Czech University of Life Sciences Prague

Faculty of Economics and Management

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Bachelor Thesis

The Eurozone crisis: China to the rescue through foreign direct investments?

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Evaluate current and future development of EURO zone. Evaluate Chinese FDI and possibility for their investments in European Union.

Methodology
Literature revue is conducted using methods of extraction, synthesis, induction and deduction. Goals of the analytic section are achieved using correlation techniques and data analysis of FDI and GDP.

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Declaration

I declare that I have worked on my bachelor thesis “The Eurozone crisis: China to the rescue through foreign direct invesments?” by myself and I have used only the sources mentioned at the end of the thesis.

In Prague on 14th March 2013 ………………………………….....

Zdeněk Pilař

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The Eurozone Crisis: China to the rescue through foreign direct investments?

Krize Eurozóny: bude zachráněno Čínou prostřednictvím přímých zahraničních investic?

Summary

The aim of the bachelor thesis is to evaluate the idea that the Chinese outward foreign direct investment may positively affect the growth of GDP and help to ease the consequences of the global economic crisis in the Eurozone. The first part is devoted to an explanation of terms associated with the phenomenon of foreign direct investment, fundamental analysis of the selected Eurozone countries is divided into two groups according to their economic assessments and examination of economic position of China on a global scale. In the second part, the author focuses on statistical calculations, their results, the potential impacts of Chinese investments on the European economy and a possible recommendation for a solution to this sensitive situation.

Key words: Eurozone, FDI, China, GDP, economy, economic crisis

Souhrn

Cílem této bakalářské práce je zhodnotit myšlenku, že příliv Čínských přímých zahraničních investic může pozitivně ovlivnit růst HDP a pomoci se snáze vypořádat s následky celosvětové ekonomické krize v zemích Eurozóny. První část práce je věnována vysvětlení pojmů spojených s fenoménem přímých zahraničních investic, fundamentální analýze vybraných států Eurozóny členěných do dvou skupin podle ekonomických ratingů daných zemí a přiblížení ekonomického postavení Číny v celosvětovém měřítku. V druhé části se autor věnuje statistickým výpočtům, jejich výsledkům, případným dopadům čínských investic na Evropskou ekonomiku a možným doporučením, jak tuto citlivou situaci vyřešit.

Klíčová slova: Eurozóna, FDI, Čína, HDP, ekonomika, ekonomická krize

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LIST OF ABBREVIATIONS AND ACRONYMS

CCPIT	China Council for the Promotion of International Trade
CIC	China Investment Corporation
EAEC	European Atomic Energy Community
ECB	European Central Bank
ECSC	European Coal and Steel Community
EEA	European Environmental Agency
EEC	European Economic Community
EMI	European Monetary Fund
EU	European Union
EUROSTAT	Statistical Office of the European Communities
FDI	Foreign Direct Investment
IFDI	Inward Foreign Direct Investment
IMF	International Monetary Fund
M&A	Mergers and Acquisition
MNE	Multi – National Enterprise
MOFCOM	Ministry of Commerce of China
NGO	Non – Governmental Organization
OECD	Organization for Economic Co – operation and Development
OFDI	Outward Foreign Direct Investment
PBOC	People´s Bank of China
PIIGS	Portugal, Ireland, Italy, Greece, Spain
PRC	People´s Republic of China
UNCTAD	United Nations Conference on Trade and Development
WTO	World Trade Organization

1. INTRODUCTION

The recent European debt-sovereign crisis, which began from the year 2008 and is currently ongoing, seems to be infinite and its consequences affect each and every-one of us. Europe will continue to face it for years to come. The question of the problem on how to bring the European economy to positive numbers has not been answered yet and many economists and researchers are trying to find a way to solve the crisis.

The People´s Republic of China ("China")[1] is one of the leading interests of the global politicians, economists, as well as security analysts and experts, particularly its economic boom in recent years. As well as an energy security it is closely linked with the never-ending competition for minerals in various parts of the world. This is one of the main topics of current security discussions. China's economic miracle has an impact not only on China's economy and standards of living in Chinese urban areas but also to the extensive territories around the world. China is currently trying to satisfy their interests in obtaining the necessary raw materials and last but not least, is looking for an outlet for their products. The impact of the growth of the Chinese economy to the global energy consumption is illustrated by the fact that the total increase in world energy consumption was 59% of the total world energy consumption in 2012. China is also the largest energy consumer in the world as well as the largest producer and consumer of coal.[2]

In the latest years we have all been witnesses to the economic crisis that has hit the entire world, and particularly affecting the European continent. Since the outbreak of the crisis, it was clear that reviving the moribund economy will be an uncertain and difficult task which only a strong country like China could help us to solve it economically. One of the means to kick-start the economy and save the common European currency is the foreign direct investment from China, which according to many theories and economic experts can boost GDP growth in the individual countries in the Eurozone.

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[1] People's Republic of China (PRC), the Asian state with an area of 9.596 million km2, with a population of over 1.3 billion in 2011. The country is divided into 22 provinces, its capital isBeijing.

[2] Source: U. S. Energy Information Administration [online]. 2012 [cit. 2013-02-09]. Available at: http://www.eia.gov/countries/country-data.cfm?fips=CH

We can learn from the history about the Chinese influence in Africa, which began in the seventies of the last century and continues currently today. Since 2005, China has invested in the African countries rich in raw materials with billions of dollars. After the beginning of the financial crisis in 2007 China was involved in many potential investment deals in the financially crisis ridden Europe. The volume of foreign direct investment of Chinese companies since 2004 greatly increased and in the next five years will increase again several times.

This thesis should find a hypothetical answer to whether the Chinese FDI can help to save the European economy and theoretically rescue the Euro currency from its devaluation and hence the European Union from a breakup. Another important part of the work will be the highlighting and evaluation of the potential economic, political, environmental and national security threats and analyze the impact of Chinese FDI in Eurozone countries.

2. OBJECTIVES OF THESIS AND METHODOLOGY

This chapter is to provide a crude explanation and imagination of objectives and methods which will be used to achieve the main goals.

2.1. Objectives

The main objective of the work is the evaluation of the hypothesis that foreign direct investment from China can help to rescue the Euro currency, as a marginal part of GDP and thus may slow the effects of the economic crisis within states of the Eurozone, prediction of their future development and Chinese possibility for investments in the European Union.

For an easier calculation, an author selected two groups of states. In the first group are states so-called PIIGS (Portugal, Ireland, Italy, Greece, Spain) with weak economy stability and in the second group are randomly selected states with a great economic environment (Germany, France, Luxembourg, Belgium, Austria). Those countries were chosen according to Fitch´s Rating where the countries obtained an excellent ratio. The resulting analysis is calculated by the ratio of Chinese FDI affecting its country GDP and by ratio of all countries of the world´s FDI affecting its country GDP.

2.2. Methodology

Literature review is conducted using methods of extraction, synthesis, induction and deduction. The main goals of the analytic section are achieved using correlation techniques and data analysis of FDI and GDP of two groups of states for the period 2004-2011 to typify changes before and after the crisis. The GDP volatility of countries was calculated as a secondary part from its GDP standard deviation. Data were obtained from the Statistical Office of the European Communities, The World Bank and from Ministry of Commerce of China and transferred to the current Euro exchange rate at the date of this work.

3. LITERATURE REVIEW

This chapter focuses on the explanation of basic facts concerning the history of the recent Eurozone crisis, the Euro currency, China´s economic boom and should provide a brief information summary about the foreign direct investments and its influence throughout each country´s economy and about the tools and methods for understanding the rest of this thesis.

3.1.History of the European Union

The effort to unify Europe extends back since the Roman Empire but the effort began to come forth with the end of The Second World War (WW II) when the devastated and divided Europe needed to be re-united and the economy of each country re-started. The terrible consequences of WWII have prompted many states, headed by their leaders to think about how to prevent the recurrence of such events, and how to remedy the damages. In May 1950, French Foreign Minister Robert Schuman along with Jean Monnet, who dedicated his life to the pursuit of European integration, presented to the public the "Schuman Plan", which outlined the idea of production control of coal and steel, which were the raw materials for the production of weapons and hence in 1951, the European Coal and Steel Community (ECSC) was established. This Community aimed to maintain peace throughout Europe and other objectives such as restoration of ruined industry and agriculture in Europe and the raising of living standards were established. The integration continued with the establishment of other communities, respectively with the European Economic Community (EEC) and European Atomic Energy Community (EAEC or Euratom) in 1957 and an establishment of a common market based on „ four freedoms"- the free movement of goods, people, services and capital. All of these communities were merged together in 1967, under a single institutional framework, known as the European Community. By the late 1980s, all capital controls among member states were abolished, and the freedom of capital movement was subsequently extended to countries outside of the Community.

The Maastricht Treaty, which was signed in February 1992 on the summit by the twelve members of the community is seen as a key document in the construction of the European Union and is also called the Treaty of The European Union. This agreement is a milestone that introduced a number of new elements, but also anchored a procedure for building and subsequent functioning of the monetary union.[3] Maastricht summit set two possible dates in which the common currency can be introduced–the beginning of 1997, and if all the member countries did not fulfill the convergence criteria–the beginning of 1999. Finally, The Economic and Monetary Union was established on 1 January 1999 under the name „Eurozone“ with all eleven founding members (Germany, France, Italy, Netherlands, Luxemburg, Belgium, Ireland, Denmark, Greece, Spain and Portugal) and at this date the Euro currency was only used as a virtual currency for cashless payments but by the beginning of 2002 it replaced all the national currencies for all transactions.

3.2.Euro currency

The Euro (symbol **€**, ISO:4217, currency code: EUR) is the official currency unit in 17 countries of the 27 European Union countries and it is the second most important representative in the global monetary system after the U.S. dollar (USD). The term "Euro" is adopted from the conference of the European Commission in Madrid in 1995 and the characteristic symbol of **€** is inspired by the ancient Grecian letter epsilon which symbolized the nativity of the European civilization and also the first letter of the European continent. Two lines in the middle of the letter symbolize the stability of the currency.

The Eurozone monetary policy is implemented by the European Monetary Institute (EMI) and by the European Central Bank (ECB) in Frankfurt am Main and the Eurozone consists of these countries – Belgium, Spain, France, Greece, Cyprus, Germany, Luxemburg, Ireland, Portugal, Austria, Slovenia, Slovakia, Italy, Finland, Netherlands and Malta and the latest country to adopt the Euro was Estonia in 2011. Besides these countries there are also three smaller European countries accepting the Euro – The Vatican, Monaco and San Marino. The Euro is an unofficial currency for a few countries such as Kosovo and Montenegro and there are

[3] VEMBULU, Pavananthi – *Understanding European Integration: History, Culture and Politics of Identity,* Akaar Books, 2003, 259 pages, ISBN 81-87879-10-6

also seven countries which will accept the Euro in the near future – Sweden, Czech Republic, Hungary, Bulgaria, Lithuania, Poland, Latvia and Romania.

Each new member of the European Union has an obligation to introduce the Euro in their country and become part of the Eurozone. The readiness to join the Eurozone indicates fulfillment of the convergence criteria and alignment with the Euro area‘s domestic economy. A new member country has a duty to do everything possible in fulfilling the convergence criteria and become part of the Euro area.

3.3.Worldwide Financial crisis

One of the causes that may mark the current global crisis is the U.S. market crisis mortgage, which culminated in 2007. The first notes, however, can be observed in the early nineties, but then fluctuations in the U.S. economy were still flawless. The trigger was the year 2006 when there was a fall in real estate prices, followed by the U.S. dollar and their economic recession. The financial downturn in the U.S. stock market was a result of careless so-called risky mortgages to customers who were unable to meet their financial obligations to creditors. These borrowers then created a large number of financial gaps, resulting in the collapse of America's largest retailers with mortgages and loans. Many of the American politicians do not respect the rules of the market propositions resulting from the previous crisis and urged for many years in the form of an incompetent monetary and fiscal policy of the American people to irresponsibly spend their money on consumer goods for the price of massive debt based only on consumption, which was not balanced counterweight in production. This in essence trained "speculators" in Wall Street to be more than a correct trading. For example legitimate investment banking, paid in the form of gambling speculation with U.S. mortgages, was packaged and converted into mortgage bonds and was freely, with these so-called sub-prime, traded around the world. Global institutions such transformed the sub-prime mortgages[4], buying it as a good government-guaranteed bonds. Consumption disguised legitimate source economic growth, steadily increasing its share in the structure of U.S. GDP.

[4] The sub – prime mortgage is a type of mortgage provided to the borrowers with insufficient credit history.

This has been historically the greatest decline of the U.S. dollar, which resulted in the world's stock exchanges. Last case, starting the crisis caused by the current extent of the wobble-dollar financial market speculators and hedge funds that drive today's financial market volatility in the market need to make money. By their pursuit of quick profits they looked for opportunities to create panic and sell everything within short speculative positions.

Economist Costas Lapavitsas summarized the causes of the global crisis in to the following words: *"The great crisis commenced in 2007 after five years of bank speculation in the US real estate market that caused the international money market to freeze, three peripheral countries of Eurozone were in receipt of bailout*[5] *programs, Greece was on the brink of exiting the monetary union and the mechanism of the Euro faced breaking pressure. The casual chain linking the US financial market turmoil to EMI instability has been analyzed by several economists. Summarily, the collapse of the Lehman Brothers Bank in 2008 led to a major financial crisis that ushered into a global recession. The result was rising fiscal deficits for several leading countries of the global economy. For countries in the Eurozone periphery, already deeply indebted after years of weakening competitiveness relative to the Eurozone core, fiscal deficit led to restricted access to the international bond market. To rescue the bank, the Eurozone had to bailout the peripheral states but bailouts were accompanied by austerity that induced deep recessions and rendered it hard to remain in the Monetary Union, particularly for Greece."* [6]

3.4. The Eurozone Crisis

The Eurozone crisis is similar to The Great Depression which occurred in 1929 when speculation in the New York Exchange Stock induced a crash that led to global recession that spread within a year. This crash started the forthcoming 10 year depression in the USA and ended up with American mobilization in WW II at the end of 1941. We can say that this crisis helped to raise support for the Nazi party and

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[5] Bailout is a situation when governement or individual offer a money in form of loan, stock, bond or cash to preclude a fall of business.

[6] LAPAVITSAS, Costas – *Crisis in the Eurozone*, The Verso publishing 2012, 145 pages, ISBN 978-1-7816-8041-4

caused the start of the world war. But the recent Eurozone crisis has a different basis and hopefully will not end up with another world war.

We can pronounce that the Eurozone Crisis moved from the United States of America to Europe in 2008 and we could register it by a rapid slump in GDP growth within all states of the Eurozone. The value of the annual GDP growth went into red numbers, especially in Greece, and hardly contended with a slow economic growth. On the other hand the "former workhorse" of the community, Germany, manages the crisis without any problem and its export power remained intact.

At the present time, many are countries struggling with budget and debt problems. The economic position of Greece in the times of its qualification was not too strong and during the revision of the Maastricht criteria in 2004 it was discovered that the amount of the Greek budget deficit was far larger than Greece reported.

Within the last three years the crisis spread among other member countries of the Eurozone namely the group of countries known as PIGS – Portugal, Ireland, the aforementioned Greece and Spain and no one can predict how the situation will continue to develop.

3.5.The economy within states of PIIGS

In the practical part, the author focused on the economic development during the sovereign debt crisis of the five Eurozone countries which were considered as a weak by their economically situation, namely, Portugal, Italy, Ireland, Greece and Spain. Those countries are referred by the controversial acronym of their capital letters as the PIIGS countries. This expression was positively taken between traders but some organizations restrict or even ban its use due to its controversy.

The European sovereign debt crisis has spread between 2009-2010 among all the countries of the European Union and it led to an unsustainable economic environment for the investors and due to this fact, the interest rate began to increase. The situation of GDP growth development within the periods of 2004 – 2011 in PIIGS countries and in Germany and France, are shown in figure 1.

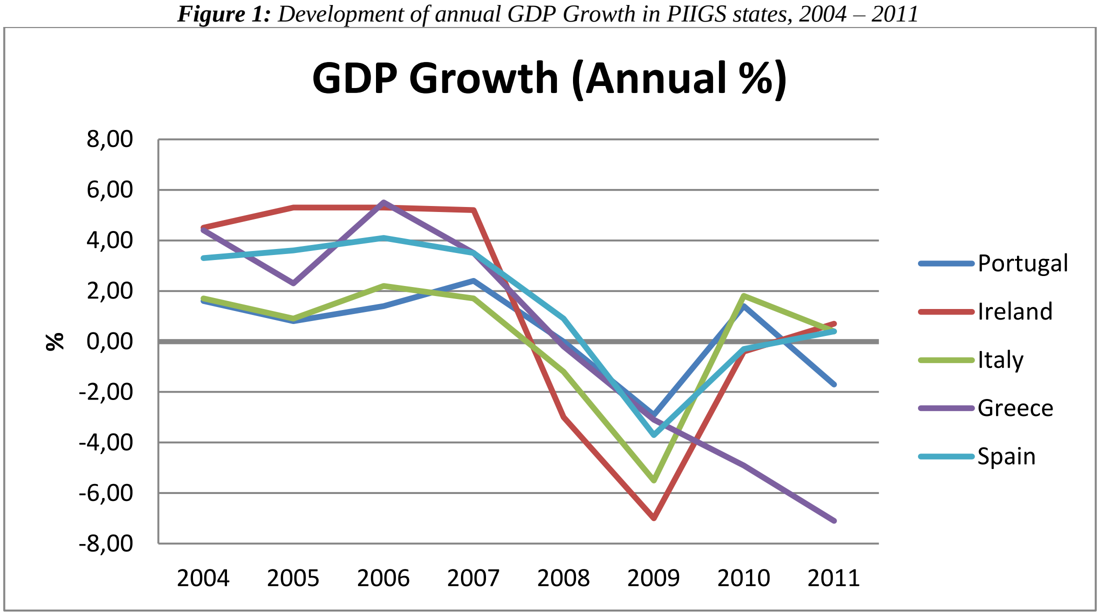
Description of the causes and consequences of the crisis in the so–called PIIGS[7] states:

- **Portugal –** The Portuguese economy was close to bankruptcy in 2011 but was rescued by a €80 billion loan from the IMF in exchange for strict austerity measures. The main reasons for the Portuguese economic downfall were high wages and poor productivity.
- **Ireland -** Low interest rates led to a credit boom, where the bank negotiated even with sub-prime mortgages. Therefore this condition which in many ways surpassed the U.S., led to a crisis where households became in debt due to low wages. Ireland was granted €80 billion by the IMF in exchange for implementing austerity measures.[8]
- **Italy –** The main problems in the Italian economy were low productivity, incorrect tax collection and a large public debt combined together with an unsolved recession from previous years which led to a large public debt that reached 116% of GDP in 2010. Italy hopes that the strict austerity measures will help to save over €100 billion in the upcoming years.
- **Greece –** The biggest "trouble maker" Greece misreported its economic statistic during an annual mandatory economy report in order to keep within the states of the Eurozone and hence the public debt reached 115% of GDP in 2009. This led to the situation where Greece has to accept a €110 billion bailout and implement very strict austerity measures.
- **Spain –** Spain is on the way of emerging from the recession. The biggest problem with its economy is the high unemployment rate among youth and a housing bust. Spanish economy should avoid any financial help from the IMF.

[7] KUEPPER, J. – *What are the PIIGS?* [online]. 2013 [cit. 2013-02-25]. Available at: http://internationalinvest.about.com/od/glossary/a/What-Are-The-Piigs.htm
[8] Policies used by goverment to reduce spending and increasing frugality in financial sector. Often unpopular in affected coutries.

- At figure 1 is shown the GDP growth development of PIIGS countries, where you can see how those affected countries struggle with an economic crisis and keep the level in negative numbers or very close to zero level.

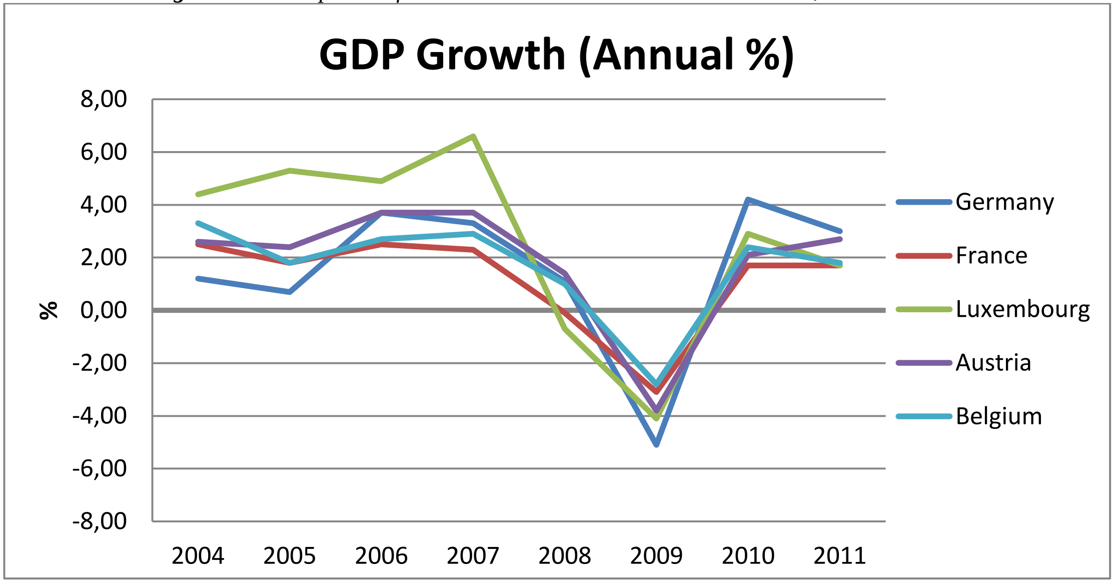
Figure 1: *Development of annual GDP Growth in PIIGS states, 2004 – 2011*



Source: World Bank, own input

The second group of states consists of countries with an excellent economy environment. The author used a Fitch´s rating agency (chapter 3.5.1) to choose states only with great rating such as Germany, France, Luxembourg, Austria and Belgium. Those countries were also affected by the global crisis but survived it without any significant issue and keep the level of GDP growth in positive numbers (figure 2).

Figure 2: *Development of annual GDP Growth in selected countries, 2004 – 2011*



Source: World Bank, own input

3.5.1. Sovereign credit ratings

Sovereign credit rating is a tool on how the credit rating agencies determine the potential ability of the debtor to pay back its debt and indicates the risk environment of a country. The evaluation is assigned by credit rating agencies such as Standard & Poor´s, Fitch, Moody´s and China – based rating agency Dagong. The rating determination is made by an agencies judgment and experiences and according to a deep analysis of a long term economic prospect. The agency determines whether the country will obtain a poor or strong credit rating which is classified through a set of letters A, B, C, where AAA is an excellent and one C is very poor. The rating system is the same or very similar in all agencies.

The sovereign rating system for monitored PIIGS countries changes annually since the beginning of the crisis. As you can see on table 1, the rating for countries has changed rapidly since 2008, especially for Greece, the situation is unsustainable because the letter C is considered as a speculative situation with bonds. For the main comparison of the influence of FDI, the author chose the second group of countries with an excellent rating and without any movement over the crisis as a representative of a stable economy. Those countries are Germany, France, Luxembourg, Belgium and Austria. The rating development preview is shown in table 1.

Table 1: *Development preview of credit ratings, 2004-2011*

	2004	2005	2006	2007	2008	2009	2010	2011
Portugal	AA	AA	AA	AA	AA	AA	A	BB
Ireland	AAA	AAA	AAA	AAA	AAA	AA	BBB	BBB
Italy	AA	AA	AA	AA	AA	AA	AA	A
Greece	A	A	A	A	A	BBB	BB	CC
Spain	AA	AA	AA	AA	AA	AA	AA	A
Germany	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA
France	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA
Luxembourg	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA
Austria	AAA	AAA	AAA	AAA	AAA	AAA	AAA	AAA
Belgium	AA+	AA+	AA+	AA+	AA+	AA+	AA+	AA+

Source: The Fitch ratings agency, own input

3.6.History of FDI

The FDI together with the International Trade create the core of globalization. International trade appeared many centuries ago while the terms of the FDI were defined just after The Second World War. International trade is defined as an exchange of capital, goods and services within states and territories.[9] Trading within the continents gives a big opportunity to expose goods and services which are not available in a specific country and from the history we know terms such as the Silk Road which was an important network interlinking European and Asian continents and its formation created development within civilizations and laid the foundation stone for international trade or the Amber Road which interlinked the Baltic Sea with the Mediterranean Sea for transport of a raw materials. This is proof that globalization began in ancient civilizations and continues throughout centuries but in a more developed form of FDI.

In national accounting statistics, cross–border flows are separated into five categories:

1) **Direct investment:** entails long-term investments with significant management influence. The threshold for a direct investment should be higher than 10% of voting shares.

[9] HEAKAL, Reem - *What Is International Trade?* [online]. February 25 2012 [cit. 2013-02-19] available at: http://www.investopedia.com/articles/03/112503.asp#axzz2LfLCEu4s

2) **Portfolio investment:** A short-term investment in liquid securities, which include a possession of equity shares with less than 10% of voting rights.

3) **Derivatives :** This category includes financial instruments which are related to the underlying value of real assets.

4) **Other investments:** Includes all flows which are not specified in the previous categories. Other investments contain currency holdings, cross-border loans or foreign bank deposits.

5) **Reserves**: Held by a government in the form of gold or foreign exchange.[10]

3.6.1. Benchmark definition of FDI

"FDI is a category of international investments made by an entity resident in one economy (*direct investor*) to acquire a lasting interest in an enterprise operating in another economy or country (*direct investment enterprise*)."[11]

We classify two forms of FDI:

1) **Green-field investment:** Opposite of the brownfield investment where the government leases or buys existing facilities to launch a new production, the green-field investment means a start of a new venture in a developing foreign country by a parent company. In addition, it means constructing new facilities and a creation of long term jobs by hiring new employees. In many cases the green-field investment company obtains advantages in the form of a tax holiday or free land to build on.

2) **Mergers and Acquisition (M&A):** Mergers occur when two companies agree to create a new company rather than remaining separate competitive entities

[10] The definition created by IMF is also used by other organizations such as the OECD or UNCTAD. Definition available [online] at: http://www.oecd.org/daf/inv/investmentfordevelopment/2487495.pdf
[10] EUROSTAT, The Statistical Office of the European Union - *European Union direct investments* [online], 2013 [cit. 2013-03-03] available at: http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/bop_fdi_esms.htm

while an acquisition means a business transaction between two parties where one party purchases liabilities and assets of the other targeted enterprise.[12]

"Foreign direct investment (FDI), as a key element of the globalization and of the world economy, is a driver of employment, technological progress, productivity improvements, and ultimately economic growth. It plays the critical role in controlling the development, foreign exchange, investment, and tax revenue gaps in developing countries."[13] The author quotes another definition of FDI:

"*From a macroeconomic point of view, FDI is a particular form of capital that flows across borders from countries of origin to host countries which are found in the balance of payments. The variable of interest is: capital flows and stocks, revenues obtained from investments. The microeconomic point of view tries to explain the motivations for investment across national boundaries from the point of view of the investor. It also examines the consequences to investors, to the country of origin and to the host country, of the operations of the multinationals rather than investment flows and stock."*[14]

Foreign direct investment usually includes three components: equity investment, reinvested earnings and other capital flows. A direct investment relationship flow starts with an equity injection into the overseas subsidiary for the establishment of a new green-field project or to acquire a controlling stake in a company through mergers and acquisitions where the stake must be higher than ten percent. After the relationship starts, the flow between the mother company and a subsidiary company is counted as direct investment. Mostly, the earned money is not sent home to the parent company but rather they are reinvested into the subsidiary company.

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[12] OECD Investment Division, Directorate for Financial and Enterprise Affairs - *Glossary of Foreign DirectIinvesment Terms and Definitions* [online]. 2006 [cit. 2013-03-02] available at: http://www.oecd.org/daf/inv/investmentfordevelopment/2487495.pdf

[13] ANYANWU, John C. - *Why Does Foreign Direct Investment Go Where It Goes?: New Evidence From African Countries* [online]. 2012 [cit. 2013-03-03] available at: http://www.aeconf.net/Articles/Nov2012/aef130207.pdf

[14] LIPSEY, Mark W., WILSON, David B - *Practical meta-analysis*, Thousand Oaks, Calif.: Sage Publications, c2001, ix, 247 p. ISBN 07-619-2168-0

Direct investment is divided into two categories - inward and outward direct investment:

1) **Inward foreign direct investment (IFDI):** Investment by a non – resident investor in an enterprise in a host country. The direction of flowing capital goes “inward“ to the affected economy.
2) **Outward foreign direct investment (OFDI):** Investment by a resident investor in a non – resident enterprise. The direction of leverage by the direct investor is “outward” for the reporting economy.

3.7.Main FDI theories

To understand FDI we have to first understand the basic factors of motivation and what is forcing the foreign firms to invest abroad rather than export or outsource to national firms. There is a long list of researchers who tried to create a model or explain the phenomenon of FDI but only several of them found out the main indicators. We already know four main theories but none of them is a generally accepted theory.

The following part is an explanation of four main FDI theories which are classified under the highlighted headings:

3.7.1. Production Cycle Theory of Vernon

The production cycle theory is the oldest known theory developed by Raymond Vernon in 1966 and it provides a simple explanation of FDI made by U.S. companies in Western Europe after the end of the Second World War in the manufacturing industry. This theory is based on actual facts from the period 1950 – 1970. According to Vernon, there are four main stages of production cycle: innovation, growth, maturity and decline. It briefly means that when a company makes a surplus of an innovative product for a local market, the surplus will be exported abroad to serve on a foreign market. An increased demand for this product will cause that the foreign factory will begin to export this product and still having an advantages of technology. But while the product and technology is developed it may become known by other companies that may in turn copy it. When European firms begin imitating this product, it forces the U.S. companies to move production facilities on the local market to get shares in this area.

3.7.2. The Theory of Exchange Rates on Imperfect Capital Markets

This theory is only an empirical analysis and is devised by David O. Cushman and Itagaki Yukio and their theory is based on the fact that "real exchange rate increase stimulated FDI made by the US dollar, while a foreign currency appreciation has reduced American FDI. Cushman concludes that the dollar appreciation has led to a reduction in U.S. FDI by 25%". [15] Unfortunately, this theory cannot explain foreign direct investments among individual countries and their different currencies.

3.7.3. The Internalization Theory

This theory is project of many researchers who developed the basic theory throughout the years. The first version was introduced by Stephen Hymer in 1976 who defined two major determinants of FDI-removal of competition and the advantages in the firm´s possession of particular activities. Hymer is also the author of the concept of firm-specific advantages and showed evidence that the multinational enterprises[16] (MNE) appears always in a market imperfection environment and it leads to dissimilarity from perfect competition. The theory was developed by economists Peter J. Buckley and Mark Casson, in 1976 who founded that the "theory demonstrates that transnational companies are organizing their internal activities so as to develop specific advantages, which then are to be exploited. The Internalization theory is considered very important also by Dunning,

[15] DENISIA, Vintila. - *Foreign Direct Investment Theories: An Overview of the Main FDI Theories*, European Journal of Interdisciplinary Studies, Issue 3 [online]. December 2010 [cit. 2013-03-02] available at: http://www.ejist.ro/EJIS%20-%203%20-%2053-59.pdf

[16] A multinational enterprise (MNE) is an organization which controls a business in at least two countries.

[17] KUŞLUVAN Salih – *A review of theories of multinational enterprises*[online]. 1998 [cit. 2013-03-03] available at: http://www.iibf.deu.edu.tr/dergi/1152260141_1.pdfhttp://www.iibf.deu.edu.tr/dergi/1152260141_1.pd f

who argues that this explains only part of FDI flows. "[17] The theory was redeveloped by Jean-Francois Hennart in 1982 who improved the model between the two types of integration-horizontal and vertical.

3.7.4. Dunning ´s Theory of Eclectic Paradigm

The most well known and most accepted theory is published by John H. Dunning in 1980 and it is the mix of all three mentioned theories. The theory itself can be known as the OLI-model theory and it is based on a Transaction Theory which tries to explain why companies exist, and why companies expand or outsourcing activities abroad.

The abbreviations of OLI are the initial letters of the three factors which influence the decision of firm to expand abroad.

1) Ownership advantages

The ownership specific advantages allow a firm to compete with other firms in the foreign market without any of the disadvantages of being foreign. This advantage is related to intangible assets which are for a while exclusive possessions to the company and if the company is not profitable, it can be transferred within transnational companies in order to increase profit or to reduce costs.

"To explain it correctly we can say that in a foreign market, a company must have certain characteristics that would triumph over operating costs on a foreign market. These advantages are the property competences or the specific benefits of the company. The firm has a monopoly over its own specific advantages and using them abroad leads to higher marginal profitability or lower marginal cost than other competitors." [18]

[17] KUŞLUVAN Salih – *A review of theories of multinational enterprises*[online]. 1998 [cit. 2013-03-03] available at:
http://www.iibf.deu.edu.tr/dergi/1152260141_1.pdfhttp://www.iibf.deu.edu.tr/dergi/1152260141_1.pdf

[18] DENISIA, Vintila - *Foreign Direct Investment Theories: An Overview of the Main FDI Theories.* European Journal of Interdisciplinary Studies, Issue 3, December 2010, [online] available at: http://www.ejist.ro/EJIS%20-%203%20-%2053-59.pdf

There are three basic types of ownership advantages:[19]

a) Monopoly advantages are that the firm should be able to have an access to natural resource-based products and should be available to exploit and export it.

b) Having an advantage in trademarks, patents, property rights and all forms of innovation activities.

c) Having a bigger access to financial capital throughout the Multinational enterprise organizations, economy of scale and scope.

2) Location advantages

The location advantages may arise from differences in a country's natural endowments, government regulations, transport costs, macroeconomic stability, and cultural factors. If the first condition is met for the company, it will always be more profitable to use its owned enterprises for itself, rather than to rent them or sell them to other foreign company.

There are also three basic types of location advantages:[20]

a) Common and specific political environment or administration policies (special taxis or tariffs) that affect flow of FDI into the host country.

b) Social advantages include language and cultural diversities, attitude towards strangers, a free enterprises environment and distance between countries.

c) Economic benefits which include qualitative and quantitative factors such as market size, cost of production, infrastructure development etc.

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[19] DUNNING, J., H., Lundan S., M. - *Institutions and the OLI paradigm of the multinational enterprise* [online]. January 2008 [cit. 2013-02-18] available at: http://faculty.ksu.edu.sa/ahendy/313%20ECON/Syllabus%20and%20Handouts/Dunning%20modelfulltext.pdf

[20] DUNNING, J., H., Lundan S., M. - *Institutions and the OLI paradigm of the multinational enterprise* [online]. January 2008 [cit. 2013-02-18] available at: http://faculty.ksu.edu.sa/ahendy/313%20ECON/Syllabus%20and%20Handouts/Dunning%20modelfulltext.pdf

3) Internalization advantages

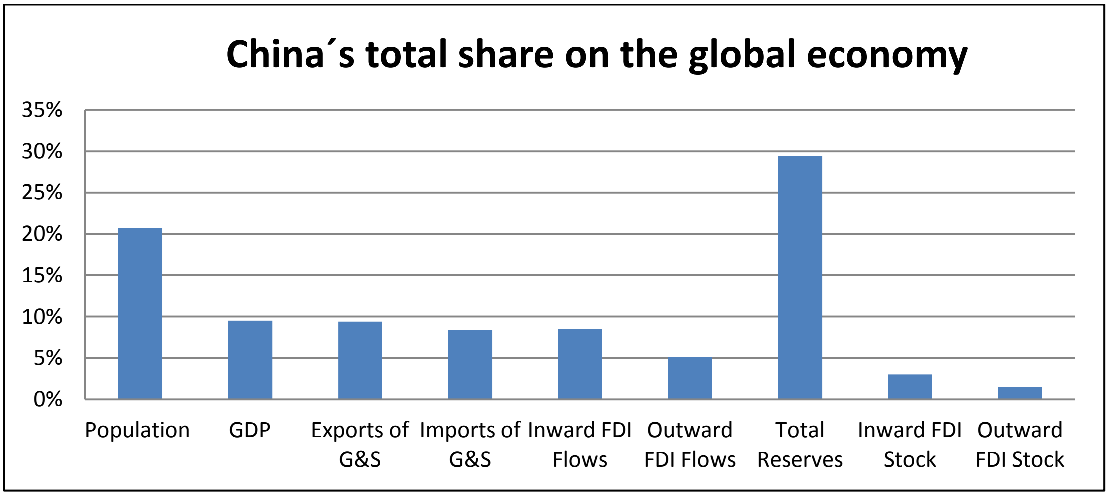
The usage of those advantages must be profitable for the company to invest in a foreign country, but only if the previous advantages are fulfilled. “Internalization advantages arise from exploiting imperfections in foreign markets, including reduction of uncertainty and transaction costs in order to generate knowledge more efficiently as well as the reduction of state-generated imperfections such as tariffs, foreign exchange controls, and subsidies.“

3.8. China´s economic situation nowadays

The rebirth of the Chinese economy has come with the Chinese economic reforms which began in December 1978 when China ideologically alienated from the Soviet Union and began the reforms according to the U.S. model. This important change was a keystone to the economic boom which China has been already experiencing for more than 30 years. The values of aggregate GDP in 2011 are more than 35 times higher [21] since the reforms started. The economy of China has been going strong in the last few years, especially if you consider that their currency has risen around 25% in real terms compared to the US dollar. As you can see in figure no. 3, the influence on the world market has grown much more than these growth numbers would already imply and for this reason is China correctly called a “Chinese dragon which expands its claws”.

[21] According to the set of data from World Bank [online] available at: http://databank.worldbank.org/ddp/home.do?Step=3&id=4

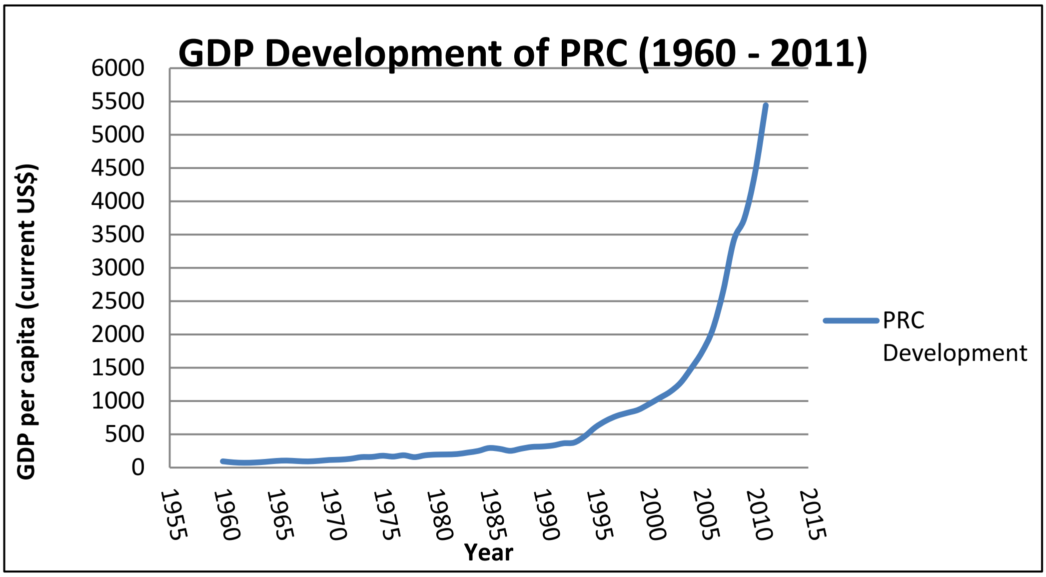
Figure 2: *China´s total share on the global economy, 2010*



Sources: UNCTAD, World Bank, Rhodium Group, (own input)

One of many ways to express the economic situation of the reference country is the level of Gross Domestic Product (GDP) that is the total monetary value of goods and services produced over a given period in a given territory. This indicator is used for determining the performance of states. We should distinguish the aggregate GDP, which tells us about productive activity of the country as a whole, from the GDP per capita which gives us a better idea about the real changes in productive activity and it is considered an indicator of a country´s standard of living. The figure no. 4 shows us the aggregate GDP which started steeply increasing after the start of reforms in 1978.

Figure 3: Gross Domestic Product, 1960-2011



Source: own application, World Bank, 2012

The Chinese average annual real GDP grew by 9,9%. This expresses that China has been able to double the size of its economy every eight years. The global recession affected only China´s export sector and real GDP growth fell from 14.2% in 2007 to 9.22% in 2009. The Chinese government implemented an economic package to boost the economy which helped to prevent an economic slowdown. Since 2010, Chinese real GDP grew by 10.4% and in 2011 by 9.2%. According to this data, China has been able to maintain healthy economic growth rates. The Chinese economy prospect from IMF projects that China´s real GDP growth will average 8.5% from 2013 to 2017. Many analysts speculate if and when China will overtake the United States as the "largest economic power" due to its rapid growth. China´s GDP in 2012 was $8.2 trillion which is about two-thirds of the size of the U.S. economy.[22]

3.9.China and FDI

China is the second biggest oil consumer and its production of oil is only a half of its consumption. Due to the fact that Chinese consumption between 2000 and

[22] MORRISON, Wayne M. - *China's Economic Conditions: Congressional Research Service* [online]. March 4, 2013 [cit. 2013-03-07] available at: http://www.fas.org/sgp/crs/row/RL33534.pdf

2020 could increase by up to two times, Beijing is forced to seek out foreign sources of oil, which could be depend on from 60% by 2020. This situation occurred with the rapid development of the Chinese economy. For this reason China started seeking a new strategic position on the African continent and especially in the countries rich in oil (Chad, Niger and Republic of Congo) and other key materials, between the years 1990-2000. In this region, China tried to practice the so-called "go-out" strategy, which involved searching for oil (and other raw materials deposits) outside their territory, buying shares or entire foreign energy companies, investing in infrastructure and exploration of new mining fields.

The worldwide economic situation has changed after 2008 and China found a new area to invest and prepare for the future. The European Union struggled with the crisis and had to accept a foreign aid.

There is mixed evidence that the FDI can help to promote the economy in a host country. In the case of the Eurozone, China really distinguished where to invest their money. If we closely look at the table of Chinese investments in foreign country, we can see that the most of the money goes where the economy is weak and unstable, especially in countries like Cyprus and Luxembourg where the level of FDI goes miraculously steeply up. One of the reasons why money goes to those relatively small countries is that those micro states of the Eurozone work as tax haven. The large numbers in outward FDI from countries where the GDP is relatively at a low level indicates the fact that this model of economy invites illegal transactions and money-laundering. [23]

Nonetheless, the data set provided a profound analysis that in the years 2004-2008 China invested roughly €700 million and that annual outward FDI flows to Europe in 2009-2010 tripled to roughly €2.3 billion. In 2011 this sum tripled again to almost €7.4 billion. The number of annual investments in 2011 is 10 times bigger than it was a decade ago.

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[23] INMAN, Phillip, The Guardian newspaper - *Cyprus' banks to get money-laundering check before bailout* [online]. February 2013 [cit. 2013-02-25] available at: http://www.guardian.co.uk/business/2013/feb/11/cyprus-banks-money-laundering-bailout

On the other hand, FDI inflows into China grew from $2 billion in 1985 to $108 billion in 2008. Due to the effects of the global economic slowdown, FDI flows to China fell by 12.2% to $90 billion in 2009. They then grew to $106 billion in 2010 and $116 billion in 2011. However, FDI flows to China fell to $112 billion in 2012, mainly because of sluggish global economic growth.[24]

3.10. Patterns of Chinese direct investment in the states of the Eurozone

According to the explanation of FDI (chapter 3.6.1.)**,** direct investment is defined as an investment acquired at least 10% of the voting power of an enterprise. In this subchapter we try to outline some patterns of Chinese investment in the states of the Eurozone.

3.10.1. Geographical pattern

Two states in the Eurozone with the most powerful economies, France and Germany, are first in place in obtaining Chinese OFDI and this pattern proves the rule that China is investing as any other investor into the stabile countries. The EU-17 attracted over 85% of total investments during 2000-2011.[25] We also find that acquisitions are more frequent in Western Europe than in the new member states in Eastern Europe. China surpassed the U.S. as a first direct investor of Germany in 2010, and on the other hand China has provided FDI in Hungary in 2011, so it is evidence that China is also focusing on new member states.

3.10.2. The sectoral mix

Chinese deals are dominated less by natural resources and are more concerned with the full range of industries across Europe. China targeted the manufacturing sector especially in the automotive industry, industrial machinery, financial sector and telecommunication technologies sector.

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[24] MORRISON, Wayne M. - *China's Economic Conditions: Congressional Research Service*. [online]. March 4, 2013 [cit. 2013-03-07] available at: http://www.fas.org/sgp/crs/row/RL33534.pdf
[25] HANEMANN, T., ROSEN, D. S., - *China invests in Europe*, The Rhodium Group, June 2012, available [online] at: http://rhg.com/wp-content/uploads/2012/06/RHG_ChinaInvestsInEurope_June2012.pdf

According to the last evidence, China tries to create a distribution channel in Europe by purchasing strategic ports, airports, railways, pipeline and other infrastructure projects (chapter 3.11.3.).

3.10.3. Firms structures

In Europe, over 60% of all deals were done by private non-governmental companies in the period of 2000-2011, which target small or medium-sized enterprises. State-owned enterprises comprises one third of the total deals but it represents almost €14.7 billion in total value. The biggest state-owned investor is undoubtedly the China Investment Corporation (CIC), investing mostly in The United Kingdom and France where in 2011, it invested €2.24 billion in Gas de France's gas and oil exploration and production business.[26] Chinese enterprises invest a great deal of money within The European Union. For further details about investments of state-owned and private enterprises see tables no. 2 and 3.

Table 2: *Major investments by private investors in states of the Eurozone, 2004 – 2012*

	Acquirer - Target enterprise	
1	NHA Group - NH Hoteles SA, Spain	An acquisition in the third largest hotel management group, a total value of €431.6 million. The Chinese company obtained 20% stake and became the second largest shareholder in the company.
2	Lenovo Group Ltd. - Medion AG, Germany	Chinese personal-computer maker Lenovo acquired 37% of the German consumer electronics maker for €629.4 million in 2011.
3	Sany Heavy Industry Co. - Putzmeister Holding GmbH.	Family-owned firm Putzmeister, which is a pump maker and employs over 3.000 people, was sold for €324 million for a 90% stake.
4	Wolong Holding Group - ATB Group, Austria	Acquisitionof the insolvent Austrian electric motor manufacturer ATB Group is being claimed as a most valuable transaction in the EU. The value of the transaction is €100.5 million.
5	Huawei Technologies Co.	A Strategical transaction of a supplier for wireless broadband equipment for €8 million. The

[26] HANEMANN, T., ROSEN, D. S., - *China invests in Europe*, The Rhodium Group, June 2012, available [online] at: http://rhg.com/wp-content/uploads/2012/06/RHG_ChinaInvestsInEurope_June2012.pdf

	Ltd. - IMEC company, Belgium	Huawei wants to develop broadband technologies for Europe.

Source: Author´s compilation

***Table 3**: Major investments by state – controlled investors in states of the Eurozone, 2004 – 2012*

	Acquirer - Target enterprise	
1	China Unicom - Telefónica, Spain	An investment into a Spanish group providing telecommunication services. The total value of the acquisition was €802.3 million in 2008.
2	China BlueStar Corp. - Adisseo France, France	First Chinese acquisition in the chemical industry to end up on its dependence of importation of animal feed. Total value of this acquisition exceeded €726 million in January 2006.
3	China Ocean Shiping Group Company (COSCO) - Ports in EU	State – owned company COSCO has a large port of operations in Piraeus, Antwerp and Hamburg and invested money into ports of development.
4	China Huaneng Group - InterGen, Netherlands	The 50% stake of a global power generation firm which owns 14 power plants across Europe was bought for €1.604 billion in 2011.
5	Enric Energy Equipment Holding - Full Medal, Netherlands	An acquisition of total value exceeding € 200 million was carried out in 2008. The Enric Energy Holding is a heavy metal processor.
6	SinoChem Group - DSM Anti-Infective Division, Netherlands	According to the acquisition agreement, SinoChem has acquired 50% of DSM's shares which is a Dutch chemical company for €210 million.
7	Shandong Heavy Industry - Kion Group GmbH	A state-controlled Shandong Heavy Industry Group bought a minority stake in the forklift maker Kion Group GmbH for €738 million in 2012

Source: Author´s compilation

4. PRACTICAL PART

The second chapter is to show the reader the results of an analytical part and basics of the technical analysis as a measurement whether the Chinese OFDI and OFDI of all countries of the world has any significant result on the rise/decline of GDP growth.

4.1.Data

We know that the entire conclusion is reliable only to extent of reliability of data on which they are based. The author used various sources to obtain the data such as The EUROSTAT, OECD, World Bank, UNCTAD, The Rhodium Group which is a private group focused on investment management and strategic planning in China and other developing countries and MOFCOM and SAFE Investment company from China. Nonetheless, provided data are in many cases incomplete, different or even confident for some countries but the most needed data such as GDP growth or volumes of foreign direct investments are obtained from confidential sources.

The data are obtained for period 2004-2011 to express any positive movement in states of The Eurozone before and after the sovereign debt crisis. All the calculated results are in Euro currency. Numbers provided by Eurostat were in Euro currency but numbers provided by The World Bank were in US Dollar and have must been exchanged to The Euro by exchange rate 0.77 USD/EUR valid to date 3rd March 2013.[27]

We used a nominal GDP as one of the indicator to compare the relationship between GDP and FDI. The nominal GDP is also known as a GDP in current prices which measure the total value of goods and services for the year at current prices and thus not adjusted for inflation.

4.2.Detailed analysis

This part of the work is focused to compare the relationship of FDI and GDP growth in countries of PIIGS and randomly selected group of countries with an excellent credit rating (chapter 3.5.1) described as a representative of countries

[27] For actual USD/EUR exchange rate was used currency converter [online] available at: http://finance.yahoo.com/currency-converter/#from=USD;to=EUR;amt=1

known as "stable European economy" countries. Two groups of countries are selected to show potential effect on two types of economies-weak and strong.

In chapter *China and FDI* (chapter 3.9) is described hypothesis that China is investing more available capital resources to countries that are strongly affected by the crisis (PIIGS) than in stable economy countries such as Germany or France. This is hypothetically due to the fact that countries strongly affected by crisis had to implement strict austerity measures which affect the peaceful operations of state-owned enterprises. Because of the austerity measures, countries struggling with the crisis the most are forced to get rid of some burdens in the form of loss-making or subsidized enterprises and rather sell them than support them.

In this analysis the author will be using a *one-paired t-test* to compare correlation coefficients between FDI of China and GDP growth for two groups of countries and to prove or disprove the main hypothesis. One-paired t-test will be also used to compare correlation coefficients between FDI of all countries of the world and GDP growth. If the aforementioned assumptions are correct, PIIGS countries should have lower average correlation coefficient than other group countries-possibly negative coefficient (We have to be careful here, because relationship between FDI and GDP growth should be always positive).

T-test is a method of mathematical statistics that allows of one the following hypotheses:

- Whether the normal distribution has a specific mean value, while scattering is unknown.
- Whether the normal distributions with the same variance of origin of two independent random samples have the same mean.

Formula for paired t-test: $$T = \frac{\bar{X} - \mu_0}{\frac{S}{\sqrt{N}}} \qquad (1)$$

where $\overline{\boldsymbol{X}}$ is a sample mean and $\boldsymbol{S}^{2}$ is the sample standard deviation. T-test test the hypothesis that the mean value of the normal distribution, from which the selection originates, is equal to $\boldsymbol{\mu_0}$.

We can make any analysis based on the correlation of the time series only on the stationary time series.[28] All the time series were tested using the extended Dicekey-Fueller test on the presence of a unit root. The time series for GDP growth unconfirmed the presence of unit root so time series can be considered stationary. On the other hand, the time series for relative expression of FDI is not stationary. This problem was solved by first difference time series.

To evaluate the strength and direction of correlation according to calculated value we use the table no. 4.

Table 4: Strength and direction of correlation

Correlation	Negative	Positive
None	−0.09 to 0.0	0.0 to 0.09
Small	−0.3 to −0.1	0.1 to 0.3
Medium	−0.5 to −0.3	0.3 to 0.5
Strong	−1.0 to −0.5	0.5 to 1.0

All the executions were calculated in Windows Excel 2007 program.

4.2.1. China FDI and GDP growth

First at all, correlation coefficients were calculated between FDI of China and GDP growth for period 2004-2011 (results are listed in tables no. 4 and 5). Results on two groups of countries show us the correlation coefficients and p-values which is a measure that determines whether the correlation coefficient is itself significant.

We can see from the results that the strongest correlation coefficient for countries such as Italy indicates that there is the highest FDI flow from China and it

[28] A time series is simply a sequence of numbers collected at regular intervals over a period of time. Source: TAYLOR, Sonia - *Business statistics for non-mathematicians*. 2nd ed. New York: Palgrave Macmillan, 2007, xvi, 368 p. ISBN 02-305-0646-1.

can affect its GDP growth. The lowest rate is for Portugal and it means that the value of Chinese FDI is insignificant. It is due to the slow GDP growth and thus unattractiveness for China to invest.

Table 5: *Results of correlation analysis and p-values, countries PIIGS, 2004-2011*

Countries	Correlation Coefficient	p-values
Portugal	0.152677572	0.7438
Ireland	0.202704751	0.6629
Italy	0.645864717	0.1171
Greece	0.273500913	0.5529
Spain	-0.100852361	0.8297

Source: own application

From the list of countries with a strong economy is for us the most interesting result at Austria where the correlation coefficient is the strongest and it means that flow of Chinese OFDI can slightly affect its GDP growth. The lowest value is for Belgium which has even one of the lowest numbers of Chinese OFDI and the result itself is insignificant.

Table 6: Results of correlation analysis and p-values, countries with stable economy, 2004-2011

Countries	Correlation Coefficient	p-values
Germany	-0.204402692	0.6602
France	-0.068827521	0.8834
Luxembourg	-0.137101688	0.7694
Austria	0.805116061	0.0289
Belgium	0.086383697	0.8539

Source: own application

As the next step we have calculated paired t-test on the mean value. The results are shown in Table no. 6. The null hypothesis is that difference in mean is zero. We can conduct from the result that the two-tail p-value test is 0.575571. This high p-value indicates that we could not reject the null hypothesis traditionally by chosen significance level 10%, 5% and 1%.

We could not find that between the selected groups of countries was a difference in relation in Chinese FDI and GDP growth.

Table 7: The results of Two-tail paired t-test on the mean value on Chinese FDI

	PIIGS_ch	REST_ch
Mean	0,234779	0,096234
Variance	0,072727	0,168671
Observation	5	5
Pears. Correlation	-0,07943	
Hypothesized mean diff.	0	
Difference	4	
t Stat	0,608743	
P(T<=t) one/tail	0,287785	
t critical one-tail	2,131847	
P(T<=t) two-tail	**0,575571**	
t critical two-tail	2,776445	

For the GDP in current prices and exact sums of Chinese OFDI see tables no. 14 and 15 in the appendices part.

4.2.2. All the countries of the world FDI and GDP growth

Another research which was done is focused on foreign investment in selected countries from all countries of the world. The sums of money flowing from all countries and not only from China are significantly larger, so we expected an interesting result (For exact sums of OFDI from all countries of the world for period 2004-2011 see Table no. 13).

In table no. 8, we can see correlation coefficients for PIIGS countries where the most interesting result is at Spain where the values are positively strong to our research. It is mostly to the fact that the total value of investment has changed since the crisis began but the GDP remains similar to previous years. On the other hand, values at Italy are very small and it can be due to the fact that Italy is one of the biggest recipients within the PIIGS states but also has the highest nominal GDP so the total value of investment is insignificant and cannot really affect its GDP.

The negative correlation coefficient for Portugal and Ireland mean that the value of foreign investment was in negative numbers since the crisis began and it affected resultant coefficient.

Table 8: Results of correlation analysis and p-values, countries with stable economy, 2004-2011

Countries	Correlation Coefficient	p-values
Portugal	-0.141841261	0.7616
Ireland	-0.060459205	0.8975
Italy	0.16843024	0.7181
Greece	0.37258143	0.4105
Spain	0.44933022	0.3118

Source: own application

The results for countries with stable economy are also interesting. We expected the positive result at Luxembourg due to the highest total volume of investment from all Eurozone countries. It is because Luxembourg is a tax haven and serves as a business base for many foreign firms. The highest correlation coefficient and very strong correlation has Belgium. The values of foreign investments have changed rapidly since 2008 and numbers from previous year affected the result.

France has medium coefficient and it means that values of foreign investment are directly proportional to its GDP.

Table 9: Results of correlation analysis and p-values, countries with stable economy, 2004-2011

Countries	Correlation Coefficient	p-values
Germany	0.035963827	0.939
France	0.452498856	0.308
Luxembourg	-0.141846966	0.7616
Austria	0.157747014	0.7355
Belgium	0.791469218	0.034

Source: own application

We calculated paired t-test on the mean value again and the result is interesting. We found out that result of two-tail t-test is 0,556639, very similar to the previous result where we compare the influence of China. It means that we could not reject the null hypothesis by chosen significance level 10%, 5% and 1%.

The difference in mean is again zero so we could not find that between the selected groups of countries was a difference in relation in Chinese FDI and GDP growth.

Table 10: The results of Two-tail paired t-test on the mean value of all countries of the world FDI

	PIIGS_wr	REST_wr
Mean	0,15761	0,259166
Variance	0,067162	0,13541
Observation	5	5
Pears. Correlation	0,403236	
Hypothesized mean diff.	0	
Difference	4	
t Stat	-0,6406	
P(T<=t) one/tail	0,27832	
t critical one-tail	2,131847	
P(T<=t) two-tail	**0,556639**	
t critical two-tail	2,776445	

To obtain conclusive findings would be necessary to obtain further observations. A suitable extension of the analysis would also been linear regression with the inclusion of explanatory variables.

4.2.3. GDP volatility

The symbol of volatility corresponds with symbol of standard deviation (σ), from which is volatility calculated. Volatility refers to the amount of uncertainty about size of changes in a security´s value. In our case, we calculated percentage changes on GDP growth changes within period 2004-2011.

The percentage result shows us movement in the benchmark, based on GDP growth. It indicates changes on previous year. As we can see in table no. 11, where are shown stable economy countries, there was a dramatic change in 2009 because of the beginning of the crisis but in the next year most of those countries were back in positive numbers or even close to zero level. It means that economies within those states are strong enough and face bravely to the crisis (The figure for this case is enclosed in the appendices).

Table 11: Percentage representation of GDP growth volatility, 2004-2011

	Germany	France	Luxembourg	Austria	Belgium
2004	12.51%	13.86%	15.27%	14.05%	15.54%
2005	1.52%	3.15%	8.79%	3.94%	3.76%
2006	5.05%	4.84%	11.23%	6.02%	5.30%
2007	14.66%	13.78%	18.78%	14.96%	14.07%
2008	9.23%	9.05%	4.78%	9.96%	9.52%
2009	-8.74%	-7.99%	-10.25%	-7.69%	-7.44%
2010	-0.28%	-3.23%	3.02%	-2.06%	-1.92%
2011	9.70%	8.19%	10.56%	10.45%	8.50%

Source: own application

Table no. 12 shows us results at PIIGS countries where we can see deep decline in GDP growth in 2008 caused by the global crisis and infinite struggle of those countries to bring the GDP growth back to the positive numbers. Especially, Greece is still in negative numbers since 2008 but very close to the zero level. We expect that statistical data for year 2012 will bring positive prospect even for Greece where the strict austerity measures were implemented. According to the table, some countries still had problems with GDP growth in 2010 but in the next year the numbers are positive (The figure is enclosed in appendices).

Table 12: Percentage representation of GDP growth volatility, 2004-2011

	Portugal	Ireland	Italy	Greece	Spain
2004	13.83%	15.36%	13.47%	17.79%	16.29%
2005	3.01%	6.39%	2.17%	4.92%	6.49%
2006	4.83%	7.44%	4.26%	8.57%	7.56%
2007	14.58%	13.65%	12.74%	16.24%	14.60%
2008	8.56%	-0.15%	7.64%	11.40%	8.90%
2009	-7.17%	-16.01%	-9.05%	-6.40%	-9.33%
2010	-2.99%	-8.32%	-3.67%	-9.21%	-5.54%
2011	4.49%	5.56%	6.85%	-0.81%	6.63%

Source: own application

4.3.Potential impacts from Chinese influence in The Eurozone

This section tries to closely explain possible positive and negative consequences from the influence of Chinese foreign direct investment in Europe. The impacts will be evaluated from the perspectives of economics, politics, national security and environmentalists. Data and quoting are drawn from many independent sources, mainly from The Rhodium Group, a multinational financial company which is focused in Chinese FDI and which use quantitative economic tools to analyze global trends.

4.3.1. Economic Impacts

In the aggregate, direct investments from China should bring the same benefits as any other direct investment flows from inside or outside of the European Union.

“Foreign direct investment increases the welfare of both producers and consumers. It allows firms to explore new markets and operate more efficiently across borders, reducing production costs, increasing economies of scale and promote specialization. It is particularly important when serving overseas markets which require an on-the-ground presence (for example, in the provision of services). Foreign direct investment also means better prices for firms looking to divest assets, thanks to a bigger and more competitive pool of bidders. For consumers, it increases the contest for buyers' attention, leading to more choices, lower prices and innovation. And in local communities, foreign investment brings new jobs, tax revenue, and knowledge spillovers from worker training and technology transfers.“[29]

According to the data provided from The Rhodium Group, China is willing to spend $ 1-2 trillion in Europe between 2010 and 2020. This sum is definitely reflected in the unemployment rate which is another indicator to measure economy stability of a country. But the question about employment effects is very common when it comes to Chinese investment. The Rhodium Group predicts that there will be about 45,000 new jobs created within the whole European Union associated with

[29] HANEMANN, Thilo, ROSEN, Daniel H., The Rhodium Group - *China Invests in Europe Patterns, Impacts and Policy Implications*[online]. June 2012 [cit. 2013-02-03] available at: http://rhg.com/wp-content/uploads/2012/06/RHG_ChinaInvestsInEurope_June2012.pdf

green-field projects. Acquisitions and mergers are hard to move and often are risky because the firm might have gone under. However, the creation of jobs is still a positive effect than can influence the economy. Another positive aspect of foreign investment is that knowledge, technology and know-how is gained and it can boost the country´s human capital.

On the other hand, there are also concerns about negative effects. One of them is a feature that Chinese firms could reorganize operations according to market development and move activities back to China after making acquisitions. This activity would destabilize the European economy in the future. Other negative impacts which may be taken into account is that Chinese economic structure could spill over in Europe through FDI and disrupt the competitive European market‘s economy. In the same fact the European welfare could be negatively impacted by the effort to attract Chinese FDI.

All the negative threats should be evaluated before assessing whether the Chinese money can re-ignite a weak economy situation in some states of the Eurozone.

4.3.2. Political Impacts

Political impact is a very delicate topic because almost all investments are associated with politicians or political environments in any country in the world. Political positions on certain issues play a key role in deciding whether to invest in a country or not. The sovereign debt crisis in Europe, in combination with the massive accumulation of reserves, put China into the position of economy rescuer and we have to determine whether Chinese money wants to help or to buy something more than just goodwill. With present Chinese FDI we can hear voices on the radical rejection of bailout. Former French politician Nicolas Dupont-Aignan proclaimed in 2011: *“We're going to put ourselves in the wolf's mouth, once we've taken this money that I call dirty money“.* Adding that any deal would be taken as a *“prostituting*“ to Europe.[30] The pronounced words are strong. Beijing can decide to invest into the

[30] LAUTER, Devorah, The Los Angeles Times newspaper - *French fear being indebted to China* [online]. November 26, 2011 [cit. 2013-02-26] available at: http://articles.latimes.com/2011/nov/26/world/la-fg-paris-chinese-20111127

Euro rather than to the dollar and it is a moment that politicians should not refuse. On the other hand, China can use a financial power to achieve the foreign policy goals and get the states on their side. The EU countries and in this case countries of The Eurozone hosting Chinese FDI could express a clear opinion on issues related to Tibet, human rights in China including the problem of child workers and inhuman treatment of workers. Also the arms embargo against China related to weaponry can be breached because of the influence of Chinese money. We must not forget the fact that China is a heavy investor and clear supporter of radical regimes including North Korea, Iran and Pakistan.

In 2007, China has bought Costa Rica´s $300 million debt in exchange to shift its political recognition from Taiwan to China[31].

Other political impacts include the free movement of labors within the EU and China. There was the evidence that influx of cheap Chinese labors had a negative effect on civil coexistence. In some countries where Chinese firms tried to bring workers from China instead of hiring local's laborers, immigration violations resulted. This is a serious problem because with an increasing number of green-field projects we can rely on an increasing number of cheap labor from China.

Summarizing this controversial topic we have to admit that, if China goes global, it also transfers its culture to the rest of the world and we may have to adjust to it.

4.3.3. National threats

China presents particular concerns in the future. If we look at future Chinese economic outlines, China will become the world´s largest economic superpower nation within a span of two decades, lending a huge leverage to shape global national security. China has a good relation with Europe but the future is uncertain because China wants a greater role for itself in existing global power balance, especially a bigger voting share in international organizations.

[31] BOWLEY, Graham, The New York Times - *Cash Helped China Win Costa Rica's Recognition* [online]. September 12, 2008 [cit. 2013-02-20] available at: http://www.nytimes.com/2008/09/13/world/asia/13costa.html?_r=1&

In this time, we have to divide investors on private and state-controlled, where one of important role plays the political attitude of the inward investment country. Only one-third of the deals are made by state-owned firms, but they are more important in terms of total deal value. The top five private investors include well known firms such as Lenovo, Huawei, Geely or Sany.

The problem of supporting rogue regimes was mentioned in a previous topic but should not be taken lightly because it can endanger national security in Europe. Chinese government influence on operations of its firms functioning abroad is significant and there is evidence that some firms already warned its government to avoid doing business with China because they may pose a national threat. This case concerns the aforementioned Huawei Company founded by a former Chinese military engineer. This firm became the second largest provider of telecommunications network gear in more than 140 countries all over the world. The concerns about this firm are that it can result in a cyber-attack from China because the Huawei Company supplied the infrastructure for the 4G mobile network which works everywhere and in everything. This is just pure speculation but we have to be concerned about the recent national threats in Europe.

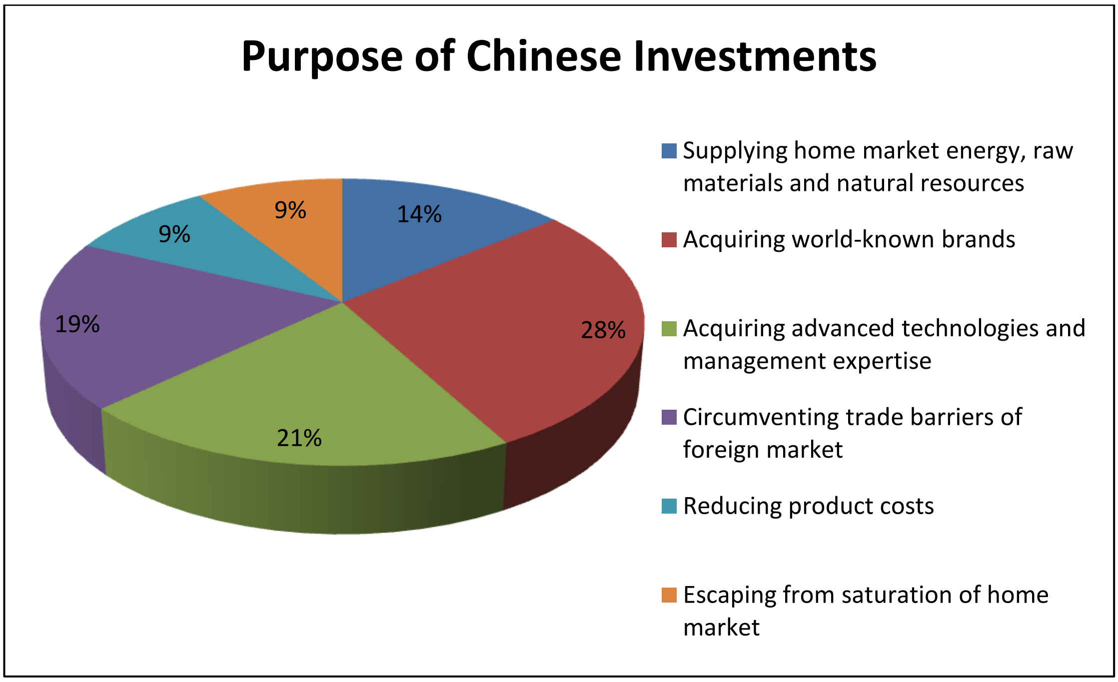
Our focus is on recent acquisitions and mergers in some strategic enterprises within the countries of the Eurozone. China invests in trying to achieve the most strategic enterprises in the industrial sector such as in the renewable energy projects and in the communication and equipment.

„There are four major concerns: control over strategic assets (e.g., ports, pipelines); control over the production of critical defense inputs (such as military semiconductors); the transfer of sensitive technology or know-how to a foreign power with hostile intent; and espionage, sabotage, or other disruptive action.“[32]
Figure no. 4, based on a survey made by the Chinese Council for the Promotion of International Trade (CCPIT) in 2011, proves the fact that the main purpose of Chinese investment are mostly acquirement of important technologies and information.

[32] GRAHAM, Edward., MARCHICK, M. David, - *US National security and foreign direct investment*, the Institute for International Economics , May 2006, 190 pages, ISBN 0-88132-391-8

In Europe, we are witnesses of such investments. There are some recent investments in to the ports - Piraeus in Greece, Rijeka in Croatia, railways in Hungary, Slovenia and airports - Parchim airport in Germany, Larnaca in Cyprus or the recent investment in London´s Heathrow airport.[33]

Figure 4: *Major Purposes of Chinese Investments in Europe (Source: China Council for the Promotion of International Trade*



Source: CCPIT), 2011

4.3.4. Environmental Impacts

China is known to be the largest environmental polluter, mainly due to the economic reforms that began in the seventies of the 20th century (see chapter 3.8.). Air pollution is taken as a toll for an economic boom that began immediately after the reforms. Many specialists are concerned about what is going to happen simultaneously with the increasing influence of Chinese investment in Europe.

China struggles with many environmental challenges such as water pollution and lack of access to clean drinking water sources for the population. Over more than 70% of country´s lake and water ways are polluted with a huge volume of sewage

[33] The BBC News - China fund buys 10% stake in London's Heathrow airport [online]. November 2012 [cit. 2013-03-05] available at: http://www.bbc.co.uk/news/business-20163907

because of the lack of wastewater treatment plants even in large cities let alone in villages. Another problem related with water is a Chinese massive dam program which affects millions of people in the way of farm-land that will be lost, high construction costs and ecological damages. Another big problem is desertification in China mainly caused by excessive farming cultivation.

The biggest Chinese environmental problem is greenhouse gasses in which China surpassed the United States in 2008, and it is primarily due to the country´s reliance on coal consumption. The high coal consumption contributes to sulfur dioxide emissions causing acid rains. The problem which Europe could face with increasing Chinese influence is urbanization, consumerism and pollution caused by its development.

The Chinese government in many cases criticized foreign governments for reporting air pollution in China. All problems related to pollution could be brought over to Europe together with Chinese customs and culture which in many cases may impact the already accustomed European habits. Strict European bureaucracy with the help of the European Environment Agency (EEA) and non-governmental organizations (NGO) should control and monitor these problems.

5. CONCLUSION AND RECOMMENDATIONS

After examining all the data and information for the period 2004-2011, we came to a conclusion that the states of Eurozone can not depend only on money from abroad but must implement strict austerity measures and change thinking of being subsidized by other states or community. The evaluation of our hypothetical question whether China can rescue the Eurozone through money in form of foreign direct investment was not thoroughly answered because the results did not show any significant change or effect on GDP growth influenced by Chinese investments. However, considering how small is Chinese FDI today in comparison with all the world countries, it is interesting how many politicians and ordinary people are concerned by Chinese leverage in Europe.

Increasing amount of investments across the European continent signalize that the "Chinese investment race" has just arrived. States of the Eurozone should not reject foreign investments on its land because there is wide belief and even our research have shown that high volume of money pumped into economy in form of FDI can really make even a little change in GDP growth. China has exploited the situation when the global crisis slowed the economy, and began to invest abroad. Situation in United States is parallel to the situation in Europe when Chinese OFDI increased ten times since 2008, so there is no marks of competitivness or attractiveness China to bring investments on one or another continent. The benefits and welfare are enormous and according to the study from the Rhodium Group, it can bring up to €30 billion annualy to the budget of the European Union in forms of creating a new jobs, bringing a new fresh capital same as the innovations.

Our recommendations for this sensitive situation are clear and relevant. The states of Eurozone should keep their hard-earned openness for foreign market and do not discriminate any state by making an additional barriers. Chinese economy is strong enough to invest money across the world, especially in Europe but not at the price of loss of strategic enterprises or threats to national security.

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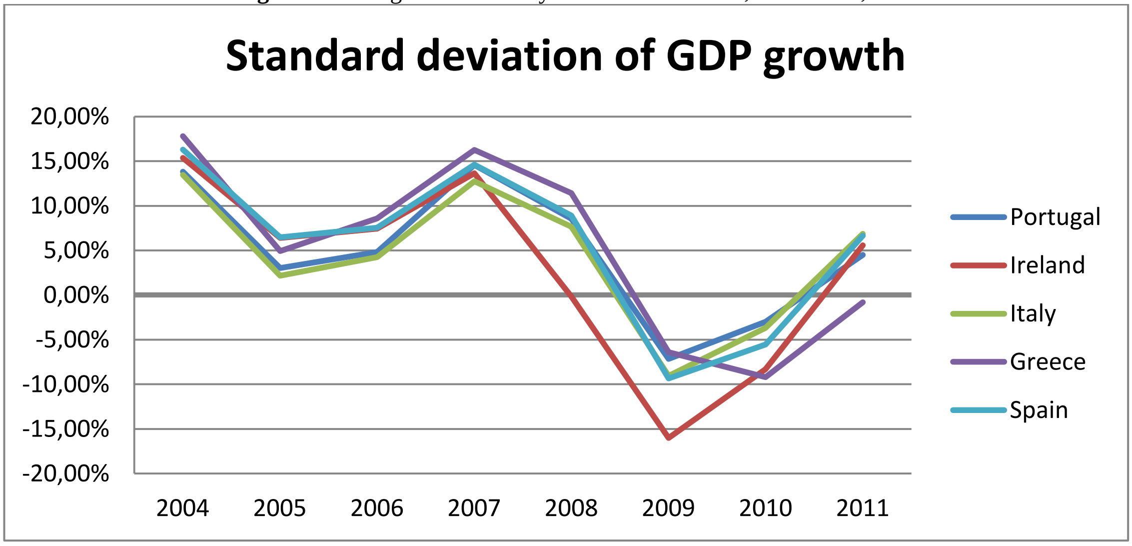
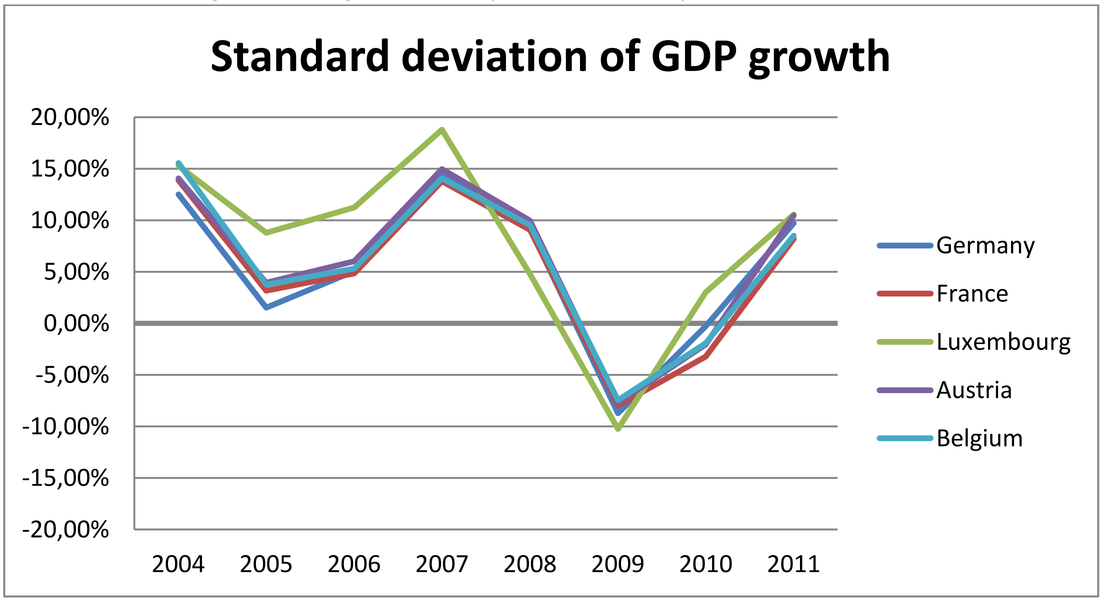
7. APPENDICES

Figure 5: GDP growth volatility for PIIGS countries, 2004-2011,



Source: own application

Figure 6: GDP growth volatility for stable economy countries, 2004-2011,



Source: own application

Table 13: Outward FDI of all countries of the world into selected countries, 2004-2011, billion EUR

	2004	2005	2006	2007	2008	2009	2010	2011
Portugal	6,00	1,70	5,69	4,01	1,87	0,59	-5,66	9,09
Ireland	14,55	11,51	12,22	15,45	12,94	19,16	16,87	-3,09
Italy	15,52	33,63	33,53	66,32	45,74	15,32	24,65	38,58
Greece	0,83	1,17	3,23	3,83	1,65	1,48	1,18	1,28
Spain	48,75	33,64	83,10	100,14	51,01	9,41	28,95	26,80
Germany	16,55	61,03	94,62	124,66	49,67	54,27	82,54	39,11
France	45,69	92,46	88,22	120,06	105,85	77,12	58,04	64,85
Luxembourg	63,69	94,30	102,42	139,64	72,34	147,09	167,65	175,05
Austria	3,13	8,98	6,32	22,76	4,68	6,70	0,63	10,55
Belgium	27,40	26,26	40,40	58,54	150,89	-12,82	-0,94	28,12

Source: Eurostat

Table 14: Outward FDI of China into selected countries, 2004-2011, million EUR

	2004	2005	2006	2007	2008	2009	2010	2011
Portugal	1,00	2,00	2,00	4,00	0,00	0,00	0,00	1,00
Ireland	-1,00	3,00	24,00	0,00	73,00	8,00	-12,00	0,00
Italy	103,00	230,00	204,00	388,00	738,00	36,00	1089,00	1144,00
Greece	0,00	0,00	0,00	0,00	0,20	0,00	0,00	0,00
Spain	76,00	123,00	197,00	198,00	228,00	213,00	1479,00	701,00
Germany	1199,00	2489,00	2504,00	2130,00	1860,00	4204,00	8092,00	10587,00
France	397,00	678,00	504,00	912,00	1338,00	1317,00	1495,00	1584,00
Luxembourg	-15,00	-9,00	2052,00	39,00	21,00	-23,00	67,00	2937,00
Austria	2,00	37,00	20,00	70,00	98,00	-151,00	0,00	70,00
Belgium	-303,00	38,00	68,00	396,00	-250,00	-57,00	-24,00	246,00

Source: Eurostat

Table 15: GDP (current billion EUR)

	2004	2005	2006	2007	2008	2009	2010	2011
Portugal	142,76	147,72	155,38	178,44	193,98	180,24	174,94	182,78
Ireland	143,95	156,53	172,23	200,17	203,01	171,79	158,04	167,30
Italy	1336,35	1375,43	1442,20	1637,93	1776,63	1625,58	1573,52	1689,36
Greece	175,52	184,86	201,52	235,18	263,03	247,18	225,07	223,01
Spain	804,35	870,72	951,99	1109,90	1226,93	1121,09	1062,68	1137,20
Germany	2099,28	2130,02	2235,12	2559,33	2790,24	2539,95	2529,04	2772,64
France	1582,87	1645,15	1736,89	1988,44	2180,48	2017,16	1962,75	2135,23
Luxembourg	26,24	28,99	32,76	39,52	42,15	38,54	40,43	45,58
Austria	224,40	234,84	250,21	288,78	318,91	295,39	290,17	321,60
Belgium	278,50	290,56	307,97	353,91	390,68	364,52	360,81	395,52

Source: Eurostat