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«The impact of infrastructure investment under the Belt and Road Initiative»

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Abstract

The Chinese economic program, the Belt and Road Initiative (BRI), is considered as one of the most ambitious infrastructural imitative of the 21st century, having involved over 70 countries. Obviously, such a large-scale umbrella of projects has been requiring substantial funds. It is also well-known that financing is often used to exercise foreign politics, which may have ambiguous impact on the economy of borrowing countries. This study aims to determine the sources of the BRI financing and assess its economic effects on the borrowing countries.

The literature review relied on the publications in English and had the primary aim of discovering the type of financing, the types of institutions participating in financing (banks, funds, etc), standard contract terms and the other relevant characteristics of the funding mechanism rather than the Chinese economic and political influence because it was difficult to assess the political independence of the papers. The key findings are that most BRI projects are funded by the Chinese policy banks and the largest fund amounts are also sourced from the Chinese policy banks.

The research design had focused on the discovery on the economic impact of the BRI financing. The analysis contained the historical data on 34 countries, which borrowed a funding for their domestic projects under BRI financing. The results suggest that the involvement in BRI financing have a negative economic impact on the borrowing country by increasing its dependence on Chinese imports, slowing down its economic growth and weakening the country's currency. The positive impact of BRI financing on borrowing country's economy may be stated the decrease in inflation rates and increase in trade balance.

Introduction

The Belt and Road Initiative (BRI) is one of the most ambitious infrastructural projects undertaken since the implementation of the Marshall Plan at the end of the 1940's. The BRI intends to invest over 1 trillion USD in building the route infrastructure between China, which is one of the largest economies in the world, and over 70 other countries located on different continents.

Such a large scale of construction obviously required a substantial commitment, where finance is the key consideration. There are numerous funding ways ranging from bonds to institutional funding by the Chinese government that is the most active finance provider for the BRI. The funding sources differ in terms of the origin, size, geography and target borrower or investment receiver.

There are many misconceptions regarding funding which is heavily influenced by the politics as the Chinese economic expansion has become a debatable issue. For instance, those misconceptions include a statement that the BRI is mostly financed internationally and that local banks play a significant role in the financing process.

This is a particularly trending issue in Kazakhstan, a country that has a long border with China and for which China is one of the largest trading partners. There are also the BRI projects being implemented in Kazakhstan as well as already other previous finished Chinese integration projects. The future of this cooperation is also rather anticipated and there are forecasts on this topic as Kazakhstan favor foreign investment and is interested in being a transition route between two trading centers (Europe and China).

This paper aims at providing a clear overview of how the BRI is financed and how much it costs for the economy of borrowing countries to rely on the BRI financing. The paper will try to

accomplish this goal by reviewing the existing literature and conducting quantitative research in an attempt to learn the economic aspect of the issue.

The literature review

The literature review has two goals: first, learning about the funding of Belt and Road Initiative (formerly known as One Belt One Road program) to reveal the information regarding involvement of Chinese and international banks in the financing process; and second, discover how China uses the BRI financing to reach its political goals. Hence, it becomes apparent that within this paper the comparative study approach will be implemented to achieve the objectives of the project.

The literature review has a key limitation which is the language. Since the researcher doesn't have knowledge of Chinese, the literature review relied exclusively on sources in English which is considered to have the most information on the BRI after the Chinese language.

Due to the limitation issues considered in the section below, the literature review will focus mostly on the role of Chinese and large International banks rather than that of other financial institutions such as mutual and investment funds or local banks. Thus, conclusions from the study of the impact of Chinese Belt and Road program on the domestic economies might end up to be relatable for countries in this region. Also, for adding local relevance to the paper, BRI Funding in Kazakhstan will be considered as well.

This literature review is going to be structured in the following way. First, a general overview of BRI is going to be presented in order to review the scope of the BRI financing and the need for financing as a whole. Then, funding mechanisms will be reviewed with a brief consideration of all possible funding mechanisms. The third part will concern Chinese banks funding and international banks funding. Further on, the general terms of contracts under BRI financing will be analyzed. In the next section, BRI funding in Kazakhstan will be reviewed. After

that, taking into account the time of composition and review of this paper, an effect of the COVID-19 pandemic on the BRI will be reviewed as well. Finally, the political aspect of the financing will be reviewed.

The literature will also be reviewed for the presence of the predicting information. That is, literature will be searched for the information on the relationship between the funding decision and other factors.

General Overview of BRI

The BRI is China's international initiative aimed at improving existing and creating new trade routes, transport and economic corridors linking 72 countries of Central Asia, Europe and Africa, which will contribute to the development of trade relations between participating countries and China (OECD, 2018).

The idea of forming «The Silk Road Economic Belt» was presented by the President of the People's Republic of China Xi Jinping and was first voiced during his speech in Astana as part of his state visit to Kazakhstan in September 2013. Xi Jinping called for the use of new models of cooperation in Eurasia, joint efforts to form the Silk Road Economic Belt (SREB) and proposed five measures necessary for this:

- political coordination;
- interconnection of infrastructure;
- liberalization of trade;
- free movement of capital;

- strengthening of mutual understanding between nations.

Obviously, such a large scope of goals includes not only roads and highways construction, but also other infrastructural buildings. In particular, according to He (2020): "Outward direct investment (ODI) and construction contracts are the two major forms of China's investments in the BRI countries. The value of China's total investments and construction contracts in BRI countries during 2014–2018 amounts to $573.31 billion".

The BRI consists of two routes identified as "Belt" and "Road".

The Belt refers to six economic corridors (OECD, 2018):

1) New Eurasia Land Bridge Economic Corridor

2) China-Mongolia-Russia Economic Corridor

3) China-Central Asia-West Asia Economic Corridor;

4) China-Indochina Peninsula Economic Corridor

5) China-Pakistan Economic Corridor

6) Bangladesh-China-India-Myanmar Economic Corridor

The "Road" is so called Maritime Silk Road. It connects China with a number of countries through the world oceans.

It can be certainly concluded that the BRI is a Chinese state's project, rather than a private initiative. The project has even been mentioned in the last (14th) Five-year plan of the Chinese Communist Party (CCP) proposal which is the leading direction document for the entire nation of China. The documents highlights that the project is "a bearing fruit" and promises that

the Chinese government will continue developing BRI in many dimensions (Xinhua News Agency, 2020):

"We will: ….follow international practices and debt sustainability principles, and improve the diversified investment and financing system; promote the alignment of strategies, plans and mechanisms, and strengthen the linking together of policies, regulations and standards; deepen cooperation on public health, the digital economy, green development, and S&T education, and promote people-to-people exchanges."

According to OECD (2018), economies identified in the BRI accounted to 72 economies which have contributed to the largest portion of the world's GDP (based on PPP valuation) since 2000 and that portion is growing and even reached 32.3% in 2017. This indicates a high need of investment. For instance, Asia alone needs approximately USD 26 trillion until 2030 of infrastructure investment (ADB, 2017). The BRI does not aim to cover all those needs, but it might be the most ambitious financing plan, aiming at USD 1 trillion of total promised investments, which is 7 to 8 times larger than the Marshall Plan for reconstructing Europe after the Second World War (Brown, 2019). Consequently, such a large scale of investments cannot be financed by one financial institution alone and a number of financial institutions have been funding the BRI projects.

Funding Mechanisms

Funding of the BRI can be classified into Institutional and Private Funding. The Institutional Funding relies on the loan issuance and direct financing from banks and state-owned funds.

The BRI funding required a creation of new financing mechanisms which are two multilateral development banks (MDB).

The following definition of MDB and its functions are taken from Congressional Research Service (2020):

"Multilateral development banks (MDBs) are international institutions that… provide financial assistance to developing countries, typically in the form of loans and grants, for investment projects and policy-based loans. Project loans include large infrastructure projects, such as highways, power plants, port facilities, and dams, as well as social projects, including health and education initiatives. Policy-based loans provide governments with financing in exchange for agreement by the borrower country government that it will undertake particular policy reforms, such as the privatization of state-owned industries or reform in agriculture or electricity sector policies"

Thus, the main goal of the established MDBs as well as any MDBs is to finance the infrastructural projects. In fact, according to Callaghan and Hubbard (2016), China already "has significant capacity for policy-lending through the China Development Bank and the China Exim bank, as well as a history as a bilateral aid donor, particularly for hard infrastructure projects". Consequently, the reason for choosing MDB is explained by the fact that MDB are allowed to finance socially productive investments which cannot be financed by profit-oriented banks. In addition, there are two other benefits, namely, MDBs help to coordinate funding from multiple sources which is extremely important when considering cross border financing and MDB's governance framework can be designed to restrain the leading shareholders' rights in decision making. The last feature plays a crucial role for governments of the states where a part of the electorate is worried about the growing Chinese economic and political power.

In the scope of BRI, the Asian Infrastructure Investment Bank (AIIB) and New

Development Bank (NDB) (the latter is also known as the BRIC bank as it mainly focuses on

Brazil, Russia, India, China and South Africa) were created in 2015 and 2016 respectively. Both

banks are reported for not having a dedicated goal of financing BRI, they actually do mostly

finance BRI (Sejko, 2017). Both banks will be reviewed in a more detailed way in the sections

below.

On the institutional level (BRI, nd), besides being financed by AIIB and NDB, the BRI

has been also financed by three Chinese policy banks which are Agricultural Development Bank

of China (ADBC), China Development Bank (CD) and Export-Import Bank of China (Exim

Bank). A policy bank is a financial institution that qualifies for three conditions (Jin, Ma,

Gallagher, 2018):

- The bank is established and guaranteed by the government;
- The bank has exclusive financial support from the state;
- The bank bears the responsibility of implementing economic and financial policy.

Also, there are four state owned banks participating in the funding process: Agricultural

Bank of China (ABC), Bank of China (BOC), China Construction Bank (CCB), Industrial and

Commercial Bank of China (ICBC).

In addition, in 2014 a separate sovereign wealth fund (SWF), called the Silk Road Fund

(SRF) was established. OECD (Blundell-Wignall, Hu, Yermo, 2008) defines SWF as: "pools of

assets owned and managed directly or indirectly by governments to achieve national objectives".

Unlike the two mentioned MDBs, SWF had a special mandate to finance BRI projects (Sejko,

2017). Another important difference is that SRF have fewer supported projects. For instance, as

of 2019, SRF supported over 30 projects (Wang and Song, 2020), compared to over 60 by AIIB alone (AIIB, 2020). Besides SRF, the BRI is financed by other state owned funds, in particular by China Investment Corporation (BRI, nd).

As for the private funding, it is represented by fixed income securities market, equities trading, infrastructure concessions and auxiliary financial services (Brown, 2019).

Finally, non-Chinese banks and smaller local Chinese banks have also been participating in the funding process: Bank of China (BOC), China Merchants Bank (CMB), Shanghai Pudong Development Bank, Citibank of the US, Standard Chartered Bank (SCB) of the UK, Hong Kong and Shanghai Banking Corporation, Oversea-Chinese Banking Corp of the Singapore, Commerzbank of the Germany and Banco Santander of the Spain. According to Deloitte Insights (2018): "this is attractive for a number of reasons, not least in minimizing exchange risk and helping to localize the financing of BRI projects." However, it is virtually impossible to pull data on the participation of local banks participating in the BRI in at least most of the BRI participating countries. However most importantly, as of 2018 Chinese official statistics (He, 2020) Chinese state-owned policy banks and state-owned commercial banks are the major sources of the BRI financing, providing 81% of the total funding, while multilateral financial institutions and SRF provide together just 4% (see the figure 1). The participation of local banks does not account for even 1% of the total investment.

Figure 1: Total Investment in BRI by source in 2018
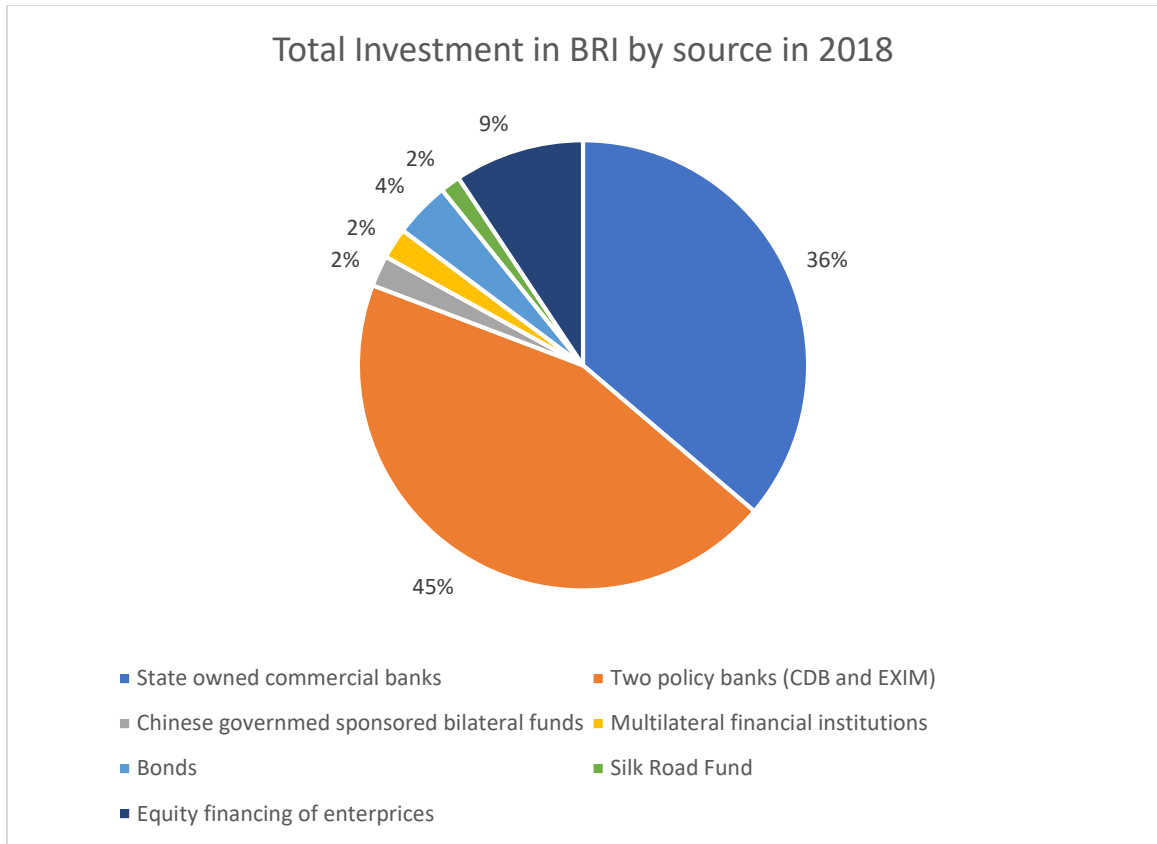
Source: The Belt and Road Initiative: Motivations, financing, expansion and challenges of Xi's ever-expanding strategy. (He, 2020)

As it was mentioned earlier in the beginning of the literature review, the main focus is set on banks, so in the following parts are dedicated to the mentioned MDB's and other banks participating in BRI from the Chinese and International sides.

Thus, in this paper, the main comparison will be drawn between state owned commercial banks, policy banks and MDBs.

The comparison will rely on:

- the amount of finance invested in the BRI;

- the number of supported BRI projects;

- financial indicators showing the potential for further funding (profitability ratios)

MDBs and Chinese banks Funding of the BRI

The table below (figure 2) illustrates the amount of investment in BRI provided by MDBs and Chinese banks and their contribution to total BRI funding measured in percentage as of 2018.

Figure 2: MDBs and Chinese banks Funding of the BRI

Type of bank	Bank	Total amount invested in BRI (in billion USD)	Percentage of the total BRI funding
MDB	AIIB	8	1%
MDB	NDB	6	1%
Policy Banks	Exim Bank	145	26%
Policy Banks	CDB	196	19%
State Owned Banks	Bank of China	130	17%
State Owned Banks	ICBC	114	15%
State Owned Banks	Agricultural Bank of China	12.6	2%
State Owned Banks	China Construction Bank	21	3%

Even though, BRI's funding has gone through multiple revisions and recently the main focus was recently shifted to multilateral approach (Wang & Song, 2020) and the fact that a large portion of BRI investments lies outside China (Nedopil, 2021), AIIB and NDB constitute just 2% of the total investment. The AIIB is particularly important for the BRI, having 102 shareholders as of the end of the year 2019 which covers 79% of the total world population while NDB has just five major contributors. The AIIB (AIIB, 2020) has supported 63 projects and NDB has supported 53 projects (NDB, 2020). This is well contrasted with the figures of the policy banks

The China Development Bank (CDB) and the Export–Import (Exim) Bank of China are reported to have remarkable participation indicators in the funding projects. For instance, Wang and Song (2020) highlight that "as of April 2019, the Exim Bank of China had supported 1800-plus BRI projects, with loan balances exceeding RMB1 trillion, half of which were invested in infrastructure", while CDB "…provided financing of over USD190 billion for more than 600 BRI projects, and set up special lending schemes worth RMB260.7 billion to support BRI cooperation."

As for the state-owned banks, their projects contribution is presented in the table below:

State-Owned Bank	Major supported BRI projects
Bank of China	600
ICBC	441
Agricultural Bank of China	Not available
China Construction Bank	29

Source: the table was constructed based on information from The Belt and Road Initiative: Motivations, financing, expansion and challenges of Xi's ever-expanding strategy. (He, 2020) and Annual report for 2019 of Bank of China.

For calculating net profit margin, Return on Assets (ROA) and Return on Equity (ROE), finance income (interest revenue) was used instead of the sales/revenue better reflect operating profitability. Since the financial statements of Exim Bank, Bank of China, ICBC, Agricultural Bank of China and China Construction Bank were presented in the Chinese national currency, an exchange rate of 6.91 RMB/USD was used (which is the average exchange rate for 2019). For CDB whose financial statements were denominated in the Hong Kong dollar, the exchange rate of 0.1219 HK/USD for 2019 was used.

Financial Indicator	Formula
ROE	$$\frac{Finance\ income}{Equity}$$
ROA	$$\frac{Finance\ income}{Assets}$$
Net profit margin	$$\frac{Net\ income}{Finance\ income}$$

The data is summarized in the figure below:

Figure 5: Financial indicators of MDBs and Chinese banks

	AIIB	NDB	Exim Bank	CDB	Bank of China	ICBC	Agricultural Bank of China	China Construction Bank
ROE	2%	2%	48%	12%	38%	39%	44%	40%
ROA	2%	2%	0%	7%	1%	1%	1%	1%
Net profit margin	92%	97%	4%	82%	27%	30%	25%	30%

Source: the table was created from the financial statements of the given banks

As it can be seen from the table above, MDB's have really low ROA and ROE, whereas net profit margin is exceptionally high. This means that the AIIB and NDB have really low expenses but their net income is marginal compared to assets and equity. Also, these are mostly equity financed banks.

The policy banks rather different in contrast. The Exim bank is mostly equity financed and has the lowest profitability, while CDB has the third highest net income profitability. The

state-owned banks have average net income profitability between 25% and 30% and are mostly liabilities financed.

BRI contracting terms

Taking into account the Chinese government's long-term goals in promoting BRI, an analysis of standard contracting terms may reveal some important objectives to the Chinese government. It should be mentioned that there doesn't exist standard contract templates as the contracting procedures for each project include long lasting discussion between contracting parties prior of signing it. Moreover, usually, these contracts are not shared to the public.

Nevertheless, these contracts have in common many aspects due to their relatedness to the BRI. The study Chinese contracts under BRI initiative suggests that China mostly rely on the soft law when developing BRI agreements. (Heng, 2021) This allows them to keep contracting costs at low level and to be flexible at the course of settlement of concrete issues of the project. In addition, a disposition to the application of soft law helps China to promote BRI initiative in developing countries. In comparison to the strict requirements of western institutions, BRI contract terms are viewed more attractive for developing countries.

However, a reliance on the soft law of BRI agreements raises numerous issues. Many western experts perceive an ambiguity and vagueness of BRI contract terms as the source of potential problems, which may arise in future. For example, IMF criticize opaqueness of BRI contract terms, claiming that it may lead borrowing countries to a debt trap. (Gerstel, 2018) The experts state that the loan agreements under BRI initiative should be amended in a way to include

several international lending best practices concerning the procurement, transparency, and dispute settlement.

Another important aspect of BRI contracts, and BRI initiative in general, is the promotion of Chinese technical standards and energy solutions. Not surprisingly, China uses the projects realized under BRI initiative as a source to facilitate the development of its high professional services and technology sectors of economy. Often, Chinese investors impose the legal requirements to involve the Chinese engineering companies at the project maintenance. High involvement of Chinese specialists at BRI projects naturally leads to giving favor of technical standards and solutions developed in China. The latter is viewed as the Chinese governments' intention to promote its another international strategy called "Made in China 2025". (OECD, 2018)

BRI Financing in Kazakhstan

In order to understand how BRI is financed in Kazakhstan, first the importance of BRI in Kazakhstan must be established.

Kazakhstan is located in Central Asia which is the vast region located in Eurasia consisting of five countries: Kazakhstan Kyrgyzstan, Tajikistan, Uzbekistan and Turkmenistan.

The Central Asian countries are highly interested in the trade routes as after the collapse of the Soviet Union, those countries were landlocked and didn't have a more direct access to international trade markets.

BRI wasn't the first initiative to boost trade using Central Asia as the transportation route. The named nations proposed a new Silk Road initiative under Western Europe–Western China

project (WE–WC) in 2007. Generally, for Kazakhstan, the WE-WC project could be considered as a successful case as 825,1 billion KZT were invested in building or reconstructing 2 787 km of route in Kazakhstan (Ministry of Transport and Communication of the Republic of Kazakhstan, 2013). Given this condition, Kazakhstan seeks to expand the cooperation in infrastructural building for international trade.

BRI places a particular interest on Central Asia. According to Serikkaliyeva (2019), the majority of routes going from China to continental Europe pass via Central Asian republics. Given Chinese economic expansion to Europe, Central Asian routes gain additional importance as the transportation means.

Building and securing those routes require setting major projects. Since most of Central Asia is geographically a non-marine territory, there are primarily two major land economic corridors proposed under BRI: The New Eurasian Land Bridge and Economic Corridor China - Central Asia - Western Asia.

The former route has existed in Kazakhstan since 1990's and connects Chinese coast city Lianyungang to Dutch's Rotterdam, passing through Kazakhstan, Russia, Belarus, Poland and Germany. The latter one resembles the ancient original Silk Road by starting from Chinese Xinjiang and then heading to Persian Gulf, the Mediterranean and Arabian Peninsula obviously crossing Central Asia. Unlike the New Eurasian Land Bridge, this route crosses not only Kazakhstan, but also other countries in the regions.

As for Central Asian participation (and Kazakhstan's one as well) in the financing, there is so called Silk Road Fund established in 2014 and covering over 30 projects in Central Asia, South Asia, West Asia and North Africa, a part of Europe and Africa with the total investment fund

exceeding 11 billion USD. Unlike the WE–WC, BRI's initiatives in Central Asia are mostly funded by China rather than by multiple international investors (Taisarinova, Loprencipe, Junussova, 2020).

Nevertheless, it should be noted that some large infrastructural projects were financed by other parties. For instance, a section of the road in Kazakhstan heading to Western Europe was financed by the World Bank, Asian Development Bank and Kazakhstan's government (Griffiths 2019).

According to Taisarinova, Loprencipe and Junussova (2019), financing is exercised by the Chinese policy banks, namely CDO and Exim Banks in most cases. The banks then "requires that the recipient (and guarantor) of the loan reinvests the money in a project that involves a Chinese contract partner". Finally, the national Fund Samruk-Kazyna operates as investor.

Investment is not limited to building highway and railroads. There is also Chinese funding for development of other infrastructural objects such as expansion of the port of Aktau, construction of Kuryk port and logistics centers in Shymkent and Aktobe. In addition:

> "Other projects under the 'BRI banner' include Chinese funding for transmission grids, power plants, manufacturing industries and the energy investments"

As of 2018, China invested in 51 industrial projects with a total value of 27 billion dollars (Kapparov, 2019), mostly in oil and gas, chemical, energy, mining industries.

COVID-19 implications on the BRI

The outbreak of the COVID-19 in February 2020 has become a major challenge for most economies around the globe. The pandemic disrupted global manufacturing and supply chains, leaving BRI projects with constant delays and damaging the economic growth.

One of the major implications of these disruptions is a question of servicing debt. According to MARSH JLT Specialty insights for October 2020:

"Debt service on Chinese lending accounts for 60% of all principal and interest payments due this year, for the 73 countries eligible for an eight-month moratorium offered by the G20 group of countries."

MARSH JLT also notes that even larger trading and BRI partners have to ask for debt renegotiation talks with the Chinese government. In particular, Pakistan has done it because it seeks to extent the debt repayment for two power plants to 20 years, instead from the existing 10-year repayment schedule. As for less sustainable economies such as Angola, Malaysia, Mozambique, Vietnam and Zambia, there is a high risk of asset seizures in the next 12 months.

However, the authors are optimistic about the medium- and long-term development of the BRI as they claim that both China and other nations have already invested much and linked their long-term development goals with infrastructural development. Thus, it is unlikely that the BRI initiative will halter significantly after the COVID-19 is tackled.

The opinion that debt service might be a problem is also shared by another publication (Mourtiz, 2020):

"As many as 23 BRI countries were already in debt distress before the pandemic 25 and the cost of fighting the virus and rescuing the economy will further increase the risk of loan defaults.

Some of the local contractors that are involved in the construction of BRI projects will go bankrupt during the pan-demic, which will cause further logistical problems and delays. The delays due to international supply chain cut-offs and national economic woes will also make BRI projects more expensive. In order to be able to sustain BRI, countries like Cambodia, Kyrgyzstan, Sri Lanka, Pakistan, Djibouti, or Montenegro will need debt relief."

Surprisingly, there is a low probability that the Chinese side will consider those debts as irrecoverable (write them off) on a large scale. According to Kiel Institute for the World Economy (Horn, Reinhart, Trebesch, 2019), China has lent 50 % more to developing countries than it has officially reported (in the last years of the BRI related projects, USD 520 billion was granted to over 150 countries by the Chinese government and state-owned credit agencies). Having almost a quarter of total bank lending to developing economies and surpassing World Bank and IMF, China simply can't afford to write off much debt.

Mourtiz reckons that whether nations will be able not to default depends on the returns that they will get from the completed BRI projects. He further elaborates that the BRI can become even more important for Chinese plans of sustaining long term growth because due to the heavy hit the global economies took from pandemic China might only be the only country able to invest in emerging economies in the middle run.

Another important consideration is the flow of human rather than financial resources. According to Buckley (2020):

"The BRI is massively dependent on the international transfer of Chinese personnel and managers to its projects. This was a major point of criticism in the pre-virus world. It has limited the direct employment of local personnel and the spill-over gains to the host country. During the peak COVID-19 crisis period, and in the aftermath of the virus, it is untenable. The ability of the

BRI to switch to digital versus personal contact in the implementation of its projects will be a major challenge, and construction is notoriously difficult to depersonalize."

BRI and politics

From the very proclamation of the BRI, the project received much criticism and been doubted as the instrument of the Chinese foreign politics. This concerns almost all BRI economic engagements going as western as the Caribbean region (Oosterveld, Wilms, Kertysova, 2019) to South East Asia.

An American pro-government organization, the Council on Foreign Relations (CFR) (Lew, Roughead, 2021), describes the BRI financing as the "debt trap", a practice of load borrowing countries with unsustainable debt that will lead to the seize of assets. However, even their report (Lew, Roughead, 2021) admits that no such asset seizure has happened so far in the scope of the BRI even some BRI projects failed including the notorious Sri-Lanka's Hambantota Port financing, which resulted in the project's default. In addition, the fact that BRI is exercised mostly through state and policy banks leads to anti-Chinese sentiments among general public and the careful presentation of the projects by authorities of the participating countries. The same paper highlights that the BRI targets countries with developing economies and which are in a strong financial distress that is one of the characteristics of higher probability of default and expected credit losses in general. Thus, it is hard to attribute that China intentionally tries to get the countries in the debt trap and substantially use it for a later pressuring participating countries.

Another important topic here is the political ambitions of the rulers of borrowing countries. Majority of projects financed under BRI are large scale projects in the fields of construction and

energy. An implementation of such projects provides huge political gains for rulers. The ruler's interest in personal gains may result in different type of flaws occurring during project implementation, including planning, contracting and realization stages. Freytag and Paldam give a definition to myopic and selfish ruler, who may distribute the investment and gains from the project economically unwise for his/her personal interest. It is believed that this factor is especially important when analyzing developing countries.

By the contrast to myopic and selfish ruler, longsighted and benevolent ruler will distribute the generated money for economic growth (Freytag and Paldam, 2012). Under such ruler, the investments will be used according to the debt cycle theory. It includes four stages of the country's economic advancement, first being borrowing from abroad, the second is associated with the capital inflows as result of distributing borrowed money to profitable activities, the next stage can be described with the expansion of financial budget constraint and at the final stage, the country increases the volume of exports and repays the debt (Kindleberger, 1963).

Literature Review Conclusion

Taking into account all the information provided above, it should be concluded that policy banks rank first in terms of their involvement in the BRI financing measured by both the amount of funds invested and the number of supported projects.

Existing BRI loan terms are claimed to be vague, which limits the contracting parties to conduct sufficient analysis of project feasibility in a timely manner. Furthermore, no information available on the influence of banks' or borrowers' parameters on the amount of invested and/or investment decision as a whole. Therefore, the experts raise a concern about the sustainability of BRI financing for borrowing countries.

Finally, the focus of BRI on developing countries raises skepticism about the future success of BRI projects as the typical borrowing countries under BRI financing are already in financial distress. Moreover, there is skepticism towards the ability of developing countries to manage the borrowed money in economically clever way.

Research Methodology

The research methodology is designed to investigate a causal relationship the involvement of borrowing countries in a BRI project and their macroeconomic indicators for the period of project implementation. The goal is to find as many statistically significant factors occurring as the result of involvement in BRI projects.

Research Design

Collecting Data

It is difficult to locate even the most essential data about the BRI financing such as the size of the loan (loan amount), loan maturity, interest rates and conditions (covenants) of the debt agreements. The fact of data scarcity was determined with the help of preliminary research of the public databases including official web sources of the BRI projects and involved parties (authorities, suppliers and banks). The method of data collection depended on whether BRI projects included in the analysis were cancelled, postponed, scaled down or active/complete.

In order to be more precise, this paper will focus only on the active BRI projects, the construction work for which have been commenced after the formal signing of the contract.

The timeframe for collected data is represented by the period between 2007 and 2020. This timeframe allows to include the data from 5-year prior of first BRI projects have been commenced. The resulting collected data is statistically significant and include 189 projects from 34 countries.

Denomination	Country	Number of BRI projects commenced by 2020
C1	Armenia	4
C2	Australia	8
C3	Azerbaijan	4
C4	Belarus	4
C5	Cambodia	3
C6	Cameroon	2
C7	Canada	16
C8	Chile	5
C9	Colombia	5
C10	Georgia	4
C11	Hong Kong	6
C12	Hungary	4
C13	Iran	4
C14	Japan	17
C15	Kenya	4
C16	Kuwait	5
C17	Kyrgyzstan	3
C18	Mauritius	6
C19	Mexico	8
C20	Moldova	3
C21	Morocco	1
C22	Myanmar	3
C23	New Zealand	4
C24	Panama	2
C25	Peru	4
C26	Qatar	1
C27	Korea	11
C28	Russia	6
C29	Singapore	6
C30	Turkey	13
C31	UAE	17
C32	UK	0
C33	Viet Nam	5

Additional financial information on historical GDP, inflation rate, exchange and unemployment rates of countries involved in the project realization and their trade volume with

China was obtained using the World Bank (WB) data and data from International Monetary Fund (IMF).

The final list of collected data contained the following parameters about each project:

Parameter	Description
Project name	Qualitative data
Country	Was divided into 33 dummy variables representing the country of the project location
Year	Time variable
Projects involved	The number of BRI projects being implemented in a country at given year
Country GDP	Contracting country's GDP at given year
Country GDP growth	The contracting country's average GDP growth rate for the past 5 years prior to given year
Import	The volume of contracting country's import from China at given year
Trade balance	The country's net trade in goods and services at given year
Currency	The average official exchange rate of local currency to USD at given year
Unemployment rate	The unemployment rate within a country at given year (as % of total labor force)
Inflation	Inflation as measured by the consumer price index in a country at given year
FDI	Foreign direct investments received by a country at given year

Preprocessing Data

The input data included in the model contains 34 dummy variables in order to cover a country specific condition, and they all were labelled 1 in case of positive result and otherwise 0. All of the financial data were converted to mln. USD in order to ensure their comparativeness. The 5 years average growth rates of the contracting countries' GDP were calculated using the WB historical data. In this way, the Country GDP growth for 2015 will be equal to the average annual GDP growth of given country for the period from 2011 to 2015.

The collected data was combined in one dataset. The resulting dataset consists of 476 rows and 44 columns.

Statistical Analysis

In order to assess the effect of the involvement in BRI projects to the contracting country's economy, the variables Import, Trade balance, Inflation, Currency, Unemployment rate, FDI and Country GDP growth were regressed against Country GDP and Projects involved. These variables were regressed separately in multiple logistic regression.

Where it is applicable, the logarithmic regressions were used in order to obtain comparatively intuitive results. However, due to the fact that variables Trade balance, Inflation, FDI and Country GDP growth had negative outcomes, the logarithmic regressions were inapplicable for these variables. The resulting models can be expressed with the following formulas:

1) $Ln(Import) = \beta_0 + \beta_1*C1 + \beta_2*C2 + \ldots + \beta_{33}*C33 + \beta_{34}*C34 + \beta_{35}*Ln(Country\ GDP) + \beta_{36}*Projects\ involved$

2) $Trade\ balance = \beta_0 + \beta_1*C1 + \beta_2*C2 + \ldots + \beta_{33}*C33 + \beta_{34}*C34 + \beta_{35}*Country\ GDP + \beta_{36}*Projects\ involved$

3) $Inflation = \beta_0 + \beta_1*C1 + \beta_2*C2 + \ldots + \beta_{33}*C33 + \beta_{34}*C34 + \beta_{35}*Country\ GDP + \beta_{36}*Projects\ involved$

4) $Ln(Currency) = \beta_0 + \beta_1*C1 + \beta_2*C2 + \ldots + \beta_{33}*C33 + \beta_{34}*C34 + \beta_{35}*Ln(Country\ GDP) + \beta_{36}*Projects\ involved$

5) $Ln(Unemployment\ rate) = \beta_0 + \beta_1*C1 + \beta_2*C2 + \ldots + \beta_{33}*C33 + \beta_{34}*C34 + \beta_{35}*Ln(Country\ GDP) + \beta_{36}*Projects\ involved$

6) $FDI = \beta_0 + \beta_1 {*} C1 + \beta_2 {*} C2 + \ldots + \beta_{33} {*} C33 + \beta_{34} {*} C34 + \beta_{35} {*} \text{Country GDP} + \beta_{36} {*} \text{Projects involved}$

7) $\text{Country GDP growth} = \beta_0 + \beta_1 {*} C1 + \beta_2 {*} C2 + \ldots + \beta_{33} {*} C33 + \beta_{34} {*} C34 + \beta_{35} {*} \text{Country GDP} + \beta_{36} {*} \text{Projects involved}$

Here, it should be noted that the Country GDP variable was included in every model in order to cover the country-specific economic tendencies. The interpretation of β_{35} doesn't coincide with the purpose of the analysis of this paper. Thus, the inclusion of Country GDP variable helps to increase the overall statistical significance of the models (increase in R squared) and to increase the accuracy of the model in determining the β_{36}.

Therefore, the main objective of the analyzes above lies in determination of β_{36}, which denotes the effect of the intensive involvement in BRI financing on the borrowing country's specific economic indicators, represented by dependent variable.

A regression of Import against Country GDP and Projects involved resulted in Multiple R squared of 0.8449 (84.49%) and adjusted R squared of 0.8326 (83.26%), which indicates the strong statistical significance of the model. The results for the first model are outlined below:

Table 1. Results of the regression of Import against Country GDP and Projects

```
Call:
lm(formula = log(Import_China) ~ C1 + C2 + C3 + C4 + C5 + C6 +
    C7 + C8 + C9 + C10 + C11 + C12 + C13 + C14 + C15 + C16 +
    C17 + C18 + C19 + C20 + C21 + C22 + C23 + C24 + C25 + C26 +
    C27 + C28 + C29 + C30 + C31 + C32 + C33 + C34 + log(GDP_C) +
    Projects, data = data_p)

Residuals:
   Min      1Q  Median      3Q     Max
-4.6498 -0.2857  0.0705  0.3631  2.1696
```

Coefficients: (1 not defined because of singularities)				
	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	6.66379	0.90051	7.400	6.97e-13 ***
C1	-3.87901	0.32293	-12.012	< 2e-16 ***
C2	1.63670	0.29380	5.571	4.43e-08 ***
C3	-3.64375	0.26824	-13.584	< 2e-16 ***
C4	-2.44721	0.26460	-9.249	< 2e-16 ***
C5	-2.86777	0.30655	-9.355	< 2e-16 ***
C6	-2.37814	0.28009	-8.491	3.19e-16 ***
C7	-0.05568	0.30757	-0.181	0.85644
C8	0.69177	0.25473	2.716	0.00687 **
C9	-1.22159	0.25691	-4.755	2.69e-06 ***
C10	-5.00990	0.30990	-16.166	< 2e-16 ***
C11	0.15634	0.25612	0.610	0.54190
C12	-1.11847	0.25347	-4.413	1.29e-05 ***
C13	0.54747	0.26106	2.097	0.03655 *
C14	1.91837	0.35901	5.343	1.47e-07 ***
C15	-4.59932	0.26401	-17.421	< 2e-16 ***
C16	-0.14670	0.25437	-0.577	0.56442
C17	-4.18091	0.34835	-12.002	< 2e-16 ***
C18	-6.03909	0.32214	-18.747	< 2e-16 ***
C19	-0.46682	0.29014	-1.609	0.10834
C20	-5.80144	0.33609	-17.261	< 2e-16 ***
C21	-2.64259	0.25563	-10.337	< 2e-16 ***
C22	-1.38751	0.25820	-5.374	1.25e-07 ***
C23	-0.43136	0.25339	-1.702	0.08940 .
C24	-4.50310	0.27232	-16.536	< 2e-16 ***
C25	-0.02913	0.25326	-0.115	0.90849
C26	-0.63196	0.25330	-2.495	0.01297 *
C27	2.25764	0.29747	7.590	1.93e-13 ***
C28	0.89049	0.30377	2.931	0.00355 **
C29	0.97650	0.25643	3.808	0.00016 ***
C30	-1.50058	0.27883	-5.382	1.20e-07 ***
C31	-0.47577	0.26356	-1.805	0.07174 .
C32	0.16316	0.32759	0.498	0.61869
C33	0.69304	0.25358	2.733	0.00653 **
C34	NA	NA	NA	NA
log(GDP_C)	0.19166	0.07346	2.609	0.00939 **
Projects	0.08892	0.01165	7.633	1.43e-13 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1				

Residual standard error: 0.6698 on 440 degrees of freedom

| Multiple R-squared: 0.9416, Adjusted R-squared: 0.937 |
| F-statistic: 202.8 on 35 and 440 DF, p-value: < 2.2e-16 |

As demonstrated above, a coefficient for Projects involved variable against dependent variable Import is positive and statistically very strong. This indicates that there are strong evidences for BRI projects being effective in promoting Chinese export. This model suggests that the 1% increase in the number of BRI projects will lead to around 0.09% increase in the volume of imports from China for the borrowing country.

A multiple logistic regression of Trade balance against Country GDP and Projects involved has revealed sufficiently reliable results with Multiple R squared of 0.7277 (72.77%) and adjusted R squared of 0.7061 (70.61%). The results for the second model are outlined below:

Table 2.   Results of the regression of Trade balance against Country GDP and Projects

| Call: |
| lm(formula = Trade_b ~ C1 + C2 + C3 + C4 + C5 + C6 + C7 + C8 + |
| C9 + C10 + C11 + C12 + C13 + C14 + C15 + C16 + C17 + C18 + |
| C19 + C20 + C21 + C22 + C23 + C24 + C25 + C26 + C27 + C28 + |
| C29 + C30 + C31 + C32 + C33 + C34 + GDP_C + Projects, data = data_p) |
| |
| Residuals: |
| Min   1Q Median   3Q   Max |
| -115551 -4227   121 2795 98192 |
| |
| Coefficients: (1 not defined because of singularities) |
| Estimate Std. Error t value Pr(>\|t\|) |
| (Intercept) 1.801e+04 4.936e+03 3.649 0.000295 *** |
| C1   -2.049e+04 6.972e+03 -2.939 0.003465 ** |
| C2   -1.961e+04 7.234e+03 -2.712 0.006957 ** |
| C3   -8.087e+03 6.977e+03 -1.159 0.247060 |
| C4   -2.026e+04 6.974e+03 -2.906 0.003851 ** |
| C5   -2.055e+04 6.971e+03 -2.948 0.003366 ** |

C6	-1.925e+04	6.970e+03	-2.761	0.005998 **
C7	-4.480e+04	7.611e+03	-5.886	7.86e-09 ***
C8	-1.325e+04	6.973e+03	-1.901	0.058018 .
C9	-2.635e+04	6.971e+03	-3.779	0.000179 ***
C10	-2.111e+04	6.973e+03	-3.028	0.002610 **
C11	-1.048e+04	6.972e+03	-1.504	0.133411
C12	-1.179e+04	6.966e+03	-1.693	0.091223 .
C13	-1.914e+04	6.982e+03	-2.742	0.006363 **
C14	-3.754e+04	1.111e+04	-3.380	0.000790 ***
C15	-2.477e+04	6.971e+03	-3.554	0.000420 ***
C16	1.759e+04	6.969e+03	2.524	0.011954 *
C17	-2.052e+04	6.972e+03	-2.943	0.003424 **
C18	-2.095e+04	6.995e+03	-2.996	0.002893 **
C19	-3.553e+04	7.184e+03	-4.945	1.08e-06 ***
C20	-2.121e+04	6.973e+03	-3.041	0.002495 **
C21	-2.967e+04	6.967e+03	-4.259	2.52e-05 ***
C22	-2.101e+04	7.672e+03	-2.739	0.006420 **
C23	-1.717e+04	6.967e+03	-2.464	0.014125 *
C24	-1.908e+04	6.970e+03	-2.738	0.006431 **
C25	-1.633e+04	6.968e+03	-2.343	0.019583 *
C26	1.504e+04	6.967e+03	2.159	0.031394 *
C27	3.494e+04	7.344e+03	4.758	2.66e-06 ***
C28	9.899e+04	7.419e+03	13.343	< 2e-16 ***
C29	5.772e+04	6.981e+03	8.268	1.62e-15 ***
C30	-4.870e+04	7.086e+03	-6.873	2.16e-11 ***
C31	-2.163e+04	7.137e+03	-3.031	0.002579 **
C32	-6.008e+04	8.241e+03	-7.290	1.45e-12 ***
C33	-1.611e+04	6.978e+03	-2.309	0.021430 *
C34	NA	NA	NA	NA
GDP_C	1.057e-03	1.677e-03	0.630	0.528887
Projects	6.500e+02	3.298e+02	1.971	0.049401 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 18430 on 440 degrees of freedom

Multiple R-squared: 0.7277, Adjusted R-squared: 0.7061

F-statistic: 33.6 on 35 and 440 DF, p-value: < 2.2e-16

As demonstrated above, a coefficient for Projects involved variable against dependent variable Trade balance is positive and statistically significant at 1% significance level. This result

means that the borrowing countries tend to increase their trade balance by 650 million USD in case of involvement in one more additional BRI project.

A regression of Inflation against Country GDP and Projects involved resulted in Multiple R squared of 0.4189 (41.89%) and adjusted R squared of 0.3727 (37.27%), which indicates about the low statistical significance of the model.

Table 3.   Results of the regression of Inflation against Country GDP and Projects

Call:				
lm(formula = Inflation ~ C1 + C2 + C3 + C4 + C5 + C6 + C7 + C8 +				
C9 + C10 + C11 + C12 + C13 + C14 + C15 + C16 + C17 + C18 +				
C19 + C20 + C21 + C22 + C23 + C24 + C25 + C26 + C27 + C28 +				
C29 + C30 + C31 + C32 + C33 + C34 + GDP_C + Projects, data = data_p)				
Residuals:				
Min	1Q	Median	3Q	Max
-17.615	-1.853	-0.455	0.755	41.726
Coefficients: (1 not defined because of singularities)				
	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	8.257e+00	1.351e+00	6.114	2.15e-09 ***
C1	-4.301e+00	1.908e+00	-2.255	0.024652 *
C2	-6.365e+00	1.979e+00	-3.217	0.001392 **
C3	-1.153e+00	1.909e+00	-0.604	0.546212
C4	9.198e+00	1.908e+00	4.821	1.97e-06 ***
C5	-3.349e+00	1.908e+00	-1.755	0.079927 .
C6	-5.966e+00	1.907e+00	-3.128	0.001875 **
C7	-6.166e+00	2.079e+00	-2.966	0.003183 **
C8	-4.778e+00	1.908e+00	-2.504	0.012627 *
C9	-4.081e+00	1.908e+00	-2.138	0.033033 *
C10	-3.431e+00	1.909e+00	-1.797	0.072959 .
C11	-5.311e+00	1.908e+00	-2.784	0.005595 **
C12	-4.866e+00	1.906e+00	-2.553	0.011028 *
C13	1.026e+01	1.910e+00	5.373	1.26e-07 ***
C14	-9.724e+00	3.037e+00	-3.202	0.001463 **
C15	7.062e-01	1.908e+00	0.370	0.711442
C16	-4.201e+00	1.910e+00	-2.199	0.028373 *

C17	-7.792e-01	1.908e+00	-0.408	0.683108
C18	-3.890e+00	1.913e+00	-2.033	0.042669 *
C19	-4.286e+00	1.965e+00	-2.181	0.029717 *
C20	-1.683e+00	1.908e+00	-0.882	0.378081
C21	-6.870e+00	1.906e+00	-3.604	0.000349 ***
C22	-3.220e-01	2.099e+00	-0.153	0.878163
C23	-6.180e+00	1.907e+00	-3.240	0.001285 **
C24	-5.409e+00	1.907e+00	-2.837	0.004770 **
C25	-5.203e+00	1.906e+00	-2.729	0.006607 **
C26	-5.902e+00	1.906e+00	-3.096	0.002084 **
C27	-6.160e+00	2.008e+00	-3.068	0.002289 **
C28	-1.057e+00	2.034e+00	-0.520	0.603480
C29	-6.170e+00	1.910e+00	-3.231	0.001328 **
C30	1.625e+00	1.938e+00	0.839	0.402146
C31	-5.298e+00	1.950e+00	-2.717	0.006846 **
C32	-7.807e+00	2.255e+00	-3.463	0.000587 ***
C33	-6.387e-01	1.909e+00	-0.335	0.738095
C34	NA	NA	NA	NA
GDP_C	5.922e-07	4.589e-07	1.291	0.197531
Projects	-2.563e-01	8.752e-02	-2.929	0.003578 **

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1				
Residual standard error: 5.043 on 440 degrees of freedom				
Multiple R-squared: 0.4189, Adjusted R-squared: 0.3727				
F-statistic: 9.063 on 35 and 440 DF, p-value: < 2.2e-16				

As demonstrated above, a coefficient for Projects involved variable against dependent variable Inflation is negative and statistically significant at 0.1% significance level. This indicates that the country's involvement in one additional BRI project lowers down the inflation rate in the country on average by 0.26%. This effect might be associated with the overall revival of the country's economy with the inflow of Chinese investments.

A multiple logistic regression of Currency against Country GDP and Projects involved resulted in Multiple R squared of 0.9898 (98.98%) and adjusted R squared of 0.989 (98.90%), which signifies the strong statistical significance of the model.

Table 4.   Results of the regression of Currency against Country GDP and Projects

Call:

lm(formula = log(Currency) ~ C1 + C2 + C3 + C4 + C5 + C6 + C7 +
    C8 + C9 + C10 + C11 + C12 + C13 + C14 + C15 + C16 + C17 +
    C18 + C19 + C20 + C21 + C22 + C23 + C24 + C25 + C26 + C27 +
    C28 + C29 + C30 + C31 + C32 + C33 + C34 + log(GDP_C) + Projects,
    data = data_p)

Residuals:
    Min   1Q Median   3Q   Max
-1.55478 -0.15972 0.05844 0.18617 0.91142

Coefficients: (1 not defined because of singularities)

	Estimate	Std. Error	t value	Pr(>|t|)	
(Intercept)	16.306768	0.440372	37.030	< 2e-16	***
C1	-1.820609	0.157921	-11.529	< 2e-16	***
C2	-3.368020	0.143677	-23.442	< 2e-16	***
C3	-6.417476	0.131177	-48.922	< 2e-16	***
C4	-6.497817	0.129396	-50.216	< 2e-16	***
C5	0.799185	0.149908	5.331	1.56e-07	***
C6	-0.573455	0.136973	-4.187	3.42e-05	***
C7	-3.401704	0.150407	-22.617	< 2e-16	***
C8	1.322722	0.124569	10.618	< 2e-16	***
C9	2.934751	0.125633	23.360	< 2e-16	***
C10	-6.897614	0.151550	-45.514	< 2e-16	***
C11	-2.838461	0.125248	-22.663	< 2e-16	***
C12	-0.026871	0.123951	-0.217	0.82847	
C13	5.304177	0.127662	41.548	< 2e-16	***
C14	2.159654	0.175565	12.301	< 2e-16	***
C15	-1.814490	0.129105	-14.054	< 2e-16	***
C16	-6.868085	0.124391	-55.214	< 2e-16	***
C17	-4.339363	0.170350	-25.473	< 2e-16	***
C18	-4.410297	0.157535	-27.996	< 2e-16	***
C19	-0.970489	0.141885	-6.840	2.66e-11	***

C20	-5.447244	0.164358	-33.142	< 2e-16	***
C21	-3.591830	0.125011	-28.732	< 2e-16	***
C22	0.407097	0.126265	3.224	0.00136	**
C23	-5.008663	0.123913	-40.421	< 2e-16	***
C24	-6.594504	0.133172	-49.519	< 2e-16	***
C25	-4.204786	0.123850	-33.951	< 2e-16	***
C26	-4.122556	0.123871	-33.281	< 2e-16	***
C27	3.416286	0.145468	23.485	< 2e-16	***
C28	0.383662	0.148551	2.583	0.01013	*
C29	-4.613611	0.125400	-36.791	< 2e-16	***
C30	-3.114905	0.136354	-22.844	< 2e-16	***
C31	-3.634322	0.128890	-28.197	< 2e-16	***
C32	-3.135334	0.160199	-19.572	< 2e-16	***
C33	4.500886	0.124005	36.296	< 2e-16	***
C34	NA	NA	NA	NA	
log(GDP_C)	-0.915513	0.035926	-25.484	< 2e-16	***
Projects	0.062030	0.005697	10.888	< 2e-16	***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.3276 on 440 degrees of freedom

Multiple R-squared: 0.9898, Adjusted R-squared: 0.989

F-statistic: 1221 on 35 and 440 DF, p-value: < 2.2e-16

As demonstrated above, a coefficient for Projects involved variable against dependent variable Currency is positive and statistically strong. This result reveals that the countries risk to weaken their national currency as a result of actively attracting Chinese investments under BRI. The 1% increase in the number of BRI projects involved by a borrowing country, is associated with the 0.06% increase of the exchange rate of 1 USD dollar per the country's national currency.

A multiple logistic regression of Unemployment against Country GDP and Projects involved resulted in Multiple R squared of 0.9324 (93.24%) and adjusted R squared of 0.9271 (92.71%), which indicates the strong statistical significance of the model.

Table 5. Results of the regression of Unemployment against Country GDP and Projects

Call:
lm(formula = log(Unemployment) ~ C1 + C2 + C3 + C4 + C5 + C6 +
C7 + C8 + C9 + C10 + C11 + C12 + C13 + C14 + C15 + C16 +
C17 + C18 + C19 + C20 + C21 + C22 + C23 + C24 + C25 + C26 +
C27 + C28 + C29 + C30 + C31 + C32 + C33 + C34 + log(GDP_C) +
Projects, data = data_p)

Residuals:

Min	1Q	Median	3Q	Max
-1.11336	-0.11079	-0.00401	0.10320	1.30050

Coefficients: (1 not defined because of singularities)

	Estimate	Std. Error	t value	Pr(>|t|)	
(Intercept)	2.727033	0.336273	8.110	5.10e-15	***
C1	0.919360	0.120590	7.624	1.53e-13	***
C2	0.174974	0.109713	1.595	0.111468	
C3	-0.108602	0.100169	-1.084	0.278871	
C4	-0.013155	0.098808	-0.133	0.894145	
C5	-2.701823	0.114472	-23.603	< 2e-16	***
C6	-0.535110	0.104594	-5.116	4.67e-07	***
C7	0.477048	0.114852	4.154	3.93e-05	***
C8	0.392034	0.095123	4.121	4.50e-05	***
C9	0.660008	0.095935	6.880	2.07e-11	***
C10	0.924022	0.115725	7.985	1.24e-14	***
C11	-0.350792	0.095641	-3.668	0.000275	***
C12	0.220104	0.094650	2.325	0.020502	*
C13	0.848913	0.097484	8.708	< 2e-16	***
C14	-0.095893	0.134063	-0.715	0.474812	
C15	-0.593716	0.098586	-6.022	3.63e-09	***
C16	-0.930247	0.094986	-9.794	< 2e-16	***
C17	0.097937	0.130081	0.753	0.451919	
C18	0.067153	0.120296	0.558	0.576967	
C19	-0.060225	0.108345	-0.556	0.578585	
C20	-0.361917	0.125506	-2.884	0.004123	**
C21	0.510935	0.095460	5.352	1.40e-07	***
C22	-1.836177	0.096417	-19.044	< 2e-16	***
C23	-0.039641	0.094622	-0.419	0.675463	
C24	-0.524762	0.101692	-5.160	3.74e-07	***
C25	-0.356687	0.094573	-3.772	0.000184	***

C26	-3.106266	0.094589	-32.840	< 2e-16	***
C27	-0.294665	0.111081	-2.653	0.008274	**
C28	0.269545	0.113435	2.376	0.017919	*
C29	-0.260209	0.095757	-2.717	0.006839	**
C30	0.797177	0.104122	7.656	1.23e-13	***
C31	-0.764873	0.098421	-7.771	5.53e-14	***
C32	0.290786	0.122329	2.377	0.017877	*
C33	-1.244552	0.094691	-13.143	< 2e-16	***
C34	NA	NA	NA	NA	
log(GDP_C)	-0.086179	0.027433	-3.141	0.001795	**
Projects	-0.005195	0.004350	-1.194	0.233010	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.2501 on 440 degrees of freedom

Multiple R-squared: 0.9324, Adjusted R-squared: 0.9271

F-statistic: 173.5 on 35 and 440 DF, p-value: < 2.2e-16

A coefficient for Projects involved variable against dependent variable Unemployment is negative but statistically insignificant. The results indicate that the unemployment rates for each country from the dataset are relatively stable and the independent variables Country GDP and Projects involved are not sufficient to describe the changes in unemployment rate.

A multiple logistic regression of FDI against Country GDP and Projects involved resulted in Multiple R squared of 0.5526 (55.26%) and adjusted R squared of 0.517 (51.70%), which indicates about the low statistical significance of the model.

Table 6. Results of the regression of FDI against Country GDP and Projects

Call:				
lm(formula = FDI ~ C1 + C2 + C3 + C4 + C5 + C6 + C7 + C8 + C9 +				
C10 + C11 + C12 + C13 + C14 + C15 + C16 + C17 + C18 + C19 +				
C20 + C21 + C22 + C23 + C24 + C25 + C26 + C27 + C28 + C29 +				
C30 + C31 + C32 + C33 + C34 + GDP_C + Projects, data = data_p)				

Residuals:

Min	1Q	Median	3Q	Max
-113358	-2040	32	1112	236648

Coefficients: (1 not defined because of singularities)

	Estimate	Std. Error	t value	Pr(>|t|)	
(Intercept)	9.377e+03	6.214e+03	1.509	0.132008	
C1	-9.225e+03	8.777e+03	-1.051	0.293807	
C2	3.566e+04	9.104e+03	3.917	0.000104	***
C3	-6.564e+03	8.782e+03	-0.747	0.455219	
C4	-8.030e+03	8.778e+03	-0.915	0.360793	
C5	-7.626e+03	8.777e+03	-0.869	0.385387	
C6	-8.967e+03	8.774e+03	-1.022	0.307329	
C7	3.743e+04	9.566e+03	3.913	0.000106	***
C8	6.660e+03	8.777e+03	0.759	0.448415	
C9	2.005e+03	8.779e+03	0.228	0.819486	
C10	-8.462e+03	8.781e+03	-0.964	0.335761	
C11	8.698e+04	8.776e+03	9.910	< 2e-16	***
C12	1.948e+04	8.769e+03	2.221	0.026865	*
C13	-7.141e+03	8.788e+03	-0.813	0.416899	
C14	5.718e+03	1.397e+04	0.409	0.682559	
C15	-8.961e+03	8.778e+03	-1.021	0.307877	
C16	-9.264e+03	8.788e+03	-1.054	0.292384	
C17	-9.251e+03	8.776e+03	-1.054	0.292421	
C18	-9.688e+03	8.803e+03	-1.101	0.271703	
C19	2.041e+04	9.041e+03	2.257	0.024475	*
C20	-9.355e+03	8.777e+03	-1.066	0.287117	
C21	-7.005e+03	8.770e+03	-0.799	0.424863	
C22	-9.189e+03	9.657e+03	-0.951	0.341896	
C23	-7.815e+03	8.776e+03	-0.891	0.373680	
C24	-6.290e+03	8.773e+03	-0.717	0.473811	
C25	-2.678e+03	8.771e+03	-0.305	0.760290	
C26	-8.261e+03	8.769e+03	-0.942	0.346675	

C27	-1.214e+03	9.238e+03	-0.131	0.895545	
C28	2.619e+04	9.360e+03	2.798	0.005366	**
C29	5.465e+04	8.787e+03	6.220	1.16e-09	***
C30	2.810e+03	8.917e+03	0.315	0.752830	
C31	-9.648e+02	8.971e+03	-0.108	0.914408	
C32	7.670e+04	1.037e+04	7.393	7.28e-13	***
C33	8.122e+02	8.782e+03	0.092	0.926360	
C34	NA	NA	NA	NA	
GDP_C	7.675e-04	2.111e-03	0.364	0.716366	
Projects	3.120e+02	4.027e+02	0.775	0.438889	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 23200 on 440 degrees of freedom

Multiple R-squared: 0.5526, Adjusted R-squared: 0.517

F-statistic: 15.53 on 35 and 440 DF, p-value: < 2.2e-16

A coefficient for Projects involved variable against dependent variable FDI is positive but statistically insignificant. The results indicate that the independent variables Country GDP and Projects involved are not sufficient to describe the changes in FDI.

A multiple logistic regression of Country GDP growth against Country GDP and Projects involved resulted in Multiple R squared of 0.3771 (37.71%) and adjusted R squared of 0.3275 (32.75%), which indicates about the low statistical significance of the model.

Table 7.   Results of the regression of Country GDP growth against Country GDP and Projects

Call:

lm(formula = GDP_growth ~ C1 + C2 + C3 + C4 + C5 + C6 + C7 +
    C8 + C9 + C10 + C11 + C12 + C13 + C14 + C15 + C16 + C17 +
    C18 + C19 + C20 + C21 + C22 + C23 + C24 + C25 + C26 + C27 +
    C28 + C29 + C30 + C31 + C32 + C33 + C34 + GDP_C + Projects,
    data = data_p)

Residuals:

Min	1Q	Median	3Q	Max
-22.1351	-4.0600	-0.8441	3.5235	30.9258

Coefficients: (1 not defined because of singularities)

	Estimate	Std. Error	t value	Pr(>|t|)	
(Intercept)	1.169e+01	2.072e+00	5.642	3.02e-08	***
C1	-4.714e-01	2.926e+00	-0.161	0.87210	
C2	-9.688e+00	3.036e+00	-3.192	0.00152	**
C3	4.219e+00	2.928e+00	1.441	0.15032	
C4	-2.150e+00	2.927e+00	-0.734	0.46306	
C5	7.536e-01	2.927e+00	0.258	0.79691	
C6	-5.013e+00	2.925e+00	-1.714	0.08729	.
C7	-9.986e+00	3.189e+00	-3.131	0.00186	**
C8	-3.427e+00	2.927e+00	-1.171	0.24228	
C9	-4.116e+00	2.927e+00	-1.406	0.16044	
C10	-3.698e-01	2.928e+00	-0.126	0.89956	
C11	-6.843e+00	2.926e+00	-2.338	0.01981	*
C12	-7.818e+00	2.924e+00	-2.674	0.00778	**
C13	-7.475e+00	2.930e+00	-2.551	0.01107	*
C14	-3.464e+01	4.659e+00	-7.435	5.51e-13	***
C15	2.442e+00	2.927e+00	0.834	0.40446	
C16	-3.071e+00	2.930e+00	-1.048	0.29517	
C17	-2.656e-01	2.926e+00	-0.091	0.92771	
C18	-2.903e+00	2.935e+00	-0.989	0.32327	
C19	-1.260e+01	3.015e+00	-4.180	3.52e-05	***
C20	1.568e+00	2.927e+00	0.536	0.59234	
C21	-6.461e+00	2.924e+00	-2.210	0.02765	*
C22	-1.767e+01	3.220e+00	-5.488	6.87e-08	***
C23	-4.833e+00	2.926e+00	-1.652	0.09928	.
C24	-3.664e-01	2.925e+00	-0.125	0.90038	
C25	-2.747e+00	2.924e+00	-0.939	0.34817	
C26	1.697e+00	2.924e+00	0.580	0.56202	
C27	-9.419e+00	3.080e+00	-3.058	0.00237	**
C28	-8.941e+00	3.121e+00	-2.865	0.00437	**
C29	-2.602e+00	2.930e+00	-0.888	0.37499	
C30	-7.134e+00	2.973e+00	-2.400	0.01683	*
C31	6.083e-01	2.991e+00	0.203	0.83895	
C32	-2.629e+01	3.459e+00	-7.601	1.80e-13	***
C33	1.953e+00	2.928e+00	0.667	0.50523	
C34	NA	NA	NA	NA	
GDP_C	5.872e-06	7.039e-07	8.342	9.50e-16	***
Projects	-1.335e+00	1.343e-01	-9.946	< 2e-16	***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 7.735 on 440 degrees of freedom
Multiple R-squared: 0.3771, Adjusted R-squared: 0.3275
F-statistic: 7.609 on 35 and 440 DF, p-value: < 2.2e-16

As demonstrated above, a coefficient for Projects involved variable against dependent variable Country GDP growth is negative and statistically strong. This indicates that the country's involvement in BRI projects lowers down its economic growth. Involvement in one additional BRI project by a borrowing country is associated with the average 1.3% decrease in 5-year average GDP growth.

Research Findings and Summary

The BRI relies on large infrastructural projects (transport industry dominates) (BRI, nd.) that require numerous years for completion and most likely the loan maturity goes beyond the construction period, which means that China is most likely investing in long-term political goals rather than short-term ones. Another illustration of this point should be the fact that infrastructural projects themselves are to serve many years and have really long useful lives.

Low transparency of the data on the BRI projects serves as a good cause of speculations on how finance is used to influence foreign politics of the participating countries. One possible cause of this is the conditions for debt agreements which may impose some political promises from the borrower or lender. Also, the scarcity of data may be rooted to the Chinese origin of the data, which means that it should be searched in Chinese rather than English or the language of ta borrowing BRI participant.

As for the interest rates on the BRI projects' loans, it is possible that they are below the value they should have, but not necessarily. The loan agreements might have other favorable for the borrower conditions including the possibility of getting the loan itself or the loan amount or the maturity period.

It is possible to assess the presence of political influence in a BRI project but only provided that there is enough data on the project and enough time passes after the project initiation. As it was mentioned earlier, the goals set by the Chinese officials are long-term, so it is unlikely to see the immediate change in the foreign policy after signing financing agreement.

On the basis of available data and the results of conducted analysis, the following factors might be stated about the economic effects of the country's involved in BRI projects in the short-term perspective:

Dependent variable	Significance of the model (R-adjusted)	Coefficient on Project involvement	Significance of coefficient
Import	83.26%	Positive	Strong (0.1%)
Trade balance	70.61%	Positive	Significant (1%)
Inflation	37.27%	Negative	Strong (0.1%)
Currency	98.90%	Positive	Strong (0.1%)
Unemployment	92.71%	Negative	Not significant
FDI	51.70%	Positive	Not significant
Country GDP growth	32.75	Negative	Strong (0.1%)

It can be obtained from the table above that there is clear evidence for the increase of the volume of imports from China and for weakening the local currency as result of the active involvement in BRI projects. Also, there are evidences for increasing trade balance and lowering down the inflation rate within the country. Finally, the results show decreasing tendency in the country's GDP growth after involvement in BRI projects.

While increase in the volume of imports from China is easily understood here, the slowing down of borrowing country's economic growth and downturns in inflation are counterintuitive within a framework of discussing huge investments under BRI initiatives aiming at the development of target regions. The latter results should serve as a warning for borrowing countries to be prudent prior of applying for BRI financing. The increase in trade balance can signify about the positive impact of BRI financing to the borrowing country's economy and is in line with the theory of debt cycle.

Nevertheless, deterioration of domestic currency in line with the increased volume of Chinese imports and foreign debt expansion clearly would signify about the increased dependence of borrowing country's on China.

Close financial cooperation with China raises other geopolitical issues. In particular, the Chinese direct and open rivals, the USA and EU, might apply political or economic pressure on countries which decide to either participate in the BRI or use Chinese financing for the BRI. While it is easier to track such instance of the political or economic measures taken against the BRI participant, it requires a different study with a detailed quantitative and qualitative research of the relations between the borrower and Chinese rivals in the time frame after joining the BRI.

With the increase of the Chinese economic power and political weight on the global scale, China has faced increasing Sinophobia in both regions that have had long story of contradiction with China (India, Taiwan, etc) but also in other parts of the world. The scandals with the rights of the Muslim population in China adds opposition to the general public especially in the Central and South Asia which are densely populated by Muslims. However, since authorities of these countries rarely rely on the opinion of the general public and local lower authorities when

conducting foreign politics, China do not have to worry about the sentiments of the local population. In addition, such infrastructural projects involve a large number of workers many of whom are sourced locally and it also requires service from various businesses. This results in improving of public image of China in the regions where the BRI projects are being implemented. However, it heavily depends on the region and the current political situation there as well as the general image of the Chinese workers and Chinese foreign politics in this country. For instance, Kazakhstan has some history of clashes between local and Chinese employees, which adds to opposition of the BRI. It is unlikely that such opposition would be seen for example in the Caribbean region.

As for the costs over benefits, it is yet difficult to assess the final result of the enterprise as the real effect will be known only when large parts of the BRI will be completed. Once it is done, it will be apparent how many benefits the increased economic and touristic traffic will bring to participants and will it cover the financial costs as well as the need to follow some Chinese foreign politics.

Conclusion

The Belt and Road Initiative (BRI) is the most ambitious international infrastructural project in the modern history and it is mostly financed by loans issued by the Chinese policy and state commercial banks (81% of the total BRI financing in total). Other sources of financing as well as the types of financial institutions are merely marginal and thus this is the Chinese government that is staying behind the BRI financing process.

China is providing funds for the BRI projects in order to facilitate the construction and because most of the BRI participating countries are simply lacking finance to have the projects financed on their own.

There is little data about the BRI projects financing. Most information is kept hidden from the general public and even some basic information like loan maturity is concealed. This leads to a lot of speculation about the nature of financing.

It is highly possible but can't be proven yet that debts provided by China are in fact an instrument of attaining political goals rather than just economic goals. There is no hard evidence of that, but many factors indicate that China is trying to build influence on the BRI countries using the BRI debt financing. Those factors include the choice of some Muslim populated countries to ignore the alleged labor camps for Chinese Muslims. However, the long-term nature of infrastructural projects makes it difficult so far to estimate whether the participating countries are actually changing their foreign politics in favor of China. This last point will require additional research in years to follow.

A quantitative analysis of the economies of borrowing countries under BRI financing leads to conclusion that the country's high involvement in BRI initiative will eventually strengthen its dependence on China by weakening the local currency and increasing the volume of imports from China. In addition, a quantitative analysis shows that the high reliance on BRI financing may lower down the borrowing country's economic growth.

It is yet difficult to assess the future of the BRI financing because the recent pandemic has seriously shaken the Chinese economy. Therefore, it is hard to predict whether China will continue financing the BRI with debt and what kind of financial institutions will be participating. It is another topic that is worth investigating in another research in the future.

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