

Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Economics



Diploma Thesis

**Impact of Foreign Direct Investment on Chinese
Economy**

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DIPLOMA THESIS ASSIGNMENT

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Economics and Management
Economics and Management

Thesis title

Foreign Direct Investments in Chinese Economy

Objectives of thesis

The main aim of the diploma thesis is to analyze and evaluate the impact of FDI flows on the economy of People's Republic of China for the period from 1979 to 2019.

Methodology

The thesis is divided into two parts: theory and practice. The first part is literature review, which summarizes theoretical findings of the FDI, its classifications, types and forms, determinants, major advantages and disadvantages of such types of investments, defines GDP and describes the global trends of FDI and economic growth. The practical part includes the information about the selected market, historical development of Chinese economy, comparison and analysis of the statistical data on FDI and GDP retrieved from the official sources, utilising statistical methods for subsequent analysis. The final part contains a discussion of the results obtained, hence, the corresponding conclusion is driven.

The proposed extent of the thesis

60 – 80 pages

Keywords

FDI, Foreign, Investment, Economic Growth, GDP, China, Development, Analysis, Import, Export, Economy

Recommended information sources

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Declaration of Honour

I declare that I have worked on my diploma thesis titled ‘Impact of Foreign Direct Investment on Chinese Economy’ by myself and I have used only the sources mentioned at the end of the thesis. As the author of the diploma thesis, I declare that the thesis does not break copyrights of any their person.

In Prague on March 30th, 2021 _____

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In Prague on March 30th, 2021*

Impact of Foreign Direct Investment on Chinese Economy

Abstract

This thesis is aimed to analyse a possible influence of foreign direct investment (hereinafter as FDI) on the hosting country. The basic idea is to reveal the idea of the FDI, including the types of them, factors affecting and influencing foreign investors' decisions which country to choose, why the country will be beneficial to invest in, global investment trends, explanation of notions of the capital flows, major investment policy changes and capital distribution, taking into account geographic and structural matters, etc.

In order to limit the broadness of the topic, Chinese economy will be examined in particular. For the past decades, China (or People's Republic of China) became a very attractive place for the foreign investors in terms of investing to manufacturing, real estate, business services, as well as wholesale and retail trade. Before the year of 1979, China had a centrally controlled economy, which was fairly poor and stable, but isolated from the global arena. Since China implemented the foreign trade and free-market reforms in 1979, China accessed the perspectives of the global trade that boosted their GDP. These steps also gave the roots to raise their economy and showed their significance on the international arena.

Keywords

FDI, Foreign, Investment, Economic Growth, GDP, China, Development, Analysis, Import, Export, Economy

Dopad Přímých Zahraničních Investic na Čínskou Ekonomiku

Souhrn

Tato práce je zaměřena na analýzu možného vlivu přímých zahraničních investic (dále jen PZI) na hostitelskou zemi. Základní myšlenkou je odhalit myšlenku přímých zahraničních investic, včetně jejich typů, faktorů ovlivňujících a ovlivňujících rozhodnutí zahraničních investorů, kterou zemi si vybrat, proč by tato země byla výhodná pro investice, globální investiční trendy, vysvětlení pojmů kapitálové toky, zásadní změny investiční politiky a rozdělení kapitálu s přihlédnutím k geografickým a strukturálním záležitostem atd.

Aby se omezila širě tématu, bude zkoumána zejména čínská ekonomika. V posledních desetiletích se Čína (neboli Čínská lidová republika) stala velmi atraktivním místem pro zahraniční investory, pokud jde o investice do výroby, nemovitostí, obchodních služeb i velkoobchodu a maloobchodu. Před rokem 1979 měla Čína centrálně řízenou ekonomiku, která byla docela chudá a stabilní, ale izolovaná od globální arény. Vzhledem k tomu, že Čína v roce 1979 provedla reformy zahraničního obchodu a volného trhu, přistoupila Čína k perspektivám globálního obchodu, které zvýšily jejich HDP. Tyto kroky také daly kořeny ke zvýšení jejich ekonomiky a ukázaly jejich význam na mezinárodní scéně.

Klíčová slova

PZI, Zahraniční investice, Ekonomický růst, HDP, Čína, Rozvoj, Analýza, Import, Export, Ekonomika

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List of Abbreviations

bln USD	Billion of US dollars
BOP	Balance of Payments
DEM	Deutsche Marke
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
IMF	International Monetary Fund
JPY	Japanese Yen
JV	Joint Venture
M&A	Merger and Acquisition
MOFCOM	Ministry of Commerce of the People's Republic of China
ODI	Outward Investment
OECD	Organisation for Economic Co-operation and Development
OLI	Ownership, Location, Internalisation (Basis of Eclectic Paradigm)
PPP	Purchasing Power Parity
R	Correlation Coefficient
R-squared	Coefficient of Determination
trln USD	Trillion of US dollars
UK	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
US	United States
USD	United States dollar

1. Introduction

Foreign direct investment (hereinafter FDI) is a type of investment that supports international capital and labor force exchange, technological innovations, decisions of sending and receiving countries whether to invest or not, etc (OECD, 2002). It seems that only less developed countries and transitioning economy countries are in need of investment inflows and developed countries are likely to trigger outward inflows, however, this is not true. Due to the fact of agglomeration of capital, developed countries are more likely to attract the investment rather than developing ones.

Relevance of this particular thesis is behind the fact that FDI recently became one of the most significant outcomes of globalisation. Based on Adam Smith's study (1776), FDI became a crucial factor of driving an employment rate, development of the technological progress, efficiency and productivity, and economic growth, which is measured by GDP. Furthermore, most of the nations are concerned about the FDI effects on countries' economy. Chinese economy is viewed in this thesis more precisely since China is one of the worldwide leading economies after US and followed by Japan. According to UNCTAD (2010), since becoming the largest recipient of the FDI among the developing countries, Chinese economy was able to get into the TOP-10 of the local economies for foreign investments. A quick spread of the Chinese firms across the world spawned a huge global interest. There are two types of foreign direct investment exist, when the country is the recipient (also known as the inward investment or inflow) and when the country is a giver (outward investment or outflow).

The outward Chinese investments are usually seen to be controversial. On the one hand, some countries consider an inflow of the capital from China to be a lucky chance, especially during the low growth period, which allows the developing countries to access more advanced technologies and boost the economic growth. On the other hand, Chinese economy supports the foreign direct investments, and lots of Chinese companies highly use the financial and political subsidies from the state. Therefore, recipient countries might be in doubt or even fear of the Chinese investments: the wealthier states are

very concerned about the Chinese investing attitudes, and developing countries are afraid of the key technology losses.

This thesis examines the notion of the foreign direct investment inflows to the Chinese economy and their affect on the growth of the economy. FDI plays one of the key roles in terms of filling up the gaps in the country development, solving issues with investment, foreign exchange and tax revenues in the developing countries. Based on the scientific literature, it might be seen that because of investment inflows China was able to manage and balance the GDP at the significant level (OECD, 2002). On the contrary, in practice, countries also might face negative impacts of FDI. The fact is that some huge multinational companies might have enormous shares in the country, they might seem to have an unmeasurable power. These corporations constitute almost a half of the Chinese export and 1/3 of total GDP (Poncet, 2007, p.1). Hence, an assessment of macro-economic effects of FDI on the economy of China becomes relevant.

2. Objectives and Methodology

2.1. Objectives and Research questions

The main objective of the diploma thesis is to define foreign direct investments, give an overview of its types, forms and purposes, describe the major benefits and drawbacks as well as the FDI trends reflecting the economic growth. In order to narrow down the broadness of the selected topic, the Chinese economy is viewed in particular.

The primary objective, in this case, is to analyse the impact of foreign direct investment flows on the economy of People's Republic of China for the period from 1979 to 2019. The time series selection is mainly based on the year when China got the opportunities of the open market and accessed the global arena. Exactly at the beginning of 1980s, the Chinese economy showed a positive trend in FDI and GDP (Davies, 2013, p.14).

The main tools of analysis include statistical methods of analysing the data in order to find out the relationships between the two selected indicators: GDP growth and FDI

inflows. In case if the relationship is positive, it is assumed that these events are interrelated to each other. Otherwise, the negative relationship would mean that there is no connection between the two indicators. Besides, to give a more precise picture, the Chinese economy would be compared to the two leading economies — US and Japan. Therefore, a corresponding summarisation and conclusion would be presented.

For achieving all above mentioned goals, it is crucial to:

- Define FDI and its forms, types and classifications, methods of investments, advantages and disadvantages of FDI
- Give an overview of the global trends and determinants of FDI and GDP
- Gather the statistical data on FDI inflows, outflows and GDP from official resources and make descriptive analysis
- Utilise the data obtained with the purpose of description of the historical trends (why a certain period is associated with growth/fall)
- Conduct a linear regression analysis of FDI and GDP rates of the three leading economies and drive comparative analysis and make conclusions

The proceedings of this thesis are aimed to answer the following research questions:

- What are the trends of FDI flows of the Chinese economy for the period of 1979-2019 and what historical background lays behind them?
- Is there any relationship between FDI and GDP growth in Chinese economy? If yes, how the FDI inflows affect the economic growth of the country?
- Do the other world economy leaders such as US, and Japan have similar trends in FDI and GDP growth? If yes, what are the main factors or conditions that influenced their common tendency?

2.2. Methodology

In order to answer the research questions, it is necessary to conduct an empirical research of the FDI attraction, elaborate and evaluate theoretical and methodological ideas of the FDI and its effects on the Chinese economy. The analysis held will help to understand which sectors of the country's economy mostly appeal investment funds and

why, what is an anticipated effect of investment growth. All these questions will be answered with the help of qualitative and quantitative research methods, using secondary and primary data collections. The evidence of this thesis will be supported by official statistics and scientific literature, explained and criticised in accordance to calculations made using charts and schemes. Moreover, it will involve a detailed research and review of the documentary analyses.

This thesis is divided into two parts: theory and practice. The first part is literature review, which summarises theoretical findings of the FDI, its classifications, types and forms, determinants, major advantages and disadvantages of such types of investments, defines GDP and describes the global trends of FDI and economic growth. The practical part includes the information about the selected market, historical development of Chinese economy, comparison and analysis of the statistical data on FDI and GDP retrieved from the official sources. In order to achieve the primary goal, it is necessary to perform the statistical methods of finding the correlation between two variables, hence, regression analysis is made for the three leading economies — China, Japan and US and the outcomes are outlined in the final section of the thesis.

To conclude, the final part is constructed on the basis of research conducted, analyses and findings got, hence, own conclusions will be drawn and supported by scientific literature and critical discussion. As an advantage, this work is a good experience for the author measured by gaining new international experience as well as acquainting with the new topic of FDI, culture (Asian economic trends) and economy (China in particular) and expertise of FDI attraction to the Chinese economy.

3. Literature Review

This chapter discloses the notion of foreign direct investment, its typologies and forms, role, importance and factors affecting the investor's decisions. It also shows a theoretical basis of FDI, the way these investments influence economic development of the country. The case of People's Republic of China was chosen as a hosting country example of a big international economy with a wealthy historical and economic development.

Besides, Chinese economy will be compared to other leading economies such as US and Japan, which take first and third places respectively on the worldwide arena.

3.1. Defining FDI

First and foremost, it is very important to define the foreign direct investment. In accordance with the International Monetary Fund (IMF), FDI is related to a long-term relationship investment, when the direct investor holds 10% or more of shares or voting power in the corporation abroad (IMF, 2003a). It is an investment category that expresses an aim of enterprise or individual from one country economy (also known as direct investor) to acquire a long-lasting interest in the economy of the other country (direct investment company).

After the global crisis of the 2008, in the second half of 2009 the world trend of the FDI flows started to recover. Nevertheless, a better recovery took place only in the first half of the year of 2010, giving optimistic incite for FDI development for the short-term scenario (UNCTAD, 2010). In a long-run, starting from the years of 2011 till today, the FDI was promised not only recover but also raise at the significant level.

Due to the fact that FDI gives significant benefits, lots of transition and developing economies set the goal in their reform agendas to attract more FDI. In fact, the governmental leaders believe that FDI inflows will have an anticipated affect: development and exchange of new technologies, new practices of management, as well as access to

the export marketing. This will allow to boost the productivity and raise the competitiveness of local industries (Madariaga and Poncet, 2007, p.4). Additionally, attraction of the newer investment FDI became one of the major goals for developing countries in order to fill the gaps in the technological and economic development of the country in comparison to the wealthier countries. A formula that is used for calculating the FDI is the following:

$$FDI = EC + LTC + STC, \text{ where} \quad (1)$$

EC — Equity Capital, which refers to any funds invested into a company by investors,

LTC — Long-term Capital as mirrored in Balance of Payments (BoP), investments owned for longer than one year,

STC — Short-term Capital as mirrored in BoP, investments owned for less than one year.

3.2. Classification, types and forms

Table 1: Types of FDI classification

Types of FDI	
Transaction (Direction)	1. Inward
	2. Outward
Business expansion (Motive)	1. Horizontal
	2. Vertical
	3. Conglomerate
	4. Platform
Method of expansion (Target)	1. Greenfield
	2. Brownfield
	3. Joint Venture
	4. Mergers and Acquisitions

Source: Processed according to Pan et al., 2020; Garcia-Herrero et al., 2015; Poncet, 2007; Arvanitis et al., 2015; Glaser et al., 2013; Cheng, 2009.

Forms can be classified by type of transaction (inward and outward); type of business expansion (horizontal, vertical, conglomerate and platform); method of business expansion (Greenfield, brownfield, Joint Venture, Mergers and Acquisitions) (*see Table 1, p.20*).

3.2.1. Direction based

One should say that there are more FDI classifications exist. In line with the transaction type, there are inward and outward investments can be distinguished.

3.2.1.1. Inward investment

Inward investment (also known as inflow) is a type of investment that refers to a foreign company, which either invests in or buys the goods or services from the domestic economy (Cambridge, 2021). In other words, it is a money from the external economy that inflows into the local economy.

As a rule, the investment inflow usually attracted from the multinational companies that are willing to invest their capital to external markets (Madariaga and Poncet, 2007, p.4). It is done in order to either to expand their business to other markets or to meet concrete demands of the domestic economy. In this scenario, it may grow into the new demand for services or products or contribute to the harsh development of the region.

One of the major types of such investment is FDI. It happens in a few situations: while the foreign firm buys the local company, or while the foreign firm starts doing new operations in the existing firm in the country that is distinctive from its origin (Pan et al., 2020, p.17). In practice, the inward investments or FDIs often end in opening lots of new mergers and acquisitions. It is fairly common when the businesses are likely to purchase or merge with other businesses rather than creating a new one. It is important to mention that the inward investments are inclined to help the corporations to grow and give opportunities for the global integration.

For example, once the People's Republic of China accessed the global market, such large corporations as Coca Cola and Panasonic entered the Chinese economy. This happened in 1978. Due to the more liberalised policies and new market opportunities, plenty of firms from Japan (14.4% of total inward FDI), Hong Kong (54.9%), US (13.1%) began to invest into Chinese nation (Li, 2013, p.3). Thanks to new market prospectives, the FDI inflows in China accounted 3.5 bln USD by 1990.

3.2.1.2. Outward investment

One should say that the outward investment (also known as ODI) and foreign direct investment (FDI) are different terms. FDI is a form that implies an investment of one foreign company to another foreign company, whereas the ODI is a sub-form that is intended to invest in the subsidiary owned abroad within the strategic framework of its business expansion (Garcia-Herrero, Xia and Casanova, 2015, p.3).

The outward investment is a form of investment contrary to the inward. It is a tool by means of which the domestic business is able to expand to another country abroad. Depending on the type of the corporation, outward FDI might take various forms: (1) green field investment (creation of subsidiary abroad), merger or acquisition, and strategic expansion (expansion of the existing business) (OECD, 2013). ODI is a natural practice for the multinational companies or companies which overgrew the domestic market and sell for the better opportunities that they might access abroad due to their investments.

The volume of the ODI to foreign country shows its economic maturity. This thesis will prove the outward investments to boost the nation's investment competitiveness based on the case of People's Republic of China. Besides, it will show that the outwards FDI plays a key role for the long-run sustainable growth of the economy. Practically speaking, there are plenty of the companies worldwide that invest to foreign countries' economies. The oldest exporters of foreign investment were America, Europe and Japan (Garcia-Herrero, Xia and Casanova, 2015, p.3). Due to the rapid economy growth, de-

veloping economies receive larger amounts of FDI, and also they manage to invest too. China is one of the examples. As it was mentioned before, China is the 2nd largest FDI recipient since 2019.

It was the first time in 2015 when China managed to surpass the FDI abroad. A year later, the ODI of Chinese corporations reached the outward investment of over 170 billion USD. Then, there was a small investment outflow in 2017. In the year of 2018 Chinese economy over exaggerated the forces and the ODI exceeded the threshold so as the country fell into a net debt again. Since 2019, Chinese FDI follows downtrend, decreasing the value by 110.6 billion USD (more than 8%) (Pan et al., 2020, p.16).

As China is associated with mass production, it is not surprising that the largest part of Chinese ODI goes to manufacturing, distribution, real estate (rental), retail, and commercial services (Garcia-Herrero, Xia and Casanova, 2015, p.9). Since opening the overseas market and exporting massively the final goods and services at the cheaper labor costs, the economy started to grow drastically, therefore, there was a huge willingness of the corporations to invest more abroad. A small decline in the capital outflow in 2017 is associated with the Beijing restrictions on the capital controls. As a consequence, lots of Chinese projects had been cut in budget (UNCTAD, 2018, p. xii). The following restrictions were intended to control the assets and budget to avoid the quick outflow of the domestic economy. Simultaneously, there was a downturn in the economy of China because of the long-lasting impacts of the US trade war. Thus, it was also an obstacle for the Chinese ODI as the local economic growth fell and investment abroad started to be less attractive. Although, before that issue, thanks to the Chinese ODI the world asset prices were driven.

3.2.2. Motive based

3.2.2.1. Horizontal vs. Vertical

Basically, there are two main types of FDI that can be distinguished: horizontal (market-seeking) and vertical (resource-seeking) (Camarero, Montolio and Tamarit, 2019,

p.2786). Horizontal form consists of expanding domestic business to another country, meaning that the firm in a country abroad conducts same activities and shares same responsibilities as a home country business. This happens when these enterprises belong to the same industry and perform same activities at the same responsibility level. For instance, Toyota Motors is a very well-known Japanese company that specialises in automotive manufacturing, provides financial services as well as has several other directions of business (Poncet, 2007, p.5). One of the fields that the Toyota does is car assembling. The company does its business all around the world and, thus, invests into different countries in order to expand. The company might choose to assemble its vehicles in any of the assembling centres in a foreign country. As an example, it assembles cars both in the United States and China. Both assembling centres perform the same tasks, share same responsibilities and work independently — that is why this FDI type is considered to be horizontal. Additionally, there are a number of studies confirming that Chinese economy, especially provincial ones are mainly characterised by horizontal type of investment attraction (Camarero, Montolio and Tamarit, 2019, p.2786).

On the other hand, there is a vertical type of FDI. It is about expanding business by moving it to a different supply chain level, meaning that corporation overseas performs different activities rather than a domestic firm, however, still belongs to the main business. Vertical form occurs when the invested firm is not able to perform some activities without the main office approval. There is an actual dependence between the two companies — when the company does from the manufacturing of raw materials up to the final good. They are produced in one country, assembled in another (Arvanitis, Hollenstein and Stucki, 2015, p.285). As an example, nowadays many modern technology manufacturers purchase materials or details from China. Till the year of 2019, Samsung Electronics was widely using its Chinese phone factory to produce some smartphone parts because of lower costs.

Besides, concerning the vertical investments, most of the Chinese companies are interested in outward investments towards oil, gas and mining in search of resources access, i.e. raw materials (Poncet, 2007, p.12).

3.2.2.2. Conglomerate vs. Platform

As the international system grows, there are two additional types emerged: conglomerate and platform FDI. Nowadays it often happens that business expands and opens a branch in other country, though it has nothing common with domestic firm — this is mainly the type of conglomerate investment (Glaser, Lopez-De-Silanes and Sautner, 2013); whereas a platform investment means that the output of foreign business operation is transferred to a third country, usually countries that belong to a free trade area.

A well-known company Siemens AG is considered a conglomerate business since it has different branches that perform unlinked activities from producing and assembling simple telecommunication technologies and PCs up to industrial production, air and rail transportation, etc., also it has subdivisions that supports healthcare, energy, infrastructural development and many more (Glaser, Lopez-De-Silanes and Sautner, 2013, p.1586). But this is still a huge business headquartered in Munich, Germany with lots of subdivisions. On a contrary, a case of Ford Motor Co. clearly shows a platform type. The company buys manufacturing plants in Ireland and exports vehicles to the EU member states.

3.2.3. Target based

Again as it was mentioned above company or an individual is able to make FDI by expansion of its business to a foreign country. There are several methods exist for investor of how to obtain the voting power in an overseas corporation: purchasing voting stocks or Joint Ventures overseas, making mergers and acquisitions, opening subsidiaries, etc. In this part the four main forms would be discussed — Greenfield, Brownfield, Joint Venture (JV) investments, and mergers and acquisitions (M&As). To make the differentiation clear, the Greenfield and Brownfield investments are summarised in *Table 2*, and JV and M&As in *Table 3* (see *Table 2, p.28* and *Table 3, p.29*).

3.2.3.1. Greenfield investment

The Greenfield is one of the most typical forms of investment abroad. It is a kind of capital flow aiming at constructing the business activities from the very scratch. Meaning that the firm purchases or leases the land overseas, builds a new enterprise on this land and hires people to this so-called subsidiary. This type of investment is considered to be the easiest because of the organisation process, which is mostly relied on the aims set (Cheng, 2009, p.204). However, it is quite costly and requires meaningful time and budget inputs.

Among the benefits of such type of inflow, the country 'enjoys' the advantage of creation of new workplaces, which successfully contributes to the country economy. Domestic governments often tend to encourage the flows of investment to the country since it allows the firms to decrease their costs. Aside from the unemployment reduction, hosting nations have a privilege to get acquainted with other cultures and adapt to their mentality and customs. Also, when the foreign company enters the market with the Greenfield approach, introduction and implementation of innovative technologies might take place (Cheng, 2009, p.207). On the contrary, if we go deeper, the investors tend to input their money to more profitable sectors of the economy, which undoubtedly increases the acuteness of disparities in the hosting country. Plus, the Greenfield FDI suppresses local producers.

Speaking about the investors' side, they are free to rely on their own opinion in terms of choosing location, deciding on the type of construction, equipping the area, and how to run the business within the selected market. It is important to understand and assess realistically what the firm has to face before, during and after entering the market. Bureaucracy cannot be avoided or forgotten. Before making an investment, the investor should assess the position and develop a strategic plan. If for the hosting country getting to know the newer nations is an opportunity, for the investor it might be a real threat. Not only that Greenfield is about the huge capital inputs and construction costs coverage, running a business on a foreign land might cause cultural misunderstandings and even shock. Hence, an investor should have enough time to decide, understand the local features, laws and regulations, communicate with authorities and go through the

bureaucracy (Cheng, 2009, p.204). At this point the list of investors' responsibilities does not finish yet — it is not sufficient only to monitor the construction process but consider an employment plan as well. Hiring employees and training them at the same level using the same approaches as in the home country might not work. The cultural differences can be an obstacle for it. Thus, some of the investors tend to transfer the employees temporarily from the home country in order to investigate and find the way how to approach local mentality and conduct the business within the different cultural environment. Despite the number of disadvantages, Greenfield is the most flexible type of investment and most beneficial while setting aims, hence, achieving the stated goals.

3.2.3.2. Brownfield investment

Brownfield investment is another kind of FDI. The idea of this type of investment lies behind buying an existing company through the means of property rights acquisition or taking part directly in management of the firm. The major principle of purchasing an existing company on the foreign market assumes that related firm divisions keep to operate in the same mode and continue to make profits (Cheng, 2009, p.217). Simultaneously, the investor proposes and implements the system into the development strategy of the existing business.

In comparison to the Greenfield investment, Brownfield allows to reduce the amount of bureaucracy. The process of adaptation and transition to hosting country laws is generally easier and requires less time and capital. In this form of investment the investing entity gets a supervision over the firm that already has a partial share in the local market, e.g. functions, technology, employees, trademark, etc. (Cheng, 2009, p.214). In other words, the Brownfield strategy helps to investigate the foreign markets rapidly due to already existing firm and its strategic channels, thus, significantly boost the competitiveness of the enterprise on the market. But we should not forget that the recipient country is at risk to lose a number of workplaces.

Obviously, if in the Greenfield inflow the investor does not have to deal with the debts of the company on the foreign land, in Brownfield — it is a common practice. Purchasing a part of the shares the investor takes responsibility for the financial constituents

like debts, salaries and budget allocation, etc. It is a quite common when an investing company is forced to cover expenses before the first profit. Therefore, it makes the investor's choice complicated to find a reliable company to purchase.

Table 2: Main differences between Greenfield and Brownfield types of investments

	Greenfield	Brownfield
Description	Investors build a new facility from the scratch	Re-development of existing facility
Time frame	Requires more time	Requires less time
Other	Does not require clean-up cost	Clean-up costs are incurred

Source: Processed according to Cheng, 2009.

3.2.3.3. Joint Venture

One the most interesting types of FDI — Joint Venture (JV). The principle of the Joint Venture considers two or more companies conducting their businesses through the means of the third enterprise. The latter is a part of the firms' property, however, separated in legal terms. Exactly the emergence of the third company is seen more often rather than buying shares of the firms. The management of the JV can be held in various ways. Either the owning firms directly manage the company through the selected representatives, or transition the management liabilities to one of then owning firms. On the other hand, in the latter scenario might cause an abuse of power of one of the parent companies (Balooch et al., 2015, pp.43-44).

3.2.3.4. Mergers and acquisitions

A specific attention in the literature is paid to the mergers and acquisitions (M&A). It is one of the most widely spread economic processes which facilitates business reinforcement. For instance, UNCTAD research showed that the share of merger and acquisition flows reached 41% in the total flow of FDI in 2016 (Wang and Miao, 2020, p.6). The basic notion of this form is that one entity purchases a controlling interest form the other entity(-ies) in order to merge into one single (Trakman and Ranieri, 2013, p.496).

Economic theory suggests wider classification of the firms practicing the form of mergers and acquisitions. Based on the characteristics, these might include: types and conditions of integration, forms of association, nationality of the firms and their attitude to integration.

The basis for this type is to reach the synergy, meaning that the total value of the final merger is greater than the sum of the current values of each of the firms solely. Undoubtedly, it is easily achieved by reinforcement of the trademark on the selected market, reduction of tax incentives, transaction costs, and saving on the production costs and expenses for research and development (Lee and Lee, 2017, p.43).

Table 3: Main differences between Joint Ventures and Mergers & Acquisitions

	JV	M&A
Description	Emerges when companies continue to perform same business operations but within a separate entity.	Emerges when companies continue to perform same business operations as a one single firm.
Motives	Achieve a particular goal and benefit separately, but sharing risks and costs.	Creating opportunities for growth and enlarging market shares, but summoning the assets in one company, which allows to increase revenues and decrease costs.
Ownership	Owned by original companies which created JV.	Owned by same to owners original companies.
Commitment	Requires less commitment for operation	Requires more commitment for operation
Time frame	Short-term based (mostly small projects)	Long-term based

Source: Processed according to Balooch et al., 2015.

3.3. Advantages and disadvantages of FDI

Even though the word «investment» is associated with something positive, FDI has benefits and drawbacks for both investor and recipient country.

3.3.1. Benefits

On the one hand, there are plenty of advantages. Undoubtedly, FDI flow is a promotion of the international trade which allows to build and strengthen economic relationships between different countries. So, such large corporations as Apple, Sony, Samsung and Toshiba invest in Chinese economy in order to support manufacturing of their products. Similarly, FDI reduces tensions at the regional and global levels. While supply chains are interconnected by producing some parts of one product in one country, and other parts — overseas, the countries become dependent. For instance, if smartphone parts (e.g. touchscreens) are produced in a completely different country, then the smartphone that is designed with touchscreen cannot be without it. In case, if manufacturing of touchscreen stops, then the final product cannot be made. The product will be re-designed, some functions will be eliminated or replaced, hence, the whole smartphone parts will be re-done from the scratch and supply chains will start their manufacturing processes from the very beginning (Balooch et al., 2015, p.44). In other words, this process will definitely affect other countries' manufacturing, therefore, countries should work harmoniously and effectively together.

From the business perspective, benefits of FDI are primarily based on lowering risks and cutting production and labor costs (Ngoc Dung, 2021, p.69). By investing to other countries, business protects itself from some risks through diversification because products are not reliant only on one market — if demand in one market falls, it might raise interest in another one. Multinational companies are especially likely to invest to other nations when it comes to lowering costs and increasing efficiency of production. Businesses are fond of finding cheaper means, following the logic of cheap labor and at the same time high productivity. In most cases, firms choose China for their investments. Chinese labor is not that costly in comparison to other country economies. One Chinese employee is able to produce one unit for 1 USD per hour, whereas US employee produces two units for 10 USD.

Moreover, corporations tend to search for reducing taxes. FDI gives a great opportunity for big businesses to save money on tax incentives (Balooch et al., 2015, p.42). Such

countries like Switzerland, Monaco, Latin America are in favour over the others due to the lowest tax regimes. Similarly it works with tariffs and subsidies.

Hosting country enjoys economic advantages of FDI. Investments support recipient country's economy, encourage development of employment and human capital (Ngoc Dung, 2021, p.59). Particularly when huge companies enter the overseas market, they are create more jobs and prefer to hire qualified professionals. This international experience allows to access, share and exchange skills, technology and expertise between the countries which is good for both — nation and business.

3.3.2. Drawbacks

On the other hand, when large corporations enter the overseas countries, it may lead to a displacement of local smaller businesses since domestic firms are usually not able to compete with better offers or services, and even lower prices, e.g. Walmart. Definitely, it leads to closure of domestic firms and loss of domestic jobs (Trakman and Ranieri, 2013, p.496). Furthermore, as it was mentioned before labor, capital and land are relatively cheap in developing countries and there is a huge risk of bigger economies to take a control over the hosting economy .

Also, profit repatriation is a concern of companies that will not re-invest profits back to the host country, which results with significant capital outflows from the host country (Lee and Lee, 2017, p.156). Basically, this is a very common problem of developing countries when companies are willing to off-shore their profits.

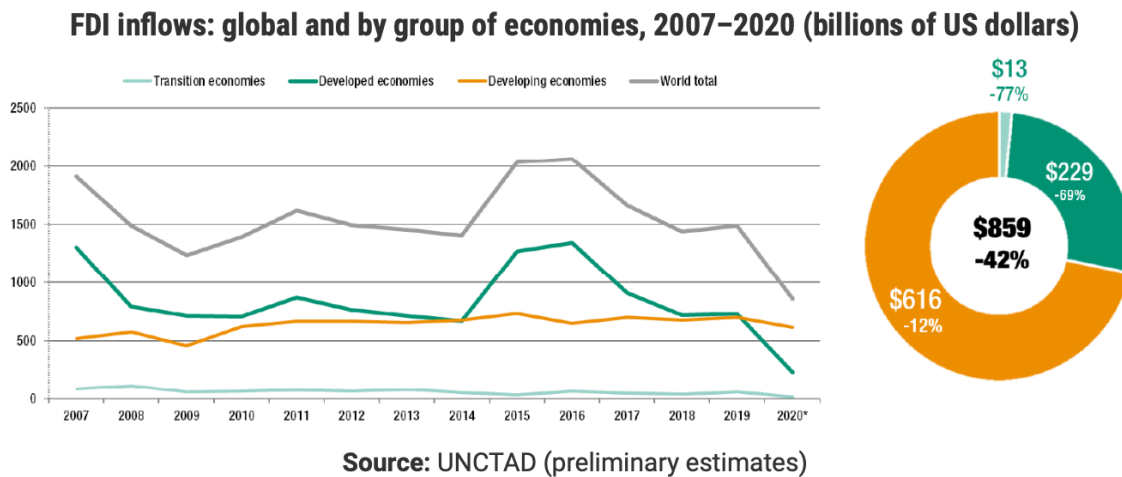
Investing abroad to developing countries can be perilous because of instability. Lots of businesses in euphoria of saving money make FDIs to developing countries (Lee and Lee, 2017, p.173). Nevertheless, they forget about political and economic challenges. Developing countries have a tendency of living in instability that might include from small regional issues up to bigger problems like wars or upheavals.

As a consequence, to avoid most of risks many recipient countries tend to limit FDI. One of the most popular ways to restrict FDI is necessity to build a partnership with the domestic company.

3.4. Global FDI trends

Since the global financial crisis, the world economy hardly tried to recover. However, according to the World Bank official statistics, by 2016 there were more than 2 trillion USD invested to the foreign funds all over the world (see Figure 1, p.30). The World Bank Investment Competitiveness Forum was a great space for discussion of the foreign investment, its importance and contribution for the strategic development of profit maximisation (World Bank, 2017). Consequentially, this forum gave the roots for driving conclusions for the international competitiveness report, the development of the first network of investment reformers and establishment of the partnership roundtable.

Figure 1: FDI inflows: global and by group of economies, 2007-2020 (bln USD)



Source: UNCTAD, 2021.

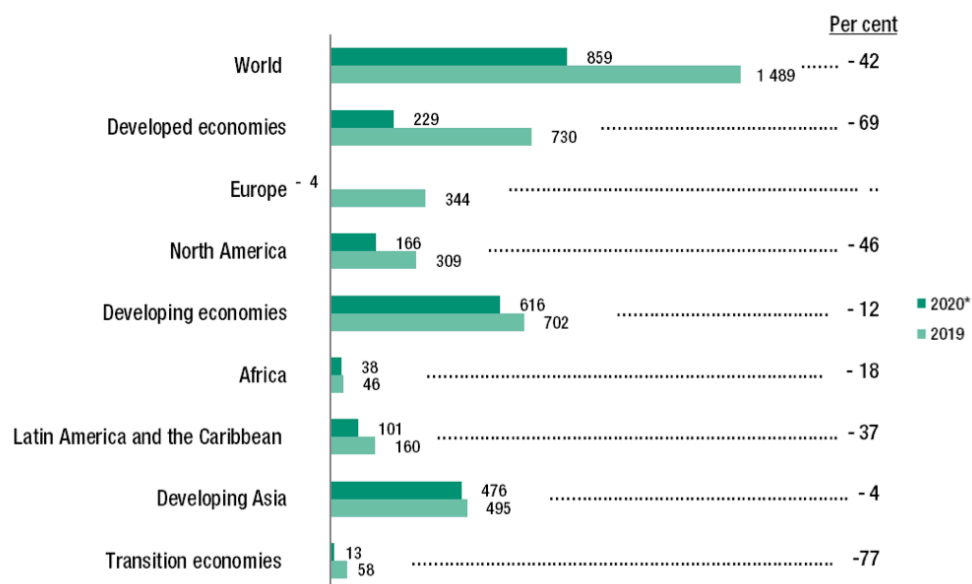
It was noted in the posted reports that some nations managed to gain a competitive reputation for investment. The World Bank statistics demonstrate the Top-10 nations that got the highest part of the FDI inflows in the year of 2016 (Diamond, 2017). The top countries include: the US, UK, China, Netherlands, Ireland, Brazil, Singapore, Germany, India, and France. The US investment obviously hit the trend lines of 479.4 billion

USD, followed by UK with the 299.7 billion USD in 2016. In spite of the fact that China is on the third place in this statistics, reaching just 170.6 billion USD, the year of 2016 was very notable for the Chinese economy. The country received the highest amount of the foreign direct investment and overwhelmed the threshold of all time investment for the whole history of the country.

This year UNCTAD (2021) presented observations and opinion on the development of the FDI during and after the COVID-19 outbreak. Based on their statistical data, the global FDI suffered from the drastic fall by 42% in 2020 in comparison to 2019, which is measurable only with the global financial crisis in 2008 (see Figure 2, p.31). Although the world projections are quite optimistic about FDI trend, the UNCTAD estimates a pessimistic scenario of the FDI development — a small change, a growth by 5% to 10% only (Zhan, 2021, p.3). The positive scenario is expected only in such industries as healthcare and technology.

Figure 2: FDI inflows by region, 2019 and 2020* (bln USD)

Figure 2. FDI inflows by region, 2019 and 2020*
(Billions of US dollars)



Source: UNCTAD.
* Preliminary estimates.

Source: UNCTAD, 2021.

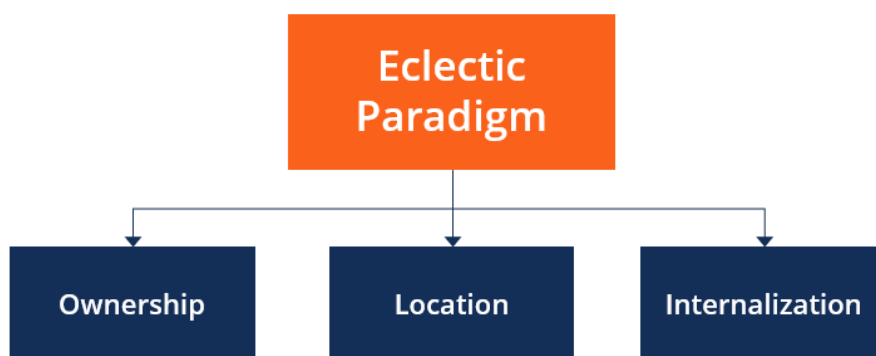
3.4.1. Determinants of FDI

A large amount of the scientific sources examine different variables that were set in order to explain the notion of FDI. The most frequently used classification of FDI determinants is reflected in the UNCTAD World Investment Report. In accordance with this report, the three main groups can be distinguished: political and economic factors, and business facilitation (UNCTAD, 1998).

3.4.1.1. Eclectic paradigm by Dunning

John Dunning suggests the theory of eclectic or OLI paradigm (Hesselborn, Ohlin and Wijkman, 1977, p.54). His theory observes the three types of beneficial influence on the decision whether it is profitable to make the foreign investments. Those types include O - ownership, L - location and I - internalization (OLI) (see Image 1, p.32). The goal of such approach is to understand if the overall value of the aforementioned factors is greater than within the domestic business. In case of FDI, all the factors are taken into consideration (see Image 2, p.33).

Image 1: Overview of OLI framework according to Dunning theory



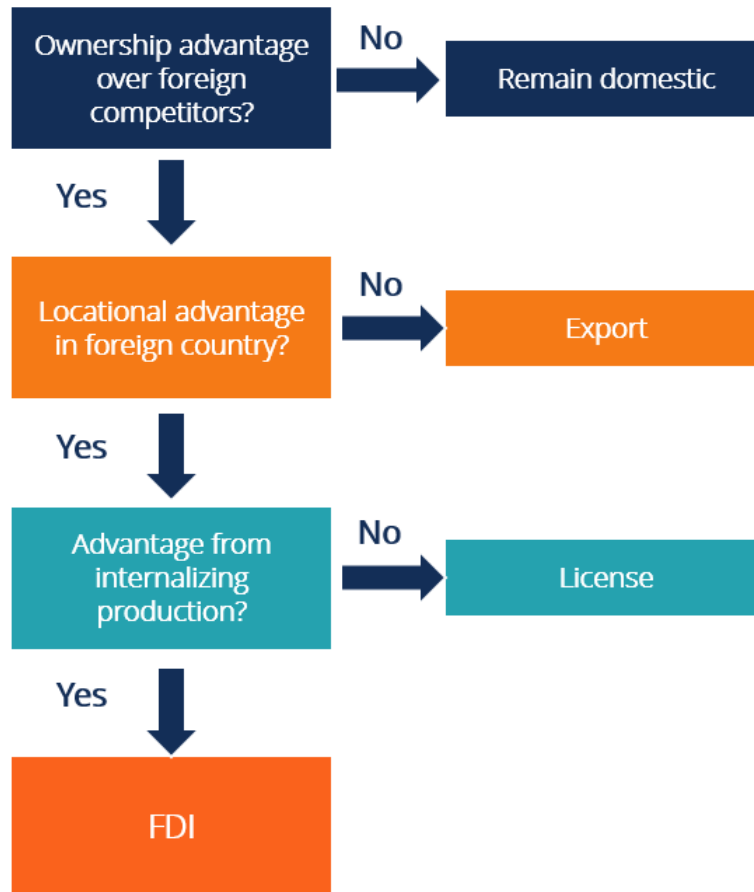
Source: Corporate Finance Institute, 2021

(1) Ownership

The first factor covers the benefits of the ownership. It is primarily intangible and considered for the purpose of competitive advantage in the market (Hesselborn, Ohlin and

Wijkman, 1977, p.135). The ownership rights imply trademark, copyright, patents, etc., hence, it allow to gain the reputation in order to show the reliability of the company.

Image 2: Expanded OLI framework according to Dunning theory



Source: Corporate Finance Institute, 2021

(2) Location

This consideration is generally related to the macroeconomic level. According to Dunning, he distinguishes four major motives that enhance multinational companies to get involved to the production process overseas, as follows, seeking for: (1) market, (2) resource, (3) efficiency and (4) strategic assets (Dunning, 2000, p.273).

- (1) The motives that are driven by seeking for the market location, correspond to the willingness of the businesses to invest their FDI for the sake of supplying the domestic market in neighbouring territories. The main rea-

sons behind marketplace search imply recipient's size of the market, income per capita as well as the consumer demand (Hesselborn, Ohlin and Wijkman, 1977, p.274).

- (2) The firms that chase the aim of finding cheaper resources and labor force belong to the resource seeking group.
- (3) Another motive is efficiency seeking investment. It is aimed at encouragement of either more efficient labour division or assets specialisation by international firms.
- (4) The foreign investments that are intended for better technology, skilled workforce and other types of assets aimed at supporting the global development of the company and enfeebling the competitive position of their competitors, belong to a group of strategic asset search motives.

(3) Internalization

More and more companies are persuaded to lower the costs of production. Therefore, they take into account production costs abroad. This consideration allows the company to decide on whether to produce the product domestically or sign the contract with the third party to lower costs (Dunning, 2000, p.273). Due to the fact that there is a number of countries that propose producing more for the lower price alongside with a cheap labor force, the multinational companies have a trend to switch from the local production to overseas.

If the enterprise makes a decision to outsource some of the processes, it might require finding the opportunities of partnership with the domestic producers (Hesselborn, Ohlin and Wijkman, 1977, p.135). Nevertheless, following the route of choosing the outsourcing processes takes only the financial sense, while the contracting firm is able to meet the needs of the contracting side and provide the higher quality standards. In exchange, the invested company might offer better knowledge, workforce and share experience.

3.4.1.2. Other theories

Horstmann and Markusen (1987, p.109) suggest the division into horizontal and vertical FDI. Horizontal is explained as the market oriented theory, meaning that the company is seeking a better place for the purpose of efficiency, which might infer transferring similar business duties and production processes to the recipients' country or even complete duplication. On the contrary, whereas for the horizontal one it is important to understand the size and the growth of the foreign nation, the vertical is oriented to be competitive in the entering market, hence, vertical is considered to be an export-oriented. Vertical type is aspired to minimise the production costs in the receiving country, thus, export the final good back to the hosting country or further — to other nations.

Based on the Horstmann and Markusen work, Markusen et al. (1996, p.2) were able to elaborate the topic and formulate the notion of the *knowledge-capital model*. In his later works, Markusen explained the knowledge-capital model on the expense of two trade-offs. The first and key trade-off is the benefit coming from the economies of scale and splitting and dispersing production processes. The second one is related production factors, when in case of the vertical FDI the company tries to place each stage of the production processes to the countries offering lower prices for the operations. However, the described model is not considering the facts of different productivities of the companies and fixed costs. Later, the paper by Helpman, Melitz and Yeaple (2004, p.310) describes this issue and examines the *knowledge-capital model* in application to different markets. Most of the global firms wish to earn more, hence, seek for opportunities for saving, especially when it comes to transportation. Thus, FDI related to the savings in costs is found to be more attractive. According to Helpman, this phenomenon could explain why foreign investments are likely to be done by larger enterprises. Only in 2000s, Carr et al. (2001, p.701) used the panel data in order to examine the described *knowledge-capital model* empirically. As a result, provided more ground for the horizontal and vertical motives for the investments.

The theoretical foundations also depict the gravity model in application to the investments overseas. The gravity theory claims that the closer the counties are in geographic, economic and cultural terms, the higher investment inflow precedes. So, Head and Ries

(2008, p.8) were able to design a model of neighbouring M&As activities. Their article discusses where a mother firm has an occasionally assigned benefits in managing company in the investing country, however, gets a drawback in technology that worsens due to distance in geographic terms. Adding internationally mobile capital to the knowledge-capital model provides the roots for a «modified» gravity model, which allows to fit the data better (Arvanitis et al., 2015, p.279).

3.4.1.3. Tracking

Since the practical part of this thesis is related to the Chinese economy, it is necessary to mention the tracking methods of the outward and inward FDI flows to the economy of China. Unfortunately, there is no single data source that could provide a real time data on Chinese investments abroad. There are two ways of getting the data — governmental sources and private sources. Such governmental entity as the Chinese Ministry of Commerce (MOFCOM) is widely doubted in terms of reliability of the data. The economists tend to argue that the methodology of gathering the data about FDI is «opaque» (Rosen and Hanemann, 2009, p.19). Most of the sources claim that since the open door policy, China made about 80-100 billion USD outward investments, whereas the MOFCOM reports only 15 billion USD. Such sources as UNCTAD, Rhodium Group's China Investment Monitor and Heritage Foundation's China Global Investment Tracker were found to be the most reliable sources providing the data for several years compiling publicly accessible data of the different multinational corporations (Poncet, 2007). Besides, most of them arrange a real time analysis ensuring accuracy and reliability.

3.5. Defining economic growth

Economic growth is one of the crucial indicators in the economies. In general terms, it is an increase in the production of goods and services for the specific period of time, usually calculated annually. The growth of any economy is measured by the indicator called gross domestic product (GDP) (Rosen and Hanemann, 2009, p.1). In order to obtain a more accurate (real) data of the growth, it is necessary to exclude the effects of inflation on the country's economy. Besides, there is a number of variations of GDP

measurements depending on the purpose of data. These might include: nominal, purchasing power parity, real, growth rate, per capita (*see Table 4, p.39*).

Table 4: Types of economic growth indicators

	Characteristics	Measurement	Adjustment
Nominal GDP	Used to compare countries' economic growth in financial terms only	Domestic currency	N/A
Purchasing Power Parity (PPP)	Used to compare real output, income, living standards	USD	- Domestic prices - Costs of living
Real GDP	Shows the quantity of goods and services produced by economy in a certain year, with constant annual prices	USD	- Inflation
GDP growth rate	Compares one year (or quarter) of a country's GDP to the previous year (or quarter) to measure how fast economy grows	%	- Inflation - Unemployment rate
GDP per capita	GDP per person in a country's population, the data can be nominal, real or PPP	Domestic currency, USD, %	Adjusted depending on the purpose

Source: Processed according to World Bank, 2021c.

Businesses enjoy the main benefit of the economic growth which is profit as it gives a boost for the business stock prices. Therefore, the firms have more capital for investment and recruiting more. As the workplaces emerge, the incomes start growing. Then the consumers have more money for purchasing extra goods and services; and, these purchases and corresponding consumption determine the nation's economic growth. This is a full circle of economy.

A general formula for calculating economic growth (GDP) is:

$$\mathbf{Nominal\ GDP = C + I + G + (X - M)}, \text{ where:} \quad (2)$$

- **C** — Consumption (also known as Private Consumption), includes all consumer purchases like food, utilities, education, transportation, clothing, etc.
- **I** — Gross Investment (also known as Gross Fixed Capital Formation, or Private Domestic Investment), implies IP products, dwellings, ICT and technologies, and transportation equipment
- **G** — Government Investment (also known as Gross National Expenditure or Government Spending), includes all the government rated expenses
- **X** — Exports and **M** — Imports, theoretically speaking, in economy the subtraction of imports out of exports should create a balance. When the nation imports more goods to services in comparison to the exports, this notion creates a trade deficit, resulting the fluctuation of exchange rates (Boyce, 2020).

3.5.1. Economic growth determinants

Boldeanu and Constantinescu (2015, p.330) believe that six main determinants of economic growth exist. They are as follows: human resources, natural resources, capital formation, technology, efficiency and demand. Each of these factors determine either an increase or fall in the GDP, and have various implications on the countries' development. Moreover, economists differentiate economic and non-economic determinants. In accordance with Acemoglu (2009, p.54), economic determinants (also known as proximate) are accumulation of the capital, labor and technological progress, whereas non-economic ones (also known as ultimate) are efficiency of the governmental institutions, including the constitution of political and administrative systems of the country, considering the geographic (locational), demographic as well as socio-cultural features (*see Table 5, p.41*).

Table 5: Economic and non-economic determinants of economic growth

Determinants of Economic Development	
Economic Factors	Non-economic Factors
- Capital formation	- Human resources
- Natural resources	- Technological development
- Agricultural development	- General education
- Foreign trade conditions	- Political situation
- Economic situation	- Corruption
	- Willingness for development
	- Social organization

Source: Processed according to Acemoglu, 2009; Boldeanu and Constantinescu, 2015.

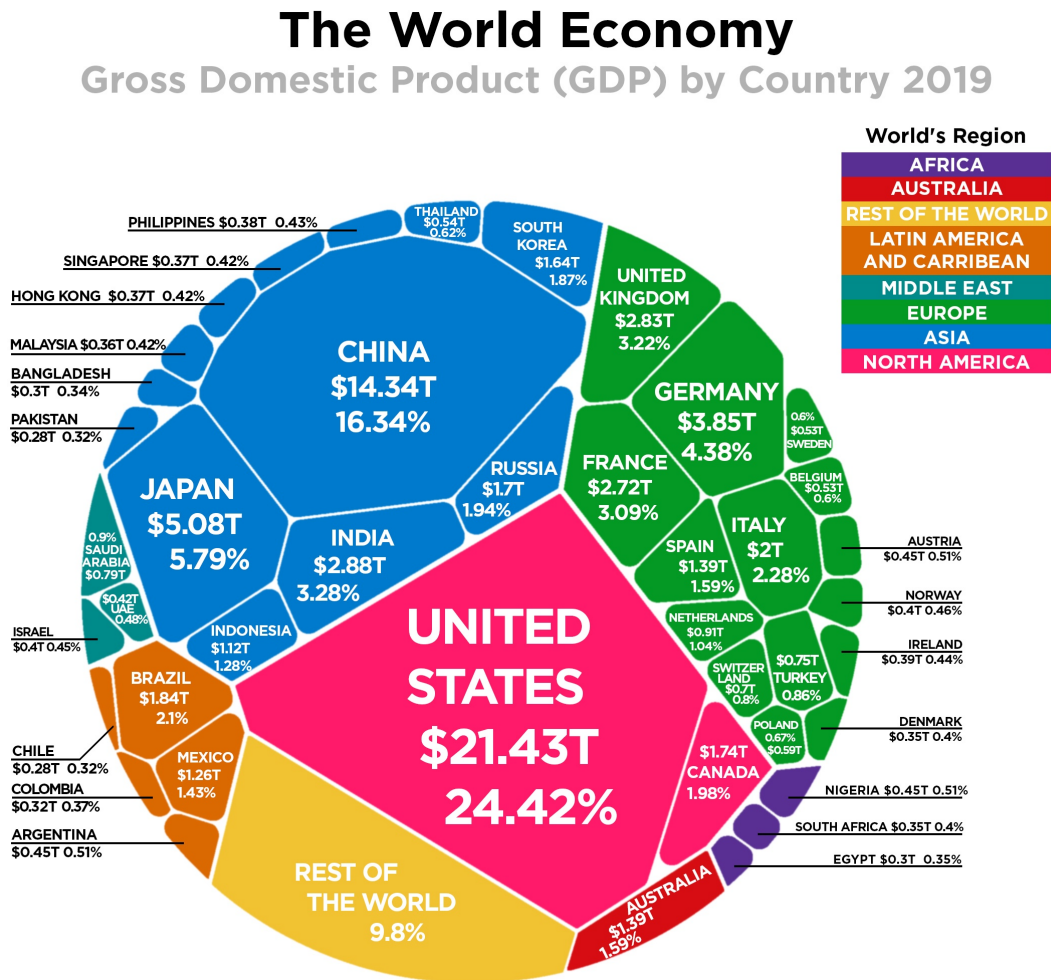
3.5.2. Global GDP trends

Nowadays the GDP rate became the most frequently and commonly used indicator for the economic purposes. The world economic growth tends to raise approximately by 3% each year. The global GDP value consists of the sum of gross value added by all economies plus taxes and minus subsidies. The three giants of the global GDP remain constant for the past several years — the US, China and Japan. In 2019, cumulatively, these three countries affirmed to hold almost 47% of the global GDP (*see Image 3, p.42*) (Martinčević, 2020).

3.6. FDI vs. Economic growth

Relying on the proceedings provided by the European Investment Bank, the FDI is one of the fundamental factors that drives the economic growth of the countries all over the world. However, the evidence is rather miscellaneous (Baiashvili and Gattini, 2020, p.5). There is no exact testimony confirming positive or negative relationship between the foreign direct investment and economic growth.

Image 3: The global GDP by country, 2019 (tln USD; %)



Source: Martinčević, 2020.

Relying on the proceedings provided by the European Investment Bank, the FDI is one of the fundamental factors that drives the economic growth of the countries all over the world. However, the evidence is rather miscellaneous (Baiashvili and Gattini, 2020, p.5). There is no exact testimony confirming positive or negative relationship between the foreign direct investment and economic growth.

Xiao and Dickie (2000, p.313) believe that the FDI reflects the economic growth of the country through several channels both directly and indirectly. The direct affect is constituted of impact through being a source of the formation of capital. In this context, capital formation refers to the net additives to a capital stock of any economy involving creation of places for production processes, development of technology and improved

transportation. Encouragement of the private investments would enhance the FDI, thus, facilitate the total investment increase in a direct way. On the other hand, FDI was also proved to influence macroeconomic variables such as export, savings, consumption, employment rate, etc. which drive the growth of the economy as a whole. As a result, one should say that this is, in turn, an indirect impact of foreign investments on the growth of nation's economy.

4. Practical Part

4.1. Essence of practical part

This part analyses the relationship of the foreign direct investment and economic growth of the economy. The majority of the studies confirm that FDI and GDP are positively interdependent. For example, Luiz De Mello (1999, p.145) has noticed that FDI influenced positively on the economic growth of the countries with higher income rates. The higher economic growth ensures higher profit opportunities, therefore, good place for investments. In addition to that, investments overseas have a direct impact on the economic growth of the hosting nations. A wider scope of studies might be observed in the paper of the two professors of the Denmark university, Henrick Hansen and John Rand (2006, p.35), who analysed the casual relationships between FDI and GDP of 31 various developing countries for the past 31 years. The findings showed that the FDI has a long term impact on the economic growth of the nation.

This thesis is aimed at examining this relationship on the example of China. Besides, a similar relationship would be observed in the two largest economies — US and Japan in order to conduct a comparison of how the Chinese economy was able to grow that fast, thus, relevant conclusions would be driven.

4.2. Case of China

Since the aim of this thesis is to evaluate the impact fo the foreign direct investment on the economic growth of the country, the case study of China was chosen. The choice fell to Chinese economy because nearly for the past 40 years the economy of People’s Republic of China grew drastically. The selected country has gone through several stages of the economic transition from closed economy to open one. Describing the pace of the rapid growth, the World Bank mentioned that China has “the fastest sustained expansion by a major economy in the history” (Greenspan, 2019, p.30). Such growth allowed China to double the value of the gross domestic product and aided to struggle with the poverty. According to the official statistics, the there were around 800 million of people saved from the poverty. China was able to prove itself to be one of the

most important drivers of the global economy within the short period of time. On the basis of the purchasing power parity, trade opportunities, manufacturing and merchandising China claimed to become the largest global economy. Signing trade agreements with US, China turned into one of the largest importers, hence, it currently accounts around one-third of the American export market. Furthermore, the country of China is one of the foreign nations that accumulates the largest share of the US Treasury securities. This, in turn, allows to fund the federal debt as well as keep the interest rates in the US at lower levels.

4.2.1. Historical background, policies and FDI trends in China

From the year of 1979 Chinese government launched a sequence of economic reforms with a purpose of liberalising the economic regime and allow the international trade. Under this regulatory framework China received a huge amount of direct investment flows from all over the world. At first, China terminated its restrictive policies in favour of permissive ones in the early 1980s, followed by policies that reinforced the FDI inflows for technological development from mid 1990s until now (Fung, Iizaka and Tong, 2004, p.102). A Chinese State opened opportunities for FDI incentives by establishment of the four so-called «policy windows», also known as Special Economic Zones (SEZs) (Cheung and Lin, 2004). During the permissive period inward investments were mostly concentrated within Guangdong and Fujian provinces, where these SEZs were exactly located. A huge spread of the FDI trend took place only after 1984 since more ten provinces were also allowed to enter the economic zone. Therefore, due to this geographic expansion, the inflow of foreign investments increased and reached the amount of 3.49 billion USD by 1990. Such type of regime policies reflected as a suppressive concentration of the investments in the eastern part of the country. Anticipated spillover results to the inland provinces failed to be implemented into reality.

In the 1990s more economic reforms as well as open door policies were implemented in response to expanding regional and income disparities captured by the gap in income per capita indicators (Zeng, 2011). Besides, a Chinese politician and the Leader of the

People's Republic of China Deng Xiaoping addressed the issue of occurred disparities and refused from special regimes in favour of widening the nation-wide adoption of the open policies in order to attract the FDI. So, in 1993, his approach gave the favourable results as the single coastal region accounted 87.5% of all inward FDI despite 5.4% decline in the total investment share (Davies, 2013, p.48, p.70). The corresponding regulations and policies mirrored as a huge encouragement of the inward investment, meaning that it cultivated the noteworthy results. Since then, the Chinese investment inflows hastened and reached the level of 45.5 billion USD by 1998. Kristin J. Forbes (2005) mentioned that in 2003 after the Asian crisis China got more than 50 billion USD as a foreign direct investment, which allowed to outstrip the US and become the largest FDI recipient worldwide. In 2001 People's Republic of China accessed the WTO at the Doha Round. This membership challenged the Chinese existing foreign direct investment policies and ongoing adjustments as well as gave a huge privilege to Chinese economy in terms of production segmentation and also encouragement of the foreign investments.

In the early 2000s, there was a number of comprehensive regulations and initiations in order to boost the economic growth. The Office of the Leading Group for Western Region Development of the State Council was founded for the reasons for strategic implementation and regulation of the country development. However, its adoption was not as impressive as it was expected. This initiation rather challenged and complicated the situation in China than helped in reduction of income inequality, FDI attraction and future development.

Afterwards, for the period from 2001 till 2007 Chinese industries switched to market and efficiency seeking approaches in FDI, regardless the fact that they used a resource seeking approach before 2000s (Dunning and Lundan, 2008). The reason behind this change is if before 2000s the purposes of investment into Chinese economy were lying in favourable policies, environmental regulations and cheap workforce, after millennia countries started to invest more in infrastructural development and skilled labor. Besides, since China entered the WTO membership, the Chinese economy began to enjoy

the opportunity of the open market which ensures a great inflow of the financial support through the means of agglomeration. European countries, Japan and the United States of America became the major FDI investors into the Chinese economy.

In 2008 the global financial crisis took place which endangered and crushed lots of countries' economies worldwide. The economy of the People's Republic of China was also affected. However, the end of the financial crisis gave a trend to most of the countries to become resource seekers again. In addition to that, hosting countries aimed at finding possibilities of obtaining strategic assets. Thanks to China, the countries discovered a number of benefits: Chinese nation was already able to provide with skilled workforce and newer technologies. As a result, taking the privilege of conducting business with China, more and more companies were willing to invest in Chinese economy. Furthermore, most of the corporations which invested to China started founding joint ventures and mergers and acquisitions all around the world.

By the year of 2016 China managed to attract more than 139 billion USD as the foreign direct investment, beating its record and making China to be the third largest receiver of FDI. Even though at that time the worldwide investment flows fell by 13% annually, China got the largest increase of more than 2% in FDIs.

Throughout the economic development history, the People's Republic of China was able to face several stages of economic transition. Nowadays the investors in Chinese economy belong to all the groups of business expansion types depending on the objectives they follow. However, then most typical behaviour still remains creation of the joint ventures overseas (Cheng, 2009, p.203).

The investment trends only raise, the foreign investors are likely to consider China as a favourable destination for investments. Nevertheless, plenty of companies are precautions since the year of 2017 showed a trend of somewhat decreasing GDP, which is basically against the logic of stability in political and economic terms.

According to the official FDI statistics, provided by the China's Ministry of Commerce (MOFCOM), country's economic performance remains a well-developed investment destination regardless the GDP fall (Poncet, 2007). The raise of the interest in investment is conditioned by the technological development and high-tech triggering. Besides, China is popular because of the number offered services and cheap labor necessary for most of the industries all over the world. On the contrary, the balancing point is constituted due to the increasing competitiveness of the global market and macro-economic factors, which make the investors think of the investment more carefully.

The year of 2019 was remarkable to China due to the COVID-19 outbreak as well as adoption of the Foreign Investment Law on the territory of China defining purposes and relevant limitations to the FDI inflows and outflows of the country (Ministry of Commerce PRC, 2019).

4.2.2. Direct impact of FDI on Chinese economy

As it was mentioned before, foreign direct investment plays one of the key roles in the transformation of the Chinese economy. There are few direct impacts. Undoubtedly, the investment is about the bringing capital to the country. A very huge amount of investments was dedicated for enforcing trend of the Chinese economic growth, and FDI was the primary indicator that made a contribution to its growth. Following the statistics, in 2014 the correlation of foreign direct investment ratio to the GDP rate inclined by 15% of the local gross investment. This tendency followed until 1998 and reached the threshold of 11% by the late 1990s (Aswal, 2014). According to the OECD (2005), investment was not significant for counteracting the insufficient local savings. The current account, which is particularly measured by the difference between the savings and investments, was in a surplus since the year of 1991, however, for only one year. It seems that the role of the external corporations was rather to utilise the technology and management skills aligned with the domestic labor force, to push exports and improve the economic productivity of the nation as a whole.

Job creation is one of the most eminent effects of the foreign investments on the economy of China. The investments undoubtedly trigger the development of the employment sector of businesses. The OECD (2000) report confirms that the international firms have contributed a lot to the employment rate in industrial sector. The beginning of 2000s already accounted a raise by 3% of total Chinese employment since the economic transition start.

One of the advantages of investments also imply the trade organisation, which made the Chinese economy to strengthen the position on the global market and allowed the nation to compete for the leadership on the global arena. Therefore, the country's economy and production processes became more diversified in comparison to the previous experience in closed economy and concentrated on the labor efficiency.

Also, the foreign direct investments helped the People's Republic of China to make the technologies to be more advanced, again racing the chances to capture the global market competition.

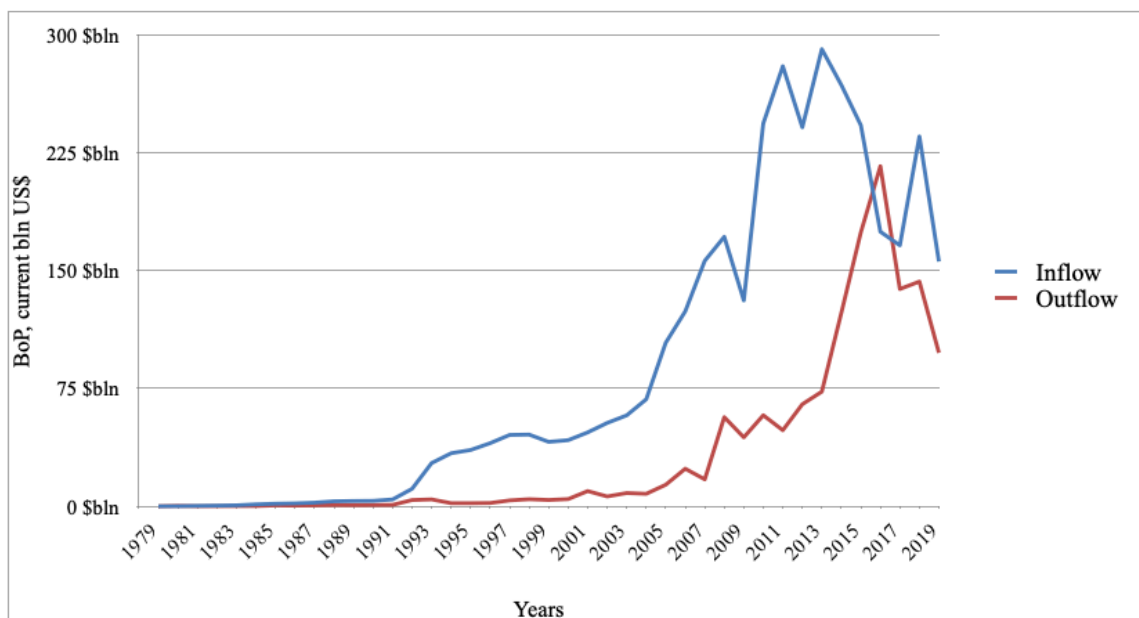
Due to all before mentioned factors, OECD (2005) concludes that the hosting firms or countries were able to make their production processes to be more efficient, which is measured by the overall productivity in the statements of each single company. Similarly to the Chinese economy, the investments allowed the firms to grow their industries due to technological progress.

The selected literature sources also assume that there are also evidence of the negative impacts. In their works Fung, Iizaka and Tong (2004, p.102) and Harrison, Love and McMillan (2003, p.271) emphasise the detrimental affects of the foreign firms as they might press in the access the local companies. Additionally, as it was mentioned before in drawbacks, the notion of FDI can threaten the receiving economy by making a substitution for local savings. In the worst scenario, it leads to deficits in BoP (balance of payments) resulting as increasing responsibilities for equity re-payments.

4.2.3. China FDI inward and outward tendencies

In order to start the necessary computations, the raw data was obtained from the official statistical data source, the World Bank (2021). The *Figure 3 (p.50)* was constructed on the basis of the raw data and represents the dynamics of the FDI inflows and outflows of the selected country — China, measured in billions of current US dollars. The period of 40 years was taken with the purpose to show the economic development in terms of foreign investments since the start of economic transition to open market economy (*see Appendix 1 and Appendix 2 for data, pp.83-86*).

Figure 3: FDI inflow and outflow in China, 1979-2019 (current bln USD)



Source: Processing according to World Bank, 2021a; 2021b.

The lowest values in both cases (inward and outward investments) fall at the period from 1979 till 1991 (*see Figure 3, p.48*). Such low values are conditioned by the country's adaptation to economic changes, a transition from closed market economy to open one, in particular. Next year, in 1992, both indicators show a drastic change: the inward investment raised by 155.38% ($11.16 * 100 / 4.37 - 100 = 155.3776$), whereas the outward one inclined by 339.56% ($4 * 100 / 0.91 - 100 = 339.5604$), which were determined by introduction of newer policies on open market. Since then, the growth was

quite stable with a small correction of 23.59% ($131.06 * 100 / 171.53 - 100 = -23.5935$) to the global financial crisis of 2008, and afterwards the growth erupted again till the year of 2016. Inward FDI indicators depict a fall since the hosting investors suffered from introduction of new restrictions in terms of overseas investments, which led to decrease by 27.94% ($174.75 * 100 / 242.49 - 100 = -27.9352$), hence, the responding flow showed the similar trend since more Chinese investors lost interest in investing abroad. Considering the fact that 2019 brought the pandemic outbreak and new FDI regulations, the graph exhibits an inward fall by 33.8% ($155.82 * 100 / 235.37 - 100 = -33.7979$) and outward fall by 31.69% ($97.7 * 100 / 143.03 - 100 = -31.6927$).

4.3. Other worldwide economies

Due to the fact that thesis is aimed to analyse one of the leading global economies, it would be relevant to drive a comparison of China with Japan and the United States.

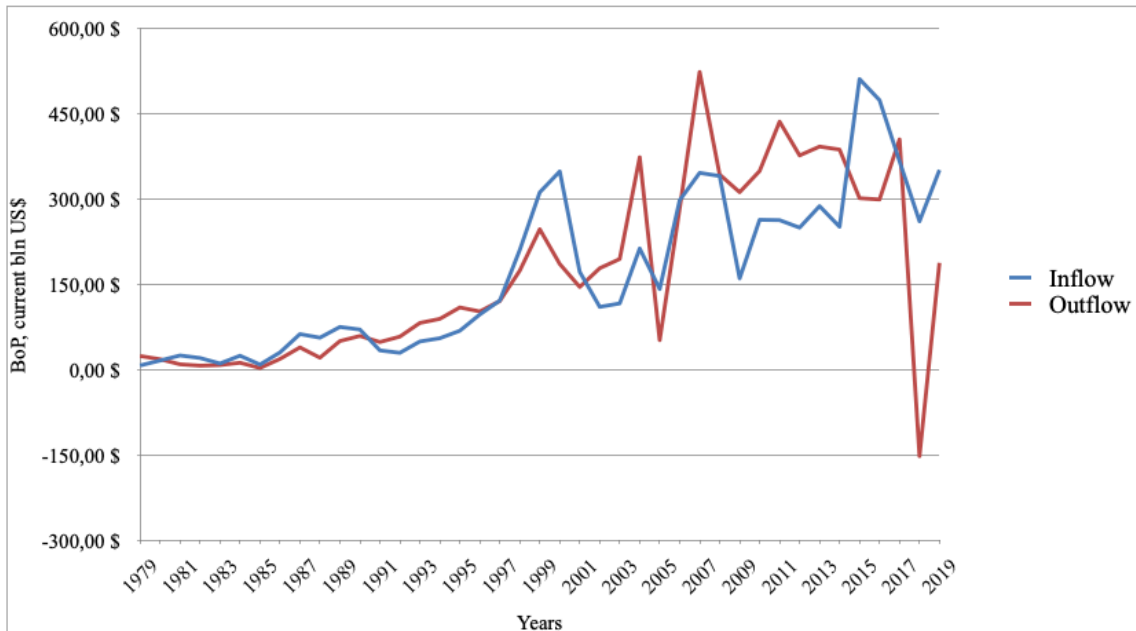
United States

The *Figure 4* (p.52) illustrates the fluctuations of the inward and outward FDIs in US for the period of 1979 till 2019. One of the most interesting facts that till the mid-1990s, the fluctuations of both indicators were approximately at the same level. Historically speaking, till 1980s American nations had a range of the political and economic changes and reforms, which led to the economic disaster. The raise of the different movements, revolutions and wars caused the recession in the economy, hence, there was no certain interest of the US neither to invest nor to be a subject of investment.

Hopefully, 1987-1990 brought the US an experience of the economic boom after the recession times. From 1985 till 1989 the raise in the inflows made up to 87.29% ($9.63 * 100 / 75.78 - 100 = -87.2922$). The downfall in outflows ($186.37 * 100 / 247.49 - 100 = -24.6959$, by 24.7%) and a sharp incline (up to 348.13 bln USD, *see Appendix 1, pp.83-84*) in inflows was in the beginning of the 2000s. It was formed by the elections, when the President Bush took the presidential place. Additionally, there was a number of attack cases 911 (2001), Afghani war (2001) as well as US declaration on the develop-

ment of the weapons of mass destruction (2002), etc. All these events affected the inflows and outflows of investments in the country.

Figure 4: FDI inflow and outflow in US, 1979-2019 (current bln USD)



Source: Processing according to World Bank, 2021a; 2021b.

After a small period of time, the year of 2005 brings the emergence of the Hurricane Katrina, which disrupts the governmental operation and they fail to respond to the matter in adequate manner, hence, it threatens the economic growth of the country by which the fall in the outward investment by 85.94% ($52.59 * 100 / 374 - 100 = -85.9385$) and inward investment by 33.37% ($142.34 * 100 / 213.64 - 100 = -33.3739$) that is indicated on the *Figure 4* is conditioned. The year of 2006 is notable by re-election of the President Bush for the second term, and it brought more benefits to the FDI growth (5.4 times higher outflows than in 2005: $283.8 / 52.59 = 5.3965$ and 2.1 times higher inflows than in 2005: $298.46 / 142.34 = 2.0968$), since lots of the officers and executives have been either jailed or fired and re-elected because of manipulations. This allowed the economy to prosper again. The next falls by 52.77% ($161.08 * 100 / 341.09 - 100 = -52.7749$) in inward and by 9.02% ($312.6 * 100 / 343.58 - 100 = -9.0168$) in outward were in the year of 2009, which were obviously caused by the global economic crisis, when not only the US but also the other countries suffered from. A small rise in

the inward investment (2 times higher inflows than it is shown in 2015: $511.43 / 251.86 = 2.0306$) due to the re-election of Barack Obama to his second term in the White House. And the last but not least important momentum is that in 2017, the US had a historically tremendous year of natural and weather conditioned disasters: cyclones, drought, wildfire, storms, floods, and even crop freeze that made the tendencies of the foreign investments to decrease by 137.42% ($-151.3 * 100 / 404.38 - 100 = -137.4153$) and 28.75% ($261.48 * 100 / 367 - 100 = -28.752$) in outward and inward investments respectively (Smith, 2018).

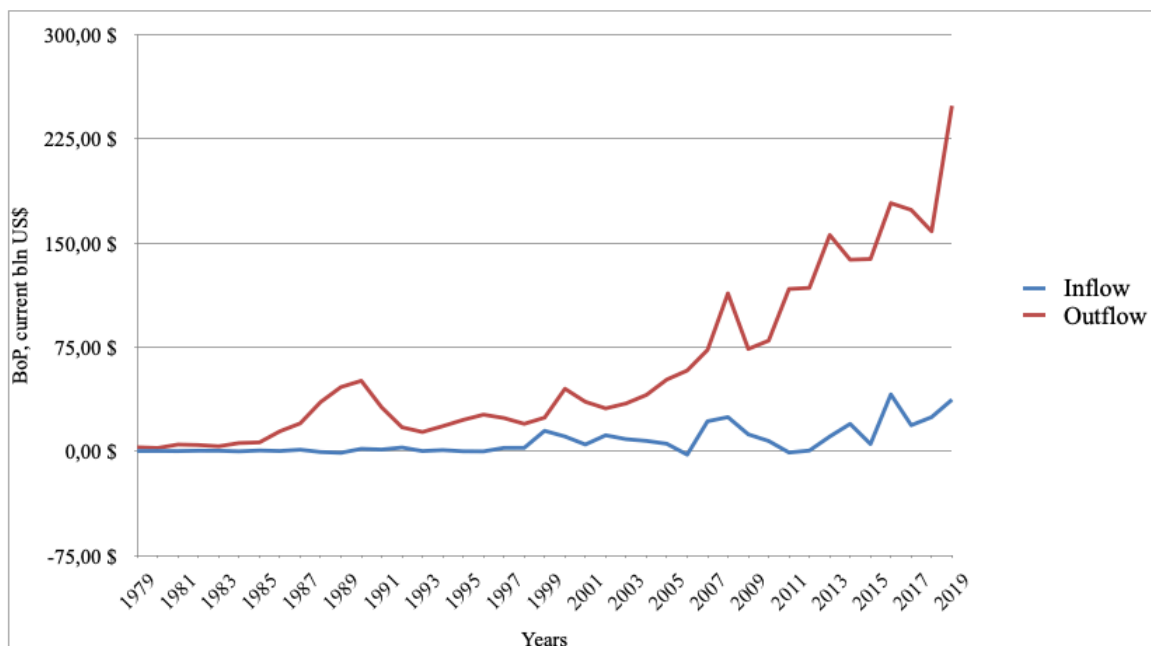
To sum up, the US FDI fluctuations are highly dependent on the presidential elections as well as external relationship instabilities and natural disasters. Statistically seeking, after the elections, a mutual growth in the investment (both inflow and outflow) are observed, however, in the latter period it gets down. In case of the external relations and natural disasters, the investments to the US economy as well as a mutual investment show a decreasing trend.

Japan

The FDI inflows and outflows in Japan are represented on the *Figure 5 (p.54)*. The Japanese mutual investments showed a tiny but a stable growth of FDI from 1979 till 1985. The year of 1985 became very important to the Japanese country because the signed agreement Plaza Accord on the depreciation of the USD relative to the JPY and DEM with the help of currency market interventions. This aided the outward and inward investments to raise by -6200% ($0.61 * 100 / (-0.01) - 100 = -6200$) and 123.6% ($14.4 * 100 / 6.44 - 100 = 123.6025$) respectively. After such a sharp change, the 1990s were noted as the 'Lost Decade' for the Japan nation, which is clearly overviewed in 1993, when the FDI inflows decreased by 92.39% ($0.21 * 100 / 2.76 - 100 = -92.3913$) and outflows by 19.6% ($13.91 * 100 / 17.3 - 100 = -19.5954$). A good step forward was at the beginning of 2000s, when the Japanese authorities decided to reform the strategic plan of the monetary policy. This event brought a rise by 488.84% ($14.78 * 100 / 2.51 - 100 = 488.8446$) in inward FDI and 85.61% ($45.03 * 100 / 24.26 - 100 = 85.6142$) in outward FDI. On the contrary, the late 2000s significantly influenced the FDI, global

financial crisis of 2007-2009 has caused the fall in GDP, and reflected the investments by decline by 50.32% ($12.23 * 100 / 24.62 - 100 = -50.3249$) in inflows and by 35.16% ($73.68 * 100 / 113.64 - 100 = -35.1637$) in outflows.

Figure 5: FDI inflow and outflow in Japan, 1979-2019 (current bln USD)



Source: Processing according to World Bank, 2021a; 2021b.

The investments to economy started to slow down again, however, in 2012, the ‘Abenomics’ gave the roots to the government to implement aggressive spending hikes and tremendous JPY devaluations. The notion of Abenomics allowed the FDI inflow to grow 19.36 times ($10.65 / 0.55 = 19.3636$) higher and FDI outflow to raise 1.32 times ($155.68 / 117.63 = 1.3235$) higher in 2013 compared to 2012. In 2014 the nation started doubting about the Abenomics, which promised long term results. In reality, 2014 showed the outward investment fall by 11.41% ($137.92 * 100 / 155.68 - 100 = 11.408$) and in 2015 the inward reached a decline by 73.42% ($5.25 * 100 / 19.75 - 100 = -73.4177$). Since then, the FDI tendency remains at the stage of uncertainty. In 2019, there were a number of events that caused some interesting changes in FDI. First of all, it is a COVID-19 outbreak, which forced the government to announce the state of emergency and threatened the country to a crisis situation. Secondly, the natural disaster Typhoon No.19, which was the strongest in the past decades, Thirdly, due to the Abe-

nomics, the consumption tax was raised up to 10%. All these factors contributed to the involvement of investments to Japanese economy by introducing two stimulus packages of 2.2 trln USD, which resulted as a raise in the inward investment by 51.08% ($37.18 * 100 / 24.61 - 100 = 51.0768$) and 57.03% ($248.68 * 100 / 158.36 - 100 = 57.0346$) in outward investments compared to 2018.

To summarise all historical background aligned with the data analysis, the tendency of both FDI inflows and outflows in Japan are directed to the growth. However, from the economic perspective of view, we may observe that Japanese nation is more willing to invest rather than receive. But the fact that is contrary to the US, while Japan faces hard times like natural disasters or economic crisis, the other nations are likely to help — it is visible that the inward investments increase during the tough times.

FDI tendencies summary

Through the selected period, each of the countries experienced significant declines in their inward and outward investments (*see Table 6, p.56*).

Based on the descriptive statistical analysis, we may conclude that for the selected time series from 1979 till 2019, China is 2.6 times ($86.76361896 / 33.22582997 = 2.61133$) likely to attract the investments rather than invest (*see Table 6, p.56*). However, this factor is explained by the fact that the first half of the time period of 1979-2019 China was getting used to the new economy, hence, had poor opportunities to invest but was aiming at restoring the internal economics.

The United States shows the tendency to uphold stability. FDI outflows do not exceed the country's inflows, even showing almost identical values (*see Table 6, p.56 — mean values row*). On the contrary, what is also notable in terms of mean values, Japan is likely to invest 8.2 times more ($59.954 / 7.2709 = 8.2457$) rather than receive, which is indicated in *Table 6*, which may cause the economic misbalance.

Table 6: Descriptive statistics of FDI inflows and outflows of economies: China, US, and Japan, 1979-2019

Descriptive statistics of FDI	China		US		Japan	
	Inflow	Outflow	Inflow	Outflow	Inflow	Outflow
Mean	86.76361896	33.22582997	169.1828293	168.3393659	7.270946454	59.95399725
Standard Error	14.8846746	8.486722883	21.85992557	24.7121245	1.62888311	9.436106055
Median	45.439	4.527	122.15	121.38	2.48693504	35.4360447
Mode	290.9284	2	511.434	523.89	40.95418147	248.682036
Standard Deviation	95.3084	54.34154099	139.9718193	158.2348033	10.42994092	60.42055939
Sample Variance	9 083.6951	2 953.003077	19 592.11019	25 038.25298	108.7836676	3 650.643997
Range	290.9284	216.4029374	503.384	675.188	43.3510912	246.297036
Minimum	0.0001	0.021523392	8.05	-151.298	-2.396909736	2.385
Maximum	290.9284	216.4244608	511.434	523.89	40.95418147	248.682036
Sum	3 557.3084	1 362.259029	6 936.496	6 901.914	298.1088046	2 458.113887
Count	41	41	41	41	41	41

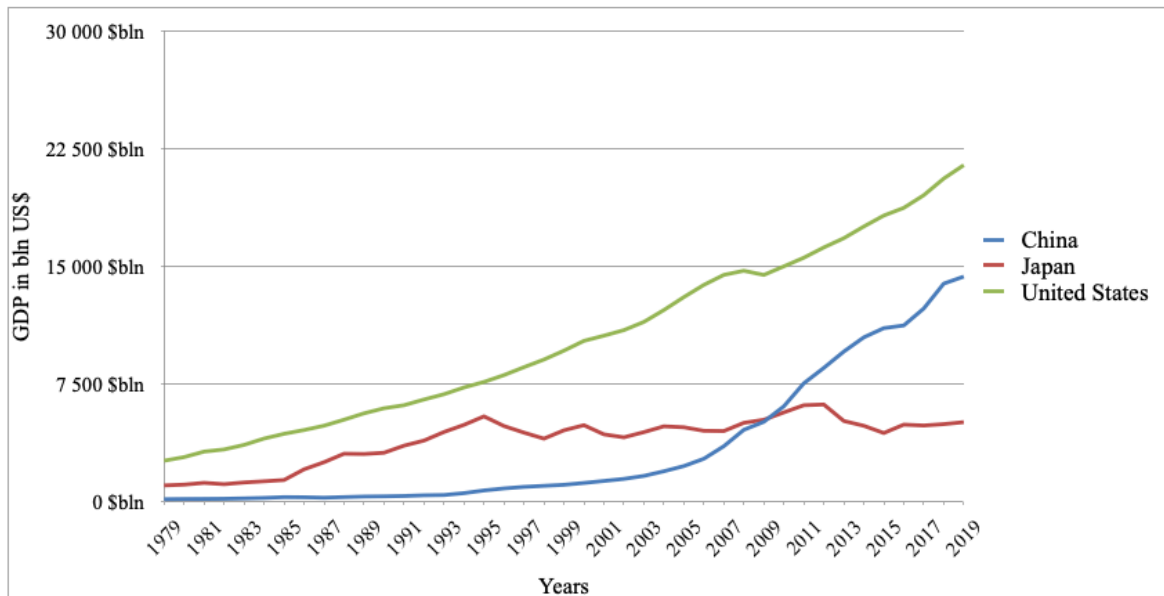
Source: Processing according to World Bank, 2021a; 2021b.

What is surprising in the table that we may find negative values. The US FDI outflow rate in 2018 was -151.3 bln USD, the sharp decline lays behind the reforming of taxation system that prompted lots of American companies to stop investments abroad. Hopefully, the repatriation of this fall did not take that long. Besides, a record number of the natural disasters in the year of 2017 worsened the situation, since the US authorities hardly could handle with them in timely and adequate manner.

As it was mentioned before, Japan is likely to invest more rather than receive. For Japanese economy, the year of 1984 was quite tough. In 1980s, the economy showed good results until the period of the asset price bubble collapse, which made a huge gap in the budget of the country, hence, undermined the economic growth of the nation (Bayoumi and Lipworth, 1997). This the major reason why the minimum value for the period of 1979-2019 showed a negative value in inflows of 2.397 bln USD.

4.3.1. GDP rate tendencies

Figure 6: GDP rates of China, Japan, and US, 1979-2019 (current bln USD)



Source: Processing according to World Bank, 2021c.

The *Figure 6* (p.57) demonstrates the performance of economic growth of three countries: China, Japan and US for the same period of 1979-2019, measured in billions current US dollars. The GDP seems to be more stable than the history of FDI. Since the year of 1979, China shows outstanding results in terms of economic growth. For the past 40 years, the GDP of China was able to grow from 178.28 bln USD in 1979 to 14342.9 bln USD in 2019, which is more than 80 times ($14341.9 / 178.28 = 80.4459$). US did not yield in the economic growth and statically grew from 9971.33 bln USD (1979) to 87798.53 bln USD (2019), composing the figure almost 9 times bigger ($87798.53 / 9971.33 = 8.8051$) for the past 40 years, however, again the global economic crisis of 2008 slightly reached the US economy as well.

The third country, which is Japan had to overcome a thorny path of economic growth. Throughout the period of 1979-2019 economy endured several falls and climbed back to the top. While the Japanese economy presented a tremendous expansion after the WWII. Nevertheless, in 1995 the country had an issue with massive budget deficits. This period in history is described as the 'Lost Decade', the GDP rates declined by 11.29% ($4833.71 * 100 / 5449.12 - 100 = -11.2938$). After, a number of unsuccessful

reforms were implemented, which stipulated an instability. Despite this fact, Japan takes the third place in GDP growth global ranking (Worldometers.info, 2021).

Table 7: Descriptive statistics of GDP rates of economies: China, US, and Japan, 1979-2019

GDP	China	Japan	US	Total
Mean	3 430.459086	3 936.876322	10 379.36033	14 316.23665
Standard Error	687.5769977	235.5517408	868.067188	
Median	1 093.997267	4 454.143877	9 630.664202	
Mode	14 342.90301	6 203.213121	21 433.226	
Standard Deviation	4 402.640939	1 508.267061	5 558.342051	
Sample Variance	19 383 247.24	2 274 869.526	30 895 166.36	
Range	14 164.62241	5 148.201002	18 805.892	
Minimum	178.2805944	1 055.01212	2 627.334	3 860.62671
Maximum	14 342.90301	6 203.213121	21 433.226	41 979.34213
Sum	140 648.8225	161 411.9292	425 553.7737	
Count	41	41	41	

Source: Processing according to World Bank, 2021c.

Even though, the economies show quite unstable performance in terms of FDI, the accumulation of GDP is completely different. In accordance to the recent statistical data provided by World Bank (2021), by the year of 2019 these three leading economies accumulate together about 46.54% $((14342.9 + 5081.77 + 21433.23) / 87798.53 * 100 = 46.536)$ of the global GDP as well as 33.39% $((155.82 + 37.18 + 351.63) / 1631.06 * 100 = 33.3912)$ of the global foreign direct investment inflows (see Appendix 5, pp.91-92). For the past several years US, China and Japan remain on the leading positions respectively, from 1979 to 2019, the cumulative minimum was 37% in 1980, which is 3860.63 bln USD, and maximum was 48.63% in 2000, which is 41979.34 bln USD of the total GDP worldwide (see Table 7, p.58).

4.4. Methodology

4.4.1. Basis and formulas

To remind, the main idea of this work is to understand whether there is a relationship between the FDI and GDP rate. In order to proceed, it is important to introduce the methodology that is going to be used for calculations. For this purpose, one of the statistical methods will be used — linear regression analysis, also known as ordinary least-square method (OLSM) or simple regression analysis. This method allows to estimate if the two or more selected variables have relationships between each other.

Regression analysis

The foundation of this method assumes a presence of dependent and independent variables. And the general formula looks like:

$$y = bx + a + \varepsilon, \text{ where} \quad (3)$$

y — dependent variable, or criterion, which is aimed to be predicted,

x — independent variable, or explanatory, which implies the factors affecting the criterion,

a — Y-intercept, which shows the value of expected mean of y when all x are equal to 0.

b — slope of the regression line, which is implies the rate of change for y while x changes,

ε — random error term, which describes the difference between the criterion variable and its predicted value.

The Y-intercept and a slope are calculated correspondingly:

$$b = \frac{n \sum xy - (\sum x)(\sum y)}{n(\sum x^2) - (\sum x)^2} \quad (4)$$
$$a = \frac{\sum y - b \sum x}{n}$$

, where:

a — Y-intercept, which shows the value of expected mean of y when all x are equal to 0.

b — slope of the regression line, which implies the rate of change for y while x changes,

x — independent variable,

y — dependent variable,

n — number of observations, i.e. years.

Correlation coefficient (r)

By these calculations, we might find the correlation coefficient of the regression model.

The correlation coefficient determines how well the variables are correlated to each other. The general mathematical formula of the correlation coefficient is:

$$r_{xy} = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2} \sqrt{\sum_{i=1}^n (y_i - \bar{y})^2}} \quad (5)$$

, where:

r — correlation coefficient,

y — dependent variable, or criterion, which is aimed to be predicted,

x — independent variable, or explanatory, which implies the factors affecting the criterion,

n — number of observations, i.e. years.

x and y — are the variables which are tested for correlation, in Excel there is an option of use a full-pack linear regression analysis or use this formula:

$$= \text{CORREL} (X , Y) \quad (6)$$

The outcome of this computation might fluctuate from -1 (negative relationship) to 1 (positive relationship). Zero value means that there is no correlation between variables at all.

Coefficient of determination (R-squared)

Besides, there is a need to introduce the concept of coefficient of determination. The coefficient of determination, or R-squared is the square of the correlation coefficient, which shows how well the dependent variable is explained and fits the model. So, the formula is the following:

$$R^2 = 1 - \frac{SS_{RES}}{SS_{TOT}} = 1 - \frac{\sum_i (y_i - \hat{y}_i)^2}{\sum_i (y_i - \bar{y})^2} \quad (7)$$

, where:

R-squared — coefficient of determination,

SS res — residual sum of squared errors of the model,

SS tot — total sum of squared errors,

y — dependent variable.

In this case, the higher the value of R-squared, the better the model fits.

Interpretation

The intensity of the relationship, or in other words, the strength of the coefficients obtained would be measured in accordance with the scale below (Table 8, p.61):

Table 8: Rule of Thumb: scale of correlation coefficient interpretation

Range	Description
0.8 - 0.9	Very strong / Very high
0.6 - 0.79	Strong / High
0.4 - 0.59	Moderate
0.2 - 0.39	Weak / Low
0 - 0.19	Very weak / Very low

Source: Mukaka, 2012.

In case of correlation coefficient r , this interpretation works with negative values.

4.4.2. Application of formulas

Based on the aim of this thesis and all above mentioned methodology: GDP — dependent variable and FDI — independent variable. Hence, the formula of the regression analysis will look like:

$$GDP = b * FDI + a \quad (8)$$

For investigating the correlation coefficient (r), the ToolPack would be use, however, in simple terms, the formula would be:

$$= \text{CORREL} (FDI , GDP) \quad (9)$$

In defining the coefficient of determination (R-squared), the following formula would be used:

$$R\text{-squared} = 1 - (SS \text{ GDP res} / SS \text{ GDP tot}) \quad (10)$$

According to the concept of the work, the following data would be examined and compared:

- FDI inflow vs. GDP of each of the country
- FDI outflow vs. GDP of each of the country

4.4.3. Calculations

4.4.3.1. China

(1) Inflows vs. GDP

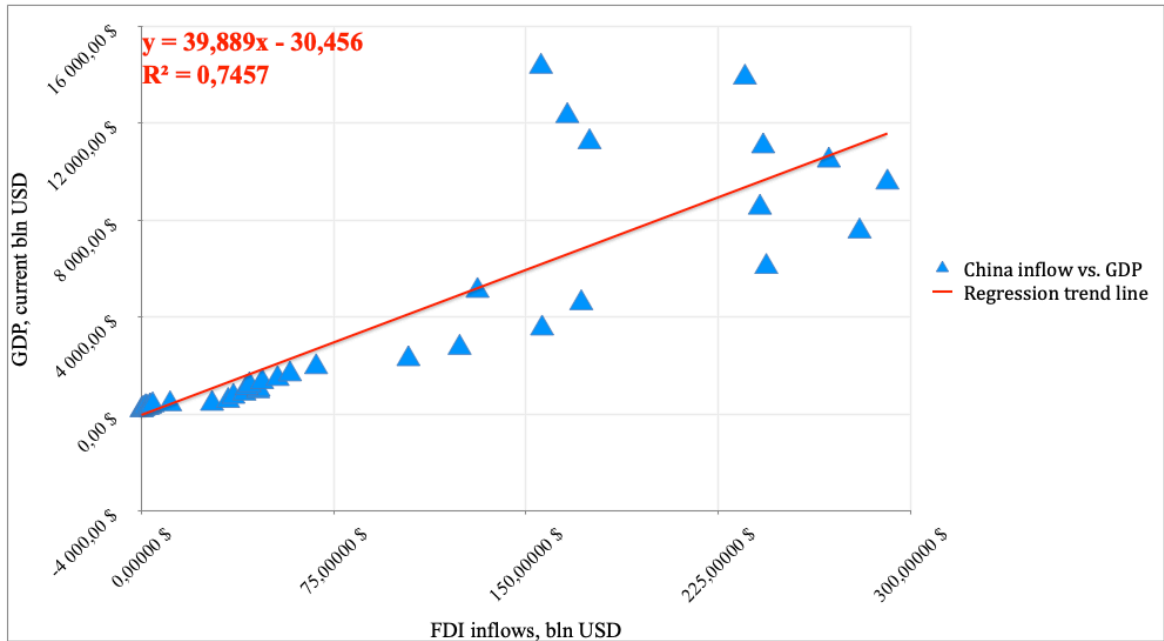
Using the data from *Appendix 1 (pp.83-84)* and *Appendix 3 (pp.87-88)*, it was possible to construct a graph, which represents a relationship between the two selected indicators — FDI inflow and GDP of the Chinese economy (*see Figure 7, p.63*). Due to the added trend line, we might see that the trend is rather inclining. The values are quite closely grouped, which indicates that there is some relationship might be observed. According to the *Figure 7*, the regression equation is:

$$y = 39.899 x - 30.456, \text{ where:}$$

y — GDP values, dependent ; x — FDI inflow values, independent ;

a — Y-intercept, = 39.899 ; b — slope, = 30.456

Figure 7: Correlation of FDI inflow and GDP growth in Chinese economy, 1979 - 2019



Source: Processing according to World Bank, 2021a; 2021c.

Table 9: Linear regression analysis of FDI inflow and GDP in China, 1979-2019

China: Inflows vs. GDP								
SUMMARY OUTPUT								
<i>Regression Statistics</i>								
Multiple R	0.8635177211							
R Square	0.7456628546							
Adjusted R Square	0.7391413893							
Standard Error	2248.618897							
Observations	41							
<i>ANOVA</i>								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	1	578134698.7	578134698.7	114.3397724	0			
Residual	39	197195190.9	5056286.946					
Total	40	775329889.6						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	-30.45570855	477.5787043	-0.06377107747	0.9494782666	-996.4498085	935.5383914	-996.4498085	935.5383914
X Variable 1	39.8890092	3.730392998	10.69297772	0	32.34357722	47.43444117	32.34357722	47.43444117

Source: Processing according to World Bank, 2021a; 2021c.

Performing all necessary actions in Excel, the regression analysis showed that the coefficient of correlation equals to **0.8635177211** (see Table 9, p.63). In Excel, this value is referred as *Multiple R*.

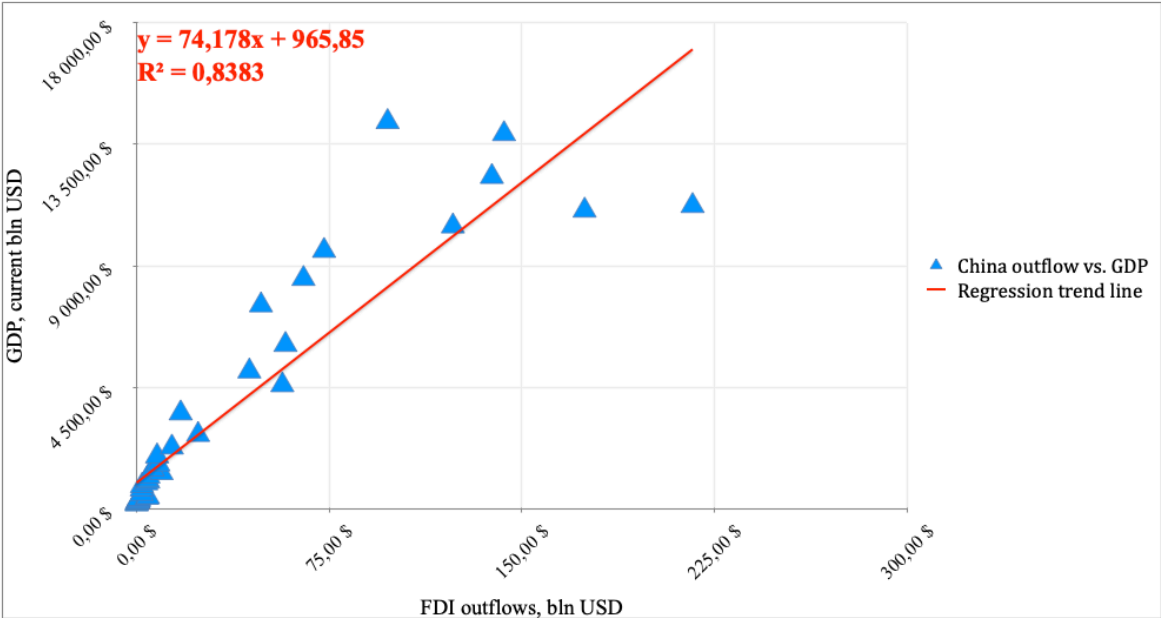
R-squared was also determined automatically. Technically speaking, it is equal to $(0.8635177211)^2 = 0.7456628546$ (see Table 9, p.63).

Result: R = 0.8635177211 — very strong, positive relationship;
 R-squared = 0.7456628546 — data fits the regression model strongly.

(2) Outflows vs. GDP

Similarly, the actions were done with the FDI outflows in relation to the GDP of People’s Republic of China (see Figure 8, p.64); (see Table 10, p.65).

Figure 8: Correlation of FDI outflow and GDP growth in Chinese economy, 1979 - 2019



Source: Processing according to World Bank, 2021b; 2021c.

The relationship is viewed to be similar to the inflows situation, the added trend line determined the following equation (see Figure 8, p.64):

$$y = 74.178 x - 965.85, \text{ where:}$$

y — GDP values, dependent ; x — FDI outflow values, independent ;

a — Y-intercept, = 74.178 ; b — slope, = 965.85

The statistical analysis showed that the correlation coefficient is equal to **0.9155697198**, and the coefficient of determination is respectively equal to **(0.9155697198) ² = 0.8382679117** (see Table 10, p.65).

Table 10: Linear regression analysis of FDI outflow and GDP in China, 1979-2019

China: Outflows vs. GDP									
SUMMARY OUTPUT									
<i>Regression Statistics</i>									
Multiple R	0.9155697198								
R Square	0.8382679117								
Adjusted R Square	0.8341209351								
Standard Error	1793.118771								
Observations	41								
<i>ANOVA</i>									
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>				
Regression	1	649934167.5	649934167.5	202.1395315	0				
Residual	39	125395722.2	3215274.927						
Total	40	775329889.6							
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	
Intercept	965.8469804	329.3500238	2.932585124	0.00560133585	299.673684	1632.020277	299.673684	1632.020277	
X Variable 1	74.17759338	5.217315638	14.21757826	0	63.62457651	84.73061025	63.62457651	84.73061025	

Source: Processing according to World Bank, 2021b; 2021c.

Result: R = 0.9155697198 — very strong, positive relationship;

R-squared = 0.8382679117 — data fits very strongly regression model.

4.4.3.2. United States

(1) Inflows vs. GDP

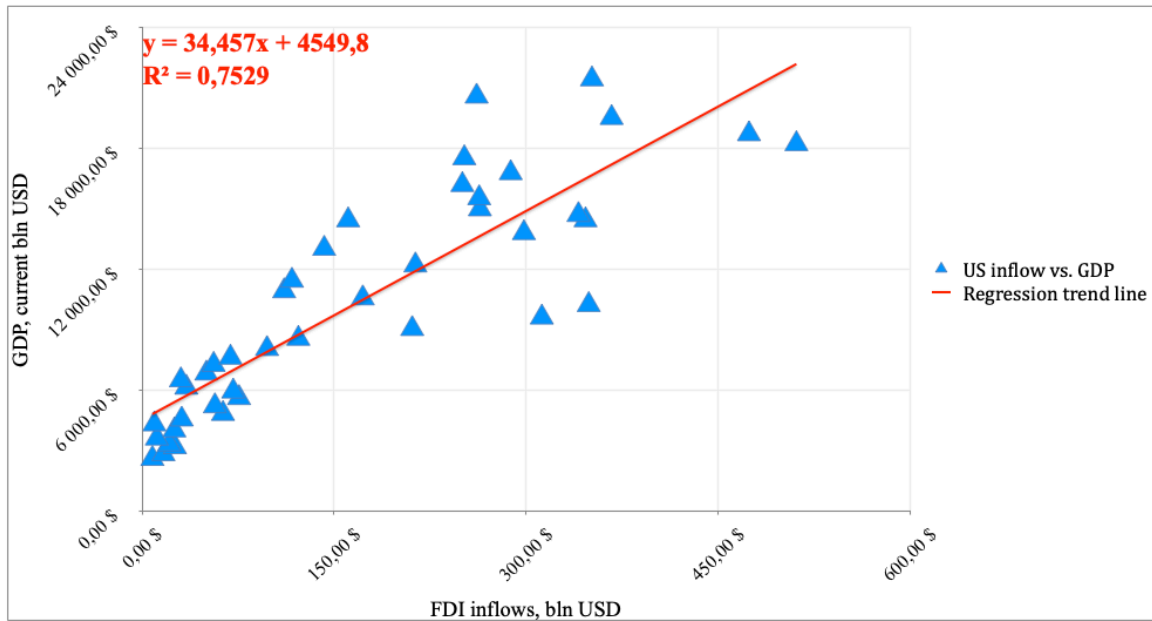
Using the data from *Appendix 1* and *Appendix 3*, the *Figure 9* was made. It represents a relationship between the two selected indicators — FDI inflow and GDP of the US economy. The added trend line demonstrates the enhancement of the relationship (see *Figure 9, p.66*). The values are closely grouped, and hence, can be concluded that some kind of relationship exists. According to the graph, the regression equation is:

$$y = 34.457x - 4549.8, \text{ where}$$

y — GDP values, dependent ; x — FDI inflow values, independent ;

a — Y-intercept, = 34.457 ; b — slope, = 4549.8

Figure 9: Correlation of FDI inflow and GDP growth in US economy, 1979 - 2019



Source: Processing according to World Bank, 2021a; 2021c.

Table 11: Linear regression analysis of FDI inflow and GDP in US, 1979-2019

US: Inflows vs. GDP								
SUMMARY OUTPUT								
<i>Regression Statistics</i>								
Multiple R	0.8677108541							
R Square	0.7529221263							
Adjusted R Square	0.7465867962							
Standard Error	2798.078464							
Observations	41							
<i>ANOVA</i>								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	1	930466173.9	930466173.9	118.8449717	0			
Residual	39	305340480.5	7829243.09					
Total	40	1235806654						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	4549.797669	690.5851373	6.588322602	0.00000007912693739	3152.957395	5946.637942	3152.957395	5946.637942
X Variable 1	34.45717684	3.160743736	10.90160409	0	28.06396924	40.85038443	28.06396924	40.85038443

Source: Processing according to World Bank, 2021a; 2021c.

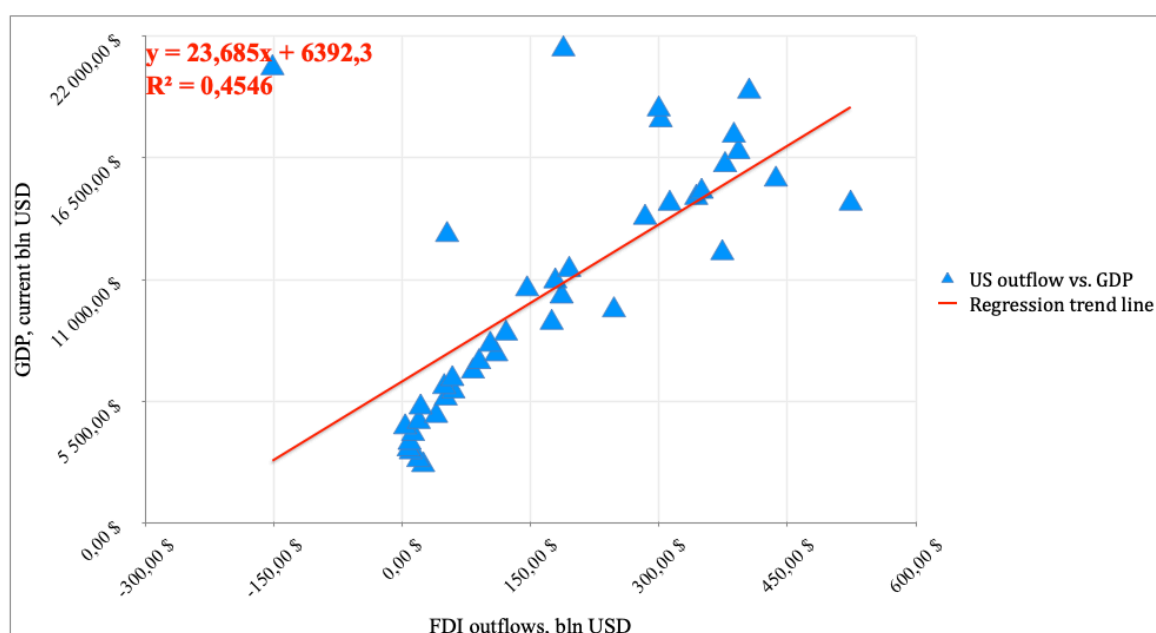
The statistical analysis showed that the correlation coefficient is equal to **0.8677108541**, and the coefficient of determination is respectively equal to:
 $(0.8677108541)^2 = 0.7529221263$ (see Table 11, p.66).

Result: $R = 0.8677108541$ — very strong, positive relationship;
 $R\text{-squared} = 0.7529221263$ — data fits strongly the regression model.

(2) Outflows vs. GDP

While analysing the US outflow and GDP growth relationship for the selected period, the graph illustrated that the data is rather dispersed and does not align that close to the trend line, therefore, if the relationship between two variables exist, it is not strong enough (see Figure 10, p.67).

Figure 10: Correlation of FDI outflow and GDP growth in US economy, 1979 - 2019



Source: Processing according to World Bank, 2021b; 2021c.

The defined regression equation is:

$$y = 23.685 x - 6392.3, \text{ where:}$$

y — GDP values, dependent ; x — FDI outflow values, independent ;

a — Y-intercept, = 23.685 ; b — slope, = 6392.3

Table 12: Linear regression analysis of FDI outflow and GDP in US, 1979-2019

US: Outflows vs. GDP								
SUMMARY OUTPUT								
<i>Regression Statistics</i>								
Multiple R	0.6742544024							
R Square	0.4546189992							
Adjusted R Square	0.440634871							
Standard Error	4157.123852							
Observations	41							
<i>ANOVA</i>								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	1	561821184.4	561821184.4	32.50964178	0.000001344384526			
Residual	39	673985470	17281678.72					
Total	40	1235806654						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	6392.300667	954.1943327	6.699160169	0.0000005561524524	4462.260472	8322.340862	4462.260472	8322.340862
X Variable 1	23.68465419	4.153947049	5.701722703	0.000001344384527	15.28250329	32.0868051	15.28250329	32.0868051

Source: Processing according to World Bank, 2021b; 2021c.

According to the linear regression analysis, the correlation coefficient is equal to **0.6742544024**, and the coefficient of determination is accordingly equal to (see Table 12, p.68): $(0.6742544024)^2 = 0.4546189992$.

Result: $R = 0.6742544024$ — strong, positive relationship;

$R\text{-squared} = 0.4546189992$ — data moderately fits the regression model.

4.4.3.3. Japan

(1) Inflows vs. GDP

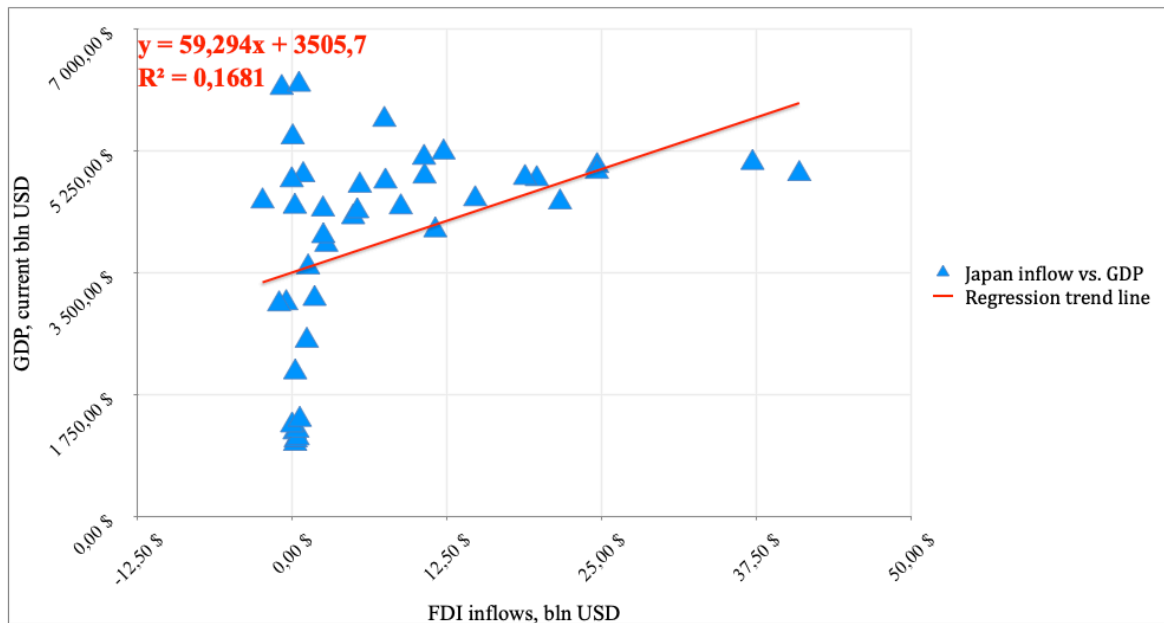
The Figure 11 (p.69) was assembled correspondingly. It represents the correlation of FDI inflows in Japan relatively to the country's GDP for 1979-2019. The scatter plot shows that the points of values are very chaotic and in fact, do not show the common trend. From the plot obtained, one should say that there is a small relationship of the selected two variables.

The graph defined the regression equation:

$$y = 59.294 x - 3505.7, \text{ where:}$$

y — GDP values, dependent ; x — FDI inflow values, independent ;
 a — Y-intercept, = 59.294 ; b — slope, = 3505.7

Figure 11: Correlation of FDI inflow and GDP growth in Japanese economy, 1979 - 2019



Source: Processing according to World Bank, 2021a; 2021c.

To proceed, the linear regression analysis was made respectively (see Table 13, p.69).

Table 13: Linear regression analysis of FDI inflow and GDP in Japan, 1979-2019

Japan: Inflows vs. GDP								
SUMMARY OUTPUT								
<i>Regression Statistics</i>								
Multiple R	0.4100319365							
R Square	0.1681261889							
Adjusted R Square	0.1467960912							
Standard Error	1393.171767							
Observations	41							
<i>ANOVA</i>								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	1	15298605.75	15298605.75	7.88211058	0.007756383108			
Residual	39	75696175.3	1940927.572					
Total	40	90994781.04						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	3505.749514	266.3099425	13.16417059	0	2967.086816	4044.412212	2967.086816	4044.412212
X Variable 1	59.2944551	21.11994684	2.807509676	0.00775638365	16.5753308	102.0135794	16.5753308	102.0135794

Source: Processing according to World Bank, 2021a; 2021c.

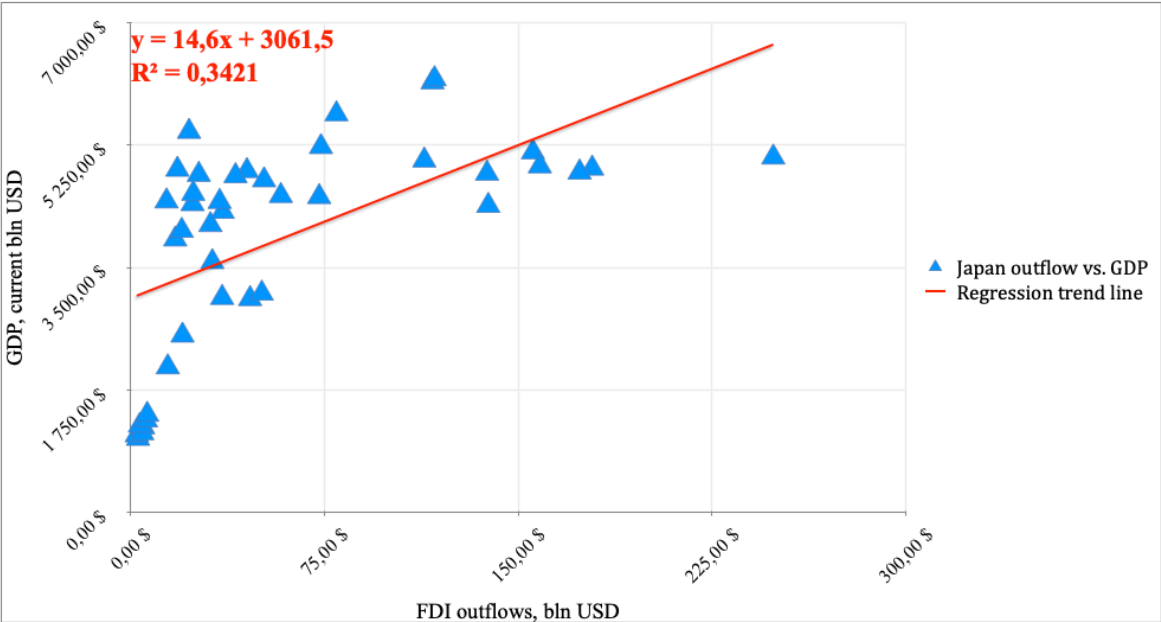
According to the linear regression analysis, the correlation coefficient is equal to **0.4100319365**, and the coefficient of determination is accordingly equal to: **$(0.4100319365)^2 = 0.1681261889$** (see Table 13, p.69).

Result: R = 0.4100319365 — moderate, but positive relationship;
 R-squared = 0.1681261889 — data is very weakly fitted to regression model.

(2) Outflows vs. GDP

The Figure 12 (p.70) demonstrates if there is any correlation of FDI outflows in Japan corresponding to the nation’s GDP for 1979-2019. Similarly, to the inflows, the graph depicts that the values of outward FDI and GDP growth are very dispersed. This might mean that there is a tiny chance of the relationship between the two variables.

Figure 12: Correlation of FDI outflow and GDP growth in Japanese economy, 1979 - 2019



Source: Processing according to World Bank, 2021b; 2021c.

The regression equation is as follows (see Figure 12, p.70):

$$y = 14.6 x - 3061.5 , \text{ where:}$$

y — GDP values, dependent ; **x** — FDI outflow values, independent ;

a — Y-intercept, = 14.6 ; **b** — slope, = 3061.5.

Table 14: Linear regression analysis of FDI outflow and GDP in Japan, 1979-2019

Japan: Outflows vs. GDP								
SUMMARY OUTPUT								
<i>Regression Statistics</i>								
Multiple R	0.5848883312							
R Square	0.3420943599							
Adjusted R Square	0.3252249845							
Standard Error	1238.961307							
Observations	41							
ANOVA								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	1	31128801.38	31128801.38	20.27901757	0.00005919113965			
Residual	39	59865979.67	1535025.12					
Total	40	90994781.04						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	3061.520539	274.271557	11.16236978	0	2506.753956	3616.287122	2506.753956	3616.287122
X Variable 1	14.60045741	3.242223923	4.503223021	0.0000591911392	8.04244058	21.15847424	8.04244058	21.15847424

Source: Processing according to World Bank, 2021b; 2021c.

The linear regression analysis held results (*see Table 14, p.71*). Summing up the linear regression analysis, the correlation coefficient is equal to **0.5848883312**, and the coefficient of determination is accordingly equal to: **$(0.5848883312)^2 = 0.3420943599$** .

Result: R = 0.5848883312 — moderate, but positive relationship;
R-squared = 0.3420943599 — data is very weakly fitted to regression model.

4.4.4. Limitations of the analysis

According to the World Bank database, the number of limitations for the data (FDI and GDP values) are presented, as follows:

4.4.4.1. FDI data

1. It is very important to note that FDI data (both inward and outward flows) is not able provide a complete picture of the global investment in any domestic economy (World Bank, 2021a; 2021b; 2021c). The *Formula 1* that was described in the theoretical part: **$FDI = EC + LTC + STC$** , does not imply the capital that was gained domesti-

cally, which is one of the crucial sources of investment for some of the developing economies.

2. The data on foreign direct investments also neglects some cross-border operations such as intra-block flows of services and goods. Even though the volume of the private investment flows is represented by the World Bank, the data might differ in various other official statistical sources. The factor of differences is explained by: (1) method utilised for gathering the data, (2) what classification of economies was used, and (3) procedure of information adjustment.
3. Typically for FDI and debt financing, the differences also might occur because of some of the transactions and offshores. Hence, the data is not very accurate for conducting a systematic and precise analysis.

4.4.4.2. GDP data

1. The GDP is not an ideal measurement for summarisation of economic performance of the country. It is a commonly used indicator, nevertheless, for different purposes, different indicators similar to GDP exist (World Bank, 2021c).
2. The data in the official databases differ, although the data sources attempt to report and adjust the data corresponding to the internationally prescribed guidelines. However, the information control might not fully ensure that all significant inconsistencies between standards and practice are eliminated.
3. Many countries providing the statistical data for these sources of information might have resource, time, training and capital limits which hinder them to report reliable and extensive information in a timely manner.
4. Another limit is associated with authorities which deal with compilation of the domestic accounts. They face issues with range of not reported economic transactions, hence, some shares are not taken into consideration, meaning that the GDP data does not reflect a real picture of the economies.

4.4.4.3. Regression analysis

1. Linear regression assumes that the selected variables remain unchanged in the future. Therefore, the results on correlations obtained are very precise.
2. The more the data inputted, the more possibility to get the functional relationship (Homework1.com, 2021).
3. Coefficient of determination driven by the regression analysis considers only the factor of the dependent variable, which might cause erroneous of the study.

4.4.4.4. Other limitations

GDP does not necessarily depend on the FDI. Since this is not the only determinant of the economic growth. The GDP fluctuations are empowered by a number of factors. Besides the factors that are included in the GDP formula, there are non-economic determinants that reflect the welfare of the national economy. Similarly, FDI inflow might not be a reason for the economic development. Based on the analysis done, in the selected countries China, US, and Japan the boosts and falls in FDI are also associated with political (elections) or environmental (natural disasters) factors.

5. Results and Discussion

All the results are summarised in the table below (*see Table 15, p.73*):

Table 15: Summary of linear regression analysis of economies of China, US, and Japan, 1979-2019

		R	R-squared
China	Inflows vs. GDP	0.86	0.75
	Outflows vs. GDP	0.92	0.84
US	Inflows vs. GDP	0.87	0.75
	Outflows vs. GDP	0.67	0.45
Japan	Inflows vs. GDP	0.41	0.17
	Outflows vs. GDP	0.58	0.34

Source: Processing according to World Bank, 2021a; 2021b; 2021c.

In statistical terms, Chinese economy showed better results in correlations between FDI inflows/outflows and economic growth of the country, measured by GDP. According to the *Table 8 (p.61)* on interpretation, the coefficients obtained on China are *very strong*, hence, there is a very strong relationship between the chosen indicators observed. This means that the economic welfare of the country is dependent on the foreign investments. It refers to the economy of People's Republic of China not only as a recipient country but also as a hosting one.

The average results, however, very close to China, showed by the US. The US inflows relationship with the GDP rate illustrates *very strong* and *strong* relationship according to the scale. But the correlation of outflows to GDP yield to China. Most probably, the US economic welfare is not very dependent on how much the country invests outside its economy.

The lowest relationship is found in Japan. The results achieved on the relationships between inward/outward investments and economic growth are correlated *moderately*. Also coefficients of determination showed that there is a *weak* dependence of the GDP on FDI flows of the nation, which almost yearns to zero. Despite all above mentioned facts historically speaking, the Japanese FDI inflows are likely to be dependent on environmental (natural disasters) factors and economic reforms leading to crisis, however, it does not reflect the economic growth of the country.

6. Conclusion

To conclude, as it has been overviewed throughout the Master thesis, the notion of foreign direct investment is quite complex and involving. The aim was to answer the research questions stated, understand the concept of FDI, overview the overall trends, highlight important benefits and drawbacks of the investments abroad, examine relationships between the FDI flows and GDP in Chinese economy in comparison to other worldwide economies like US and Japan.

The topic of Chinese economy is inspiring because by its example, the People's Republic of China obviously demonstrates outstanding results on the global arena. For selected time interval — from 1979 to 2019, China experienced a number of economic system transformations and reforms, which influenced the economic welfare of the nation. 40 years for Chinese nation was more than enough for new economy formation. Moreover, the country was able to hit their records in less than 15 years since the open market access. The country attracted a huge amount of capital and subsidiaries of the global largest corporations to its economy due to the number of factors (cheap labor, production costs, etc.) and even started investing abroad.

A comparison that was driven with Japanese economy was very relevant. Even though it takes the third place on the pedestal of the world economies after China, the issue is that Japanese authorities are hardly able to handle the issues within the country. The investments from overseas are usually at the higher levels only when the country faces severe problems such as economic crisis or natural disasters, however, these investments do not really facilitate the economic growth development of the country as it was found out after analysing the data. One would think of the two Asian economies which were facing similar issues with political and economic instabilities, where the level of the technological development is much higher than in most of the countries worldwide, show opposite results. While China ensures to invest less than attract, Japan does vice versa. On the contrary, it is very hard to judge the performance of both countries as Chinese population is at least 11-12 times bigger than the Japanese one.

Statistically, the leader of the world economy is considered to be the US. Analysis of the data showed that the US economy results are sufficiently close to the results obtained for Chinese economy. But similarly to Japan, US economic growth, inward and outward fundings are mostly associated with the events happening all over the world. What differentiates China here is the fact that at the time when China was just adapting to the economic transitions and internal formation of new economic system, the US economy was already illustrating good results in terms of GDP and FDI investments and attrac-

tion. In 1979 there was a very little hope that the Chinese economy could recover that fast and start to conquer for a place on the global arena.

Although the research and statistical analysis, by means of linear regression and correlation, demonstrated weak relationships and dependencies of the economic growth rate in studying Japanese economy, relatively good results in US economy and excellent outcomes in Chinese economy, it is important to mention that the analysis was relative. The number of limitations do not give a real picture of whether one variable (investment flow in and out) indeed influences another variable (economic growth of the country). Regardless the statistical data (numbers), the historical, political, economic, environmental, neighbourhood backgrounds and lots of other factors stand behind each economy.

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8. Appendices

Appendix 1 — FDI, net inflows (BoP, current bln USD)

FDI inflows in billion USD	China	Japan	US	Global
1979	0.00008 \$	0.24 \$	8.05 \$	41.95 \$
1980	0.06 \$	0.28 \$	16.74 \$	53.41 \$
1981	0.27 \$	0.19 \$	25.68 \$	69.60 \$
1982	0.43 \$	0.44 \$	21.23 \$	64.85 \$
1983	0.64 \$	0.42 \$	11.50 \$	53.07 \$
1984	1.26 \$	-0.01 \$	25.23 \$	59.78 \$
1985	1.66 \$	0.61 \$	9.63 \$	44.94 \$
1986	1.88 \$	0.24 \$	30.95 \$	81.77 \$
1987	2.31 \$	1.18 \$	63.24 \$	139.53 \$
1988	3.19 \$	-0.48 \$	56.91 \$	165.95 \$
1989	3.39 \$	-1.06 \$	75.78 \$	200.20 \$
1990	3.49 \$	1.81 \$	71.23 \$	239.41 \$
1991	4.37 \$	1.28 \$	34.55 \$	174.94 \$
1992	11.16 \$	2.76 \$	30.31 \$	186.26 \$
1993	27.52 \$	0.21 \$	50.23 \$	233.73 \$
1994	33.79 \$	0.89 \$	55.94 \$	278.76 \$
1995	35.85 \$	0.04 \$	69.08 \$	361.95 \$
1996	40.18 \$	-0.04 \$	97.66 \$	417.89 \$
1997	45.44 \$	2.49 \$	122.15 \$	534.81 \$
1998	45.64 \$	2.51 \$	211.15 \$	798.69 \$
1999	41.01 \$	14.78 \$	312.45 \$	1 203.50 \$
2000	42.10 \$	10.69 \$	349.13 \$	1 569.12 \$
2001	47.05 \$	4.93 \$	172.50 \$	895.50 \$
2002	53.07 \$	11.56 \$	111.06 \$	755.58 \$
2003	57.90 \$	8.77 \$	117.11 \$	737.21 \$
2004	68.12 \$	7.53 \$	213.64 \$	1 010.44 \$

Appendix 1 (continued)

FDI inflows in billion USD	China	Japan	US	Global
2005	104.11 \$	5.46 \$	142.34 \$	1 563.48 \$
2006	124.08 \$	-2.40 \$	298.46 \$	2 203.95 \$
2007	156.25 \$	21.63 \$	346.61 \$	3 133.86 \$
2008	171.53 \$	24.62 \$	341.09 \$	2 475.53 \$
2009	131.06 \$	12.23 \$	161.08 \$	1 447.37 \$
2010	243.70 \$	7.44 \$	264.04 \$	1 926.38 \$
2011	280.07 \$	-0.85 \$	263.50 \$	2 366.30 \$
2012	241.21 \$	0.55 \$	250.35 \$	2 084.13 \$
2013	290.93 \$	10.65 \$	288.13 \$	2 210.64 \$
2014	268.10 \$	19.75 \$	251.86 \$	1 951.33 \$
2015	242.49 \$	5.25 \$	511.43 \$	2 671.08 \$
2016	174.75 \$	40.95 \$	474.39 \$	2 685.14 \$
2017	166.08 \$	18.80 \$	367.00 \$	2 204.84 \$
2018	235.37 \$	24.61 \$	261.48 \$	1 195.02 \$
2019	155.82 \$	37.18 \$	351.63 \$	1 631.06 \$

Source: Processing according to World Bank, 2021a.

Appendix 2 — FDI, net outflows (BoP, current bln USD)

FDI outflows in billion USD	China	Japan	US	World
1979	0.02 \$	2.90 \$	24.72 \$	61.04 \$
1980	0.25 \$	2.39 \$	19.04 \$	55.92 \$
1981	0.03 \$	4.89 \$	10.11 \$	51.03 \$
1982	0.04 \$	4.54 \$	7.77 \$	36.92 \$
1983	0.09 \$	3.61 \$	8.77 \$	42.74 \$
1984	0.13 \$	5.97 \$	12.82 \$	53.71 \$
1985	0.63 \$	6.44 \$	3.68 \$	51.54 \$
1986	0.45 \$	14.40 \$	19.52 \$	95.23 \$
1987	0.65 \$	20.10 \$	39.80 \$	149.67 \$
1988	0.85 \$	35.44 \$	21.70 \$	190.45 \$
1989	0.78 \$	46.25 \$	50.98 \$	244.06 \$
1990	0.83 \$	50.77 \$	59.94 \$	277.90 \$
1991	0.91 \$	31.64 \$	49.27 \$	220.82 \$
1992	4.00 \$	17.30 \$	58.77 \$	230.35 \$
1993	4.40 \$	13.91 \$	82.80 \$	253.97 \$
1994	2.00 \$	18.12 \$	89.99 \$	313.39 \$
1995	2.00 \$	22.63 \$	110.06 \$	401.03 \$
1996	2.11 \$	26.40 \$	103.02 \$	439.08 \$
1997	3.77 \$	23.99 \$	121.38 \$	524.31 \$
1998	4.53 \$	19.81 \$	174.76 \$	779.77 \$
1999	4.04 \$	24.26 \$	247.49 \$	1 205.79 \$
2000	4.61 \$	45.03 \$	186.37 \$	1 403.57 \$
2001	9.70 \$	35.66 \$	146.04 \$	840.34 \$
2002	6.28 \$	30.90 \$	178.99 \$	656.65 \$
2003	8.46 \$	34.46 \$	195.22 \$	726.27 \$
2004	7.97 \$	40.61 \$	374.00 \$	1 196.77 \$
2005	13.73 \$	51.67 \$	52.59 \$	1 418.21 \$

Appendix 2 (continued)

FDI outflows in billion USD	China	Japan	US	Global
2006	23.93 \$	58.15 \$	283.80 \$	2 151.88 \$
2007	17.15 \$	72.99 \$	523.89 \$	3 197.36 \$
2008	56.74 \$	113.64 \$	343.58 \$	2 606.21 \$
2009	43.89 \$	73.68 \$	312.60 \$	1 348.82 \$
2010	57.95 \$	79.66 \$	349.83 \$	1 775.38 \$
2011	48.42 \$	116.84 \$	436.62 \$	2 195.11 \$
2012	64.96 \$	117.63 \$	377.24 \$	1 715.71 \$
2013	72.97 \$	155.68 \$	392.80 \$	2 003.35 \$
2014	123.13 \$	137.92 \$	387.53 \$	1 805.70 \$
2015	174.39 \$	138.42 \$	302.07 \$	2 195.26 \$
2016	216.42 \$	178.61 \$	299.82 \$	2 093.09 \$
2017	138.29 \$	173.75 \$	405.38 \$	2 106.81 \$
2018	143.03 \$	158.36 \$	-151.30 \$	781.49 \$
2019	97.70 \$	248.68 \$	188.47 \$	1 167.42 \$

Source: Processing according to World Bank, 2021b.

Appendix 3 — GDP (current bln USD)

GDP in billion USD	China	Japan	US	Global
1979	178.28 \$	1 055.01 \$	2 627.33 \$	9 971.33 \$
1980	191.15 \$	1 105.39 \$	2 857.31 \$	11 227.79 \$
1981	195.87 \$	1 218.99 \$	3 207.04 \$	11 624.04 \$
1982	205.09 \$	1 134.52 \$	3 343.79 \$	11 514.73 \$
1983	230.69 \$	1 243.32 \$	3 634.04 \$	11 747.28 \$
1984	259.95 \$	1 318.38 \$	4 037.61 \$	12 180.06 \$
1985	309.49 \$	1 398.89 \$	4 338.98 \$	12 793.53 \$
1986	300.76 \$	2 078.95 \$	4 579.63 \$	15 118.75 \$
1987	272.97 \$	2 532.81 \$	4 855.22 \$	17 201.25 \$
1988	312.35 \$	3 071.68 \$	5 236.44 \$	19 244.41 \$
1989	347.77 \$	3 054.91 \$	5 641.58 \$	20 087.69 \$
1990	360.86 \$	3 132.82 \$	5 963.14 \$	22 626.74 \$
1991	383.37 \$	3 584.42 \$	6 158.13 \$	23 966.89 \$
1992	426.92 \$	3 908.81 \$	6 520.33 \$	25 453.19 \$
1993	444.73 \$	4 454.14 \$	6 858.56 \$	25 858.21 \$
1994	564.32 \$	4 907.04 \$	7 287.24 \$	27 771.19 \$
1995	734.55 \$	5 449.12 \$	7 639.75 \$	30 887.28 \$
1996	863.75 \$	4 833.71 \$	8 073.12 \$	31 573.21 \$
1997	961.60 \$	4 414.73 \$	8 577.55 \$	31 458.34 \$
1998	1 029.04 \$	4 032.51 \$	9 062.82 \$	31 393.74 \$
1999	1 094.00 \$	4 562.08 \$	9 630.66 \$	32 563.16 \$
2000	1 211.35 \$	4 887.52 \$	10 252.35 \$	33 623.64 \$
2001	1 339.40 \$	4 303.54 \$	10 581.82 \$	33 430.84 \$
2002	1 470.55 \$	4 115.12 \$	10 936.42 \$	34 712.45 \$
2003	1 660.29 \$	4 445.66 \$	11 458.24 \$	38 948.21 \$
2004	1 955.35 \$	4 815.15 \$	12 213.73 \$	43 874.60 \$
2005	2 285.97 \$	4 755.41 \$	13 036.64 \$	47 526.79 \$

Appendix 3 (continued)

GDP in billion USD	China	Japan	US	Global
2006	2 752.13 \$	4 530.38 \$	13 814.61 \$	51 512.23 \$
2007	3 550.34 \$	4 515.26 \$	14 451.86 \$	58 043.56 \$
2008	4 594.31 \$	5 037.91 \$	14 712.84 \$	63 690.18 \$
2009	5 101.70 \$	5 231.38 \$	14 448.93 \$	60 410.29 \$
2010	6 087.16 \$	5 700.10 \$	14 992.05 \$	66 125.92 \$
2011	7 551.50 \$	6 157.46 \$	15 542.58 \$	73 460.35 \$
2012	8 532.23 \$	6 203.21 \$	16 197.01 \$	75 161.78 \$
2013	9 570.41 \$	5 155.72 \$	16 784.85 \$	77 316.34 \$
2014	10 475.68 \$	4 850.41 \$	17 527.16 \$	79 453.25 \$
2015	11 061.55 \$	4 389.48 \$	18 224.70 \$	75 217.72 \$
2016	11 233.28 \$	4 922.54 \$	18 714.96 \$	76 369.00 \$
2017	12 310.41 \$	4 866.86 \$	19 519.35 \$	81 306.03 \$
2018	13 894.82 \$	4 954.81 \$	20 580.16 \$	86 439.42 \$
2019	14 342.90 \$	5 081.77 \$	21 433.23 \$	87 798.53 \$

Source: Processing according to World Bank, 2021c.

Appendix 4 — FDI inflows global share (%), calculations based on the data from *Appendix 1*

FDI global share, %	China	Japan	US	Total
1979	1.79 %	10.58 %	26.35 %	38.72 %
1980	1.70 %	9.85 %	25.45 %	37.00 %
1981	1.69 %	10.49 %	27.59 %	39.76 %
1982	1.78 %	9.85 %	29.04 %	40.67 %
1983	1.96 %	10.58 %	30.94 %	43.48 %
1984	2.13 %	10.82 %	33.15 %	46.11 %
1985	2.42 %	10.93 %	33.92 %	47.27 %
1986	1.99 %	13.75 %	30.29 %	46.03 %
1987	1.59 %	14.72 %	28.23 %	44.54 %
1988	1.62 %	15.96 %	27.21 %	44.79 %
1989	1.73 %	15.21 %	28.08 %	45.02 %
1990	1.59 %	13.85 %	26.35 %	41.79 %
1991	1.60 %	14.96 %	25.69 %	42.25 %
1992	1.68 %	15.36 %	25.62 %	42.65 %
1993	1.72 %	17.23 %	26.52 %	45.47 %
1994	2.03 %	17.67 %	26.24 %	45.94 %
1995	2.38 %	17.64 %	24.73 %	44.75 %
1996	2.74 %	15.31 %	25.57 %	43.61 %
1997	3.06 %	14.03 %	27.27 %	44.36 %
1998	3.28 %	12.84 %	28.87 %	44.99 %
1999	3.36 %	14.01 %	29.58 %	46.94 %
2000	3.60 %	14.54 %	30.49 %	48.63 %
2001	4.01 %	12.87 %	31.65 %	48.53 %
2002	4.24 %	11.85 %	31.51 %	47.60 %
2003	4.26 %	11.41 %	29.42 %	45.10 %
2004	4.46 %	10.97 %	27.84 %	43.27 %

Appendix 4 (continued)

FDI global share, %	China	Japan	US	Global
2005	4.81 %	10.01 %	27.43 %	42.25 %
2006	5.34 %	8.79 %	26.82 %	40.96 %
2007	6.12 %	7.78 %	24.90 %	38.79 %
2008	7.21 %	7.91 %	23.10 %	38.22 %
2009	8.45 %	8.66 %	23.92 %	41.02 %
2010	9.21 %	8.62 %	22.67 %	40.50 %
2011	10.28 %	8.38 %	21.16 %	39.82 %
2012	11.35 %	8.25 %	21.55 %	41.15 %
2013	12.38 %	6.67 %	21.71 %	40.76 %
2014	13.18 %	6.10 %	22.06 %	41.35 %
2015	14.71 %	5.84 %	24.23 %	44.77 %
2016	14.71 %	6.45 %	24.51 %	45.66 %
2017	15.14 %	5.99 %	24.01 %	45.13 %
2018	16.07 %	5.73 %	23.81 %	45.62 %
2019	16.34 %	5.79 %	24.41 %	46.54 %

Source: Processing according to World Bank, 2021a.

Appendix 5 — GDP global share (%), calculations based on the data from *Appendix 3*

GDP global share, %	China	Japan	US	Total
1979	0.00019 %	0.57 %	19.19 %	19.76 %
1980	0.11 %	0.52 %	31.34 %	31.97 %
1981	0.38 %	0.27 %	36.90 %	37.55 %
1982	0.66 %	0.68 %	32.74 %	34.08 %
1983	1.20 %	0.78 %	21.67 %	23.65 %
1984	2.10 %	-0.02 %	42.20 %	44.29 %
1985	3.69 %	1.35 %	21.43 %	26.47 %
1986	2.29 %	0.30 %	37.85 %	40.43 %
1987	1.66 %	0.84 %	45.32 %	47.82 %
1988	1.92 %	-0.29 %	34.29 %	35.93 %
1989	1.69 %	-0.53 %	37.85 %	39.02 %
1990	1.46 %	0.75 %	29.75 %	31.96 %
1991	2.50 %	0.73 %	19.75 %	22.98 %
1992	5.99 %	1.48 %	16.27 %	23.74 %
1993	11.77 %	0.09 %	21.49 %	33.35 %
1994	12.12 %	0.32 %	20.07 %	32.51 %
1995	9.90 %	0.01 %	19.09 %	29.00 %
1996	9.61 %	-0.01 %	23.37 %	32.98 %
1997	8.50 %	0.47 %	22.84 %	31.80 %
1998	5.71 %	0.31 %	26.44 %	32.47 %
1999	3.41 %	1.23 %	25.96 %	30.60 %
2000	2.68 %	0.68 %	22.25 %	25.61 %
2001	5.25 %	0.55 %	19.26 %	25.07 %
2002	7.02 %	1.53 %	14.70 %	23.25 %
2003	7.85 %	1.19 %	15.89 %	24.93 %
2004	6.74 %	0.75 %	21.14 %	28.63 %

Appendix 5 (continued)

GDP global share, %	China	Japan	US	Global
2005	6.66 %	0.35 %	9.10 %	16.11 %
2006	5.63 %	-0.11 %	13.54 %	19.06 %
2007	4.99 %	0.69 %	11.06 %	16.74 %
2008	6.93 %	0.99 %	13.78 %	21.70 %
2009	9.05 %	0.84 %	11.13 %	21.03 %
2010	12.65 %	0.39 %	13.71 %	26.74 %
2011	11.84 %	-0.04 %	11.14 %	22.94 %
2012	11.57 %	0.03 %	12.01 %	23.61 %
2013	13.16 %	0.48 %	13.03 %	26.68 %
2014	13.74 %	1.01 %	12.91 %	27.66 %
2015	9.08 %	0.20 %	19.15 %	28.42 %
2016	6.51 %	1.53 %	17.67 %	25.70 %
2017	7.53 %	0.85 %	16.64 %	25.03 %
2018	19.70 %	2.06 %	21.88 %	43.64 %
2019	9.55 %	2.28 %	21.56 %	33.39 %

Source: Processing according to World Bank, 2021c.