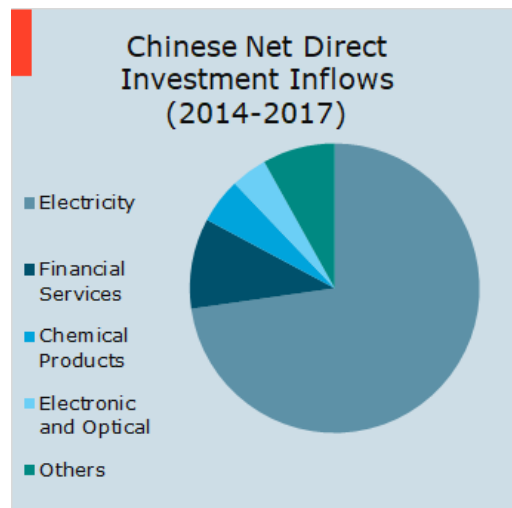
Figure 18: Chinese FDI to Brazil, by Industry (2003-2016)



Source: the Dialogue

However, a trend wise analysis reveals a shift in the trend of FDI investments. In the 2003 to 2012 period, China's FDI into Brazil were concentrated in extractive industries i.e. oil, energy and mining. However, in recent years, FDI has moved towards service sector viz electricity infrastructure, financial services and consumer goods. In particular, 72% of the FDI from 2014 to 2017 has been into Brazilian electricity sector.

Figure 19: Chinese Net Direct Investment Inflows (2014-2017)



Source: Investment Tracker

The move towards services sector is reflective of two key interests that drive FDI from China into Brazil :1) appeal of creating a presence in Brazil's domestic market 2) export China's expertise and industrial capacity at a time that its own economy is slowing down

Case Study

China's investments in electricity grids: in Brazil and the World

China's State Grid has invested more than \$21bn to become the biggest power generation and distribution company in Brazil. It has committed to invest an extra \$38bn in investment over the next five years.

In addition to Brazil, China is providing its technology in the distribution and transmission of power to different parts of the globe viz Laos, Pakistan, Portugal, Russia, Chile, Nigeria, South Africa amongst others. This global expansion is in line with Beijing's goals of expansion and being a global standard setter as China eyes its role as a global power supplier.

Specifically in Brazil's electricity sector, China is investing in ultra high-voltage transmission (UHV) technology, which transmits electricity over vast distances at sharply reduced cost.

UHV allowed China to binge on dam building in its mountainous hinterland, then transport the power thousands of kilometers to its wealthy, industrial east coast. The same is being replicated in Brazil and the first UHV line built by the China outside the country runs 2,000km from the Belo Monte hydropower dam in the Amazon region to cities in the south of Brazil.

Peru

Between 2008 and 2018, Peru received around 22.7 billion USD (10% of 2018 GDP) in loans and FDIs from China. Among these financing flows, FDI has significantly outweighed Chinese loans, with a total FDI stock of USD 22.6 Billion. FDIs outweigh loans mostly resulted from China's main interest in Peru, which is to secure the stable resource supply in mining. FDIs would give China more benefits in extractive industries by having direct control over the natural resources. A reflection of its interest in Peru's resources is the fact that Peru is the second largest FDI destination in Latin America for China.

There are barely any outstanding Chinese loans in Peru. In fact, according to The Dialogue, there were only two loans in Peru by 2017, all granted by China development Bank, with a total volume of 478 million USD. Peru has never been a major recipient of Chinese policy bank lending, despite being a top destination for Chinese foreign direct investment. However, it received a second-ever loan from CDB in 2017 to develop the San Gabán III hydroelectric plant, one of four dams planned in Peru's San Gabán river basin. Chinese banks still refrain from imposing policy conditions on loan recipients, although finance is often contingent on the use of Chinese construction firms and equipment. Major Chinese companies such as Sinopec, China Harbour Engineering Company, China Three Gorges Corporation, and China Power were all linked to China's state-to-state loans to LAC in 2017. Hydro Global Peru, which will build Peru's San Gaban plant, is composed of China Three Gorges and Energias de Portugal.

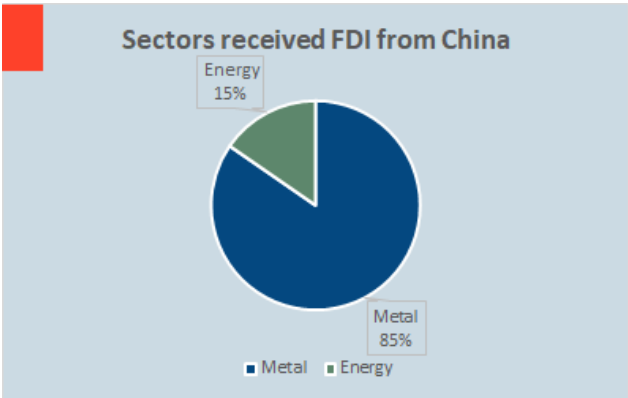
FDIs from China are concentrated in mining, not appearing to be either the best or worst in the country. Most FDI flowed to the mining and energy sector, with 85% devoted to mining. FDI flows are fluctuating over the years, with the greatest flow seen so far in 2014, a total value of 7 billion USD from Minmetals, Suzhou Guoxin, and CITIC. Overall, FDIs flows are gradually increasing compared to previous years.

The reason for an overwhelming ratio of FDI to loans is explained by the fact that China and Peru's investment relationship mainly focus on the mining sector. FDI enabled Chinese companies to directly set up mining companies and get first-hand access to the natural resources.

Peru's trade and investment relationship with China is overwhelmingly concentrated in the mining sector. Peru is well-positioned to oversee a positive mining-based relationship with China, having recently taken several important steps to increase transparency and accountability in this sector. They have been regional by joining the Extraction Industry Transparency Initiative(EITI) and becoming the first Latin American government to implement ILO Resolution 169. In 2014, Chinese mining firms have demonstrated their commitment to these standards by joining the EITI program in Peru.

Overall, Chinese way of doing business in Peru is not significantly different from other foreign investors. Chinese mining firms do not appear to be either the best or worst in the country. While in some cases where Chinese firms have failed to meet environmental and social responsibility standards, responsibility must be shared between missteps on the part of firms as well as the reluctance or inability of the government to enforce these standards. However, there are important, positive signs that Chinese investors and Peruvian regulators are willing to work together to improve this record. Furthermore, after the incident the Association of Chinese Companies in Peru asked the Ministry of the Environment (MINAM) for training on local environmental regulations. That type of training for foreign investors could provide yet another opportunity for Peru to lead the region in its proactive framework for mining.

Figure 20: Chinese FDI in Peru, by Sector



Source: Investment Tracker in Inter-American Dialogue

Table 5

China's FDI in Peru					
Year	Investor	Quantity in Millions	Transaction Party	Sector	Subsector
2007	Zijin Mining, China Nonferrous, Xiamen C&D	\$ 190	Monterrico	Metals	Copper
2007	Chinalco	\$ 790	Peru Copper	Metals	Copper
2007	Minmetals, Jiangxi Copper	\$ 450	Northern Peru Copper	Metals	Copper
2008	Chinalco	\$ 2,160		Metals	Copper
2009	Shougang	\$ 990		Metals	Steel
2009	Najinzhao	\$ 100	Cardero	Metals	Steel
2010	Minmetals	\$ 2,500		Metals	Copper
2013	CNPC	\$ 2,890	Petrobras	Energy	
2014	Minmetals, Suzhou Guoxin, and CITIC	\$ 6,990	Glencore	Metals	Copper
2017	Shougang	\$ 500	Hierro	Metals	Steel
2017	Three Gorges	\$ 1,390	Odebrecht	Energy	Hydro
2018	Chinalco	\$ 1,300		Metals	Copper
2018	Zhongrong Xinda	\$ 2,360	Pampa de Pongo	Metals	Steel

Source: China Investment Tracker

Case study

Overview of Chinese investment in natural resources in Peru

Peru has been one of Latin America's most important economic success stories over the last decade, by achieving sustained growth under political democracy, cutting poverty in half and producing an expanding new middle class. These results have been driven in large part by global demand for the minerals and other primary commodities that Peru exports

Peru has plenty of natural resources like copper, oil and natural gas that are precisely the sectors which Chinese have invested greatly. While investors from more than 30 countries are involved in Peru's mining industry, China has become the leading market for these resources and Chinese demand for them is credited with helping Peru weather the 3 financial crisis of 2008. Peru is considered the leading location for Chinese mineral investment in Latin America, and Chinese firms hold around 30 percent of the country's total mining investment portfolio. Chinese companies' investment in copper mines allows them to produce 1/3 of the copper production in Peru. Also China National Petroleum Company produces about 40% of all the natural gas produced in Peru. Chinese firms also have an important presence in Peru's hydrocarbons and commercial fishing sectors. In recent years, China has shown interest in investing in other sectors like infrastructure and energy. For example, China proposed the construction of the Bi-oceanic Railway, a project that is in standby.

Las Bambas project

Las Bambas is a large, long-life copper mine located in Cotabambas, Apurimac region of Peru. In the year 2014 a Chinese group led by Mineral and Metal Group (MMG) bought the copper project Las Bambas, paying US\$5.85 billion (the biggest foreign investment in Peru up to now).

In December 2015 Las Bambas achieved a significant milestone with the production of first copper concentrate as part of commissioning activities for the mine. First shipment of copper concentrate to customers departed the Port of Matarani in January 2016. Las Bambas completed construction in the first quarter of 2016, and continues to progressively ramp-up with commercial production achieved on 1 July 2016. It is one of the world's largest copper mines, with an annual nameplate throughput capacity of 51.1 million tons. Las Bambas produced 453,749 tonnes of copper in copper concentrate during 2017, and is expected to produce between 375,000 to 395,000 tonnes of copper in copper concentrate in 2018.

As a profitable project, it made a contribution to Peru's GDP growth in 2016 estimated at 1.5%, and it is predicted that this contribution will continue at least in the next 20 years. Las Bambas also helps to boost local employment: 8,294 employees and contractors are working for this project, 21% of employees from Apurimac region. Besides, the project company tried to make contributions to local communities. Only in 2016, US\$25.3 million was spent on social development.

This project also aroused some concerns about environment disruption and local conflict. It uses 800 liters of water per second from the nearby Challhuahuacho River and developers will construct a 4.2 million cubic meter reservoir to serve it in the dry season. Locals in the region are concerned that the copper mine project will cause environmental damage to the Andean area. That's why several protests happen in the last years. On 29 September 2015, an estimated 15,000 people gathered to protest against the project. Peruvian authorities sent 1,500 police officers and 150 soldiers to the area. Several hundred demonstrators attacked the mine installations and clashed with police, who responded with tear gas. The protest escalated, after law enforcers opened fire on protesters, killing four of them.

Credit Implications of Loans and FDI-Brazil and Peru

As we analyse the credit implications of FDI by China into Brazil, it is noted that the very nature of an equity infusion/FDI implies limited credit risk implications since the same does not lead to a debt burden and hence has no implications on the debt obligations of the sovereign. However, an analysis of the FDI in Moody's four pillar framework helps us to analyse the impact of the FDI on Brazil.

Brazil: Overall Neutral

Neutral / Positive to Economic Strength

- China's investment into Brazil is a miniscule amount, when seen in the context of the large size of Brazil's economy. Thus there is neutral impact of the FDI on Brazil's economy.
- Brazil's spending on infrastructure and general spending at the state level is constrained owing to the country's large fiscal deficit. In this context, China's FDI into infrastructure, even if a small amount, is a positive.
- In this context, China's investment in the electricity sector of Brazil is a positive for the Brazilian economy. But since the relative size of investment is small, the overall impact is muted.

Neutral to Institutional Strength

- In Brazil-China equations, while Brazilian institutions face the challenge of corruption and government effectiveness, there is political competence to ensure that the Chinese investments is guided in projects that are also productive for Brazil.
- In Brazil, the involvement of China in extractive industries and/or dams has been associated with flouting of environmental norms by China. In this respect, China's actions are in line with most players in the sector. While China can set higher standards for environmental norms for its projects, the onus for setting clear environmental laws and ensuring adherence to the same lies with the sovereign. In this respect, the current Bolsonaro administration may not be as committed to the environment as the previous governments.

Fiscal Strength

- The loan amount from China to Brazil is 1.5% of GDP. The same is miniscule and in general Brazil's external debt to GDP is also healthy, when compared to its peers. In the context of the debt burden being small and debt affordability being strong (owing to strong external sector), the credit implications of the loan are neutral.

Neutral to Event Risk

- While the President Bolsonaro did make anti-China remarks in his remarks in the run up to the election, post his coming to power, he has taken a more rational approach of China. China and Brazil have deep economic ties and this interdependence is likely to prevent any political backlash between these two countries.
- We conclude that there is neutral impact of Event Risk.

Peru

Economic Strength: neutral to positive, but may not be sustainable in the long-term.

- As the top recipient of Chinese FDIs in Latam and the trend of FDI flows, Peru is expected to receive more investment through Belt and Road Initiative in the future. FDIs improved local economy by increasing production and offered many job positions.
- However, since 85% of FDIs are concentrated in mining and nothing in infrastructure or third-industry service, the improvement in economic strength is doubted to be sustainable.
- The FDIs flows largely depended on China's needs towards mining and energy, if China changes its strategy and requires less resources, this would largely reduce the related FDIs.
- Limited infrastructure investment has been one of the main reasons of Peru's low productivity. Without further plan of introducing more capitals into infrastructure and high-net-worth industry, there is still doubt about the sustainability of economic development.

Fiscal Strength: neutral, since direct influence in fiscal sustainability is limited.

- Government of Peru is rated A3 by Moody's, which is a preferable rating among Latam countries. The lack of loans indicates that there is limited direct influence from Chinese investment on the fiscal strength and the debt sustainability.
- However, the strong fiscal strength was partly due to the low national debt and government spending, which is not an ideal situation based on the low implementation rate of infrastructure program. It's suggested that Peru should increase its government spending and enhance the infrastructure development.

Institutional Strength and Event Risk: neutral with some specific concerns

- The most relevant event risk caused by China's investment is the possible threat from the U.S. Like other Latam countries, some projects in Peru are under the support of IMF and World Bank, which are actually under the control of the U.S.
- The acceptance of large amount of capitals from China may result in sanctions from the U.S. and suspense in the present projects.
- From an economic standpoint, a strong dependence on Chinese market will make Peru more susceptible to macroeconomic risks in the Chinese economy. Over the past decade, such risk was only mild since Chinese economy expanded rapidly. However, the recent economic slowdown in 2018 largely reduced China's domestic demand.
- Yet scholars and analysts argue that China still has good fundamentals. The above shock mainly attributes to policy changes in 2018 and are temporary. In fact, China tightened regulations on local government debt and commercial banking sectors to maintain financial stability. Meanwhile, market liberalization and tax reforms overall also came as a negative shock to many private enterprises, but the government remains positive and claim that these are necessary measures to transform into healthy growth momentum, yet Peru's risk exposure for now is indeed in a greater level.

Credit Implication in the near term tends to be neutral to positive. BRI shows a potential for positive impact on Peru. This is largely due to Peru's institutional strength, as well as its political stability. One risk to bear in mind, though, is the excessive dependence on China's mineral demands. Though the Chinese government is optimistic about the country's economic growth, it remains to be seen whether China's recent policy reforms will turn the country to a sustainable growth model or send its economy spiraling down, causing vital and external shock to Peru's export volumes.

VI. Conclusion

Overall, Chinese financing has neutral credit implications for the four countries surveyed in Latin America. The varying results observed both within the region and outside of it reflect each country's internal dynamics. In response to this concern China has published a Debt Sustainability Assessment Framework. Because this guideline is not compulsory, its implementation ultimately depends on each country's decision.

Initial conditions matter because China behaves like a corporate state. In line with its development goals, Chinese financing seeks the largest return to its investment and targets key sectors as outlined in the Made in China 2025 and Belt and Road Initiative Framework. In this context, it is important for recipient countries to identify their own development needs and capacity and channel financing from China into projects which are equally beneficial for the country.

Internal dynamics have shaped a heterogenous form of financing in Latin America. China has approached Latin America both through FDI and bilateral loans. All four countries surveyed received resource-seeking FDI. Yet, FDI outweighs loans only in those countries that have strong fundamentals. FDI targets primarily the extractive sector and projects with large operations component. Conversely, loans target the energy and transportation sectors and projects that have a large construction component. The countries where loans outweighs FDI have had limited dollar funding and weak external sector strength.

BRI terms of loans are fair despite their stringent conditionalities. Controlling for country and year, the lending rate for each loan was found to be below that which could have been offered by the market. Specifically, the lending rate was on average 429 basis points below market for Argentina and 321 basis points below market for Ecuador. However, these loans come with stringent conditionalities such as oil-backed agreements, import of Chinese equipment, and cross-default clauses. We find that these conditions act as risk premiums.

BRI has the potential for long-term economic gains. The large scale infrastructure projects could help bridge the critical infrastructure gap in each country. We see this potential in the

upgrading of the Belgrano cargo trains system and in the upcoming implementation of the Port of Chancay, both of which could strengthen Argentina and Peru’s export capacity, respectively.

But BRI may also amplify inherent credit risks of countries with weaker fundamentals. If a project is misaligned with a country’s development needs or if a project’s implementation is inefficient, the lower than expected return on investment could put pressure on a country’s debt sustainability. We find initial signs of concerns in the case of the Coca Codo hydroelectric dam in Ecuador, where the actual energy generating capacity fell short.

Transparency and socio-environmental concerns remain, especially for countries with weak institutional capacity. The secrecy surrounding the bilateral agreements hampers the checks and balances system in every country and increases the difficulty of assessing the overall liabilities to China. Such an environment facilitates corruption for countries with weak institutions. Similarly, Chinese investment has been surrounded by socio-environmental conflicts. However, these conflicts precede Chinese investment in the region and reflect a country’s weak institutional capacity to enforce environmental regulation and/or resolve social conflicts. Nevertheless, in response to this concern China published a Green Investment Guidelines in the second BRI Forum in April 2019.

In assessing the credit implications of Chinese investment, the two most important factors are a country’s fundamentals and the size of its exposure to China. If a country has strong fundamentals and a low share of Chinese loans, then a project’s return on investment becomes secondary. This is the case of Brazil and Peru, for which we actually find potential for economic gains. If fundamentals are weak but the size of exposure is small, then the projects’ return on investment become more important; such is the case of Ecuador and Argentina. None of the countries assessed are in a situation similar to the Sri Lankan benchmark case, where all three indicators raised red flags.

VII. Appendix

Table 1: Main Bilateral Agreements between Ecuador and China (2007-2015)

#	Year	Agreement	Area
1	2007	Agreement of Cooperation in the Hydrocarbon Sector, between the Mining Ministry of Ecuador and the State Commission of Development and Reform of China 2007 - 2012	Mining
2	2009	Opening of Ecuadorian chambers of commerce in Shanghai and Guangzhou	Commerce

3	2010	Commercial Agreement for the construction of the Toachi Pilatón Hydroelectric Plant	Energy
4	2011	Financing Agreement of Phase II for investment projects in Ecuador	Infrastructure
5	2011	Agreement for the construction of the Villanaco Project	Energy
6	2011	Commercial Agreement for the trans Andean railway rehabilitation project	Commerce
7	2011	Commercial Agreement for the construction of the Delsitanisagua Hydroelectric Power Plant	Commerce
8	2011	Agreement of Economic and Technical Cooperation between China and the Republic of Ecuador	Economy
9	2011	Agreement for the construction of two Hydroelectric Projects: Mazar Dudas and Quijos	Energy
10	2011	Agreement for the construction of the "Minas San Francisco" Hydroelectric Project	Energy
11	2011	Contract to develop the 96MW Esmeraldas II power plant	Infrastructure
12	2011	Contract for the second phase of the implementation of the Integrated Security Service project ECU-911	Infrastructure
13	2012	Agreement of Economic and Technical Cooperation between China and the Republic of Ecuador	Economy
14	2012	Commercial Agreement to increase Ecuadorian exports to China and attract Chinese Investment to Ecuador	Commerce
15	2012	Commercial Agreement to foster trade of shrimps, bananas, cacao, pineapple, mango and lemon	Commerce
16	2012	Agreement to foster science and technology and improve higher education (scholarships)	Science and Technology
17	2013	Agreement to participate in the construction of the refinery "Refinería del Pacífico"	Energy
18	2013	Agreement to Avoid Double Taxation	Economy
19	2014	Cooperation Agreement to increase international trade	Commerce
20	2014	Commercial Agreement for the construction of the Coca-Codo Sinclair Hydroelectric Plant	Commerce
21	2015	Agreement to eliminate visa requirements (visa waiver)	Tourism

Table 2: Chinese Loan to Petrobras (Brazil)

Year	Purpose	Lender	Amount \$	Rates	Term	Purchase Requirement	Status
2016	Debt Financing	CDB	5	L+280bps	NA	Oil-backed	Ongoing
2017	Oil Production	CDB	5	L+280bps	10 years	Oil-backed	Ongoing

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