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The New Characteristics of Globalization and their Impact on the Design of a New International Economic Order

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Abstract: *Globalization as a concept has already been in frequent use for at least some decades, but after 2008-2010 it refers more and more to a rather different reality. Some global processes describe this new reality, among them being: the economic crisis that started in 2008 and its long-lasting implications, a new balance of economic power soon to be accompanied by a de facto new international economic order, the complex implications of inequality in developed countries, the 4th industrial revolution. The paper analyzes how these processes have determined new characteristics of globalization and how this new reality requires the participation of all states for the design of a new international economic order.*

Keywords*: new characteristics of globalization, globality, new international economic order.*

1. The new characteristics of globalization - an unconventional approach

Globalization, like any other phenomenon related to social-economic systems, big or small, is under a constant change, particularly as it encompasses the largest frame of existence possible: the entire world economy. And yet this constant change is not linear, long periods of almost stability being interrupted at irregular intervals by significant if not revolutionary changes. From the perspective of the known history, starting with the 16th century, the limits of the planet Earth have been known, more or less, and some interactions (be they exploratory, military, spiritual or economic) have been established with all the corners of the globe. From this perspective, some may say, with a grain of truth, that globalization already existed at that time and therefore nothing is new. From a more psychological perspective one can say that globalization is when humankind participates in interactions that encompass all the known world. But, as knowledge expands, new frontiers appear and our known world may expand too.

Comparing the 16th century with the contemporary world economy one can easily note that some things have significantly changed. First of all, the intensity and scope of interactions among regions, places and people have increased, reaching unimaginable levels. At the beginning of the 21st century the actors involved are also different from those of the 16th century and the ways in which they interact and inter-relate are different, increasing the quantitative part and, at the same time, moving at a rapid pace towards a qualitative and even virtual part. It is an undisputed fact that in 2016 more people interact virtually at global level than they do directly, by means of physical presence or by means of tangible exchanges, such as trade.

In order to highlight the new characteristics of globalization we focus in the following on three dimensions, less mentioned in current analyses but carrying more and longer-lasting implications than the others: **1) the proposal for a new geological era = Anthropocene; 2) a new global reality = globality; 3) a new global balance of power = a true multipolar world.**

The selection of these three characteristics does not imply in any way that we consider them the only ones that matter. The selection aims at highlighting the changes that are fundamental for the world economy of today, namely the changes that define both the inner dynamics of world economy and its new and emerging architecture.

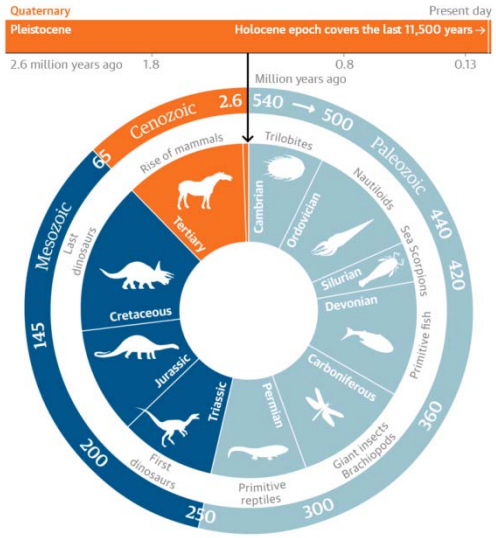
1.1. The proposal for a new geological era – Anthropocene

First of all, a few words about geological eras and why we think that entering into a new geological era is relevant for contemporary times and for the foreseeable future. Even for non-specialists, geological eras imply very long periods of time, usually so long that it is not even clear when they start and when they finish. Under such circumstances, the fact that during our time a new geological era has been proposed means that

changes of historical importance have taken place and that they will generate entirely new environmental circumstances.

The term "Anthropocene" has initially been proposed in 2002 by Paul Crutzen, a Nobel laureate in chemistry (Crutzen, 2002). In 2016, at the 35th International Geological Congress, the experts voted in favor of the introduction, with a starting point in 1950, of a new geological era, the Anthropocene, to replace the existing one, the Holocene, due to the significant impact of human activity on the chemistry, climate and surface of the Earth (Carrington, 2016). In order to better understand the significance of such a change the presentation of the previous geological eras and their time intervals may be illustrative (Figure 1).

Figure 1. Geological periods from 540 million years ago to the present



Source: The Guardian graphic, based on British Geological Survey data.

The idea of a new geological era, the Anthropocene or "the age of man", suggests that extraordinary changes took place as a result of human activity carried out at a global scale and with unprecedented intensity. Among the changes, one can mention the increase of carbon dioxide concentrations in the air at the fastest rates in the past 66 million years, the presence of plastic micro particles in all ecosystems, the doubling of the nitrogen and phosphorous levels in the soils in the past 100 years, generating the largest change of the nitrogen cycle in the past 2.5 billion years, ocean acidification and species extinction rates far beyond normal levels.
The relation between the emergence of this new geological era and globalization is obvious and direct, as the large-scale impact of human activity on the planet Earth took place exactly because unprecedented levels of human activity exploited resources, polluted the environment, generated a huge increase of the world population and promoted an economic model based on linear growth in which **better means more** (including the exploitation of resources, production, consumption and waste generation).

While the scientific debates and the mass-media to a large extent reflect the concerns of environmentalists, of the general public and of decision-makers related to climate change or wild life protection, apparently very few people understand that if enough consolidated and documented hard facts are pointing to the beginning of a new geological era, then something momentous is going to happen and, given the experience of the past 540 million years, that something is not going to be pleasant.

1.2. A new global reality = globality

For a long period of time (approximately between the 16th century and the end of World War II) globalization had more of a quantitative dimension, meaning that more and more territories, regions and countries were interconnected by different types of human activities related to the economy (such as trade and production), and to the military, spiritual, cultural and scientific areas.

After World War II, technology improved so extensively that means of transport and communication allowed a true interconnection of almost all places on Earth. Political relations and multilateralism completed

the process by creating the framework in which more and more countries could have a relatively stable and predictable environment for their relations. From 1945 to about 1990 globalization entered the lives of normal people by means of different objects made in any other countries of the world, by services such as international tourism or financial and banking services, and even by the possibility to work in different other countries.

After 1990, the existing base of globalization has been augmented with a new dimension by the Internet and instant communications. We can say that today globalization enters not only in the lives of people (by means of foreign made watches, cars, food stuffs or TV sets), but also in their minds (by means of instant communication, shared images and movies, access to global mass-media).

This new period, after 1990 and particularly after 2000, meant that globalization ceased to be only a process of increased interconnection among people, companies, organizations and states. Globalization has become a reality, a part of daily life for the vast majority of people, almost irrespective of where they live, therefore transforming itself into a new phenomenon, **globality – global reality** (Sirkin et al., 2012). The concept of globality reflects in fact to the transition from **globalization as a process** to **globalization as a state of fact**.

If the majority of approaches concentrate on the impact of the global reality on daily life or on the way of doing business, very few approaches focus on the political implications of the existence of a global reality, speaking about the perspectives of a revolutionary transformation, meaning **a new political order that would correspond to a global reality** (Shaw, 1999). We can only ask a rather provoking question: if reality has become global, would it not be reasonable to think that governance and institutions also become global? Some analysts and people of global reputation (such as Mark Zuckerberg) even think about a global-scale direct representation of almost all people on planet Earth (Chakhoyan, 2017). In our view, the implications of such an extrapolation of Switzerland to global proportions may give rise to much more challenges than opportunities.

1.3. A new global balance of power and a true multipolar world

The concept of balance of power is intrinsically dynamic but, at least during the 20th century, it maintained a certain architecture, at least for some decades. After World War II world economy could be described as a bipolar world (from 1945 to 1990), then as a more or less unipolar world (since 1990 to about 2014[1]) and then, as an increasingly multipolar world (after 2008[2]/2014), where the United States remains the most significant power but China, Russia and, to various degrees, other countries (Japan, India, Great Britain, Germany) have to be taken into account.

The recent events of 2016 (such as the result of the referendum in Great Britain that led to the Brexit and the result of the presidential elections in the United States) reflect, in our opinion, more profound changes related to the shift to multipolarism, beyond the surface related to certain persons, institutions or countries. The multipolar world is moving gradually from the multilateral approaches and from universalism towards bilateral approaches (where the partners can be states, but also various organizations and states). History proves time and again that it does not move in a linear way and that it may repeat itself but not in the same frame and not with the same meaning.

1.3.1. Is globalization in peril?

All these profound changes made a lot of analysts speak about the **anti-globalization** or **deglobalization** phenomena, which is just a reflection of a mechanical understanding of reality and history. Globalization as a state of interconnectedness is here to stay. But as Heraclitus said 2500 years ago, it may be the same river, but not the same water. Therefore, globalization is not going to disappear, it will just adapt to a new reality, to new actors, to a new understanding of the world. Maybe the proper term for what is happening now is that of **re-globalization**.

If we can admit that something is disappearing, that something is "globalization as we know it" or "as we understood it". The new stage of globalization is characterized by a new role for the state entities, by a more

[1] The year 2014 is used as a relative milestone as in 2014 the GDP of China measured at Purchasing Power Parity exceeded that of the United States.

[2] 2008 is mentioned in this context as the year representing the beginning of the financial and then economic crisis that affected the majority of countries of the world economy.

prominent role for the developing countries, and also by a relative shift in international trade from multilateral to bilateral and plurilateral[3] agreements. It is also characterized by the need for new international institutions, beyond and besides the IMF and the World Bank. The existing institutions may change, new ones may develop (such as the Asian Infrastructure Investment Bank and the New Development Bank), and even other institutions may emerge in the near future. The coming years will be characterized by a process of adaption of the institutions and of the rules of the game to the new realities. It is just that these realities are so complex that it is rather difficult to foresee what such an adaptation will imply and generate.

a. Further challenges and factors of influence for the present stage of globalization

As globalization is such a huge and all-encompassing phenomenon, it would be too audacious to attempt even an enumeration of all challenges and factors of influence. Instead, we propose a much more manageable attempt, that of selecting **one challenge** (the inequality issue) and **one factor of influence** (the 4th industrial revolution).

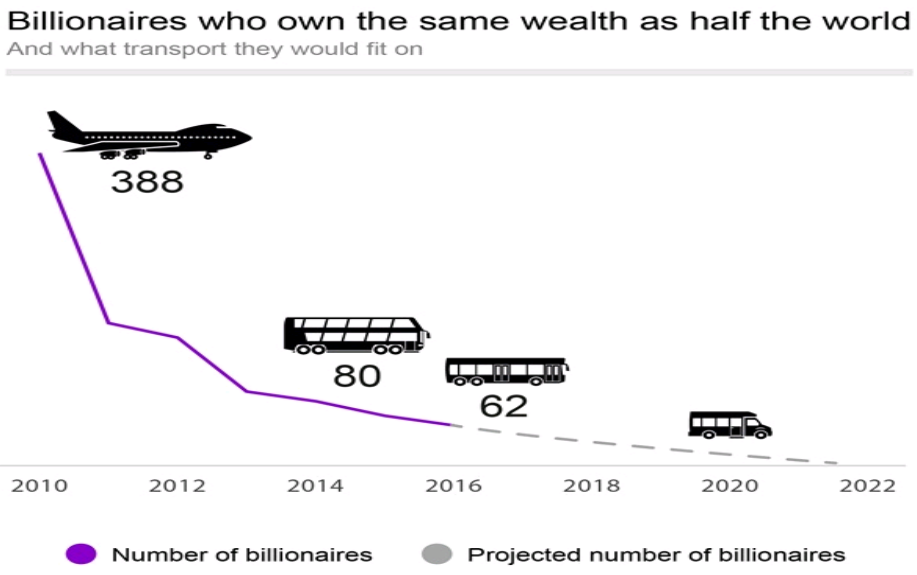
b. The inequality issue

The current stage of globalization is confronted with a rather complex and difficult to grasp phenomenon, that of inequality, a phenomenon which is particularly present in the developed countries. If this phenomenon was initially highlighted by activist organizations, such as Oxfarm (Oxfarm, 2016/2017), it later began to be discussed on a larger scale particularly due to the seminal book by Piketty (2014) and, even later, in 2016 and 2017 to be recognized and debated in well-established organizations, such as the IMF (Lagarde, 2017).

Because an image is worth thousands of words, Figure 2 presents the dynamics of the number of billionaires who own the same wealth as 50 % of the world population, that is as about 3.6 billion people.

Two aspects have to be highlighted. One aspect is the number of people having as much wealth as half of the world population. The other aspect is the speed of decline of this number. Each of the two induces a sense of strangeness and dysfunctionality even before analyzing the causes and the implications.

Figure 2. The dynamics of the number of billionaires who own the same wealth as 50 % of world population



Source: Oxfarm International (2016).

The speed of the rise in inequality is simply amazing. In 2010, that is only 7 years ago, 388 people in the world owned as much as half of the world population. In 2014, that number declined to 82, while in 2015 the number was 62. For 2017, the number is expected to further decline to 8 (Oxfarm International, 2016/2017).

[3] Different for universal agreements (like those under World Trade Organization), the plurilateral agreements involve more parties but not all of them.

From an economic point of view, this is not a matter of ethics or morals. It is just a matter of a system that is less and less functional. Because such a concentration of wealth is objectively accompanied by distortions, conflicting and divergent interests, insufficient aggregate demand, social tensions that are only waiting to translate into political instability. In this respect, numerous researches done, among others, by the IMF point out to the fact that unequal growth is unsustainable growth (Berg& Ostry, 2011). There is no easy fix for such a situation and unfortunately the long history offers only very unpleasant solutions for leveling inequality, such as large-scale wars, catastrophic plagues, revolutions, state failures (Scheidel, 2017).

1.3.2. The 4th industrial revolution

The concept of the 4th industrial revolution is not exactly new. Nor is it a well-defined one. But it came to the fore in 2016 as it was chosen as the main topic of the Davos Forum.

According to Klaus Schwab (Schwab, 2016), the founder of the Davos Forums, the first three industrial revolutions brought humankind the mechanical and transport revolution (at the end of the 18th century and the beginning of the 19th century), then the mass production revolution (at the end of the 19th century and the beginning of the 20th century), then the computer-based revolution (during the 1960s and 1970s). Different from the previous ones, the 4th industrial revolution is based on deep knowledge, the Internet of Things (IoT), the block chain, genetic editing, 3D printing, nanotechnology and new materials, like graphene. Many studies relate the 4th industrial revolution to artificial intelligence (AI) and robots.

But the main characteristic of the 4th industrial revolution is the fact that it will integrate the real world (the physical one) with the biological world (particularly with human existence) and with the digital world (the virtual one). The implications of this integration at a global scale are difficult to assess. But they can call into question the very meaning of what it means to be human, changing "how we live, work and relate to one another" and also changing "not only what we do but also who we are" (Schwab, 2016b).

2. The world of tomorrow: between utopia and dystopia

Such fundamental changes that are well underway give raise to numerous questions about the medium-to long-term future. Will they bring the solution to all our problems or, on the contrary, will they bring an end of the world as we know it? Science, technology and knowledge are so great and their availability is so facile that the future seems to be definitely better or definitely worse. This is why, in the following we focus on these alternatives in hope that some useful paths and directions will emerge from the analysis.

2.1. Utopia?

In the positive scenario, the future will be free of any problems and limitations because the knowledge available, the limitless computing power, communication and interconnectedness will allow humankind to find solutions to almost anything, particularly to famine, illnesses, war, limited resources and energy. From this perspective, the world seems to have a chance to be a better place.

But these expected achievements are only possible if humankind acts coherently and consistently in a rational way, eliminating waste of all sorts, eliminating conflicts, choosing at a global level the most efficient solutions.

Looking at the knowledge and technologies available one may feel very optimistic. At the same time, looking at the rather simple conditionalities, one may feel very pessimistic. And given the same knowledge and technologies available, as well as the experience of the long history one can expect not a middle of the road situation but rather a situation in which it will be much worse before being much better.

2.2. Dystopia?

At the same time, the new technologies, the Internet of Things (IoT) and the global interconnectedness give way to access and control of information, to the concentration of power both at state and corporate levels, to the rise of the robots, to biological hazards, and the list can continue.

In the following lines, we attempt to illustrate with some examples the negative scenario that may emerge from the use of the already existing technologies.

2.3. Lethal autonomous weapons systems (LAWS)

While many people know about drones (particularly in their manifestation of aerial drones), much fewer know about lethal autonomous weapons systems (LAWS). Such systems, that can use artificial intelligence in order to decide autonomously (without human intervention) the killing of human beings, are already available. As proof we can mention the SGR-A1 robots already deployed by South Korea (Wagstaff, 2014) or the fact that in June 2016 an Israeli firm launched the first-ever torpedo from an unmanned sea vessel while a U.S. artificially intelligent fighter pilot easily won combat simulations against human pilots (Gardner, 2016).

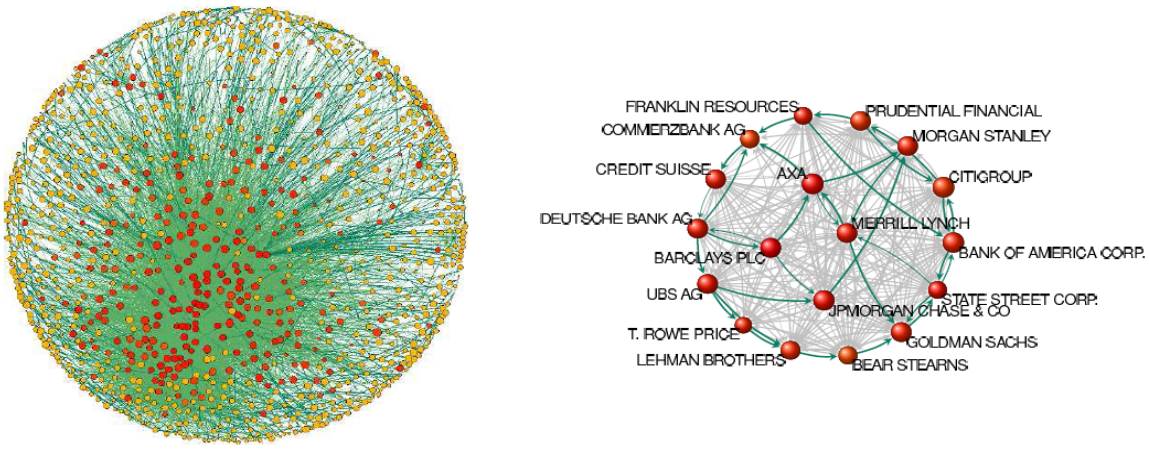
As a proof of the international concern generated by this technology, the United Nations started discussions on lethal autonomous weapons systems in 2012, the latest meeting being in April 2016 in view of eventually banning them under the Convention of Certain Conventional Weapons (CCW).

2.4. The network of global corporate control

If the Oxfarm's reports are concentrating on individuals that have such considerable wealth that they can compare to 50% of the world population, other studies focus on the concentration of economic decision power with a limited number of transnational corporation.

A study published in 2011 by the University of Zurich determined that 737 transnational corporations (TNCs) control 80% of the value of top 43060 TNCs (Vitali et al., 2011). At the same time, 147 companies or groups control 40% of the sales of top largest corporations (Figure 3).

Figure 3. The network of global corporate control



Source: Vitali et al., 2011.

Such a concentration of economic decision power intrinsically generates tensions between the network of corporations and the states and large groups of population as they cannot have the same objectives and maximization functions. While corporations will aim at maximizing profits, countries and populations will have more social, health and welfare objectives. Both parties may be right in their decisions and objectives but a conciliation mechanism is not available.

And even if the managers of the largest transnational corporations understand the message from the IMF that unequal growth is not sustainable, how can they convey this message to the shareholders who look at the annual reports to the market value and share value of the companies? The question remains open for debate and for visionary solutions.

2. Conclusions

The tensions and changes that manifested in the world economy after the onset of the economic crisis that started in 2008 as well as the inequality issue and the concentration of global corporate control seem to put globalization **as we know it** under a question mark.

Anyway, the issue is not about stopping globalization (this is not even possible) or acting against it, but rather about optimizing the distribution of benefits while reducing the costs. This optimization is not an easy process as it involves all actors from the world economy and this implies diversity and a lot of flexibility.

The idea that there is only one ideology (the Western-style liberal democracy) and only one economic mechanism (the market economy) has gradually faded away. Therefore, there is no end of history as Francis Fukuyama once said (Fukuyama, 1992).

The world economy is moving gradually towards a true multipolar world which will require new, universally accepted rules of the game and institutions, as well as a new international economic order.

Given the current architecture of the world economy, the design of a new international economic order will require strong, coherent and responsible states, as the states are still, for better and for worse, the only actors to participate in such an exercise.

At the same time, in order to prevent the current risks of sharp competition and even confrontation that may lead to war, a functional new world order will require strong feedback, verification and correction mechanisms.

Within such a new world order maybe the most difficult aspect to be solved will be the following: while all stakeholders should have a voice, decisions have to be made in a clear, expedite and enforceable manner. Direct participation at global level by means of Facebook style voting is technically possible, but it is not practically feasible. Such an approach will lead to unstable and ever changing majorities, while in the very short run it will automatically lead to the tyranny of the majority.

While we cannot propose here a simple and feasible solution for such a global problem, we can still propose a motto: "One planet, one responsibility", based on cooperation and consultation of all relevant actors.

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EU's New FTA Strategy: A Response to the Transformation of World Economy and Its Implications

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Abstract: *Since the EU published the Communication of "Global Europe: Competing in the world" in 2006, EU's practice in free trade agreements (FTAs) has been a remarkable phenomenon. It does not only involve the EU's trade preferences, but it also has some impacts on the development of international trade rules and international trade order. The main purpose of the EU's new FTAs is to maintain and further enhance the EU's competitiveness and to gain more from the world economic growth. To achieve this objective, the EU has being tried to get involved multiple strategies. It should be noticed that the EU's FTAs strategy and practice do not only have impacts on the EU itself, but also, inevitably, they have some geopolitical implications. Although it is understandable that the EU is trying to pursue its own objectives by negotiating new FTAs, it cannot be neglected the potential negative effects of the EU's FTA strategy on the development of world economy.*

Keywords*: European Union, trade, FTA, world economy, strategy*

1. Introduction

Since the EU published the Communication of "Global Europe: Competing in the world" (European Commission, 2006), EU's practice in free trade agreements (FTAs), became a topic for a number of discussions and analyses. Obviously, from the objectives to the content, all new FTAs (concluded or under negotiation) are dramatically different from the old ones; therefore they are called "New Generation of FTAs". In practice, the new FTAs will involve not only the EU's trade preferences, but also they will impact on the developments of international trade rules and international trade order.

2. The change of EU trade policies' objectives

2.1. From free trade to fair trade: the general transformation of trade policy

After the World War II, international trade and investment have played a pivotal role in economic development and growth. In the trade policy area, there has been always a kind of battle between free trade and protectionism, but untill the early 1990s, liberalization has been the major trend (Sally, 2008, p.50), supported by western countries, especially the US, as key promoters of trade liberalization. Although there were some differences in trade policies between the EU/EC and the US, for example the EC concluded many preferential trade agreements with its former colonies, in general, the EU/EC was a supporter of free trade.

Free trade contributed a lot to the world economic growth. According to OECD insights, over the 1950-1973 period, world trade rose by nearly 8% a year, while the world economy registered the fastest growth (Love & Lattimore, 2009, p.13). Various country studies. conducted either by OECD, the National Bureau of Economic Research or the World Bank, suggest that, during the 1970s and the 1980s, countries with more

liberal trade policies grew faster than those with more restrictive policies (Sally, 2008, p.55). 1980s and early 1990s saw a wave of fast trade liberalization. But it seems that things have changed since the mid-1990s. On the one hand, many countries have become more cautious about further trade liberalization; on the other hand, the meaning and scope of trade liberalization have altered, and more factors other than custom duties and quantitative restrictions have been taken into account in the design of trade policies and rules. The countries advocating for free trade, like the US and the EU, put more and more emphasis on fair trade rather than free trade. Surely, there are many reasons for this change. The most important reason might be related to their concern regarding the increasing competitiveness of developing countries' exports. Just as it has been pointed out by Shumpeter, trade expansion would bring economic competition, which would produce winners and losers in the marketplace (Hanson, 2010, p.4). Before 1990s, western countries had dominant exporting power and they were winners of trade liberalization and could benefit more than other countries. They had strong motivation to push forward liberalization of world trade. But with the economic advancement, developing countries, especially emerging economies, became powerful economic competitors of developed countries on international markets. To maintain their interests in trade, the western countries have been trying to add more elements in which they have advantages to trade, other than duties and quotas.

2.2. The objectives of EU FTAs before 2006

All these changes also reflected in the EU's trade policies and its FTA strategies.

Traditionally, FTA was a trade policy with low customs duties and high level liberalization of trade and FTAs were applied to urge other countries to reduce customs duties and other trade barriers.

The EU has been one of the main users of FTAs. The EU itself began with the common market based on free trade and customs union. However, before early 1990s the EU used the FTA instrument in a different way from the US, the latter paying more attention to free trade itself, and compared to the EU, using preferential FTAs to pursuit more policy goals . The EU signed various FTAs, under different names in different situations, for example, the European Agreement with Eastern European countries, the Stabilization and Association Agreements with Balkan countries, the EEA with non-EU Western and Northern European countries, etc. Between early 1990s and 2006, the EU continued practicing FTAs to pursuit multiple policy goals and tried to prompt trade liberalization by multilateral platform, the WTO.

Various EU FTAs have different goals, requirements and content. In general, it can be said that the EU's main purpose of the FTAs was not the liberalization of trade itself, nor the economic benefit of trade, but to realize some political objectives by trade and economic instruments. Because of the differences between FTA partners, the political objectives of EU's FTAs were different:

1) For candidate countries, in order to get the EU membership, EU can apply conditionalites and exert great influences on the political, economic and legal reform of these countries.
2) For non-EEA and non-candidate European countries, the EU is a large and attractive market, and a significant provider of international aid. These countries expect some preferential treatment from the EU. At the same time, since stability and prosperity of neighbouring countries are critical to the EU security, the EU has been trying to help their transformation in line with EU standards, using various Neighbourhood policies, including trade policy.
3) For the ACP (African, Caribbean and Pacific group of states) countries, because of historic connections, the EU provided not only preferential trade arrangements, but it also tried to export its institutions and values. The ACP regions represented a platform for the EU to pursuit its goals of external policy

embedded in Article 21(1) of the Treaty on European Union, which provides that "The Union's action on the international scene shall be guided by the principles which have inspired its own creation, development and enlargement, and which it seeks to advance in the wider world: democracy, the rule of law, the universality and indivisibility of human rights and fundamental freedoms, respect for human dignity, the principles of equality and solidarity, and respect for the principles of the United Nations Charter and international law."

Apart from the above-mentioned FTAs, the EU signed just a few FTAs with other countries during this period, and had no FTAs with its major trade partners, such as the US, China, Japan, ASEAN, etc. The purpose of several FTAs was to offset the possible negative impacts of the US FTAs with some countries. For example, after the signing of NAFTA, the EU negotiated a FTA with Mexico.

But after 2006, the EU became more interested in FTAs with its main trade partners. What happened and what for?

2.3. The Objectives of EU New Generation FTAs

The objectives of the EU new generation FTAs are reflected in two communications: "Global Europe" (2006) and "Trade Growth and World Affairs" (2010).

2.3.1. "Global Europe" and the objectives of EU new generation FTAs

Although EU new FTAs are trying to spread the EU-advocated rules of international trade and investment, the momentum is derived from the EU's objectives of trade policy. "Global Europe" it points out that "The purpose of this Communication is to set out the contribution of trade policy to stimulating growth and creating jobs in Europe. It sets out how, in a rapidly changing global economy, we can build a more comprehensive, integrated and forward-looking external trade policy that makes a stronger contribution to Europe's competitiveness" (European Commission, 2006, p.2). It manifests the differences between the new and old FTAs. The core of the EU trade policy is about economy, but not traditional political or security objectives.

The EU new FTA strategy is based on EU's understanding of the current situation and trend of international trade as well as the EU's strength. The communication of "Global Europe" mentions "the need to adapt the tools of EU trade policy to new challenges, to engage new partners, to ensure Europe remains open to the world and other markets open to us." (European Commission, 2006, p.2). The EU recognizes that the changing global economic order has great significance for the world economy and international relations. Globalization is creating unprecedented opportunities for growth and development, but at the same time, it brings, to all countries, new pressures and challenges. Many countries are seizing the opportunities of globalization and become more and more competitive in the world economy and international trade. Under this circumstances, the EU is trying to develop new trade policy to adapt to a changing world, maintain its competitiveness and get more benefits from globalization. How to acquire and maintain its competitiveness? The best way is to use its comparative advantages. "Global Europe" identifies that the European economic advantages consist in "knowledge, innovation, intellectual property, services and the efficient use of resources", that is why the EU new trade policy and FTAs approach put emphasis on this aspects.

Looking at the content of "Global Europe", one could say that EU new FTAs would be negotiated on the basis of pragmatism, such as 'economic factors would play a primary role in the choice of EU's future FTAs' (European Commission, 2006, p.11). Apparently, the emphasis of the EU new FTAs are dramatically

different from the previous ones, which put much emphasis on non-economic issues. It is viewed as a kind of triumph of business interests over the political ones (Siles-Brugge, 2013, pp.597-617). But this pragmatic approach was criticized, and the 2010 communication of the EC "Trade, Growth and World Affairs", hereafter "TGW", swayed back a little toward political and non-economic considerations, while economic interests are kept in the centre.

2.3.2. "Trade, Growth and World Affairs" (TGW) and the objectives of new FTAs

The 2010 TGW reiterates the significance of trade to European Union. It confirms that the primacy goal of economic policy is to realize rapid economic growth, to create jobs and to maintain welfare state. Once again, it puts emphasis on negotiating competitive FTAs. But while keeping economic interests at the core, TGW also requires that trade and trade policy should reinforce the EU's international influence, and emphasizes the mutual reinforcing of trade and foreign policies.

2.3.3. Substance of the objectives of EU new generation FTAs

Although there are some adjustments of the objectives of FTAs in 2010 TGW, on the whole, the kernel of EU new generation FTAs is to establish new trade rules to give full play to European competitive advantages, and reinforce the EU's competitiveness, so that the EU can get more benefit from international trade and international economic growth.

3. EU's Strategies to attain the objectives of new FTAs

From the negotiated FTAs such as EU-Korea FTA, EU-Canada FTA, etc., it can be noted that new FTA includes trade in goods (customs duties, NTBs, and others), trade in services (market access), intellectual property rights, sustainable clauses, competition, public procurement, and political clauses, etc. In many respects, the new FTAs have made great progress and some breakthroughs which are helpful for the EU to enhance its competitiveness and obtain more economic benefits. How did the EU succeed to realize its FTAs objectives? Four strategies are remarkable.

3.1. Pivoting to EU's comparative advantages

EU has tried to include its comparative advantages in the new FTAs. Just as mentioned above, the EU's comparative advantages at this moment consist in "knowledge, innovation, intellectual property, services and the efficient use of resources", therefore, the EU has made great efforts to make some progress in these aspects so that its comparative advantages can be translated into its benefits.

Firstly, although trade in goods is still an important negotiating area, trade in services plays a more important role in the new FTAs. As we know, the services sector is an important economic pillar for Europe. In 2009, in the EU, services represented 3/4 of GDP and 70% of total employment (European Commission, 2010). According the WTO, EU's trade in services accounted for 25% of world trade in services (the US for 18%; China for 6%), and the EU has great potential in service sector. In banking, insuring, office service etc., the EU has obvious comparative advantages. To get some progress in negotiation of trade in services, the EU made some concessions in trade in traditional sensitive goods, such as agricultural products and automobiles. Certainly, the EU still insists certain special industries or products, such as cultural industry. It shows the limits of free trade. The EU concessions in trade in goods does not mean the triumph of further trade liberalization,

but for market access for its services sector and cooperation in other issues such as protection of intellectual property rights (IPRs).

Secondly, the EU has tried to strengthen protection of IPRs with new FTAs. In the IPRs area, the EU has kept comparative advantages since late 19 century. The EU estimates that it suffers a great loss every year related to the weak protection of IPRs in other countries, especially in the developing world. By enhancing cooperation between trade partners on the protection of IPRs and increasing commitments of the trading partners in this area, would bring about great benefits for the EU. That is why the EU always makes great efforts to improve IPRs protection in FTAs and multilateral agreements.

Thirdly, on environment issues, it should be admitted that the EU has done better than many countries. There are multiple reasons for these developments, including industrial structure, technology endowment, economic and social development level and the environmental innovation, etc. It is obvious that solving the environment problems is a common duty of the whole world, but there are also great disparities between developing countries and developed countries. Considering the different burden for different countries to reach the same environmental protection level, considering the difference between countries with respect of environmental technology, it seems that the principle of common, but differentiated responsibilities proposed by developing countries is both reasonable and realistic. But, the EU and some other western countries try to link trade and environment protection. Maybe environment protection backs this approach, but many policy proposals could raise suspicions that the real motive of the EU might be to maintain its comparative advantages over developing world.

Labour issue is of similar nature as IPRs. European economic, as well as social development are much higher than in most other parts of the world. European integration has prompted further social development in all the EU member states. As a result, European labour standards are higher than in most other countries. Linking labour standards with trade will add extra burdens to most of the EU's trade partners but not to the EU itself, by which the EU can get more competitive advantages over its trade partners.

Outwardly, the EU's stances on all the above-mentioned issues look like reasonable, but it is questionable if it is the most appropriate or effective approach linking these issues with trade. It seems that the real ultimate motive behind the EU's stances lies in enhancing EU's competitiveness by making use of its comparative advantages.

3.2. Extending the EU's norms as universal norms

Since the end of WWII, integration has been one main theme of Europe. In the process of constituting the common market and later, the single market, the EU has kept deregulating and re-regulating the market by different methods and means, reformed and harmonized national regulations and laws, dismantling all kinds of trade barriers, and upgraded the EU's protection level of many non-trade issues, such as IPRs, labour and environment. It can be said that the rules the EU is trying to include in FTAs are all the EU has already practiced and has gained rich experiences in relevant areas.

Several examples may illustrate how the European integration helped the EU to formulate transnational trade rules to serve as comparative advantages for the EU. At the beginning of European integration process, elimination of customs duties and quantitative restrictions was provided, by the Rome Treaty. Although in implementing the Rome Treaty, some Member States have tried to protect national industries or entrepreneurs by adopting non-tariff measures, generally, trade barriers in common market became less and less under the efforts of European institutions and pro-integration forces, especially the European Commission, European

Court of Justice and big companies. With the development of the common market, social rights get more and more attention and receive more and more protection at both national and European level. Similar evolution also happened in respect of rules for environment protection and IPRs protection. In all these areas, the EU has developed relatively mature regulations and rules for the sake of market integration.

It can be said that what the EU to include in new FTAs are all what the EU has practiced. It is easier for the EU to adapt to and implement the new rules and standards for that it has accumulated experiences in transnational trade and investment. These experiences reflect the achievements of European integration as well as the part of European comparative advantages.

In this respect, the EU's strategy is to guarantee that international trade and investment rules are consistent with the EU's. The new FTAs have some constitutional dimensions, including exporting the EU's fundamental values to the partners countries and setting standards as pre-condition for further trade liberalization (Gstöhl & Hanf, 2014, p.735).

3.3. Choosing primary trade partners to negotiate FTAs

The EU has always chosen partners to conclude FTAs according to its objectives. But this time, the EU do not choose ACP countries as primary new FTAs partners as it did before. It set new criteria for choosing primary FTA partners in "Global Europe", which include the market potential (economic size and growth), the level of protection against EU export interests (tariffs and non-tariff barriers), the potential partners' negotiations with EU competitors, the likely impact of this on EU markets and economies, as well as the risk that the preferential access to EU markets currently enjoyed by the EU's neighbouring and developing country partners may be eroded (European Commission, 2006, p.9).

Based on above-mentioned criteria, the EU chose ASEAN, Korea and Mercosur as priorities, and also India, Russia and the Gulf Co-operation Council. It should be noted that in "Global Europe", the new priority FTA partners did not include China and the US. As to China, the EU recognized that China also meets many of these criteria, but requires special attention because of the opportunities and risks it presents. It did not mention the US, the main reason for that the US was the EU biggest competitor, and it would be not easy for the EU to reach an agreement with the US.

It can be inferred from 2006 criteria and the EU's choice of FTA partners that the EU did not choose trade partners with most liberal trade as its FTA partners, but choose the countries with market great potentials. It reflects the real intention and objectives of the EU to negotiate new FTAs.

2010 TGW enlarged the scope of new FTA partners. Besides the partners mentioned in "Global Europe", it adds the US, China, Japan and Russia into the list with which the EU would like to deepen its trade and investment links (European Commission, 2010, p.5). Obviously the criteria for choosing the US and Japan are different from the ones set up in "Global Europe". The main reason is that the EU needs alliance to work together to implement its new FTA strategy.

3.4. Forming strategic alliance to accomplish new FTA objectives

Just as mentioned above, 2010 TGW listed the US and Japan as its priority FTA partner. These countries are the EU's important trade partners and they are at the similar level of trade liberalization with the EU. But this is not the reason for the EU to choose them as new FTA partners, because they are also main trade competitors of the EU.

The important reason for the 2010 TGW adjustment of the list of FTA partners is that negotiation of FTAs guided by the "Global Europe" had not moved forward smoothly before 2010, especially the negotiation with India. The EU realized that, on the one hand, there were still some space for the EU to negotiate with its major trade partners for further liberalizing trade and investment, on the other hand, there were common interests for the EU and the US to set up new trade rules, for both of the EU and the US can get more benefits from these new rules. Common interests against emerging economies make the EU and the US to form a new kind of alliance once again after the Cold War.

Transatlantic Trade and Investment Partnership was initiated under this circumstances. The objective of this negotiation does not just aim at trade liberalization and advance bilateral investment, but also it has significant strategic implications. It will reconfirm the common interests between the EU and the US, and work together to make rules for international trade and investment which will be preferable to them and guarantee the EU, the US and other western countries can benefit more from world economic growth. Considering that the EU and the US together account for about 50% of the world economic output, 30% of world trade and 20% of global FDI, (Palmer, 2013) the rules and standards set up in TTIP definitely will have great impacts on international trade, investment and relevant rules. In this term, TTIP was called "Economic NATO".

Certainly, although the EU has clear strategies to promote its new generation FTAs, it is not easy to achieve this goal for some internal as well as external reasons. So far the EU has just completed several negotiations of FTAs. It shows that there are many divergent interests within the new FTAs.

4. The implications of EU new generation FTAs

Although the main objective of EU new FTAs aims at economic interests and promotion of the EU's competitiveness in global market, the choices of the new rules and standards as well as of the FTA negotiating partners inevitably have certain implications.

4.1. International trade rules and struggling for economic interests

From the perspective of objectives and new trade rules of EU new FTAs, the purpose of the EU new FTAs strategy is not to create a more fair and reasonable international economic order, but one which is favourable to the EU. In this international economic order, the EU would be more competitive and get more benefits from international trade.

Although overall, a FTA can bring about benefits to all trading partners, some researches reveal that the welfare of FTA are limited (Garcia, p.497), the distribution of the benefits of FTAs being not symmetrical. Some countries get more and others get less. Within the new FTAs the EU is concerned about areas and rules which can bring about more benefits to the EU, such as trade in services, protection of IPRs, labour standards. The new rules on these issues will be favourable to the EU and other developed countries, while they will produce more burdens to the other countries, affecting their competitiveness. Although it seems that all trading partners are on the same playing field, because of different capacities, the same set of rules and standards will produce different results. In this respect, Dent (2006) put forward the concept of "deficient capacity" in terms of technocracy, industry and/or institutional arraignments which may be a problem for developing countries when they negotiate and implement bilateral trade agreements with developed countries. The existence of "deficient capacity" means that there are no absolute reasonable and fair trade rules. All depends on a kind of balance of different interests of all trade partners.

The process of TTIP negotiation also illustrates that there is no easy way even for the close trade partners at the same development level. Although there are many common interests for the EU and the US to put forward new generation FTA, the competitiveness and disparity of interests in different issues make the bilateral negotiations a hard task.

4.2. The EU new FTAs would produce complex effects to the world economy and world order

The new FTAs make trade in service and non-trade issues at the centre, which would promote trade liberalization to cover broader areas of trade, and contribute to the progress of the world economy. Meanwhile, it would also promote the environment protection, IPRs and labour, leading to sustainable development. In a long run, it will produce positive effects on the world economy and global welfare.

But at the same time, because of the high standards and requirements provided in new FTAs, that may be settled beyond the implementation capacity of many developing countries, the latter may lose their comparative advantages. The disadvantages in terms of technology, research and development capability, high cost to improve the protection level of environment, labour and IPRs would make them less and less competitive compared with developed countries. They may lose an opportunity to catch up with the developed countries and become relatively poorer.

Considering the imbalance of political, economic and intellectual power between the developed and developing countries, big powers and small powers, multilateral negotiation such as negotiation in WTO will still be the best way to make international trade and investment rules, and balance the different interests of different kind of countries.

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The main objectives of the EU energy policy: competitiveness, security, and sustainability. The prospects of cooperation with China in the energy sector

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Abstract: *The author uses the qualitative research methodology to analyze the implementation of the main objectives of the EU energy policy. Based on this analysis, it formulates a series of recommendations for the cooperation with China in the field of energy policy, especially that of green energy. The research is interdisciplinary, interweaving the elements of the economic theory with the analysis of the European policies.*

Keywords: *energy, cooperation, competitiveness, security of supply, sustainability.*

1. Introduction

The European Union energy policy has three main objectives:

- to provide an "energy mix" in order to achieve security of energy supply;
- to create a competitive environment so that energy suppliers can ensure affordable energy supply to households, businesses, and industry;
- to achieve an energy consumption on a sustainable basis, by reducing the emissions of greenhouse gasses, the pollution and the dependence on fossil fuels.

Keay & Buchan (2015) point out *that in recent decades the energy policy has been less "European" than most other Community policies* and should not be overlooked that the Member States enjoy considerable autonomy to determine its own energy mix. Also, Keay & Buchan (2015) highlight that the idea for a common energy union has started from events related to the increase in energy prices in 2000, the crisis in Ukraine and the changes required by decarbonization of the economy.

The sources of energy are unevenly spread in Europe. The oil and natural gas are prevalent in the North Sea, available in the UK and Norway; coal is a resource more widespread, both in Germany and in Eastern Europe; hydroelectric power stations ensure clean and cheap power, mostly in Nordic countries, but this is seasonality influenced; renewables are available in every state, with a large proportion of solar power in Germany and wind power in Spain; the installed power in France is based mainly on nuclear reactors. One of the main challenges is that in the EU space most of the national energy systems are disparate and not well integrated. The energy transport - either as electricity or fuel - is difficult and expensive over long distances in the Community. There is no single European network, and there are few interconnectors which bring the power energy from where it is generated where it is needed (Harvey, 2015).

The main promoter of the energy union is Donald Tusk, Poland's former prime minister, and current president of the European Council. On April 2014, Tusk (2014) wrote an article in Financial Times, in which he proposed the development of a vigorous union to boost energy security and to strengthen the EU's political independence. Tusk (2014) recommended the creation of a single community agency to purchase gas and underlined that the EU "should make full use of fossil fuels available on its territory". He also called for greater transparency in the negotiation of new contracts energy with Russia, strengthening solidarity in crisis times and for supporting the European Union for building additional energy infrastructure. The recommendations of Tusk (2014) were *to increase the European energy security* by *decreasing the ability of Russia to use energy "as a political leverage" and that "EU should assume the charge on dismantling the Russian gas monopoly and restore free market competition"*.

Maroš Šefčovič, European Union vice president which is responsible for the energy union, said that "*the implementation of the concept of energy union is an extremely complex process, which involves the integration of national energy systems where vary widely in terms of their legislation, levels of infrastructure development and traditional energy strategies and policies*". Šefčovič (2016) noted that significant reforms in

terms of laws and regulations are required and massive investments in infrastructure are needed, that can support the interconnection growth of the national systems. Šefčovič (2016) emphasized the major role in creating “an energy union on market base” demands more competitive negotiation and cooperation with external partners.

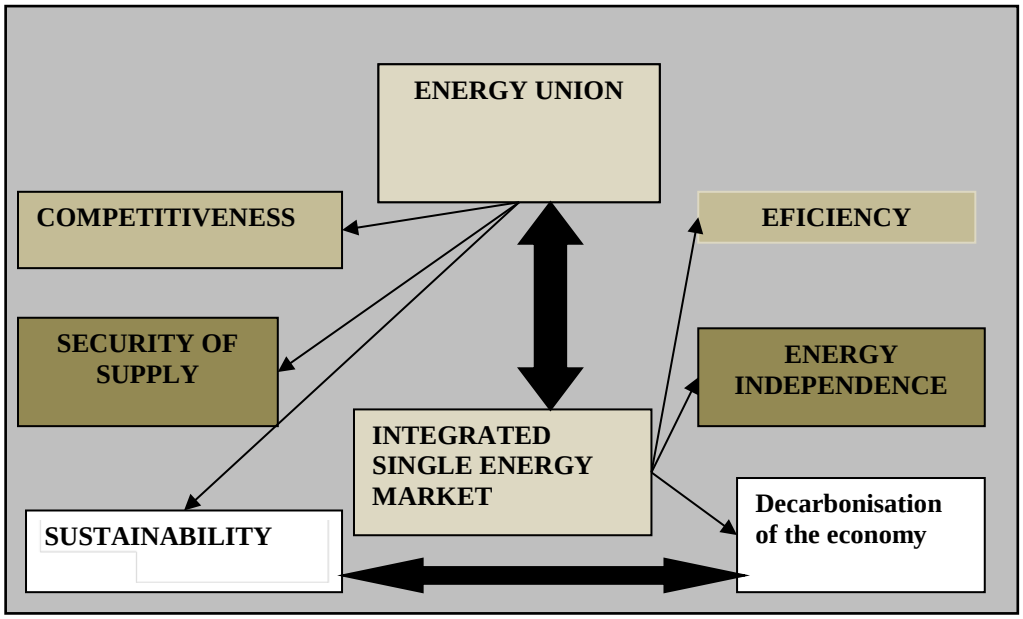
2. The main objectives of the energy union: competitiveness, security of supply and sustainability

2.1. Competitiveness

According to Raines and Tomlinson (2016), EU needs a “defined energy strategy” in order to respond to the recent developments in the oil market and to assess its implications for business and consumers in the European Union. They recommend that any strategy must take into account *the future cooperation with other major energy-importing countries such as the United States and China, and assess how the commitment to stability in regions such as the Middle East could evolve.* In their opinion, the strategy should consider how new technologies such as electric vehicles and future climate regulations may affect oil demand in the medium term; this should include whether the EU oil companies face exposure to stranded assets and the implications for European financial markets.

The challenge is that the EU must remain an attractive market for companies at a time when competition for global energy resources is increasing In last years, the independent barometer "renewable energy country attractiveness index (Recai)" had stated that US and China are the best investment opportunities in renewable energy. *Therefore, the EU is seeking to strengthen its energy market competitiveness with innovative technologies, given that EU's leading position is threatened.* China is the largest source of growth over the next 20 years, adding more renewable power than the EU and the US combined (British Petroleum, 2017)

Figure 1: The main objectives of the Energy Union



Source: Author

2.2. Security of supply

The European Commission (2014) has exposed the elements of energy security and the key figures in the Communication "European Energy Security Strategy." The main vulnerability is that EU imports 53% of its energy consumption. The dependence on energy imports is crude oil (nearly 90%), gas (66%) and, to a lesser extent, solid fuels (42%) and nuclear fuel (40%). Some Member States are more vulnerable than others; this is particularly true in the case of the less integrated and connected, like the Baltics and Eastern Europe. *One of the most pressing challenges of the energy supply security is the strong dependence on a single external supplier.*

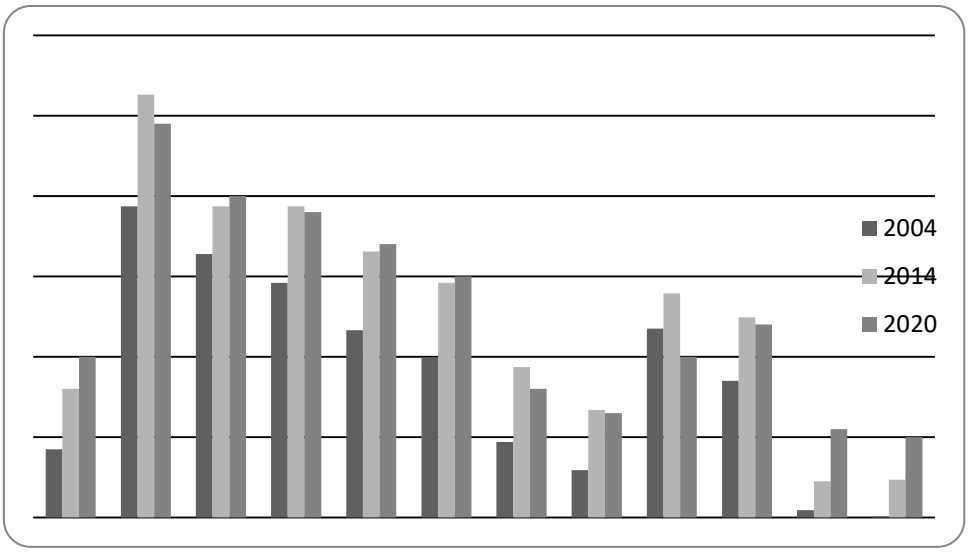
This is especially true for natural gas, but also applies to electricity, in case that six Member States depend on Russia as a unique supplier external for all their imports of natural gas and three of these countries use imported natural gas to meet more than a quarter of their total energy.

According to European Union experts, the greater diversification of fuel supply sources and the transit routes, are essential, as well as a good governance, the rule of law and the investments in source countries. These EU policy objectives are supported through engagement with Central Asia, the Caucasus, and Africa, as well as through the Eastern Partnership and the Union for the Mediterranean. EU seeks as well partners from China, India, Japan and the US for promoting renewable energy, low carbon technologies, and energy efficiency, as well as transparent and well-regulated global markets. *Consequently, the European Commission's response is an EU energy policy which combines internal and external dimensions.*

2.3. Sustainability

In 2014, according to Eurostat data, the share of energy from renewable sources in gross final consumption of energy reached 16.0% in the European Union (EU), almost double that of 2004 (8.5%). Compared with a year ago, it increased in 24 of the 28 member states. In the same year, with more than half (52.6%) of energy from renewable sources in gross final consumption of energy, Sweden has had by far the largest share, before Latvia and Finland (both 38.7%), Austria (33.1%) and Denmark (29.2%). At the opposite end of the scale, the smallest proportions of renewables were registered in Luxembourg (4.5%), Malta (4.7%), the Netherlands (5.5%) and the UK (7.0%). The France, the Netherlands and the United Kingdom are furthest from their targets.

Figure 2: The share of energy from renewable sources in different member states(in % of gross final energy consumption)



Source: Author based on Eurostat data (2014)

The European Commission's vision is that the energy union should be regarded as an economy which is sustainable, low carbon and without negative effects on the climate. *European Commission (2015) stresses that a new strategy for research and innovation (R & I) for the next generation of technologies in renewable energy, including the production and use of environmentally biomass and biofuels, as well as solutions for data storage, should underpin the energy union.* The promotion of the sustainable energy technologies including renewable energy technologies is designed to improve the energy efficiency. The costs of renewables have decreased in recent years and continue to decline and most of these technologies are either economically competitive or close to achieving this goal.

3. EU-China Roadmap on energy cooperation (2016-2020)

According to the EU-China Roadmap, the energy security has become a key issue for both China and the EU, thus putting pressure on policymakers to look for new responses, including the diversification of both

source and origin of conventional energy, with a view to encouraging supply security and improve efficiency in energy use.

Considering the geopolitical concerns seems to draw more attention than long-term plans for transition to renewable energy. *As a result, according to EU-China Roadmap on energy cooperation (2016-2020), the perception that China and the EU might be competitors in accessing foreign markets often overshadows their common interest to develop renewable and alternative energy and share efficiency-improving technology.* At the same time, the fact that cooperation policies are placed well enough to cooperate vis-à-vis producer countries, and to compete in the development of high-end renewable technologies, is often neglected.

The main challenge is that China is the world's largest coal consumer: almost 50% of global coal consumption occurs in this country. Traditionally self-sufficient, China has recently started importing coal. This reliance on coal is expected to continue for the foreseeable future. The EU is the 4th largest global consumer of coal. Coal plays an important role in the EU's energy mix. For decades the public and private sectors have allocated large resources to technological development in coal mining, processing, and combustion. This has been accompanied by a *regulatory framework that encourages the competitive use of advanced technologies across the coal value chain in line with stringent environmental criteria.*

Furthermore, the *EU is also pioneering policy options and technological developments in CO2 capture and storage (CCS).* Therefore close cooperation in this field is clearly of common interest for both parties. To facilitate such cooperation, the Directorate - General for Energy (DG ENER) and the Chinese National Energy Administration (NEA) regularly organize clean coal-related events under the umbrella of the DG ENER-NEA Energy Dialogue. The discussions cover subjects such as coal-fired electricity generation, coal gasification, coal to liquids, methane recovery, and clean coal technologies. Since 2008, the Working Group on Clean Coal has organized two joint workshops which allowed for an extensive exchange of knowledge and experience among European and Chinese industry with the aim of facilitating concrete cooperation projects.

China has started a process of adding energy sources other than oil and gas to its energy production capacity. Despite the fact that coal still accounts for the vast majority of electricity generation, renewable energy will play a central role for China in this effort, allowing for a transition towards less carbon-intensive growth. According to the World Energy Outlook 2010, the International Energy Agency estimates that between 2008 and 2035, the share of coal in China's electricity generation will drop from 79% to 55% with a respective increase of the share of renewables. There is a demand for change in electricity generation in China, since 2008, and EU and the European enterprises have valuable expertise and experience in renewable energy to offer. Sharing similar targets of renewable energy in their energy policies, the EU and China could cooperate closely in this field. Cooperation covers various aspects of renewable energy such as technologies, standardization, transmission, and production.

4. Romania and China cooperation in energy sector

Romania and China have strengthened their relations in the energy field. The *plant in Cernavodă* will be rebuilt under a memorandum between the Romanian company Nuclearelectrica and a company controlled by the Beijing government. The Chinese company will have 51% of the shares and the Romanian part will have 49%. The investment is estimated at 6,5 billion Euros. For the project to be implemented, both the Romanian and the Chinese governments will provide guarantees. The project involves the construction of two reactors at Cenavodă Plant, each with an installed capacity of 700 megawatts per hour and a lifetime of 30 years, extendable for another 25 years. The project will create 16,000 jobs in Romania.

Should not be overlooked that according to "EP Energy Outlook-2017 Edition", China's rapid nuclear expansion program (11% p.a., 1100 TWh) accounts for nearly three-quarters of the global increase in nuclear generation. This is roughly equivalent to China introducing a new reactor every three months for the next 20 years.

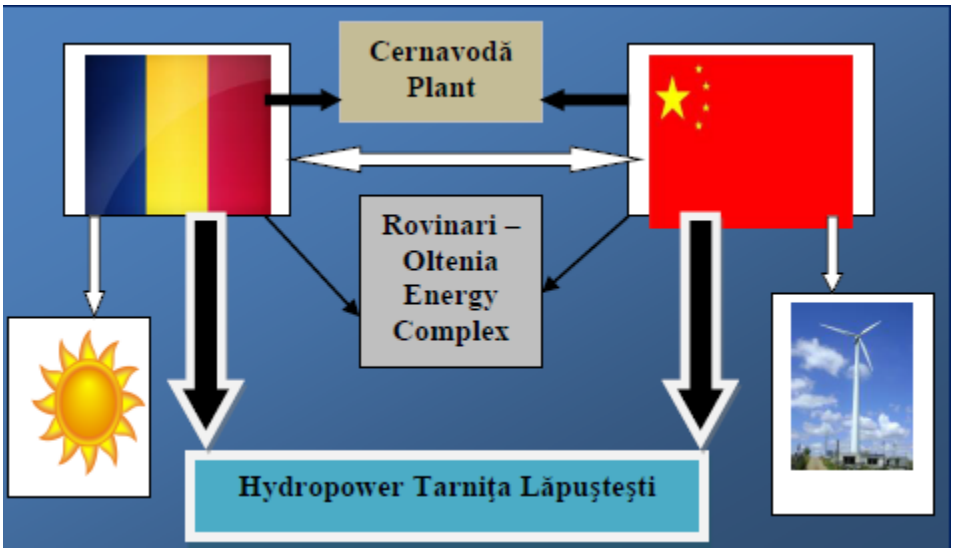
Also in the field of thermal power was signed an "Agreement of Cooperation Intent" for the thermoelectric project *Rovinari - Oltenia Energy Complex.* The document was signed between Oltenia Energy Complex and China Huadian Corporation.

In the *hydropower field*, for the project CHEAP Tarniţa Lăpuşteşti, a letter of agreement has been signed by the Romanian company Tarniţa-Lăpuşteşti, and the Chinese Sinohydro Corporation.

In the field of *wind energy***,** the contract signed between the Chinese company Ming Yang Wind Power Group and Romanian Paunescu Corporation for investment in wind farms and equipment exports will lead to the creation of over 1,300 jobs and an investment of over 400 million dollars.

On June 2016, *five investment projects of the Chinese companies in Romania, which worth over 118 million Euros*, were signed in China, on the sidelines of the ministerial meeting to promote economic and trade cooperation between China and the countries of Central and Eastern Europe. The bilateral cooperation projects are aiming the auto industry, *renewable energy*, real estate, and education. Thus, Chinese investors plan to build an auto parts factory in Brasov, this investment is estimated at 45 million. It also envisages a project on car ornaments that will be achieved with an investment worth 17.6 million dollars, and construction in Romania, a *solar power plant*, an investment worth 33 million dollars.

Figure 3: The outlook of the Romania and China cooperation in energy sector



Source: Author

5. Conclusion

The European Union is facing several major energy challenges related to energy production dependence on imported fossil fuels and the need to ensure steady energy supply and competitive energy prices on a sustainable basis, by diversifying the energy mix. *Under the circumstances that market integration is contributing to energy security, the European Commission has set as a top priority the support of more coordination of the national energy policies. It means that the Member States should better inform each other and the Commission when defining their long-term energy policy strategies and preparing intergovernmental agreements with third countries. Furthermore, should be strengthened the interrelation between the energy policies objectives and the external dimension of the energy union and the EU must speak to the its partners "with a single voice in terms of energy prices".*

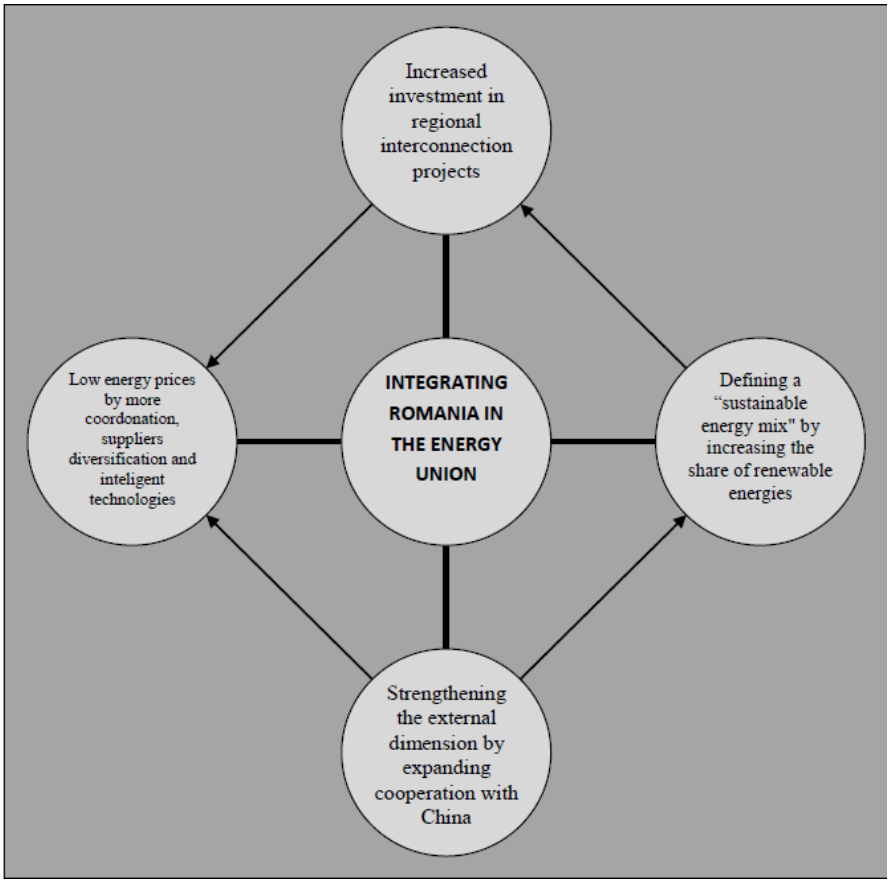
The energy union can support the reorganization of the energy market through the growth of the energy efficiency and the increasing share of renewable in electricity generation, in final energy consumption, and not least in the transport sector. But the most important aspect is that the EU still lacks a network infrastructure to enable renewables to develop and compete on the same level as traditional sources. Current projects of large wind farms located in northern EU and solar in the south requires adequate capacity electric cables, allowing "green" energy transport to the highest consumption areas. The existing networks will have difficulties absorbing the increasing volumes of energy from renewable sources (33% of gross electricity generation until 2020), according with EU experts.

Accelerating the integration of Romania into the energy union could have a positive impact on energy costs reduction, by increasing both competitiveness and the use of smart technologies and interconnectivity, and strengthening cross-border cooperation. The collaboration with China in the atomic energy field as well in the renewable energy sector (hydropower, wind, solar) could have an important role in energy mix diversification. The investments in the network infrastructure and the improvement of technologies for the use of renewables can ensure sustainability and strengthen the energy security in Romania (Figure 4).

The main challenges are to *provide proactive bilateral relations* between Romania and China, based on mutual economic interests and focus on the common objective of promoting clean energy sources on a sustainable basis and at affordable prices. *Nevertheless, should not be overlooked that the different geopolitical*

realities may affect energy relations among both partners, that may be a lost development potential of alternative and renewable energy sources in Romania.

Figure 4: Priorities for Romania on integration into the energy union



Source: Author

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EU-China Relationship on Global Security Issues

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Abstract: *On the public agenda, the Sino-European ties have been reduced and limited to commercial exchanges. Nevertheless, bilaterally, there has been a surge and a constant shared interest in widening cooperation on political, social, security issues, a.s.o. By assessing a series of agreements and common diplomatic efforts, this paper intends to point out that the joint Sino-EU projects, beyond sheer commercial purposes, include elements that could lead to promoting mutual interests, as well as to boosting global security, especially as far as regional and global crisis management is concerned.*

Keywords*: China, European Union, commerce, crisis, security.*

1. Introduction

For 41 years, UE – China relationship has been characterized by the media as a love-hate trade story. Judging by the controversies over antidumping European policy, granting the Market Economy status/ MES to China by Brussels authorities, intellectual propriety frictions or human rights dissensions, one may think that there is more hate than love in the bilateral dialogue. This article aims at arguing the fact that China and EU have much more in common besides the commercial interests and the fact that the strategic dialogue between these two important political and economic global actors is the right framework to bolster their role in managing security issues, both at regional and international levels.

First, an analysis of the bilateral relationship, from a historical point of view, will set the framework of the argumentation that the relationship between China and EU has a great potential of collaboration and growth in multiple areas. Then, an analysis of strategic dialogue will take into consideration the multilateral levels beside the trade and investment, pointing out the bilateral documents and formats that allow the cooperation in security matters. After that, the article focuses on crisis management cooperation, as a good opportunity for China and EU to use their strengths and instruments in managing security crises that might affect them both.

In the end, we conclude that in a globalized world, global challenges must and can be addressed jointly. Even if China is not yet willing to fully engage in managing security crises, EU should seek opportunities for practical co-operation and co-ordination with China on issues such as capacity-building and supporting nations in their way to sustainable development.

2. Background of EU-China Relations

Since the establishment of diplomatic relations as of 6 May 1975, very intense diplomatic and trade exchanges nurtured the Sino - European cooperation. There is no doubt that commerce was and still is the most important bilateral issue, judging by the fact that the very first agreement was the 'Trade agreement EEC-China', in 1978, followed by the 'Textile trade agreement' in 1979. China is a major trading partner of the EU, with a huge and expanding market, whereas the investment agreement negotiations represent one of the most important issues in EU-China bilateral economic and trade relations. According to Cecilia Malmström, Commissioner for Trade, from economic flows that were almost literally zero, they came to exchanges that exceed 1.5 billion euros every day (Malmström, 2016).

In 1985, Chinese and EU authorities signed the 'Agreement on trade and economic cooperation' that set the background of the bilateral relationship for the next decade. The next big step on trade and commerce field was in 2007, when the parts agreed on the High Level Economic and Trade Dialogue. Meanwhile, bilateral agreements were signed in other economic related domains: in 2002 - EU-China maritime transport agreement; in 2003 – 'Agreement on cooperation in Industrial Policy Dialogue' and 'Agreement on cooperation in EU-China Dialogue on Intellectual Property'; in 2004 – 'Memorandum of Understanding on Approved

Destination Status' (the 'Tourism Agreement') and 'Customs cooperation agreement'[1]. The bilateral dialogue took shape and grew also due to the multiple dedicated events such as EU-China Civil Aviation Summit and ADS Committee Meetings, Macroeconomic Dialogues, Euro-zone Troika and Chinese counterparts, or visits of European Commissioners in China and of Chinese ministers in Brussels. Now, EU is China's biggest trading partner, while China is the second largest two way trading partner for the EU. The trade and investment relationship is seen as an essential source of wealth, jobs, development and innovation for both sides.

Occupying a very high level on the bilateral agenda, the energy issues were addressed in early stages: in 1992, the environmental dialogue was launched, followed, in 2005, by the Joint Statement on climate change. In 2006, European Commission and Chinese Government signed a MoU on cooperation on near zero emissions power generation technology and the first EU-China bilateral consultations under the Climate Change Partnership were held, in Vienna. The cooperation on climate change and energy was reinforced successively, as the global engagements and initiatives became deeper. Energy cooperation is one field were progresses are visible: China's domestic policy in this area changed gradually and Beijing authorities have considered reducing the carbon and energy intensity in economy, even if China has been reluctant on EU requests to commit to global stabilization target or to binding domestic commitments as part of the negotiations for a post-Kyoto settlement.

The political dialogue was much slower at the beginning, but grew fast on multiple levels of consultation which added values to the strategic dimensions of the bilateral relationship. First political consultations at ministerial level, in the context of European Political Cooperation were held in 1984 and in 1992 the parts established a new bilateral Political Dialogue. The 1998 1st EU-China Summit, in London, became the main framework of discussions which provides strategic guidance to their relationship. Moreover, every year, in special meetings, experts and ministers debate and agree on bilateral, regional and global issues: Political Directors Troika, Ministerial Troika, EU-China Strategic Dialogue, EU-China High Level Strategic Dialogue, EU-China Consultations on African Affairs, EU-China High Level Political Parties' and Groups' Forum[2].

Regarding the scientific dialogue, China and EU tried and succeeded on developing a fruitful engagement, since 1983, when they launched of first 'Science and Technology Cooperation Program', followed in 1998 by the 'Agreement on scientific and technological cooperation'. In order to give more impetus to this framework, in 2001 was established a new Information Society Working Group. A more practical and useful cooperation focused on European Galileo satellite navigation program, which started in 2002 and took shape in 2003, once the bilateral agreement was signed on this issue. Even if the cooperation on Galileo was not really successful, it set a path to other possible space programs and, in 2005, Chinese and European authorities signed a 'Joint Statement on cooperation in space exploitation, science & technology development'. An efficient collaboration would benefit both parts, by reducing costs, enhancing competitiveness, resolving some of the problems brought by technology supply-demand, and increasing transparency of the space programs (Jianxiang Bi, 2014, p. 16).

Other important dynamic relationship, less revealed in the media, is on social and cultural dimension. In 2005, the parts signed 'Memorandum of Understanding on labor, employment and social affairs' and, in 2010, a High Level Cultural Forum was held. 2011 was proclaimed the EU-China Year of Youth and, in 2012, the EU-China Year of Intercultural and EU-China High Level People-to-People Dialogue were launched. In 2013, the 1st meeting of the EU-China Higher Education Platform for Cooperation and Exchanges was held, in Brussels. A very dynamic dialogue takes place twice a year on human rights issues, starting from 1995, as an integrated part of the EU-China relationship under their agreed 2020 Strategic Agenda, and also on Civil Society, since 2007, as a commitment to overcome the bilateral problematic issues.

Despite this intense congestion of initiatives and contacts, most of them are formal and have no practical ending and Beijing's policy towards the EU remains essentially economic in nature. China still feels concerned about the arms embargo, the Market Economy Status, Taiwan and Tibet issues, the EU worries over trade balance, IPR, market access, human rights and democratization issues. China also wants wide access to EU markets and investment, it seeks technology transfers, and it wants the EU and other partners to take the lion's share of the costs of the fight against climate change (Fox; Godement, 2009, p. 8).

[1] More on the EU-China agreements can be found at eeas.europa.eu/china/docs/chronology_2012_en.pdf [20 February 2017].
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3. Strategic Partnership

As EU and China also share common global goals, such as promoting peace, their values and the well-being of their people and stressing the importance of multilateralism, the possibilities of cooperation on key international issues are diverse: nuclear proliferation, Korean peninsula, piracy in the Gulf of Aden, assistance in Afghanistan and Pakistan, cooperation on governance in Africa, regional developments in East Asia, energy security, climate change, investment in better technology, intelligent exploitation and use of natural resources, global imbalances, exchange rates regimes, domestic savings and consumption, state subsidies, foreign direct investment (Moran, 2011). China and EU also are committed to Millennium Development Goal and they have made major contributions to this end. Both partners are, at the same time, WTO beneficiaries and stakeholders with a duty to contribute effectively to a rules-based global trading system and China's impressive economic development is good for the EU-China business environment while Europe's social cohesion model might be inspiring to China (Achten, 2011).

The EU-China Strategic Partnership is developed on the basis of the 1985 EU-China trade and cooperation agreement, but gradually included foreign affairs, security matters and international challenges such as climate change and global economy governance. It became of key importance to relations between the EU and the China and to finding mutual answers to a range of global concerns and identifying common interests, such as global and regional security, counter-terrorism, the fight against organized crime, cyber security, weapons of mass destruction and nuclear non-proliferation, energy security, global financial and market regulation, climate change and sustainable development, as well as in creating a framework to address bilateral concerns between the EU and China.

The first EU-China Summit took place in 1998, in London, during the UK Presidency of the EU Council. Ever since, they have been held on an annual basis, alternating between Brussels and Beijing. They are attended by the Chinese Prime Minister and accompanying Ministers and, for the EU, by the President of the EU Council, the President of the European Commission and the EU High Representative/ Commission's Vice President as well as other relevant European Commission Vice-Presidents and Commissioners. In recent years, Joint Statements have been issued, setting out agreed policy positions on a wide range of bilateral, regional and international/ global issues.

The 'EU-China Strategic 2020 Agenda for Cooperation' agreed at the EU-China Summit in 2013 is the guiding document of the relationship. It can be used as a prerequisite in enhancing their role as global players and partners on addressing key international and regional issues during their annual summits and trough the three pillars directly underpinning the Summit (the annual High Level Strategic Dialogue, the annual High Level Economic and Trade Dialogue, and the bi-annual People-to-People Dialogue), through their regular meetings of counterparts and through their broad range of sectorial dialogues on trade, foreign policy, industrial policy, education, customs, nuclear energy and consumer protection. The document is comprehensive, spanning from politics and business to science and technology, culture, education, and youth exchange. It has a long term view and focuses on regional and global issues, beyond bilateral issues, ensuring the mutual benefit and motivation to foster and bolster the relationship to adapt to the changing environment. In conjunction with Chinese initiatives such as 'Belt and Road' or 16+1 formula, the 'EU-China Strategic 2020 Agenda for Cooperation' has the potential to contribute to economic development and regional stability from which both China and the EU could benefit in terms of security.

4. Crisis Management as a Binder in EU-China Relations

As Beijing's global trade, its finance and technology flows, and its drive for energy and raw materials have made it a crucial global actor, in need to manage the consequences of its own success, which have come in the shape of new demands to help secure global stability (Fox; Godement, 2009, p. 8). This means that China cannot afford to continue to simply contemplate the dynamics of international security environment, but to act in order to shape it. For EU, this is a great opportunity to engage China in a more enhanced cooperation and strategic dialogue on current threat scenarios and crises management initiatives, crisis prevention and peacekeeping. As major stakeholders of many major international and regional issues, China and EU are important forces to develop a fair and reasonable international order. The strategic importance of bilateral relations has gone beyond bilateral context and gained global significance.

Some steps were made: during the visit of State Counsellor Ma Kai to Brussels on 29 November 2011, both sides signed an agreement on cooperation on disaster risk management where the EU will share know-how

and best practice on disaster prevention and response. In 2012, during the visit of Kristalina Georgieva, European Commissioner for International Cooperation, Humanitarian Aid and Crisis Response to China, an EU-China Disaster Risk Management Project was launched and the China-EU Institute of Emergency Management was inaugurated. Also, crisis management talks between EU (CMPD-Crisis Management and Planning) and the Chinese Ministry of Foreign Affairs and Defense took place in the same year, in Beijing. The fact that the Chinese government has in general been supportive of the concept and the idea of a 'Responsibility to protect' as it was formulated at the 2005 World Summit and the fact that China's 'New Security Concept' launched in 2002 stressed the respect for sovereignty especially in developing countries and also points out the requirement for the United Nations to play a 'leading role in the settlement of disputes preferably through negotiations and reciprocity' (Lanteigne, 2014, p. 7) might help the parts to formulate a common vision on security crisis management.

Global issues and security crises spanned by terrorism, pandemics, natural disasters, organized crime, international financial and economic crises, sustainable development, environmental protection, climate change, food and water security, energy security and nuclear safety are good areas for closer cooperation. In Africa, for example, the need for resource security and for new markets and investment opportunities made China to take a more proactive stance in solving security crises. Also, China has established a strong economic position, including in the most troubled states, due to the volume of its trade and investment in raw materials industries, altering European and American domination on this continent. As Beijing seems willing to put resources at risk, there is much room for dialogue and risk assessment, for instance, between Chinese and European companies. Beijing has also a political-strategic interest in making allies in Africa, hoping to increase its influence on its African partners and to strengthen the African voting bloc within the UN to have a group of like-minded countries challenging the global dominance of the USA and the West (Olsen, 2015).

In this conditions, taking action for providing security and counteracting violent conflicts that haunt this space is the only tool left for the EU to maintain some influence on African governments. But this is not a matter of contest, but collaboration and political dialogue between China, EU and African regional organizations. Recent crises where the European Union and China both have been involved in providing security are Somalia, Mali and South Sudan. China was a strong advocate of greater UN involvement in Somalia and of a takeover by the UN of the AU's peacekeeping tasks in the country. During a UNSC mission to Addis Ababa in June 2006, China urged other nations to support the deployment of peacekeepers and contributed to financing AMISOM (Hoeymissen, 2011, p. 101). In this equation, European Union has contributed significantly to managing the conflicts in and around Somalia and providing security. On the other hand, Chinese involvement has been very limited both in financial terms and as far as military support is concerned.

Mali, in 2012, was the first state where China committed combat troops to a UN peacekeeping mission – MINUSMA. This does not mean that Beijing is has entered a new phase in its peacekeeping diplomacy. The positive Chinese response was linked to the fact that the adversaries in Mali were religious extremists seeking to overthrow the government in a sovereign state by force (Lanteigne, 2014, p. 11). In 2014, in the case of South Sudan crisis, the Chinese behavior was very different as it decided to contribute to UNMISS with a full infantry battalion of 700 soldiers to the UN mission which already had 350 Chinese peacekeepers on the ground, mainly engineering units and medical staff. China has also played an active diplomatic role urging the conflicting parties to enter into serious and substantive negotiations as soon as possible. On the other side, the Libya crisis had serious consequences for the Chinese attitudes towards R2P issues like intervention and state sovereignty. Beijing had a feeling of being deceived and betrayed by the Western powers not least by France and the UK because the mission against the Qaddafi-regime developed from protecting human rights and civilians to regime change. Chinese representatives have even used words like 'conspiracy' or 'trick' describing the behavior of the three Western powers operating in the UNSC (Olsen, 2015, p. 18).

Beside these joint actions, there is more to be done in managing crises in Central Asia, Latin America and the respective neighborhoods of the EU and China, on bilateral formats, but also in a multilateral format, such as UN, G20, ASEM, ARF, East Asia Summit, ASEAN.

5. Conclusions

Unfortunately, there will always be a crisis somewhere in the world ready to be managed and a global challenge to emerge. Moreover, the world will become more networked and interdependent, so no single country or a single bloc of countries will be able to address these challenges by themselves.

Even that China and the EU do not share a common vision for global governance, there are many opportunities for cooperation, which could contribute to the building of such common vision. As important global players, they are both indispensable to each other: China needs the EU to ensure its global rise, and on the other hand the EU needs China to strengthen the global governance architecture.

In order to achieve these goals, they have to be truly strategic partners. Such approach means a long-term project and stability in the relationship. Strategic partnership cannot be left to cooperation on a case-by-case basis, but rather needs more in-depth reflection, which has been initiated on both sides.

Chinese engagement as a global security actor is not a certainty yet, as the actual involvement is still low, but UE can engage Beijing in innovative and pragmatic formats in which China can harness its experience and soft power in order to reestablish balance in areas affected by security crises. For start, direct investments and economic diplomacy – the main instruments China uses to support the states in need for security and protect its national interests - can be accompanied by jointly leading regional missions for peacekeeping, offering negotiations, good offices and mediation for solving security crises and conflicts – instruments in which EU has gained a great expertise.

Due to Trump Administration new policy and to potential relapse of protectionism and even of trade wars EU may put together an international alliance with China, India and other important players to defend the open trade system represented by WTO and to solve other global issues within international organizations, like UN, IMF, World Bank. EU and China must cooperate and provide the leadership in the area of solving climate change issues, in ensuring energy security in the world, in nonproliferation of nuclear weapons and in other major global issues.

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Gateways of Eurasia: New Challenges, New Opportunities

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Abstract: *Based on identifying the main areas that engage the mutual interest of Asian and European countries, this paper tries to determine the role and status of the new gateway states of Eurasia, with a particular focus on Romania. Building on this common ground could eventually lead to both sustainable economic growth and bridging the cultural gap which is keeping apart the two continents. Globalization has generated new challenges that could not be treated solely or unilaterally, by governments, international organizations or other stakeholders. Issues like climate change, increased inequalities, scarcity of resources, terrorism, digital divide, migration, in the forms they evolve nowadays were equally determined or driven by globalization. These global issues require a common effort to build resilience and to reverse the emerging trends which have already shown their negative impact in the aspects of our lives and global politics. Europe and Asia, despite the apparent distances and divisions which are highlighted lately by the competition on limited resources, competition on markets and currencies, on political and even philosophical disputes about the clash of civilizations, have always had a common ground of inhabitance. During the centuries, there were the natural and political factors and barriers that determined the openness, relationships and interconnections between the East and the West. In the era of knowledge society, could there be new gateways that brake the cultural and geopolitical barriers? How then could be redefined the roles of the old gateways?*

Keywords*: gateway states, international trade, European Union, Eurasia, geopolitics, international relations*

1. Introduction

In the past decades, globalization has led to multiple transformations of the human systems. Nevertheless, the factors that drove globalization have had a great impact on the world economy, on political systems, on social mechanisms of the economic choice and on individual behaviors. The unprecedented development of technology, the spread of innovation and the information society have driven unimaginable urban economic development, an explosive growth of trade and financial markets, with the emergence of new regional blocks, of new business models and a steady economic growth of the emerging world. The smart specialization under the specter of a new industrial revolution and the transition towards a more sustainable economy are the most common strategic objectives of any country or region. All these positive impacts of globalization have led to the assumption that the nation states, as political entities that stood at the basis of the actual world order after the WWII-nd, are regressing as relevant actors on the global scene, that other actors are going to replace this vacuum, non-state actors, like global corporations, financial institutions, global organizations and regional entities, like European Union or Eurasian Economic Union.

But, the recent trends in global politics have proven that interconnections and relationships are more complex than that. There were the negative impacts of globalization that have occurred roughly. They have proven that global interconnections and regional integration have weaknesses when it comes to dealing with the economic and financial crisis. The financial crisis of 2008-2009 have demonstrated that the existing systems were missing effective mechanisms to respond to crisis. That the nation states which corresponded to the former peers of the systems were so exposed and unable of resilience and institutional approach. And that the tough competitors like corporate banks or multinational corporations have gained sufficient power to negotiate a more favorable position for their own interest of the repartition of losses.

Besides the negative effects of globalization, some other developments on the global scene marked the return of geopolitics and the retake of the discussion about the role of state in dealing with the global issues, such as the new developments of conflicts, the military engagement of Russia in Syria and the Middle East, Brexit and a serious discussion of dismantling of European Union, the ambiguous position of Turkey in the regional conflicts, clearly disobeying of an official position of NATO and not to neglect the rise of China, as a main contester of United States as a leading global power.

To summarize, there were several types of causes that marked the return of geopolitics: localized conflicts with global intensity or strategic relevance, the resurgence of old tensions and frictions, the emergence of China as the first economic power, the expected reset of the international organization system, fragmentation and reshuffle of the European Union and the claim of a new world order, contesting *pax americana*.

This paper starts with the premise that geopolitics has regained the relevance as an analyzing instrument of global challenges. With that inquiry, there can't be made any exception to skip off from analysis the return of the political games on the global scene in order to understanding the world economy and possibly a new multipolar world order. Although geopolitics will not excel with the relevance it had in the XX-th century, it rather offers a different perspective of a more globalized world which previously seemed to have unhitched of the *real politik* approaches. Geopolitics could offer a framework of analysis that explains better the synergies between the factors of globalization and their economic significance. Such a framework could combine three complementary modes of analysis: the geopolitical systemic configuration, the geopolitical culture of the main agents, and the specific geopolitical situations. (Venier, 2010) Based on this approach, the paper tries to redefine the gateway regions/states of Eurasia and to underline their actual and future roles.

2. From the Heartland to the Gateway

During the Cold War, it was acknowledged that all the systems and processes of international relations, trade agreements and economic models were set up under the framework of the balance of power and the balance of power was only driven by the existence of the two blocks: the Western block led by USA and the Eastern block led by USSR, separated by the Iron Curtain.

As the former US National Security advisor Zbigniew Brzezinski imagined (Brzezinski, 1997), the world could be figured out as a chessboard, a contest of nerves and smart moves between the two Great Powers that used to competing one against the other, to cooperate for mutual benefit and also to annihilate each other's move. The classical studies of geopolitics, which have influenced a lot the international scene during the Cold War, were based on the theory of the Heartland. "The Heartland was determined geographically as the vast zone of continental and arctic drainage of Central Asia. The Heartland theory stated that a power which would control both Eastern Europe and the Heartland would be able to dominate the World Island (Europe, Africa, and Asia), and in turn the whole world." (Mackinder, 1919) To the Heartland it was opposed the Rimland, defined as the periphery of the Heartland. United States were the main power of the Rimland and USSR the main power of the Heartland. For centuries, "the heartland had been the geographical pivot of history and remained the pivot of the world's politics". (Venier, 2010) In order to protect its Heartland, USSR has created a Shatterbelt, formed of artificial surrogate states, natural borders or states under direct control of Moscow, orbiting in its sphere of influence, which played a role of buffer zones between the Heartland and the Rimland. Eastern Europe, the Caucasian republics, Kashmir, Africa and the Middle East, few countries in Latin America were the most common examples of buffer zones.

The end of the Cold War and the collapse of the communist systems were thought to mark the end of geopolitics, the end of history, as it marked "the end point of mankind's ideological evolution and the universalization of Western liberal democracy." (Fukuyama, 1992) However, many of the remaining buffer zones were temporarily upgraded to frozen conflicts or military enclaves. As opposed to Fukuyama's theory, Huntington responded with the clash of civilizations theory which he argued to replace on a long term the temporary conflict between ideologies. (Huntington, 1996)

After 9/11 attacks of the World Trade Center twin towers in New York, with the rise of China and the Russian come-back on the international scene, with its Cold War rhetoric of sphere of influence, the American foreign policy seemed to rebound to the classical objective, which has its core in the heartland theory: "to employ its influence in Eurasia in a manner that creates a stable continental equilibrium, with the United States as the political arbiter [...] it is imperative that no Eurasian challenger emerges, capable of dominating Eurasia and thus also of challenging America." (Brzezinski, 1997) With this background, Obama administration adopted a new foreign policy doctrine called the Asia – Pacific "pivot", which aims at strengthening security in Asia Pacific and rebalancing the rise of China. (Oehler - Sincai, 2016)

Following the recent developments of the Syrian conflict, more and more the American security analysts admit that amongst the Syrian civil war, there is an ongoing proxy war in Syria between USA and Russia, (Mazzeti, 2016) which unequivocally leads back to the Cold War rhetoric. "For the first time since Afghanistan in the 1980s, the Russian military for the past year has been in direct combat with rebel forces trained and supplied by the C.I.A." (Mazzeti, 2016) The relative victories that Mr. Putin reclaimed in Ukraine,

with the annexation of Crimea and the instate of two unrecognized separatist republics in Eastern Ukraine, with the rebalancing of war in Syria, rejecting the Western Coalition's struggle to replace the president Bashar Al Assad into power, has given Moscow the opportunity to bargain decisions about the future of the Middle East, a position which Russia has lost after the crash of USSR.

On the opposite to the buffer zone concept, the American professor of geopolitics Saul Cohen was a contester of the thesis of the Heartland-Rimland, stating that "the Free World has become the victim of a myth – the myth of the inherent unity of World Island, given the unity of Heartland in combination with part of the Rimland. An adjunct of the myth is that the sea based powers cannot maintain their position unless complete command over all parts of the Eurasian littoral is maintained." (Cohen, Geography and Politics in a World Divided, 1963) He considers that as the Great Powers become mutually dependent, the possibility of the buffer zones to mutate to "gateways" increase.

From a geopolitical perspective, a gateway, a gateway region or a gateway state represent "small exchange states with qualified sovereignty that will spin off from existing national entities to help link the world system." (Cohen, Presidential Address: Global Geopolitical Change in the Post-Cold War Era, 1991) The notion of gateway region derived from a larger concept of geostrategic region, which reunites as well the meaning of geopolitical region or buffer zone, regions that stimulate socio-economic and political interaction. Cohen regards the whole Central and Eastern Europe as a gateway region, as a region open to economic transfer from West to East and reversal. (Hyde-Price, 1996) What makes the buffer zones and gateways look alike? Is the gateway just an upgraded and political correct term for buffer zone?

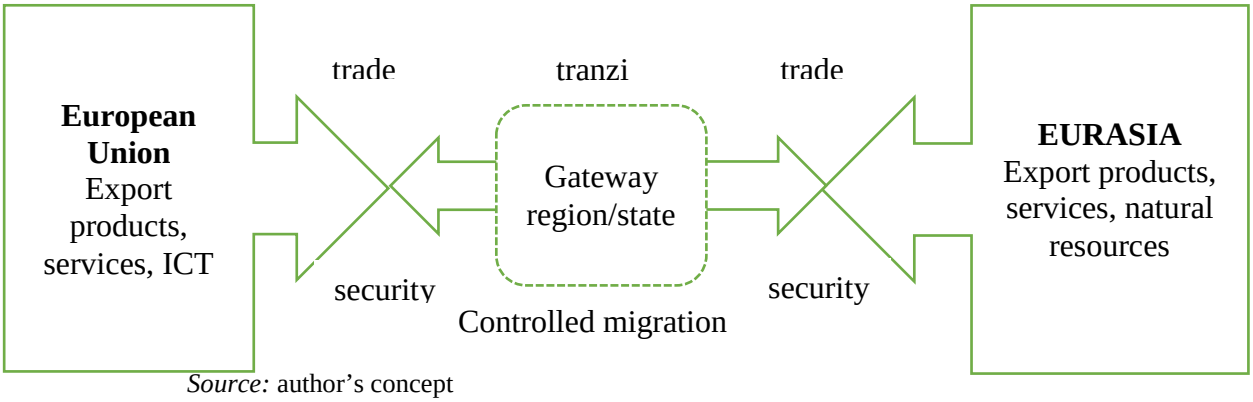
To define the role of a gateway state, one must rely on the links between the socio-economic aspects of systems' interference and the military and political ones that inherently converge in such nodes that we call gateways. This does not necessarily translate into looking primordially at one shot economic picture of the transactions carried out through a certain route or a one shot picture of the security map. It must instead portraying a specific pattern which is provided by the historical, geographical, political and socio-economic features. Same as the buffer zones, the gateways must require political and economic stability. To provide stability, the gateways must be offered from both plans of interaction the provisions of economic and social development and the security conditions of safe transfer. As opposed to the buffer zones, the main asset of the gateways is the value of trade, under qualified sovereignty. The gateway does not have the property to neutralize and localize conflicts, as buffer zones used to have, they transfer the conflicts further. Weather the system of a side provide conflict and instability, the gateway would transfer the same instability and tensions to the other side. If the relationships are stabilized and a state of cooperation is regained, the gateway would facilitate the positive transaction.

How does a gateway excel, what are its main assets? A gateway not necessarily dispose of large deposits of natural resources, but it could acquire them or facilitate the bulk transfer. It does not necessarily have a large military power, but it is granted security. It is not necessarily an economically developed and abundant region or country, but it is transited by main routes of trade. In that sense, the properties on which a gateway state rely are: an accessible and strategic geographical position, with fair climate, good infrastructure and intermodal transport opportunities, strategic military bases and international alliance commitments.

For instance, in Eastern Europe the Cold War context and the preeminence of the Soviet sphere of influence has generated several artificial boundaries, buffer zones that unnecessarily were related to socio-economic aspects. Did these former buffer zones acquire all the necessary ingredients to evolve into gateway states? Does necessarily the emerging gateways had a starting point as a buffer zone? That is clearly not the case. The roles of a regional gateway are defined by its geographical, economic and political relevance today:

- Economic integration: it helps facilitating the integration of sound economies with the surrounding regions,
- Shorter transport route: compared to the existing route to transport goods, it is faster and cheaper, it connects the main transport and trade networks,
- Natural resources access: the gateway might offer opportunities to access resources,
- Exports: it could open destinations of exports,
- Security pillar in the region: the gateway builds on a stable security policy and military alliances, having good relations with its neighbors and constructive partnerships with potential enemies.

Figure 1. The Actual Role of the Gateway State



Source: author's concept

3. European Union and the Eurasian "Dragon"

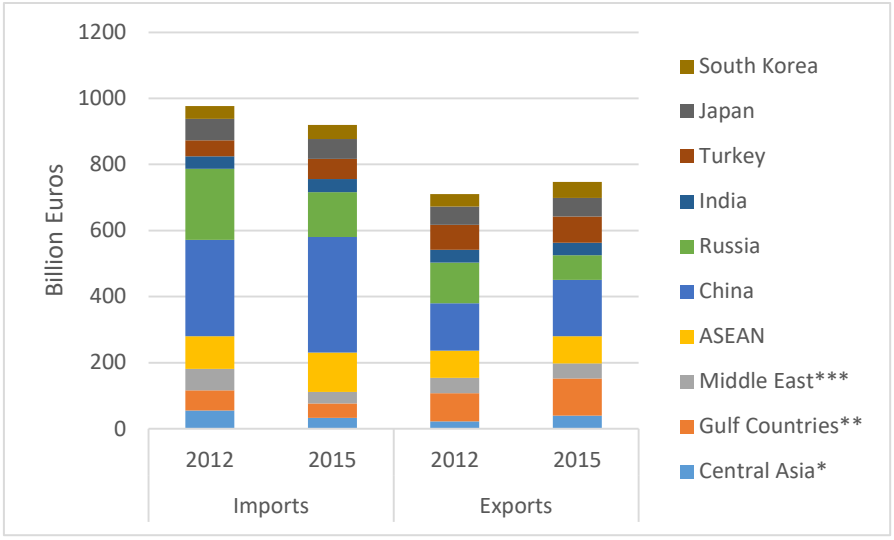
European Union has grown up from an economic and trade union towards a more political integrated entity, without assuming yet a political will. Not for a long time ago, the idea that the integration process was irreversible and unequivocal was deeply fixed in the European leadership and the citizens' acknowledge. There was a solid trust in the welfare state which the European model had practiced, in its sustainability and the positive brake up of the free movement's barriers. Recently, unprecedented evolutions have raised tough challenges to the European project: Brexit, Euro-skeptical, nationalist and radical political parties in France, Italy, Austria, Hungary, Poland, Slovakia and Greece, self-determinism in Scoltland, Catalonia, Basc Country, Flandra, Padania, South Tirol, Corsica and Bavaria, the refugee crisis and the inability of the European leadership to reach consensus on such provocations, divergence of interests and opinions in the European foreign policy and security areas.

A recent study concentrated the challenges European Union is facing into three main categories: the perception of being too rigid and "status quo -ist", the dependence on the Transatlantic political and economic axis and the persistent structural inability to open to the world at large. (Saran, 2016)

To these challenges correspond three main dimensions in which Europe and Asia should cooperate in order to increase mutual benefits of globalization and prevent the manifestation of risks: economy, migration and security.

On the economic dimension, EU is the main trade partner of the largest countries of Eurasia: China and Russia. It is also a main trading partner for other regional powers in the Middle East and Turkey. As Figure 2 shows up, out of a total of 1,700 billion Euros value of trade between EU and the Asian blocks/states in 2015, more than 520 billion was realized with China.

Figure 2. Trade exchanges of European Union with Asian regions (billion euros)



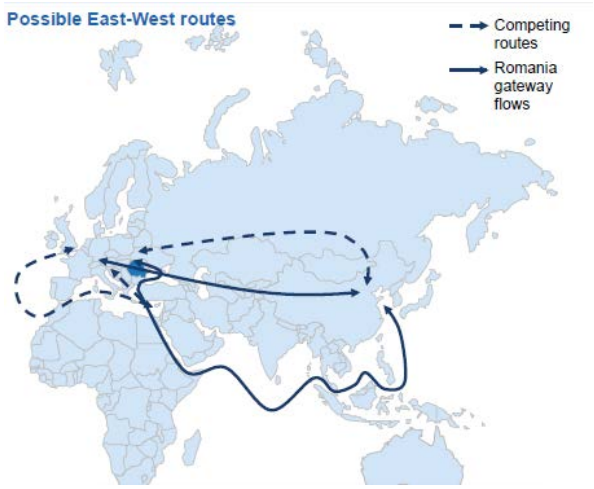
Source: compiled data from Eurostat, 2016

*ASEAN: Brunei, Myanmar, Cambodia, Laos, Indonesia, Malaysia, Philippines, Singapore, Vietnam, Thailand; Middle East: Syria, Iraq, Iran, Israel, Jordan, Libya, Lebanon, Palestine; Gulf Region: Bahrain, Oman, Saudi Arabia, Qatar, Kuwait, UAE, Yemen; Central Asia: Kazakhstan, Tajikistan, Uzbekistan, Kyrgyzstan, Turkmenistan, Azerbaijan, Pakistan, Afghanistan, Bangladesh, Georgia, Armenia

Nevertheless, the trade balance between EU and China is clearly in favor of the later. In 2015, EU's imports from China represented 38% of the total from the region (350 bln. Euro) while the EU's exports to China amounted to 23% of the total to the region (170 bln.). Bilateral EU-China trade favored the later by nearly 122 bln. Euro 2015.

Trade with Russia was obviously influenced by the political turmoil in the region. Total trade was 40% lower in 2015, as compared to 2012, mostly due to the economic sanctions which both parties have imposed to each other as a consequence of the annexation of Crimea to the Russian Federation. Most of the losses in trade with Asia were replaced with third parties, so that the total volume has preserved about the same. For instance, EU has extended trade with China and Turkey, but also started to diversify trade with ASEAN group in the Far East and with the Middle East countries. But, still, EU would have a lot of map to uncover in order to develop more trade relations, especially with the emergent economic powers in the South and South-East Asia.
Within the European Union, the main liner traders are Germany, Italy, Netherlands and Spain, with Germany alone accounting for around 20% of the total EU trade in 2014. (World Shipping, 2017)

Figure 3. East - West Main Trade Routes



Source: Aspen Institute Romania, 2014.

The main routes of transport which connect Europe and Asia, as they are drafted in Figure 3, are equally determined by the existing infrastructure of ports and inland logistics. By far, the main route of trade, with more than 80% of the trade volumes of goods in 2015 (70% of global trade value) is carried out by sea and this is not going to change much in the future, due to the cost efficiency. (UNCTAD, 2015) This aspect gives the ports and shipment infrastructure the highest importance. In that sense, in Europe, the Netherlands' ports of Rotterdam and Amsterdam handle 27% of EU's Top 30 ports in terms of loaded and unloaded goods. As regards the volumes of shipping, the main routes on East and West Bounds were Asia – North Europe in 2013, with 13.7 mil. TEU and Asia- Mediterranean, with 6.74 mil. TEU. (World Shipping, 2017)

Besides the sea routes, which connect the main port cities of China with Western Europe, there are several alternative routes and projects promoted lately, by either European Commission, China or Russia, which take into consideration a further development of trade:

- China's One Belt One Road Initiative (European Council on Foreign Relations, 2016): announced in 2013 as a New Silk Road, it is an initiative of China to physically and economically integrate Eurasia with China. It could allow traded goods between EU and China to passing just two customs checks. China has set up a Silk Road Fund of $40 billion, aimed at promoting private investment along OBOR. It engages large financial institutions such as Asian Investment Infrastructure Bank (AIIB), the China Investment Corporation, the Export-Import Bank of China, and the China Development Bank. The Economist reported that China intends to spend $1 trillion in "government money" on OBOR. It will create $2.5 trillion in trade among the 65 countries involved over four billion people.

- The East – West rail corridors, which connects East Asia and East Russia with Western Russia and from there to Northern Europe. This route comprises the Trans-Siberian Railway, Trans- Manchurian Railway and the Trans-Mongolian Railway. Based on development projects of railway systems and fast speed trains, which both Russia and China have engaged with, it is possible that this route increased more as relevance on a medium term.
- TRACECA (European Commission, 2017): a programme initiated at the Conference in Brussels, in May 1993, involving Ministries of Trade and Transport from 8 countries in Central Asia, financed from the European Union and aimed at the development of the transport corridor from Europe, crossing the Black Sea, Caucasus, the Caspian Sea and reaching the Central Asian countries. In the period of 1996-1998 Ukraine, Mongolia and Moldova joined the programme. In 2000, Romania, Bulgaria and Turkey have become members and Islamic Republic of Iran and Lithuania were granted the status of observer.

In the sense of a gateway state, as we describe it above, there are few particular cases which have an increased significance with the Europe – Asia transit and deserve further analysis. Therefore, we can observe each of this case with the providing features and determine which could be seen as more favorable than other to make this transit more accurate, cost efficient and safer. It is obviously possible to transit East – West routes only where geography, infrastructure and political stability confer more trust. But still, this could not be sufficient to address them as gateways, if they were missing the cultural property of a complex diversity that could possibly make the transition from a European culture to an Asian one. On the existing routes, there are few particular cases which could make the subject of a thorough research, for countries like Turkey, Greece, Ukraine, Bulgaria and Romania. Yet, it was not in the scope of this paper to go that thoroughly, but opens the gate for further research and comparison. Further on, there will be presented few of the characteristics of Romania as a gateway state that might deserve a particular attention.

4. Romania – a gateway state of Eurasia

Romania is a medium state in South Eastern Europe, member of the European Union, since 2007 and NATO, since 2004. In the regional context, Romania is the largest most stable Western ally in the Black Sea region. Romania's economy is rather weak, considering its size and population, but it met a strong growth since the integration in European Union. The economy still requires structural reforms in order to comply with the market economy conditions. Romania is almost entirely dependent on the European Union, as more than 70% of its trade is carried out within EU and there are 3 to 4 million Romanians working in other European countries.

As of particular interest, Romania is not dependent on the imports of the Russian gas, it has a favorable position that could become a possible pivot for the West or an inland gateway for the East – West corridor. Romania lacks the infrastructure for transport, industry and agriculture, but it has a competitive advantage in the energy sector and agriculture, mostly due to the existing resources and the natural capital. ICT is the success story of Romanian economy after transition to market economy and an asset for future development, providing good network connectivity, good experience and training of employees, good market conditions and global outsourcing.

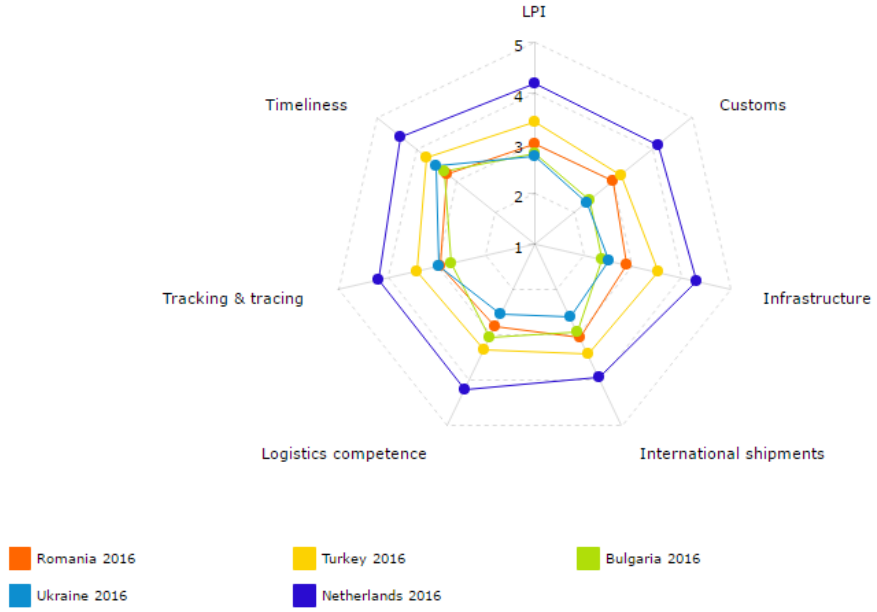
Romania could leverage its strategic gateway location into a competitive advantage and to achieve a steady economic growth over the next decades.

As a regional gateway in Eastern Europe, Romania could provide multi-modal transport interconnection: maritime fright with logistical port in Constanta, with terminals for crops, LNG and petroleum, railway freight and highway connection, together with a potential Rin – Danube fluvial corridor. The port of Constanta is already one of the largest shipment ports in the Black Sea and Mediterranean, having a shipment capacity of 100 mil. tons per year and 156 berths. In 2015, port of Constanta operated 689 thou. Teu cargo, (Port of Constanta Administration, 2016) the second inland port in the region after Turkey's Ambarli, with 3.500 thou teu. The opportunity of assessing European funds could be an important incentive to further develop on this direction.

As setbacks and risks (Aspen Institute Romania, 2014), the main bottleneck is the network overcapacity and weak interconnectivity, both inside the country and with the European regions. Lack of physical infrastructure of energy and transport, bottlenecks in road and rail inland determine delays and limits of trade. A second risk is the dependence on the Bosphorus straits, as a maritime gate and depends on the political developments in Turkey.

About the logistics performance, as the Figure 4 shows up, Romania was on average with most of the analyzed criteria, in some aspects a little better off as compared with the neighboring countries, Bulgaria and Ukraine, but worse off as compared with its competitor Turkey and a far distance to the Netherlands and other Western destinations.

Figure 4. Logistics performance index, 2016



Source: author's comparison based on World Bank Logistics Performance Index

Note: 1 Efficiency of the clearance process (i.e., speed, simplicity and predictability of formalities) by border control agencies, including customs;
2 Quality of trade and transport related infrastructure (e.g., ports, railroads, roads, information technology)
3 Ease of arranging competitively priced shipments
4. Competence and quality of logistics services (e.g., transport operators, customs brokers)
5 Ability to track and trace consignments
6 Timeliness of shipments in reaching destination within the scheduled or expected delivery time.

With regards to its security, Romania is more stable than its neighbors, giving the regional circumstances. Romania was not a buffer zone of the USSR and it maintained a sovereign state during the Cold War, mostly under Ceaușescu's regime. After the collapse of communism, Romania engaged in a transition process to liberalize the economy and to democratize the society, which culminated with the accession in NATO and European Union.

Following NATO and US commitment to the Black Sea region, Romania's national security strategy has relied mostly on the strategic partnership with United States.

After the regional political turmoil in Eastern Europe, which evolved into open conflicts in Eastern Ukraine in 2014, the annexation of Crimea by Russia, the unstable situation in Turkey, giving the engagement in cross border operations in Syria, the terrorist attacks and a failed coup, which eventually turned into a consolidation of power of actual president Erdogan and a reconsideration of relations with Russia, Romania could provide a safe access to European markets and a cultural buffer of Eastern and Western interaction. The national security could be improved, based on its commitment with NATO, as a main security priority, providing that it succeeds to build up a safe relationship in the Black Sea region, with its neighbors outside EU, Moldova and Ukraine and the two bordering powers, Russia and Turkey.

5. Conclusion

This paper has tried to bring into attention the larger picture of the Black Sea region, by providing different arguments at the intersection of international trade, economics and geopolitics. Considering that due to the recent political turmoil and profound transformations that take place at the global scale in which regards the

repositioning of the Great Powers, the uptakes from the vast literature of geopolitics could bring a new possible mode of analysis, which combine specific geopolitical situations with geopolitical systemic configuration.
In that sense, a section was dedicated to review the main concepts of geopolitics and to bring them closer to nowadays significance. One concept was treated specifically, the gateway region or the gateway state, a concept evolved from the XX-th century buffer zone or shatterbelt. As of today, in a globalized world, the meaning of buffer zone was outdated, but the term of gateway makes sense as it comprises the pillars that could provide a safe transition of trade, energy and security between two large opposing powers or to say the least, of two different civilizations. Why is this important? Because making this liberal interaction further possible it would eventually keep the opposing blocks of not colliding. For the gateway state, the main gain would be the guarantee of the state sovereignty, as long as it confers the liaison of communication and trade and further on the asset derived from the value of trade.

Starting at this point, it was further defined the concept, with its main role and attributes. It was presented the state of trade between European Union and Asian largest powers and blocks, underlining the importance at the global scale of the trade and routes between Europe and Asia, with a particular attention to shipping trade and main ports, which remains the largest trade route in the global economy, with more than 80% of trade carried out by sea.

There were further described briefly few large existing projects that could largely develop the amount of trade and the relationship of the two continents: China's One Belt One Road or the New Silk Road, Russia and China complex railway corridor and EU's TRACECA.

In a separate section, it was analyzed the case of Romania as a possible gateway state, providing synthetic information on the main advantages and risks which Romania shows up and a brief state of the economy. Constanta, Romania's largest port and second inland gateway to Central Europe after Turkey's Ambarli could be a more cost effective shipping port for the Asian traded goods. But for that to happen, further development of infrastructure and logistics is required, as Romania lacks the road and rail infrastructure, as compared to its neighbors and it is on average distance in Logistics Performance Index, just a little bit better than Bulgaria and Ukraine, but still far away of the logistics performance of the countries with the largest ports in Western Europe, the Netherlands and Germany.

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Industrial Restructuring in China and in the EU and New Opportunities for China-EU Industrial Cooperation in the Context of a Changing Global Economy

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Abstract: *Over the past few years, especially after the outbreak of international financial crisis, the global economy has entered in the doldrums and has gradually lost its momentum of returning to sustainable growth. Given that the effects of traditional macroeconomic policies have been much weaker than before, the structural instruments, with industrial restructuring being the core content, attract more and more attention of the governments of both developed and emerging economies. In these new circumstances, both China and the EU have launched their own strategies of industrial restructuring. With the gradual implementation of these strategies, new opportunities have emerged for reinforcing industrial cooperation between China and the EU. However, the negative effects of the increasing uncertainty, especially after the Brexit referendum, should not be underestimated. Both China and the EU should foresightedly reflect on the opportunities and challenges and try to achieve a win-win situation through a more forward-looking industrial cooperation.*

Keywords*: global economy, industrial restructuring, China, the EU, industrial cooperation*

1. The situation of the world economy over the past few years and the new wave of industrial strategies

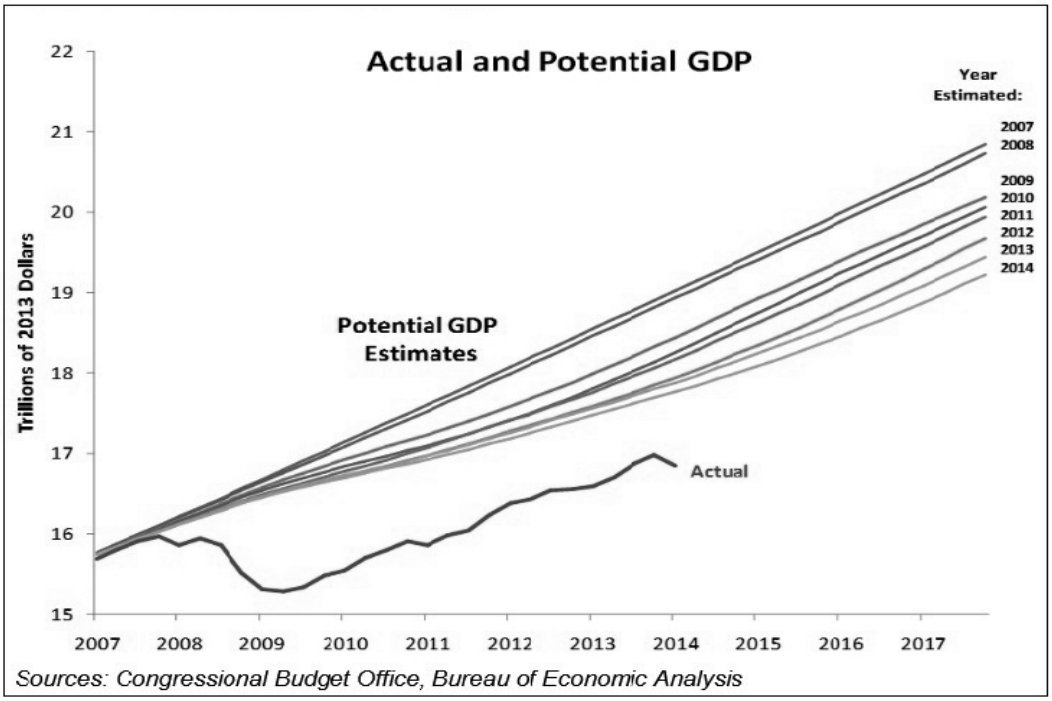
It has been over 8 years since the outbreak of the 2008 international financial crisis, and the world economy still remains in the doldrums. On the one hand, the economic recovery in the world's major developed economies including the US, the euro area and Japan has slowed down and the long-term economic growth tends to be at a low level. On the other hand, the emerging economies, with China as a typical representative, have been transferring from a high-speed growth into a medium-high or just a low-medium growth, facing the daunting challenge of how to escape the so-called "middle-income trap". The current situation of the global economy and its trend in the near future determines to a great extent the policy choices and actions of the governments.

Firstly, having a look at the trend of economic growth in developed countries since 2008 can be seen that the "secular stagnation" hypothesis proposed by some economists, especially by the American economist Larry Summers, seems to be gradually verified. The "secular stagnation" hypothesis was initially proposed by the American economist Alvin Hansen in 1930s and was borrowed by Larry Summers in 2013. Using this old phrase, Summers (2016) predicted that the developed economies, especially the US and the Eurozone, will probably go through a long-term stagnation for ten, or even for twenty years. In Summers' opinion, the "secular

stagnation" implies that a long-term period of near-zero growth rate is inevitable and persistent. In short, the phenomena that made the long-term stagnation be refocused on mainly include: 1) the real economic growth is lower than expected long-term growth rate, 2) the expected growth rate continues to drop, and 3) the trend of real interest rates continues to decline (Summers, 2016).

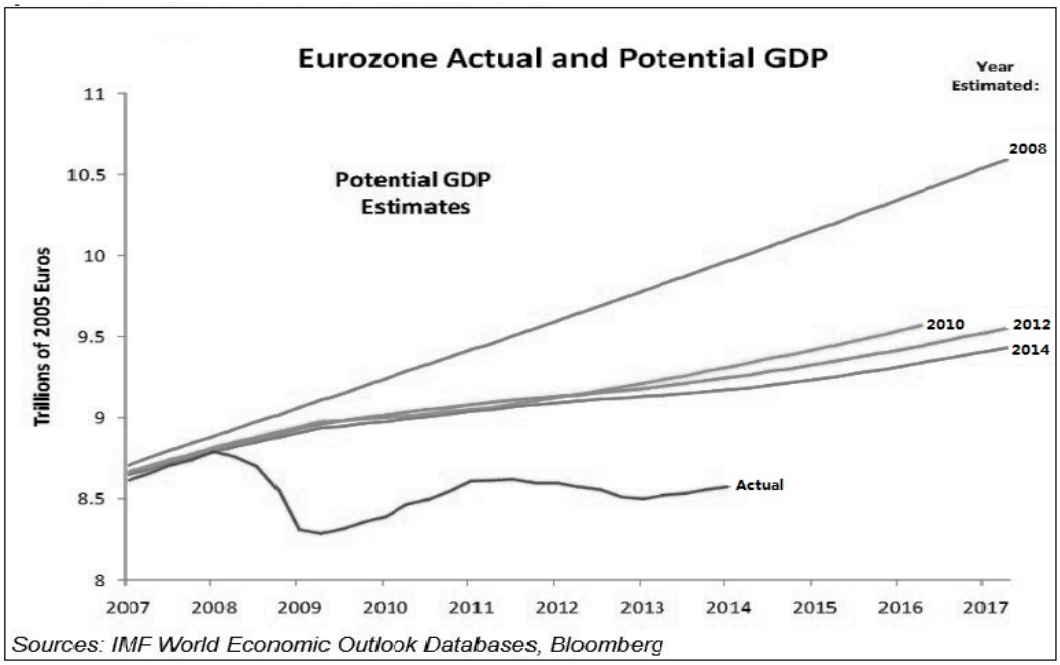
Although the "secular stagnation" hypothesis has been controversial in the past few years, the data of economic growth in developed countries show that this hypothesis seems to become reality. Just like Larry Summers wrote in his article of February 2016 "I am increasingly convinced that it captures what is going on in the industrialized world and that the risks of long term weakness on the current policy path are growing. Unfortunately, since I put forward the argument in late 2013, the data have been all too supportive" (Summers, 2016). Fig. 1 and Fig. 2 provide the comparison of the actual and potential economic growth rates since 2007, separately in the US and in the Eurozone. These two figures show that, on the one hand, the real growth rate has been lower than the long-term potential rate, both in the US and in the euro area, and, on the other hand, the potential growth rates in these two economies have been revised downwards.

Fig.1 Actual and potential GDP in the US (2007-2017)



Source: Congressional Budget Office (2017), Bureau of Economic Analysis (2017)

Fig. 2 Actual and potential GDP in the Eurozone (2007-2017)



Source: IMF World Economic Outlook Database (2017), Bloomberg (2017).

The above mentioned "secular stagnation" and the policy experience in developed economies in the past few years show that the traditional macroeconomic policies have become either much less effective, or even toothless. The space for pushing the economy back to a sustainable growth track, relying on monetary policy (conventional or unconventional measures) and on fiscal policy is becoming much narrower.

From the perspective of monetary policy, just as Summers concluded in his article "Despite monetary policy being much more expansionary than was expected and medium term interest rates falling rapidly, growth and inflation throughout the industrial world have been much lower than anticipated" (Summers, 2016). There are several explanations for this phenomena: 1) shocked by the crisis in the past several years, the confidence of investors in developed countries has been severely depressed and investment demand is still insufficient even if interest rates have already reduced to a historical low level; 2) the maturation of economies, in which the basic industrial structure no longer needs to be built up from scratch, but simply reproduced (Foster, 2008); 3) the absence, for long periods, of any new technology that generates epoch-making stimulation and transformation of the economy, such as with the introduction of the automobile (even the widespread use of computers and the Internet has not had the stimulating effect on the economy of the earlier transformative technologies) (Gordon, 2014); 4) growing inequality of income and wealth, which limits consumption demand at the bottom of the economy, and tends to reduce investment as unused productive capacity builds up and as the wealthy speculate more with their funds instead of investing in the "real" economy - the goods and services producing sectors. Overall, this is the situation the US and the Eurozone are currently experiencing. And a too loose monetary policy is likely to cause delays in structural reforms.

Now let's look at the fiscal policy. Even though Summers has been trying to encourage more government spending, the space to employ the fiscal policy in developed economies is also very limited because of many constraints. In theory, in economic downturn, government expenditure can compensate for the lack of private spending and promote economic growth. According to macroeconomic theories, the government

expenditure multiplier may be substantially larger when monetary policy is near, or at the zero bound. Here the standard argument is that deficit spending can serve as a bridge across a temporary problem, supporting demand while households pay down debt and restore the health of their balance sheets, at which point they begin spending normally again. Once that has happened, monetary policy can take over the job of sustaining demand while the government goes about restoring its own balance sheet. But what if a negative real natural rate isn't a temporary phenomenon? For the developed countries that have high public debt, it is difficult to employ this kind of measures (Krugman, 2014). If we look at the EU countries, considering the already high public debt level in many member states, although austerity has been loosened in these two years, it's still the mainstream of the fiscal policy ideology.

Turning to the emerging economies, we can find that the emerging economies have entered a transformation period. As the result of a global economic downturn, the economic growth in emerging economies slowed down in the past few years. Let's cast a glance at China, which is the representative of emerging economies. Over the past several years, Chinese economy has shown new phenomena that never appeared before, since the beginning of reform and opening-up policy in late 1970s. The "dividends" from this reform, globalization and population have been diminishing. At present, China is in a transformation period, so called "economic growth shifting" or "economic structural adjustment", which exposes many institutional shortcomings and structural contradictions in Chinese economic system. In China we call this situation as a "New Normal", and how long this "New Normal" will last is still a question. Additionally, China is also facing the problem of insufficient investment in the real economy. In addition, the effects of monetary policy and fiscal policy have been weaker and weaker.

Considering the above situation, in developed and emerging economies, promoting the economy back to a sustainable growth path is a common question. Given the traditional macroeconomic policies, i.e. the demand management policies that have no more space, the governments have turned to supply side. In this context, to promote the industrial restructuring process has become the consensus of increasingly more countries, including both developed and emerging economies. This consensus implies a gradual but a significant change of policy orientation, particularly in developed countries. The change is about the role of government, that is the governments should begin to think big, not limited to fixing market failures any more, but also to try to actively promote innovation and industrial upgrading. In the field of innovation and industrial policy, governments can not only create the conditions, but also can "crowd-in" private investment and create the visions. In this context, developed and emerging economies unveiled their new industrial strategies one after another. Industrial strategies come back to the stage again.

2. The new industrial strategies of the EU and China

Over the past few years, the world is undergoing a new round of an industrial restructuring process. Besides the motives discussed above in section 1, there are two other reasons that promoted this process and should also be paid more attention to. Firstly, the international financial crisis forced many countries to deeply reflect the relative positions of industry and services, to begin to attach more importance to industry and to launch "re-industrialization" one after another. Secondly, the concept of the new industrial revolution sprung up in Europe and in the US and spread very rapidly to the whole world. In sum, promoted by all these important factors, the key characteristic of this round of industrial restructuring is to put manufacturing and industry at the cornerstone position, regarding them as the source of innovation and productivity growth again.

In this context, the EU (and its main member states) and China also launched their own new strategies of industrial restructuring. Let's have a look at the EU. The European Commission introduced its re-industrialization strategy in 2012 and industrial renaissance initiative in 2014. At the member states level, Germany launched its Industry 4.0 initiative in 2013, which is already well-known in China. In 2013, the UK announced its British Manufacturing 2050 and France proposed its New Industrial France Initiative. Given the page limits, this article will only make a brief review on the EU re-industrialization strategy.

In October 2012, the European Commission published a communication titled "A Stronger European Industry for Growth and Economic Recovery" which marks the introduction of the EU's re-industrialization strategy (European Commission, 2012). In short, the core content of the strategy can be summarized into the following aspects.

Firstly, with this renewed industrial strategy, the EU's re-industrialization strategy seeks to reverse the declining role of industry in Europe from the level of around 16% of GDP in 2012 to as much as 20% by 2020. This objective shows that the mainstream attitude of the EU towards industry has already transferred from the concern about "de-industrialization" at the beginning of this century to "re-industrialization". The position of industry has been promoted to a strategic level, which highlights some "qualitative change" of the direction of its industrial restructuring.

Secondly, although the overall objective relates to a clear indicator, the EU's strategy does not try to increase the proportion of the industry and the manufacturing based on the current industrial structure, but attempts to promote the birth and development of a number of emerging industries, while strengthening the existing industries in high value-added parts. The core of the strategy is to seize the opportunity of "new industrial revolution" to reconstruct the value chain of manufacturing and industry.

Thirdly, the EU developed a comprehensive and systemic implementation framework for this strategy, which is generally in line with the EU's current industrial and macroeconomic situation. The European Commission has done a lot of research on "how to stimulate investment" and "how to combine the investment and industrial structure upgrading" in the post-crisis doldrums and accordingly it designed an implementation framework consisting of "four pillars" and "six priority areas" for the strategy. The "four pillars" are: 1) to facilitate investment in new technologies and innovation; 2) access to markets; 3) access to finance and capital markets; 4) the crucial role of human capital. The "six priority areas" are: 1) advanced manufacturing technologies for clean production; 2) key enabling technologies; 3) bio-based products; 4) sustainable construction and raw materials; 5) clean vehicles and vessels; and 6) smart grids.

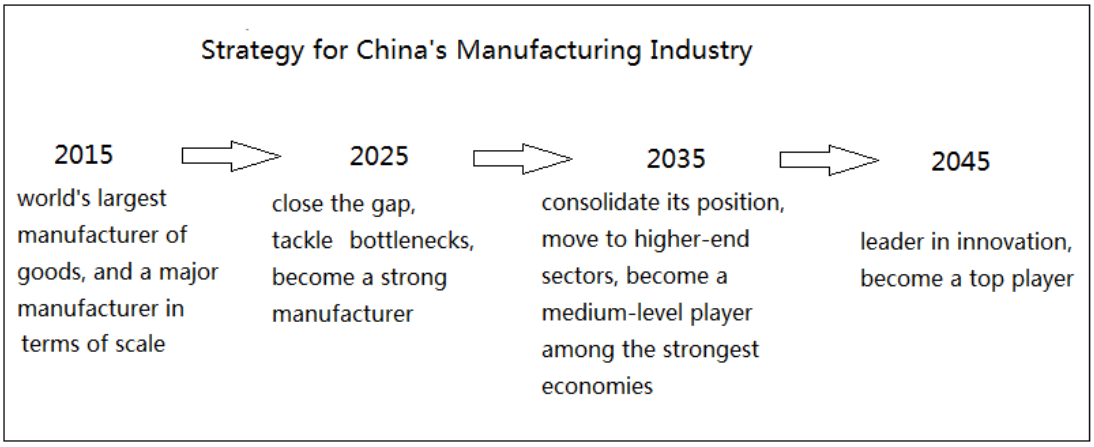
In response to the changing global and domestic economic situation, China also launched new industrial strategies. In 2012, Chinese government issued the "12th Five-Year Development Plan for National Strategic Emerging Industries (SEIs)". This plan not only identified the specific industries (1. energy efficiency and environment technologies; 2. next generation information technology (IT); 3. biotechnology; 4. high-end equipment manufacturing; 5. new energy; 6. new materials; 7. new-energy vehicles) the central government would target at, but also established a quantitative target for SEIs to account for 8% of GDP by 2015 and 15% by 2020. In 2015, Chinese government unveiled its "Made in China 2025" initiative (hereinafter referred to as MiC2025). MiC2025 aims to remedy China's manufacturing problems through comprehensive upgrading of the sector (the State Council of China, 2015). The plan draws inspiration from Germany's Industry 4.0 as China aims to make use of technologies like the Internet of Things, cloud computing and big data to upgrade its manufacturing. The initiative spans the entire manufacturing industry, including processes, standards, intellectual property rights and human capital, and has a strong focus on integrating industry chains. Fig. 3

shows the roadmap of the objectives of the strategy from which we can see the great ambition of China. Actually, we can see that it's not just a ten-year strategy, but has a 30-year vision.

Like previous Chinese plans, the many goals that MiC2025 aims to achieve have been clearly spelled out. While the plan aims to advance Chinese industry, making it more efficient and integrated, it also seeks to foster innovation through the creation of 15 innovation centers by 2020, and 40 by 2025. Localization is another goal, with the plan aiming to raise the domestic content of core components and materials to 40% by 2020, and 70% by 2025.

Similar to previous plans, 10 priority industries have been highlighted in MiC2025. These include 1) new information technology; 2) high-end numerically controlled machine tools and robots; 3) aerospace equipment; 4) ocean engineering equipment and high-end vessels; 5) high-end rail transportation equipment; 6) energy-saving cars and new energy cars; 7) electrical equipment; 8) farming machines; 9) new materials; and 10) bio-medicine and high-end medical equipment.

Fig. 3 The strategy roadmap for China's manufacturing development



Source: "Made in China 2025" initiative (2015)

Comparing to China's previous industrial strategies, "Made in China 2025" is different in multiple respects: 1) It focuses on the entire manufacturing process and not just on innovation; 2) It promotes the development not only of advanced industries, but as well of traditional industries and modern services; 3) There is still a focus on state involvement, but market mechanism is more prominent. For example, instead of focusing on top-down, unique domestic technical standards, the attention is on self-declared standards and the international standards system; and 4) There are clear and specific measures for innovation, quality, intelligent manufacturing, and green production, with benchmarks identified for 2013 and 2015 and goals set for 2020 and 2025 (Kennedy, 2015).

Overall, China and the EU are at different development stages; as a whole, China's manufacturing industry is in a relatively backward position. However, for China and the EU, in order to achieve the goals of their own industrial strategies, besides improving their ability in innovation, it's also essential to strengthen international cooperation. In the future, even though the competition will become more intense, there is still a lot of space of complementarities. For the EU, China will still be an increasingly important market and also a source of FDI; for China, the EU's position as the first technology source will remain for a long period. Given this context, the new industrial development strategies in China and the EU indeed create some new space for strengthening bilateral industrial cooperation between the two sides.

3. The industrial cooperation between China and the EU in new circumstances

It's not difficult to foresee that with the implementation of the new industrial strategies in the EU and China, there must be more new possibilities for industrial cooperation between the two sides. Based on an analysis of MiC2025, the EU's re-industrialization strategy and the relative competitiveness of the two sides, we can roughly give the main directions and fields of strengthening industrial cooperation between the two sides in the future.

When looking at the directions of strengthening cooperation, the expected directions could be classified into two categories:

Firstly, there is a great potential of cooperation in improving manufacturing innovation, strengthening establishment of standard system, promoting intelligent manufacturing and strengthening industrial base, and so on. In these areas, the EU as a whole is in a leading position and has accumulated a rich experience, so Chinese enterprises are expected to quickly improve their technology and management ability through cooperation.

Secondly, in the fields such as promoting the commercialization of research achievements, coordinating the development of manufacturing and services, promoting technological transformation in traditional industries, promoting the collaborative development of large, medium-sized and small enterprises, the situation of China and the EU are both facing many real difficulties. There is a great space for the two sides to overcome difficulties and achieve mutual benefit through cooperation and learning from each other.

When looking at concrete areas and industries, we can find that there are a lot of similarities in the priority areas defined by both China and the EU, therefore there is a great cooperation potential. Based on technology competence and industrial competitiveness, we can also classify these areas into two categories.

Firstly, in the areas such as high-end numerically controlled machine tools and robots, aerospace equipment, ocean engineering equipment and high-end vessels, energy-saving cars and new energy cars, electrical equipment, new materials, bio-medicine and high-end medical equipment and so on, the EU countries as a whole have a strong advantage and will continue to regard these areas as a focus of development. China is in a relative disadvantageous position from the technology and management perspective in these areas and urgently needs to transform and upgrade them. Therefore, there is a large space for strengthening complementary cooperation between the two sides.

Secondly, among the areas of new information technology industry, aerospace equipment, high-end rail transportation equipment, there are some in which China and the EU both face pressure of upgrading, and others in which China has already leapt to the forefront in technology. In these areas, the room for joint development and cooperation between two sides is very large.

In the past two years, driven by the implementation of the industrial strategies of both sides and pushed by "One Belt One Road Initiative", China has carried out a series of industrial cooperation with Germany, France, Italy and many other EU member states. At present, the MiC2025 is still in the process of refinement. In July 2016, China's Ministry of Industry and Information Technology unveiled "Industrial Green Development Plan (2016-2020)", which can be seen as an important progress in refinement of Mic2025. Given the facts that many EU member states have accumulated a lot of institutional and technological advantages and valuable experience in green economy, there must be more space of cooperation in the future.

Regarding the channels and forms of reinforcing industrial cooperation between China and the EU, the following would be paid more attention, in the future several years.

Firstly, from China side, there is still much room to absorb FDI from the EU countries. In the future 10 years, catching up will still be the focus of China. From the EU side, the main member states are transforming

from Industry 3.0 towards 4.0, there is much space that the EU countries will transfer outwards more technologies of 2.0 and 3.0 level. This will provide Chinese manufacturing with opportunities to actively introduce required technology and equipment and ultimately enhance the capability of indigenous innovation. Therefore, China will continue to try to attract the industrial investment from the EU, especially the investment which is helpful for its manufacturing upgrading.

Secondly, there is great potential of cooperation between Chinese enterprises and the EU's SMEs. In many manufacturing sectors such as energy efficiency and environmental protection, new materials, bio-medicine, high-end medical equipment and automobile in which the EU countries have advantages, in the so-called "traditional sectors" including textile, food and other light industries, and in some emerging fields like 3D printing, the mainstay of the EU competitiveness are actually small and medium-sized enterprises. Over the past few years, under the pressure of the crisis, the willingness of the EU's SMEs to strengthen foreign cooperation has obviously become stronger and the industrial clusters on which the SMEs rely are also becoming more open, which have provided more cooperation opportunity for China-EU industrial cooperation.

Thirdly, China's FDI towards Europe will also contribute to industrial structure upgrading of both China and the EU. Over the past two years, Chinese investment in the EU countries has been increasing rapidly, especially the investment in the UK, Germany, Italy and France increased most rapidly, which provides more choices for reinforcing industrial cooperation between China and the EU. In particular, the Chinese investors in the EU market have been diversifying, they include both state owned enterprises and private ones, and the target fields of investment have begun to expand into manufacturing industry, which is a good trend.

4. Conclusion and outlook

Firstly, in order to adapt to the profound changes in the world economy in the post-crisis era and to avoid a "secular stagnation", many countries introduced strategies of industrial restructuring, hoping to promote sustainable growth through economic transformation and upgrading.

Secondly, the introduction of new industrial strategies means that the role of governments is undergoing a gradual but significant change, especially in developed countries. These strategies show that governments have begun to think big and not just try to fix market failures, but also try to actively promote innovation and industrial upgrading. In the field of innovation and industrial policy, the government can not only create the conditions, but also can "crowd-in" private investment and can create the visions. So it's an attempt. Whether it's good or not, its long-run impact and what role the government should play in the future still remain to be observed.

Thirdly, the EU (including its important member states) and China are at different stages of development, but the motivations behind their industrial strategies are similar and both sides are trying to seize the opportunity of current world industrial restructuring. The EU's re-industrialization and Made in China 2025 have created new space for the two sides to strengthen industrial cooperation.

Fourthly, in the long run, the implementation of the industrial strategies of the EU and China will help to promote the world economy back to the path of sustainable growth. However, so far, private investment is still in the doldrums, which brings new challenges to carrying out the strategies. This requires the government not only to put forward new industrial strategies, but also to actively guide and even participate in the process of innovation.

In the future, the negative effects of increasing uncertainty should not be underestimated, especially the impact of Brexit referendum and the subsequent reactions. Additionally, the current situation of the European

banking system has attracted a lot of attention and concern. Both China and the EU countries should foresightedly reflect on the opportunities and challenges and should try to achieve a win-win situation through a more pragmatic industrial cooperation.

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The USA and the Russian Federation: What's next in the post-sanctions era?[1]

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Abstract: *After the onset of the Ukrainian crisis, the Russian Federation was faced with a series of international sanctions aimed to change its foreign policy towards Ukraine. Three years after the start of this major geo-political event, this research aims to present its impact on the relationship between the USA and the Russian Federation (in terms of trade and capital flows) but also to critically assess whether these sanctions proved effective. It should be mentioned that even before the Ukrainian crisis, the bilateral relation was a tensioned one, a series of other sanctions being imposed by the USA to the Russian Federation, most of them related to human rights infringement. The main goal of this paper is to assess the effects of the mutual economic sanctions imposed after the Ukrainian crisis. The used methodology is based on the most relevant theoretical approaches related to international sanctions, but also on a qualitative and quantitative analysis of the bilateral economic relations before and after the Ukrainian crisis, emphasizing the impact of the change brought by the President Donald Trump election as concerning the future of the two countries relationship. The main finding of the research is that economic sanctions are costly for both countries with little or none result in restoring the former status-quo in Ukraine and achieving a change of the Russian Federation's foreign policy.*

Keywords: *Ukrainian crisis, international sanctions, Russian economy, US economy, bilateral trade, foreign direct investment, Russian banking system*

1. About the international sanctions effectiveness – the case of the Ukrainian crisis

The Ukrainian crisis has induced severe tensions between the Russian Federation and the United States of America. The conflict peaked when Russian troops were committed to Crimea after a referendum about the incorporation into the Russian Federation that was held at a short notice. As a response, the USA have adopted a series of economic and political sanctions (Appendix 1) in order to put pressure on Russian economy and to obtain the change of the Russian Federation's foreign policy towards Ukraine. These sanctions were met by counter-sanctions deployed by the Russian Federation on agricultural imports (Appendix 2).

In the last years, economic sanctions are an increasingly common tool of coercion in international disputes. International sanctions are targeted action against a sovereign state to repress an act of violence or the possibility of initiating such an act. Consequently, sanctions must meet strict principles with confidence that their effect will be as expected. Firstly, given that breaches of international law the applied sanctions cannot be resolved through direct political negotiations between the parties. Secondly, sanctions are used by states and international organizations only against a state that committed unlawful acts or actions or a breach of international law. Thirdly, the implementation of sanctions cannot use armed force or use any form of force (only the United Nations Security Council may impose sanctions on the military matters, with certain exceptions). Usually, the intention of subjecting a state to sanctions is to make him to renounce of its aggressive behaviour and to comply with the norms of international law in force (Jura et al., 2015).

[1] Some aspects of the article were presented at the International Conference „Romania and Bulgaria in the context of European integration and globalization", on 17-18 November 2016, Institute for World Economy.

There is an extensive literature review about international sanctions effectiveness in changing the foreign policy of the sanctioned state, but as many studies (Hufbauer, 1990; Hufbauer et al. 2007[2]; Jentleson, 2000; Morgan, Krustev & Bapat, 2006[3]) have underlined that although the economic effects of the sanctions are indisputable such measures are not often successful in achieving a change of the targeted country's foreign policy.

In the mainstreamed approaches related to the sanctions theory (Hufbauer, 2007) it is stated that while "economic sanctions are considered an important tool for government withdrawal, or threat of withdrawal, of customary trade or financial relations" they remain "a controversial foreign policy tool that policymakers invoke to respond to perceived misdeeds of foreign governments".

Some studies (Poladian & Drăgoi, 2014) have pointed out that the Ukrainian crisis is a very concluding case on "how political decisions would quickly lead to negative economic effects on regional and international level between all power poles involved". The authors have showed that while economic sanctions may negatively affect the economy (shortly after the imposition of sanctions, the Russian Federation entered into recession) the political regime may remain inflexible in its choices. Considering this indisputable truth, some analyses (Kholodilin et al. 2014) has stated that the mutual imposed sanctions have only tensioned the bilateral relation, have triggered mutual economic losses, but they are unlikely to trigger a profound change in Russian foreign policy.

Some authors (Ahn & Ludema, 2016), based on detailed firm-level data, empirically argue that implemented US sanctions are quite "smart," as they have a powerful impact on the targets themselves with relatively minimal collateral damage, i.e. they have had a relatively smaller impact on Russia's economy compared to oil prices. They find that oil price volatility explains the vast majority of the decline in the Russian Federation's GDP and import demand, and only 1% of the decline of GDP can be potentially explained by sanctions. Intending to examine the impact of sanctions on targets, authors show that an average sanctioned company or associated company loses about one-third of its operating revenue, over one-half of its asset value, and about one-third of its employees relative to non-sanctioned companies. The conclusion that oil prices were the main cause of the Russian Federation's poor macroeconomic outlook since 2014 is presented as well by Tuzova and Qayub (2016). An almost similar result to Ahn & Ludema (2016) is presented by the IMF (2015) that forecasted that sanctions could reduce the Russian Federation's real output by about 1 to 1.5% of GDP, especially via weaker investment and consumption. World Bank (2015) argues without directly measuring the economic impact that sanctions against the Russian Federation and counter-sanctions may have affected investment and consumption.

In the following section of the paper will be highlighted the economic cost of sanctions, emphasizing the tensions induced in the bilateral relationship.

2. The impact of sanctions on bilateral trade and capital flows

Given "the threat posed by the actions and policies of persons who had undermined democratic processes and institutions in Ukraine; threatened the peace, security, stability, sovereignty, and territorial integrity of Ukraine; and contributed to the misappropriation of Ukraine's assets", on 6 of March, 2014[4], Barack Obama authorized the implementation of the Ukraine/Russia-related sanctions program by the Office of Foreign Assets Control (OFAC) of the US Department of the Treasury.

Later the President of the USA issued three subsequent Executive orders (13661, 13662, 13685) that expanded the scope of the national emergency declared in the first issued order. According to these orders there were established two categories of targeted sanctions related to the Ukraine/Russia crisis, blocking sanctions and sectoral sanctions (Table 1).

[2] Hufbauer et al. 2007 is one of the most known studies on economic sanctions and examines 204 sanctions episodes (the reasons behind the sanctions, the type of sanctions deployed and their duration and also an assessment of the effectiveness of sanctions).

[3] They have developed the *Threat and Imposition of Sanctions (TIES) Data Page* that collected data related to sanctions imposed in the international affairs.

[4] According to the Executive Order 13660.

Table 1: Categories of US targeted sanctions related to the Ukraine/Russia crisis

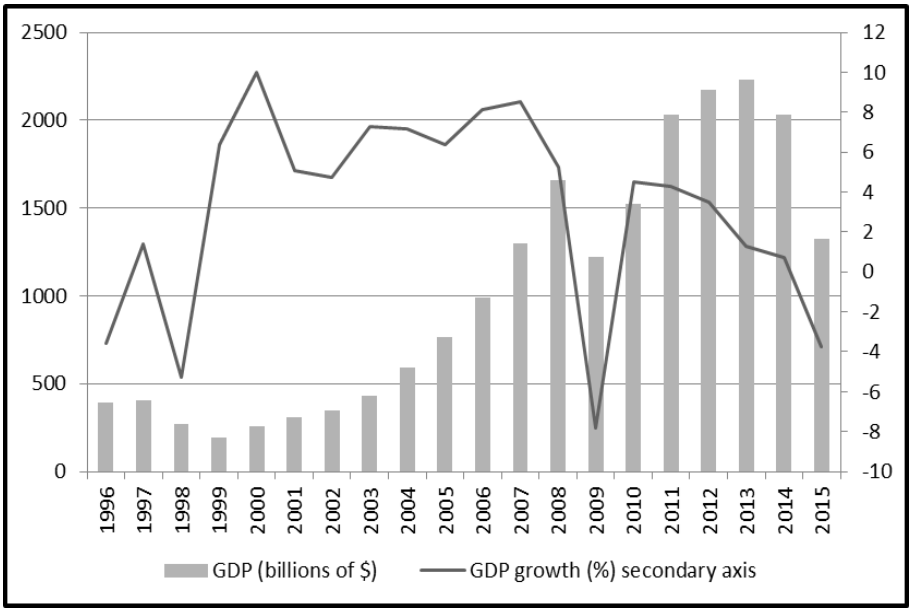
Specially Designated Nationals and Blocked Persons List (SDN List)	Sectorial Sanctions Identification List (SSI List)
Blocking sanctions against individuals and entities designated (pursuant to E.O. 13660, E.O. 13661, E.O. 13662, or E.O. 13685): refer to restrictions on the travel and to asset freezes, prohibit transactions by US persons or in the United States if they involve transferring, paying, exporting, withdrawing, or otherwise dealing in the property or interests in property of an entity or individual listed on SDN List.	**Sectoral sanctions** against entities operating in financial, energy, and defense sectors of the Russian economy (pursuant to E.O. 13662): prohibit financing transactions by US persons or issue debt of longer than 30 days' maturity or acquire new equity with targeted companies in the Russian financial or defense sector, as well as restrictions to debt of longer than 90 days' maturity with targeted companies in the energy sector.

Source: Author's representation based on Executive Orders (13660, 13661, 13662, 13685).

The USA has designated, according to the Executive Orders, 111 individuals and 82 entities on its Specially Designated Nationals and Blocked Persons List and explicitly designated 136 entities on its Sectoral Sanctions Identification List facing sectoral sanctions. By imposing sanctions on entities within the financial services and energy sectors, Treasury has increased *the cost of economic isolation* for key Russian firms that value their access to medium- and long-term US sources of financing. By designating firms in the arms or related materiel sector, Treasury has cut these firms off from the US financial system and the US economy.
As the US sanctions covered mainly trade and finance, this section will focus on how these restrictions have disrupted bilateral trade and how investors have responded to their home-states' coercive measures imposed against the Russian Federation, by adjusting their investment policies and seeking for other sources of profit. Consequently, it will be evaluated the distorting impact of the imposed set of sanctions, which connected with two other major shocks[5] that negatively affected Russian economy in the last years, have a severe direct impact on trade and investment.

After the post-cold-war period the Russian Federation has gone through economic collapse and recovery. Its GDP was worth 1.32 trillion of US dollars in 2015, after reaching an all-time high of 2.23 trillions of US dollars in 2013 and a record low of 195.91 billion of US dollars in 1999 (Figure 1).

Figure 1: GDP growth in the Russian Federation, 1996-2015

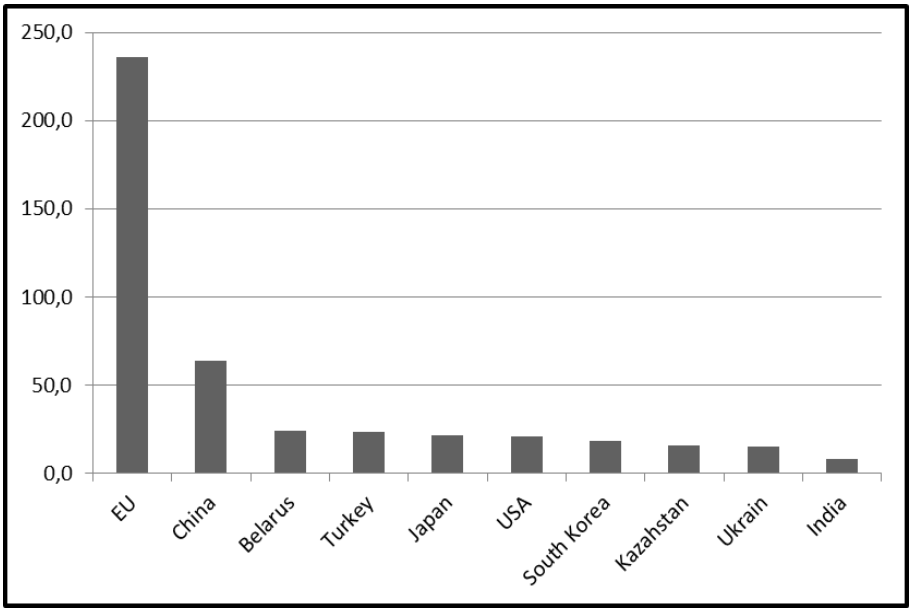


Source: Author's representation based on World Bank Database (2016)

[5] The main events were the sharp drop in international oil and commodity prices and the abrupt decline of the national currency, the rouble.

After the Ukrainian crisis, as a result of mutual sanctions, the Russian economy has dropped by 3.7%, the trade with world decreased by 19.6% and the FDI flows dropped by 70.5% in 2015. Despite the mutual sanctions, in 2015, the USA is on the 6th position as a trade partner of Russia (reaching 23.5 billion of US dollars, see Figure 2). The base of Russian exports to USA is represented by mineral fuels (62.9%), and by contrast the Russian imports from the USA are machinery and appliances.

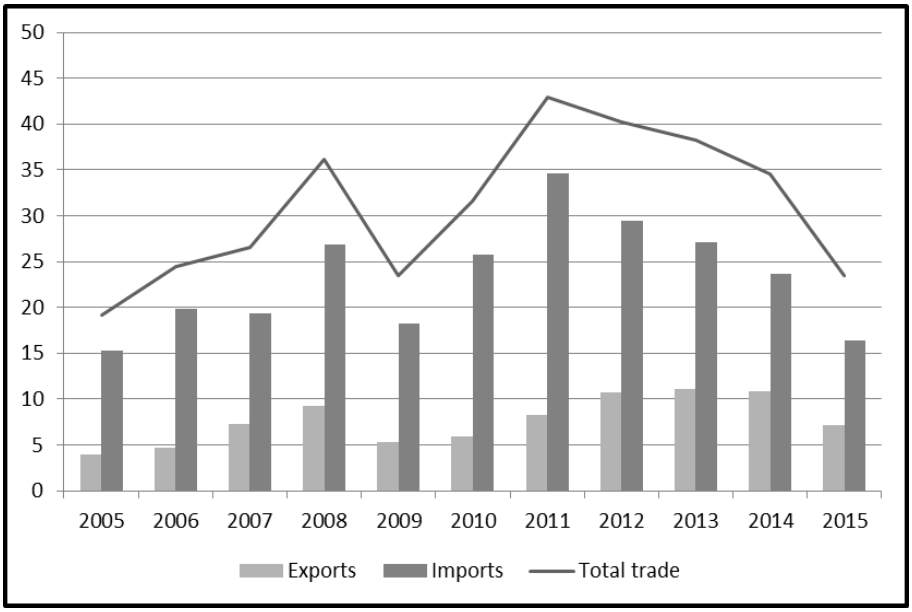
Figure 2: Top trading partners of the Russian Federation in 2015 (billions of dollars)



Source: Author's representation based on Eurostat data (2016)

The Russian Federation trade with the USA has declined during the last four years (Figure 3), with a sharp drop especially during the last two years, as a result of deploying mutual economic sanctions.

Figure 3: US trade with the Russian Federation in 2005-2015 (billions of dollars)



Source: Author's representation based on The Census Bureau of the U.S. Department of Commerce data (2016)

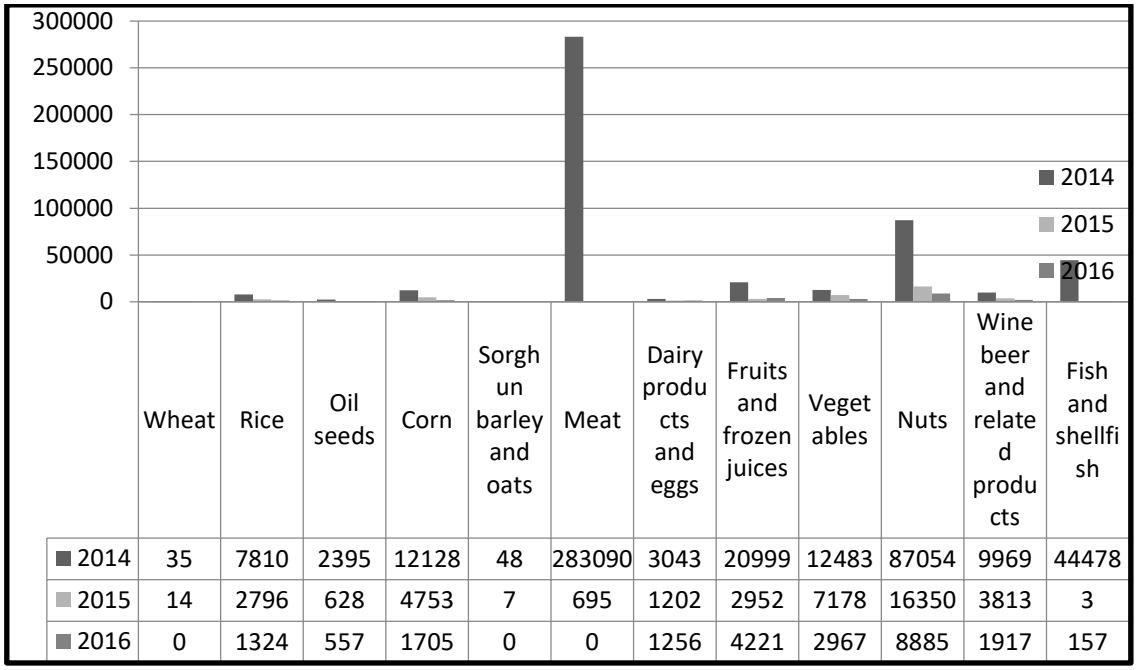
A declining trend has been recorded as well regarding bilateral investment. After the peak of this cooperation, achieved in 2008 (Figure 4), the Russian Federation FDI flows with the USA have not yet seen a revival.

Figure 4: FDI flows with the USA (millions of dollars)

Source: Author's representation based on The Central Bank of the Russian Federation data (2016)

As a result of Russian ban, the US food exports have been affected, registering a significant drop after 2014 (Figure 5).

Figure 5: US exports to the Russian Federation (thousands of dollars)



	Wheat	Rice	Oil seeds	Corn	Sorghun barley and oats	Meat	Dairy products and eggs	Fruits and frozen juices	Vegetables	Nuts	Wine beer and related products	Fish and shellfish
2014	35	7810	2395	12128	48	283090	3043	20999	12483	87054	9969	44478
2015	14	2796	628	4753	7	695	1202	2952	7178	16350	3813	3
2016	0	1324	557	1705	0	0	1256	4221	2967	8885	1917	157

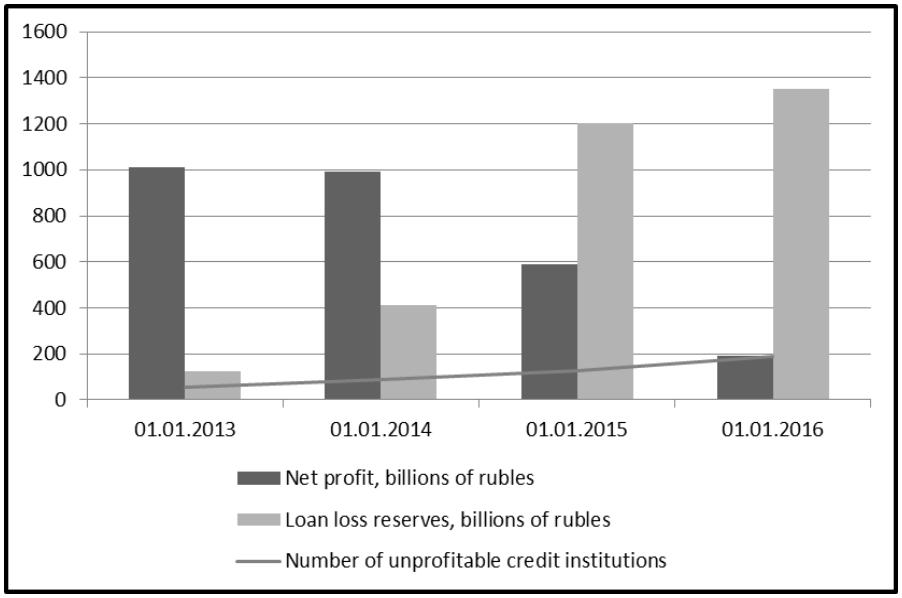
Source: Author's representation based on The Census Bureau of the U.S. Department of Commerce data (2017)

The Russian banking sector has faced difficult conditions since 2014: the gross domestic product has shrunk, the inflation rate has risen, and difficulties with external funding of corporations and banks have remained acute. Sectoral sanctions deployed by the USA have almost closed the access to external funding

sources for Russian banks and have isolated Russian firms from medium- and long-term US sources of financing. These events have stimulated the banking sector to intensively use internal sources, while the structure of these sources has been significantly changed. Russian banks have raised their resource base mainly from central bank's loans and deposits attracted from the Federal Treasury.

Moreover, Russian banks' profitability indicators have been negatively affected (Figure 6). Banks were forced to made additional loan loss reserves in conditions of borrowers' financial position worsening. Increased interest rate risk has reduced the interest margin of credit institutions. As a result, in 2015 the profit of the banking sector significantly dropped to a level that has not been recorded since 2005 and the number of unprofitable credit institutions increased.

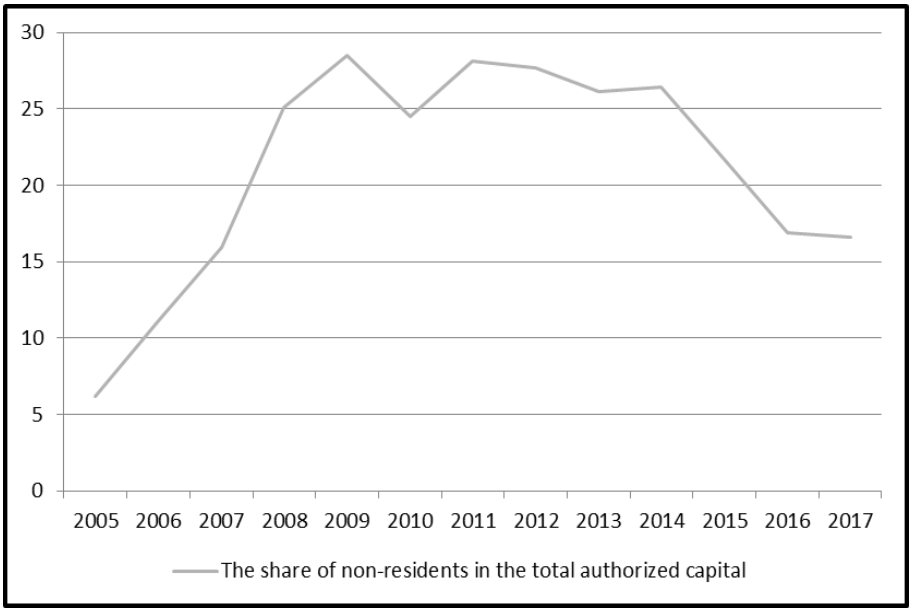
Figure 6: Russian banking sector's net profit, loan loss reserves and the number of unprofitable credit institutions



Source: Author's representation based on The Central Bank of the Russian Federation data (2017)

Such a low level of profitability does not allow banks to increase capital through capitalization of profits. As well a significant drop has been recorded regarding the profitability of assets and of banks' capital at the end of 2015. All these trends negatively affected the Russian banking sector attractiveness for investors in the medium term (Figure 7).

Figure 7: The share of foreign capital in the banking sector of the Russian Federation (%)



Source: Author's representation based on The Central Bank of the Russian Federation data (2017)

In this situation, the Government of the Russian Federation and the Bank of Russia implemented a set of measures aimed at ensuring the systemic stability of the banking sector, and at supporting bank lending of priority sectors of the economy. A tangible result had the implementation of the program of capitalization of banks through the Deposit Insurance Agency. Additional measures were taken to develop and strengthen the financial infrastructure.

3. The Donald Trump approach – a new reboot for the bilateral relationship?

During its campaign but also shortly after its election, the US president, Donald Trump, have repeatedly affirm its willingness to achieve a better relation with the Russian Federation. Along the way, Trump has consistently argued that the Russian Federation can be a strong ally rather than a strategic adversary. Many analysts have even speculated a possible renunciation of the imposed sanctions. But is it possible such a scenario? And moreover, can it be enforced? Besides the fact that any move for lifting the sanctions would be controversial (especially from the point of view of US main allies – the EU and Canada), it could also be difficult if not impossible to put in practice.

In case if the US president, Donald Trump, decides to lift the sanctions he has several possibilities to do it.

Firstly, he may enact or revoke certain adopted executive orders by his own decree, i.e. the cancellation of executive orders of their predecessors could be carried out by the issuance of a new directive and does not require the approval of the congress. Secondly, Donald Trump could put into action its decisions through the congress. Republicans retained a majority in both houses of the US Congress after the elections and were thus enabled to make the necessary changes to US legislation[6]. Thirdly, he can revoke Obama's legislative initiatives by appointing in government agencies and in the judiciary system key people who share his political views.

The most feasible possibility of lifting the sanctions against the Russian Federation remains the first one - cancellation of executive orders adopted by Barack Obama. However, a part of the sanctions is prescribed in the law on Ukraine's Support[7], which was adopted by the Congress and signed by Obama in December 2014. Without the consent of the Congress, Donald Trump cannot abolish the sanctions prescribed in this law.

Regarding the reliance on the US Congress to pass a decision on lifting the sanctions is less feasible, in conditions of a real concern of the Congress related to the cancellation of executive orders by Donald Trump. The US senators proposed a bill on “comprehensive” sanctions against Russian officials and foreign companies in January 2017[8]. They tried to give the force of law to the four executive orders of the US President Barack Obama on sanctions against Russia. To become law, the bill would have to pass both houses of Congress and be signed by the President. Thus Donald Trump has to face the Republican Party’s consensus that sanctions should be strengthened.

The third possibility concern the US Supreme Court. Considering that the Supreme Court is the institution that can abolish presidential executive orders, one of the current Donald Trump’s moves in this direction is the nomination of the Judge Neil Gorsuchon for one of the nine seats of the Supreme Court, which could theoretically give a chance to Trump to influence the decisions of the Court.

4. Three scenarios for the future of USA – Russian Federation relationship

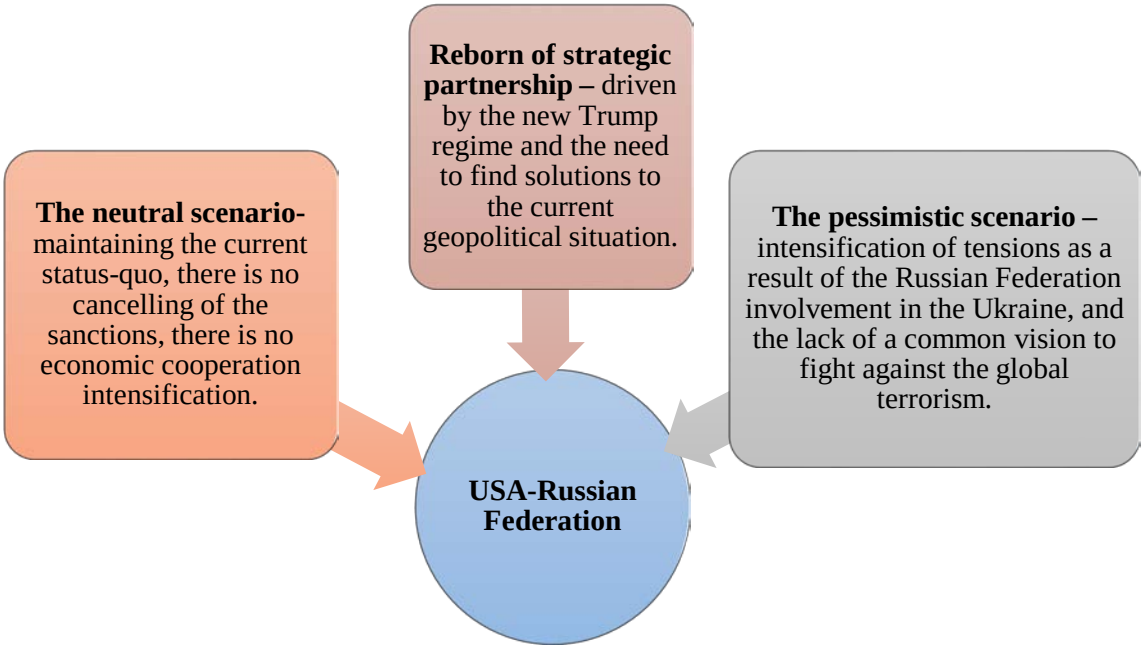
Based on our analysis we believe that there are three possible scenarios for the future of USA – Russian Federation relationship: the neutral scenario (with the maintaining of the current status-quo), the reborn of strategic partnership and the intensification of present tensions (the pessimistic scenario) (Figure 8 – the scenarios explained).

[6] After the elections in the Senate, the Republicans have 52 votes out of 100, and in the House of Representatives - 241 out of 435 seats.

[7] Support for the Sovereignty, Integrity, Democracy, and Economic Stability of Ukraine Act of 2014.

[8] The bill imposes sanctions in response to cyber intrusions by the Government of the Russian Federation and other aggressive activities of the Russian Federation.

Figure 8: Three scenarios for the USA – Russian Federation future relationship



Source: Author's representation

The first scenario, the neutral approach with the maintaining of current status quo, is less advantageous while the economic losses of both countries go on, and no improvement in the Ukraine situation is achieved, is a zero gain for both parties.

In our opinion, considering the change of political regime in the US, which is not such antagonistic to the Russian Federation, a soft alliance is possible and a tension release could take place, leading to **the second scenario – the reboot of strategic partnership**. However, for achieving a thaw in the bilateral relationship the situation in Ukraine should shift in a direction more conducive to compromise. Such evolution might occur by means of a growing rift between President Petro Poroshenko and Prime Minister Arseniy Yatsenyuk, resulting in the collapse of the ruling coalition, and a new Ukrainian government more conciliatory toward the Donbass. If the EU would terminate most of its sanctions in 2017, the USA could follow soon after, even if, as we have shown, it could be a difficult process needing the support of the Congress.

The third scenario, that we have named the pessimistic one, presupposes a growing division among the USA and the Russian Federation, with the conflict in Eastern Ukraine remaining unsolved and risking to become a "frozen" one. We believe that this scenario is less plausible while the USA continues to shift resources to Asia, and finds it difficult to build a coalition to balance against the Russian Federation. Presently, the new elected US President Donald Trump, is forced to choose between the Russian Federation and China, with the US military budget not allowing to work against both emerging powers simultaneously. Moreover, a situation of new Cold War will not be beneficial for neither of the two countries. While the Donbass conflict could effectively become the latest and largest "frozen conflict" in the post-Soviet space, this will not lead to renewed stability or normalization.

5. Conclusion

It is our opinion that the image of the Russian Federation as a weak and a withdrawn from the international arena's country as a consequence of imposed sanctions is not an accurate one, while it has great resources, and the political force necessary to find solutions to the current economic challenges. While it cannot be denied that national economy is shrinking and the population's poverty is increasing, the Russian Federation may not be forced to retreat from Ukraine, as long as the country owns some redoubtable policy toolkit that may undermine the international alliance's cohesion: cyber operations, economic boycotts, monopolistic position on the energy markets in Europe. However, to continue to maintain the "frozen" relations with the USA may prove to be an extremely unpractical approach for the Russian authorities due to the high risk of a liquidity crisis (so far the sanctions had a severe impact on Russian currency due to the restricted access to the international financial markets, also determining a decline in investors' confidence) since financial sanctions already affected not only state owned companies but, through a

domino effect, the private sector as well. Under these circumstances the question arises: is it appropriate to continue maintaining those economic sanctions that are politically ineffective? To this question it is hard to offer a simple answer. Our analysis has proven that the economic sanctions are costly for both parties with little or none result in restoring the former status-quo in Ukraine. Taking into account the mutual economic risks in preserving the current status-quo a new reboot of the bilateral relationship may be necessary. While the President Trump seems to favor such approach, some of the US Congress members are trying to transform Obama's presidential orders into law. Such development will make very difficult for President Trump to denunciate some of these sanctions. However, despite traditional adversities, a more relaxed USA – Russian Federation relationship remains crucial for the global equilibrium in a much tensioned international environment. Moreover, if anti-Russian sanctions are extended, the Russian Federation could try to reinforce its alliance with China, even if Beijing hesitates an open alliance due to its economic relations with the USA and Europe. Ultimately, by maintaining the present status-quo none of the two countries achieve their goals on the international arena, with China emerging as a possible winner while the USA and the Russian Federation are focusing on mutual sanctions.

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Appendix 1. Timeline of US sanctions against the Russian Federation

Date	Description of sanctions
6/03/2014	Issuance of the Executive Order (E.O.) 13660 and declaration of a national emergency to deal with the threat posed by the actions and policies of certain persons who had undermined democratic processes and institutions in Ukraine.
16/03/2014	Issuance of the E.O. 13661 that blocks the property and interests in property of individuals and entities listed in the Annex to this E.O.
20/03/2014	Issuance of the E.O. 13662 to further expand the scope of the national emergency declared in Executive Order 13660 and expanded by Executive Order 13661. It authorizes the imposition of sanctions on certain entities operating in specified sectors of the Russian Federation economy (sanctions target 16 Russian Government officials and Bank Rossiya).
28/04/2014	Commerce Department announces expansion of export restrictions on Russia. According to it the Department will deny pending applications for licenses to export or re-export any high technology item to Russia that contribute to Russia's military capabilities.
8/05/2014	OFAC issued a set of regulations to implement E.O. 13660, E.O.13661, and E.O. 13662
16/07/2014	Announcement of Treasury Sanctions on entities within the financial services and energy sectors of Russia, against arms or related materiel entities, and those undermining Ukraine's sovereignty. Actions implement E.O. 13662. • Treasury imposed sanctions that prohibit U.S. persons from providing new financing to 2 major Russian financial institutions (Gazprombank OAO and VEB) and 2 Russian energy firms (OAO Novatek and Rosneft), limiting their access to US capital markets. It has not blocked the property or interests in property of these companies, nor prohibited transactions with them. • Treasury designated and blocked the assets of 8 Russian defense firms.
29/07/2014	Announcement of additional Treasury sanctions on Russian financial institutions and on a defense technology entity • Treasury imposed sanctions that prohibit US persons from providing new financing to 3 major Russian financial institutions (Bank of Moscow, Russian Agricultural Bank, and VTB Bank OAO), limiting their access to US capital markets. • Treasury has designated and blocked the assets of a state-owned defense technology firm (United Shipbuilding Corporation).
12/09/2014	Announcement of expanded Treasury sanctions within the Russian financial services, energy and defense or related materiel sectors. The US Department of the Treasury extended targeted financial sanctions to Russia's largest bank, deepened existing sanctions on Russian financial institutions, expanded sanctions in Russia's energy sector, and increased the number of sanctioned Russian entities in the energy and defense sectors: • Treasury has imposed sanctions that prohibit transactions by US persons or within the USA involving new debt of greater than 30 days' maturity issued by Rostec, a major conglomerate that operates in the defense sector. Treasury has designated and blocked the assets of 5 Russian state-owned defense technology firms. • Treasury has prohibited US persons providing equity or certain long-term debt financing. In addition, have tightened the debt financing restrictions by reducing from 90 days to 30 days the

	maturity period for new debt issued by the 6 Russian banks (Bank of Moscow, Gazprombank OAO, Russian Agricultural Bank, Sberbank, VEB, and VTB Bank) • Treasury has imposed sanctions that prohibit the exportation of goods, services (not including financial services), or technology in support of exploration or production for Russian deepwater, Arctic offshore, or shale projects that have the potential to produce oil, to 5 Russian energy companies – Gazprom, Gazprom Neft, Lukoil, Surgutneftegas, and Rosneft – involved in these types of projects. • Treasury has imposed sanctions that prohibit financing or other dealings in new debt of greater than 90 days maturity issued by 2 additional Russian energy companies – Gazprom Neft and Transneft.
19/12/2014	Issuance of the E.O. 13685 for additional steps to address the Russian occupation of the Crimea region of Ukraine. E.O. 13685 prohibits the exportation or importation of any goods, services, or technology to or from the Crimea region of Ukraine, and prohibits new investment in the Crimea region of Ukraine by a US person, wherever located.
4/03/2015	Extension of the national emergency declared in E.O. 13660 for a year.
11/03/2015	OFAC updated the Specially Designated Nationals List with 14 individuals and 2 entities**:** Eurasian Youth Union, Russian National Commercial Bank (RNKB OAO).
10/08/2015	OFAC updated the Specially Designated Nationals List with 11 individuals and 15 entities**, foreign subsidiaries of VEB, Rosneft and other energy companies located outside Russia.**
22/12/2015	OFAC updated the sectoral list with **foreign subsidiaries of VTB, all Sberbank entities,** non-government pension funds of Sberbank and VTB, Online payment service "Yandex-money", several Russian defense companies, included in the structure of state corporation Rosteh.
2/03/2016	Extension of sanctions for a year against the Russian Federation.
1/09/2016	Deploying sanctions on a number of 46 subsidiaries of "Gazprom", companies of the Sovraht-Sovmortrans group, as well as a number of Russian shipbuilding plants and individuals.
6/09/2016	The US Department of Commerce expanded the sanctions list with 11 new Russian companies.
20/12/2016	Expanding anti-Russian sanctions. The list was replenished by 7 individuals, 8 organizations and two tankers "Marshal Zhukov" and "Stalingrad". Restrictions have been specified with regard to Novatek, which is already under sanctions (the document lists all its 26 subsidiaries).

Source: Author's representation based on studied literature and legislation.

Appendix 2. Timeline of the Russian Federation's sanctions against the USA

Date	Description of sanctions
20/03/2014	Ministry of Foreign Affairs of the Russian Federation imposed travel bans for 9 officials and members of the US Congress.
28/03/2014	Moscow took counter mirror measures to expanded sanctions lists of the United States officials (60 individuals).
7/08/2014	Moscow limited for a year imports of agricultural products, raw materials and food: beef, pork, fruit, poultry, cheeses and dairy products, nuts and other products. Later the list excluded goods, which are difficult to be replaced by the Russian Federation.
11/08/2014	The government of the Russian Federation restricted state acquisitions of foreign light industry goods (foreign fabrics, outerwear and overalls, leather clothes, underwear, footwear, fur products and others).

24/06/205	Extension for a year of special economic measures against the USA, introduced by the presidential decree of August 6, 2014. The response was extended from August 6, 2015 to August 5, 2016.
6/08/2015	According to The Decree of the President of the Russian Federation of July 29, 2015, agricultural products gotten on the territory of Russia under sanctions will be destroyed directly on the border.
27/05/2016	Russia excluded from the list of food embargoes meat and vegetables used for the production of baby food.
29/06/2016	Vladimir Putin extended the food embargo imposed in response to Western sanctions from August 6, 2016 to December 31, 2017.

Source: Author's representation based on studied literature and legislation.

The Challenges of the Industry 4.0

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***Abstract**: After the crisis EU has launched an ambitious reindustrialization policy to regain its competitive position and to stimulate its economic growth. Last year at the Davos Summit Klaus Schwab - WEF founder and executive president - promoted the concept and debates related to the fourth industrial revolution which involves rapid changes, many domains, great shifts and huge risks and will have a powerful economic and social impact.*

***Keywords**: industrial revolution, revolutionary technologies, deindustrialization, social impact, unemployment, education*

JEL Classification: J 23, L 15, L16, L 52, N 60

1. Introduction

Klaus Schwab, WEF founder and executive president, has launched the concept of the fourth industrial revolution (Industry 4.0) which was much debated in Davos last year, and afterwards, with the contribution of many participants from business sector and civil society. For Klaus Schwab the first industrial revolution which started in 1784 was based on steam, water and mechanical production equipment, the second which started in 1870 on division of labour, electricity and mass production, the third which started in 1969 on electronics, IT, automated production and the fourth which is starting now is based on cyber-physical systems. *The current revolution has a high speed and is evolving at an exponential rather than a linear pace, is disrupting almost every industry in every country and is deeply transforming the systems of production, management, and governance.* Due to the artificial intelligence, robotics, the Internet of Things, autonomous vehicles, 3-D printing, nanotechnology, biotechnology, materials science, energy storage, and quantum computing people may be connected and may interact very easy, while digital fabrication technologies are interacting with the biological world.

The Fourth Industrial Revolution may raise global income levels and improve the quality of life for many people worldwide. On demand side consumers will have access to the digital world and will benefit from new products and services with a higher economic efficiency provided by the new revolutionary technologies. On supply side long-term gains in efficiency and productivity are foreseen due to the drop of the costs of transportation, communication and trade and also due to more effective logistics and global supply chains, all providing an easier access to world markets.

But what are the potential risks and the social impact of the fourth industrial revolution? Authors like Erik Brynjolfsson and Andrew McAfee who published two interesting books on this matter, *Race Against the Machine* and *The Second Machine Age* were not the first to support the idea that new technologies may lead to higher unemployment also rising social inequality. John Maynard Keynes, the father of macroeconomics, used the term "technological unemployment" in the 1930s predicting that the displacement of workers by machines will lead to shorter workweeks and increased leisure. Some economists thought that globalization and technology progress could lead to the creation of "superstar" or "winner take all" labour markets. One cannot deny the strong impact of these revolutionary technologies on labour market and Klaus Schwab is right when he underlines *that automation substitutes labour across the entire economy on a large scale and the net displacement of workers by machines might exacerbate the gap between returns to capital and returns to labor.* Three essential aspects must be taken into account: the first is the need for a rapid reorientation of education systems from industrial skills to service needs, the second is related to the opportunities created by the new technologies for education and training while the third is related to the fact that talent, more than capital may represent the decisive factor of production thus on the job market low skills will be less paid while high skills will be much better paid, and this segregation may lead to an increase in social tensions.

The providers of intellectual and financial capital—the innovators, shareholders, and investors- are now in a much better position than the providers of labour force and that is why technological progress, deindustrialization and tax systems are the main culprits for the income stagnation in high-income countries where the demand for highly skilled workers has increased while the demand for workers with less education and lower skills has decreased. It is obvious the undermining of the middle class created by industrial revolution around the world which may lead to a serious weakening of the traditional democratic system.

Klaus Schwab sees four main effects of the Fourth Industrial Revolution based on combinations of technologies on business—on customer expectations, on product enhancement, on collaborative innovation and on organizational forms. While citizens are able to interact much more with their governments, the last ones will get new technological powers to increase their control over populations which means a setback for democracy. For more than two decades governments are under pressure from other actors involved in the governance process seeking to change and improve public policies. At the same time they are trying to improve policymaking and to diminish their central role, also redistributing and decentralizing their powers based on new technologies and on integration and globalization requirements. Due to rapid technological changes and their impacts brought by the Fourth Industrial Revolution legislators and regulators were facing great challenges but they were unable to cope with them successfully. Klaus Schwab points to the need of public *agile governance* after the example of private sector that was able to give quick and good responses to technological development and business evolution. For an adequate adaptation to the fast-changing environment governments and regulatory agencies must collaborate closely with business and civil society.

The Fourth Industrial Revolution will have a certain impact on the nature of national and international security, affecting both the probability, scale and nature of potential conflicts while recent advances in communication technologies have already created a great potential for terrorist activities but also for reducing the scale or impact of violence, through the development of greater precision in targeting.

The new technologies of the fourth industrial revolution may deeply affect people's life and profoundly change the economic, social, cultural, and human environments. Mankind is already facing a lot of crises and while traditional beliefs and values are strongly challenged the best parts of human nature—creativity, empathy, solidarity- must be preserved and protected in the face of the dehumanized forms brought by globalization and technological progress.

2. General Considerations on Industrial Revolutions

Many authors and studies have analysed the multiple aspects of industrial revolution, which started in the second part of eighteenth century with the invention of the steam engine, but there were the first two phases or revolutions between 1800 and 1950 that allowed the transition from a farming and feudal society to an industrial and capitalist one. But only after the second World War a truly democratic and prosperous capitalist society or so called welfare state was built in the Western World based on a rapid industrial expansion and on the creation of the middle class. After 1980 we may speak about a transition era to the post-industrial or services society, where labour force is released from physical activity and is focused more on creativity and innovation. But this last process was accompanied by a deindustrialization process in the most developed countries followed by the erosion of the middle class and by a rapid industrialization process in Eastern Asia where a large part of labour intensive industries were transferred. In the table no.1 we tried to present the four phases or cycles of industrial revolution that were defined by specific literature as the first, second, third, fourth industrial revolution. All those industrial revolutions have certain characteristics related to the predominance of some energy resources, technical/technological achievements with major effects on the economy and on the public transport developed or improved in time.

Table no.1. Main characteristics of industrial revolutions

Period	Transition period	Energy resource	Main technical achievement	Main developed industries	Transport means
I.1760-1900	1860-1900	Coal	Steam engine	Textile, Steel	Train
II.1900-1960	1940-1960	Oil, Electricity	Internal combustion	Metallurgy, Auto, Machine	Train, Car

			engine	Building , Chemistry	
III.1960-2000	1980-2000	Nuclear Energy, Natural Gas	Computers, Robots	Auto, Petrochemicals, Pharma Industry	Car, Plane
IV.2000-	2000-2010	Green Energies	Internet, 3D Printer, Genetic Engineering	High Tech Industries	Electric Car, Ultra Fast Train

Source: Created by author based on specific literature

An author like Carlota Perez, professor of Technology and Development, Department of International Development, London School of Economics, has analysed the impact of technical changes and technological revolutions on society, business and the national and international economies and also the technological revolutions and techno-economic paradigm shifts and has identified 5 technological leaps, the last one, the fifth started in 1971 with microprocessor and we entered the information era. There are two phases for any leap, the first one is the **installation**-market entrance of technology and the second one is the **deployment** –penetration into economy. In the case of the fifth one there was created a stock bubble through massive investments between the two phases, followed by a collapse and a recession, and a period of transition. There were 2 bubbles, one in 2000 burst on Nasdaq of Dot.com and one in 2007/8, a financial one, both connected with innovations in high tech sectors and in financial derivatives. Now we are in the middle of the third bubble created by the governmental credit, or QE more precisely, targeting inflation level, these fund provided by central banks went more into financial assets than in the real economy. Perez thinks there is an overvaluation of stock assets that may bring severe corrections, we would be at a turning point in the deployment phase, the penetration of new innovations, as ICT and the financial innovations, into the world economy.

A well-known specialist in the field, Jeremy Rifkin, an adviser of the presidents of European Commission, published the book *The Third Industrial Revolution* in 2011 and he believes that the new phase or revolution is a true leap forward in the evolution of mankind, although it can also be seen as an extension of the second one. The third industrial revolution is conceived as a sustainable, post carbon economic era and has been endorsed by the European Union (by European Parliament in 2007) and by the United Nations and embraced by important world leaders. In Rifkin's vision the five pillars of the third industrial revolution are:

1) Passing from fossil fuels (carbon based) to renewable energies;
2) Conversion of the building stock of every continent into green micro-centrals to collect renewable energies onsite;
3) The use of hydrogen and other storage technologies in every building and entire infrastructure to store intermittent energy;
4) Using Internet technology to turn the electricity network on every continent into an Internet of Energy;
5) Moving to electric vehicles and fuel cells transport fleet, which may buy and sell green electricity on a smart and interactive grid at continental level.

Such an ambitious project could take place within some decades and it can be achieved only through a large international cooperation.

Banning Garrett, a well-known consultant and director of the Asia Program at the Atlantic Council of the United States and also director of the Strategic Foresight Initiative, working with the National Intelligence Council, analysed the features of the new industrial revolution that changes production mode, time and place of it, goods distribution; it is switching from mass production of standardized goods to specific products for personal needs; it drastically reduces the energy and raw materials consumption, also reducing the carbon footprint of production; but it affects social relations and people's relations to production. All these are possible thanks to recent strong development of information and communication technologies, artificial intelligence, 3D printing, genetic engineering, Internet of Things and synergy between technologies, machines and artificial intelligence. A striking dilemma is looming: there will be created more jobs and more prosperity, or it will increase the structural unemployment, the levels of income inequality and also social inequality?

It was the former prime minister of Great Britain David Cameron who advocated for Rifkin's ideas and implicitly for the new industrial revolution and emphasized the role played by the Internet of Things, a means

by which any ordinary object may send and receive data from other devices or from individuals through the Internet. IT companies such as Cisco, IBM, Siemens, are already involved in the creation of intelligent infrastructure for the Internet of Things

Other revolutionary technological changes involved by the Industry 4.0 are:

a. 3D Printer or Additive Manufacturing, a fully automated process, compared to subtractive manufacturing, by which there are made important savings of raw materials and energy and are produced a lot of articles such as shoes, jewellery, mobile phones, auto parts and aircraft parts, medical implants and batteries.
b. Advanced Materials, like carbon fibres, Kevlar fibres, special ceramics, plasmatic, metamaterials-composites, which provide superior performances at low costs.
c. KET's, like photonics, nanotechnology, micro and nano-electronics, biotechnology, genetic engineering, which represent high tech sector and allow the manufacture of special products with exceptional qualities.
d. Modular Car Production that allows the delivery of all models on the same production line.

Yves Smith (Susan Webber) with *Naked Capitalism* blog calls on the lessons offered by history and it is better to learn from them and not to repeat the big mistakes made by humanity. She identified five pillars for a stable society: Food, Security, Health, Prosperity and Knowledge. There is a transitional period between two industrial revolutions (one can see this in the table no.1) and at the end of each transition Prosperity pillar is threatened, due to the high levels of unemployment, which may lead to a world war and this was seen after the first two industrial revolutions. Prosperity pillar of human society is in danger now that humanity is facing a potential food crisis as a result of global warming, a lot of health and safety issues, a serious increase in unemployment and the fall of Prosperity pillar will probably lead to a new industrial revolution. But we cannot predict the World War III, despite opinions saying that the war against terrorism would be such a phenomenon. Nowadays human society is trying to avoid such a horrible conflict and promote a new industrial revolution in order to ensure the objective of a sustainable economic development based on the Knowledge pillar, but global problems largely remain unresolved and their adverse consequences will persist over time.

3. Davos Presentations in 2016

3.1. Judith Magyar from SAP Community Networks presented the forecasts for 2025 from Technology and Societal Impact Tipping Points Report (September 2015), that foresee a major role played by the Internet through hyper-connectivity and Internet of Things, leading to a new cycle of global economic activity focused on sustainable solutions that can lead to a reduced dependence on fossil fuels.

3.2. Gary Coleman from Deloitte Consulting envisages that from 4.9 billion objects connected through the Internet of Things in 2015 one may reach around 25 billion in 2020 and leading technologies will double their value, over $ 85 billion in 2019. Capital investments in the field of robotics and artificial intelligence have increased with more than 70% per year after 2011. In 2020 in the US only 30% of its 1.4 million computer specialists will be covered with indigenous college graduates, on the one hand we will see increased unemployment for low and medium skilled workers, on the other hand we may have a scarcity of highly qualified employees

3.3. Mary Barra, CEO General Motors, insisted on the remarkable technical achievements recorded in automotive industry where in the next 10 years technological progress will be more spectacular than in the last 50 years. Interconnected cars, electronically controlled and powered by multiple energy sources, equipped with cameras, radars and sophisticated sensors will allow an increased security on several levels. Connectivity technologies, like OnStar System of General Motors, introduced in 1996, is meant to respond quickly to customer requests. GM is a pioneer in the field of 4G wireless connectivity (2 million vehicles). V2V System (vehicle to vehicle communication) will reduce by 80% the number of road accidents in the US. V2I System or Connectivity (vehicle to infrastructure communication).Automated (driverless) vehicles that can drive themselves, like Super Cruise (Cadillac) will widely proliferate.

3.4. Xavier Mesnard, partener at A.T. Kearney, showed that robots, artificial intelligence, 3D printer and other revolutionary technologies are threatening the jobs. He gives the example of Jeremy Rifkin and Martin Ford who predicted that automation will remove jobs. In US the share of employment in manufacturing industry has decreased from 25% in 1970 to 10% in 2014. The Future of Jobs Report covers 15 countries with 2/3 of the workforce level at world level in 2020. Robots will remove 7 million jobs (mostly in administration and offices) and only 2 million new jobs will be created, direct payments through Apple Pay will eliminate the cashiers, online services like LegalZoom may eliminate lawyers and notaries. Mesnard also mentioned the opinion of Carl Benedikt Frey and Michael A. Osborne who estimated that 47% of jobs in the US are in

massive distress because of the introduction of computers. Quick robotics implementation also threatens skilled workers jobs.

Mesnard was among the few speakers with a theoretical approach who raised the question of a challenging transition of Schumpeterian type (theory of creative destruction), as unlike other industrial revolutions that have created jobs the fourth industrial revolution does not show the same perspective, but the certainty that the professions will change in a way difficult to understand and accept. Many specialists do not take into account the exponential nature of digital technologies. The ubiquitous connection between people and machines, and data in real time, defining the fourth industrial revolution, would be governed by Moore's Law (doubling of performance/cost ratio at every 12-18 months). Impacts of the fourth industrial revolution are not limited to the manufacturing sector but may include all jobs related to knowledge and services, thereby inducing a much bigger challenge for society. The major risk is to face mass unemployment in a not too distant future for certain categories of workers, combined with lack of skills in other categories - and thus with major political and social implications of these imbalances.

3.5. **Anders Borg** - a Swedish economist and politician- insisted on the technological changes in the spheres of digital, connectivity, robotics and big data that may have a disruptive impact on the labour market and implicitly on tax revenues, tax labour income, VAT, public pension funds. Due to the negative impact on income distribution and on low income groups one must pay more attention to the education and re-education in order to avoid a high gap between incomes and pensions of high skill workers and low skill ones, and also between possibilities for providing an adequate healthcare for the poor and for the rich, for the young and for the old persons. Borg sees some serious challenges for the price stability and inflation rate due to the high impact of digitization on retail sales and also as a result of an evident trend for higher quality of goods and services. Borg thinks that the fourth industrial revolution would significantly rise the labour productivity which recorded a low increase after the crisis due to the low resource utilization and productivity may increase as a result of more capital and knowledge injected in the economy as there is a strong correlation between resource level and its utilization and productivity level, but one should take into account the situation of all resources.

3.6. Lisa De Propris, professor of Regional Economic Development, University of Birmingham, had a contribution to the debates with the article: *How the fourth industrial revolution is powering the rise of smart manufactures* published in June. She refers to Kondratiev's cycles based on the waves of technological change which radically revolutionise the techno-economic nature of economies. The four industrial revolutions may be associated with new technological waves, and one could see that old technologies cannot boost the economy and must be replaced by new technologies able to put forth new processes, new products and new services. Each technological wave imposes new resources and new ways of using them, modifies the organisation of production and creates new production sectors and new business opportunities.

Starting with the mid-1980s techno-economic system has changed under the impact of the new technologies like Internet, nanotechnology, bioscience, electronics, photonics, advanced materials and renewable energies which ensured a smart manufacturing and a symbiosis between traditional manufacturing and services, new producing sectors or upgraded old ones. Narrow market niches for personalised and customised products are developed based on customers' co-innovation or co-producing with the manufacturers. Small scale businesses depend now on digital communications and micro-factories are spreading everywhere with the support of 3D printing which permits to innovators and inventors to become producers and to connect directly with local and global markets. Smart manufacturing may redesign product supply chains by strategically integrating the local and the global joints. More sustainability is provided by reusing of resources, wastes, components, bio and natural products (circular economy).

3.7. Jennifer McNelly, executive director in the Manufacturing Institute, in an article published in July, sees a direct relation between innovation, competitiveness, increased income, a better quality of life and the progress of manufacturing sector, which instead of dying slowly in Western economies could still be the engine for the economic growth and for increasing the living standards. McNelly shows that for every dollar in final sales of manufactured products there is $1.33 in output of other sectors, manufacturing sector being the largest multiplier of any other related producing sector, because it contributes to the creation of jobs and growth in other industries. Supporting the manufacturing sector and also the whole economy in the context of the fourth industrial revolution implies three crucial factors: a focus on skills, continued innovation and technology, and more public-private partnerships. Under the research made by MI it was found that four years ago there was a deficit of 10 million highly skilled manufacturing jobs worldwide which could not be covered. Manufacturers have to train or recruit highly skilled workers and to pay more than the market rates for their skill and talent-driven innovation. Manufacturers must promote new technologies and sustain innovation and investments.

Public-private partnership may bring education system closer to industry standards and needs, so the policy makers should devise and implement education and job training policies that will strengthen and improve the manufacturing workforce.

3.8. Nouriel Roubini, professor at NYU's Stern School of Business and a well-known economist, published an article in Project Syndicate *Where are the gains from the golden era of innovation?* Roubini is quite annoyed as he hasn't seen a radical increase of productivity under the impact of new technologies, on the contrary after 2008 productivity growth in US, EU and Japan was very slow. Roubini has identified breakthrough innovations in 6 areas: ET (energy technologies), BT (biotechnologies), IT (information technologies: Web 2.0/3.0, social media, new apps, the Internet of Things, big data, cloud computing, artificial intelligence, and virtual reality devices), MT (manufacturing technologies: robotics, automation, 3D printing, and personalized manufacturing), FT (financial technologies), DT (defence technologies as drones and others). Roubini tries to explain why all these technologies have not led to a marked increase of productivity. Firstly, he mentioned the opinion of some technological pessimists that the recent innovations are much under the great innovations of the First and Second Industrial Revolutions, opinion which is highly questionable. Secondly, as new information-intensive goods and services are hard to measure and their output is difficult to commensurate, the productivity growth is not easy to calculate. Thirdly, there is always a lag between innovation and productivity growth, the first Internet revolution impacted upon productivity of the whole economy after many years. Fourthly, one may blame aging population in USA, EU, Japan, Russia, China coupled with lower investments in physical capital for the low economic growth and productivity. Roubini offers maybe the best explanation: *persistent cyclical downturn or weak recovery may reduce potential growth because workers remained unemployed for too long, losing their skills and thus depreciating human capital and because technological innovation is embedded in new capital goods, low investments leading to permanently lower productivity growth.* We may add the impact of liquidity trap upon investments, due to reduced demand and due to the lack of trust on behalf of investors, consumers, markets. Roubini recognizes the difficulty of finding plausible explanations for the slow productivity growth and condemns recent populist tirades against free trade, globalization, migration, and market-oriented policies.

4. Conclusions

Eduardo Porter, a New York Times journalist, published an article with the title *The Mirage of a Return to Manufacturing Greatness.* Research and technological modernization, which have increased more the productivity and reduced the labour force, came into collision with the interests of the unions and professional bodies because productivity growth has far exceeded the growth in demand for processed products. The dramatic consequences in terms of unemployment led to silly political reactions: Donald Trump wants high tariffs on imports, Hillary Clinton wants limitations for investments of US corporations outside US, but no such measure will bring recovery in the US manufacturing sector, on the contrary, this may become less competitive. The share of the workforce in this sector fell almost 3 times since 1950. Agriculture + manufacturing sectors hold together around 12% of the workforce in USA.

Restraining the labour force and the share of manufacturing sector in GDP is an issue at global level. Japan's stagnation for over two decades is explained by the excessive dependence of this country on manufacturing sector and on exports to foreign markets. Deindustrialization has also been associated with the development of some services with well-paid labour force, like those of recreation, health, Internet. In US it has forced many workers to enter low paid jobs, such as those in retail and services poorly paid, but what will happen in India where income is only 1/25 of US and where industry has already come at its peak. Dani Rodrik, an expert in global economy at Harvard's Kennedy School, argues that developing countries, including China, are undergoing a premature deindustrialization, at low income levels and with a middle class still passing through a consolidation process.

Deindustrialization is a painful blow for the poor countries from Asia, Africa and Latin America. Manufacturing sector could quickly hire unskilled workers and export a large part of production, but many poor countries export only raw materials, with low added value, subject to high price fluctuations. They have neither developed manufacturing and financial services nor well paid Internet services, instead remained focused on domestic services, retail sales (crafts) and other services that cannot remove poverty persisting in these states. In Western World it took place the transition from agriculture to industry in the first half of the twentieth century. The current transition initiated in the 80s from manufacturing sector to services is more problematic. Low wages for workers coupled with large corporate profits for most services accentuated income inequality,

hence the nostalgia for industry, which has brought prosperity and endorsed the creation of the middle class, but whose rebirth seems quite impossible.

Reindustrialization must be thought in terms of qualitative not quantitative development but it cannot solve just it the job crisis. In EU reindustrialization is based on promoting KET's such as advanced materials, nanotechnology, micro and nano-electronics, biotechnology, photonics, advanced production systems, on the existence of complete industrial eco-systems based on strict and intelligence specialization, on clusters (supported also on the research and technological innovation centers, universities, business incubators), on the industrial parks and innovative hubs, on the Europeanization of value chains. In USA the focus is put on education, research and innovation, medical sector, green energy. In Japan are required significant changes in industrial structures (keiretsu) and in practices of corporate governance, SME's are excessively oriented within keiretsu structures, start-ups have a small role in business activities, competition is too high in some sectors, the government adopted after 2000 some laws and strategies to revitalize the industry.

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Romania Industrial Competitiveness and China-Romania Cooperation

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Abstract: *The paper applies the model of Revealed Comparative Advantages (RCA) developed by Bela Balassa, uses data from UN COMTRADE database, and calculates RCA index for 7 broad industry sectors and 28 industries (at more detailed level) for both Romania and China. Based on the RCA indices, the paper further analysis what are the industries with more advantages in Romania and in China. Starting from the results of the comparative analysis, the article tries to derive some conclusions for future China-Romania cooperation.*

Keywords: *Romania, Revealed Comparative Advantage (RCA); China-Romania cooperation*

1. Introduction

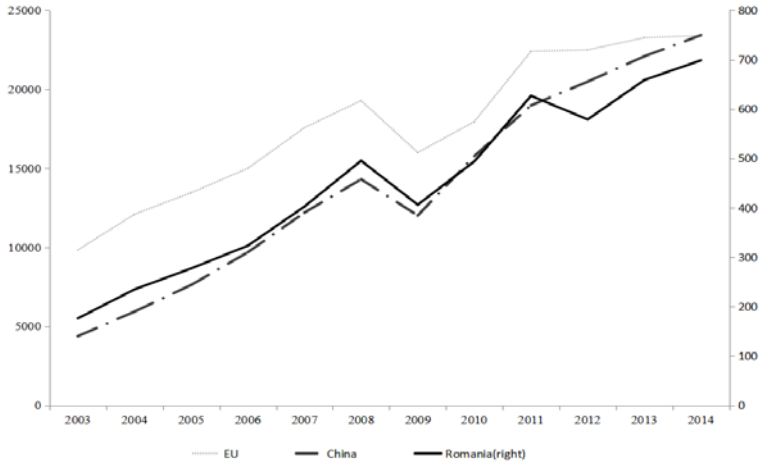
A country's factor endowment structure determines the relative labor productivity of the domestic industry, which reflects the level of industrial competitiveness (Ricardo, 1951). Therefore, it is necessary to carry out the analysis of the industrial structure at a broader level looking at the factor endowments (Ohlin, 1933), in order to highlight the current industrial competitiveness of Romania. For the assessment of Romania's industry and industrial competitiveness, we have used the Revealed Comparative Advantage (RCA) approach (Balassa, 1965). The analysis of industrial sector has been conducted first at a broader level (7 categories), and then move to a more detailed level, combining 28 industrial sectors and 9 service sectors.

2. Analysis of competitiveness of broad industry sectors

2.1. Overview of gross industrial export

The mainstream domestic and foreign researches have always viewed the relative export level of the industry as a measure of industrial competitiveness. Therefore, it is necessary to make a comparative quantitative analysis of the various industries' export developments of in Romania, the EU and China, and to highlight the Romanian industrial characteristics. Fig.1 shows the statistical chart of the gross industrial export in Romania, the EU and China over the 2003-2014 period.

Fig. 1 Statistical chart of exports of the industrial sector (hundred million USD)



Source: computed based on UN Comtrade database..

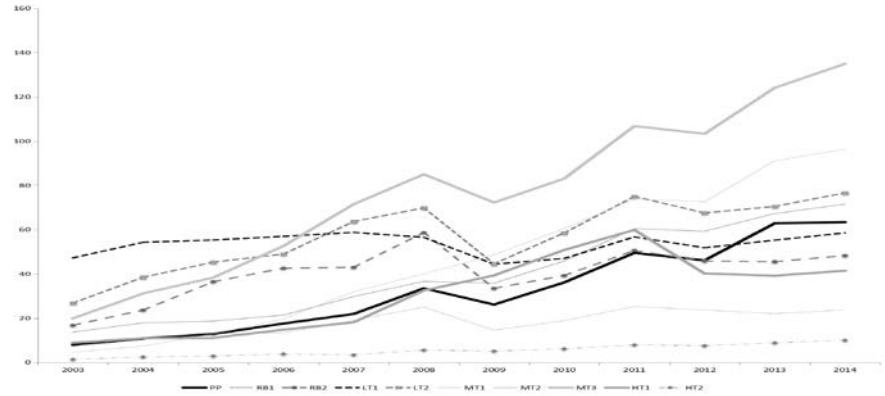
In terms of gross export value of the industrial sector, Romania, the EU and China registered an upward trend, with a drop in 2009, due to the world financial crisis and the debt crisis in Europe, but in recent years, with the smooth recovery of the world economy, the industrial exports reach the highest level in history. The gross exports of Romania, the EU and China have increased from USD 17.618, USD 983.918, USD 438.227 billion respectively, in 2003, to USD 69.877, USD 2339.709 and USD 2342.343 billion dollars, in 2014, with the average annual growth rates of 13.34%, 8.19% and 16.46% respectively. The industrial sector export growth rate of Romania is slightly lower than China's, but significantly higher than that of the overall EU, indicating that its industrial competitiveness within the EU is gradually emerging. In recent years, with the rapid development of some industries in Romania, the competitiveness has improved, and its export of the industrial sector shows a catch-up trend, growing as compared to the previous year by 13.77% in 2013 and by 6.06% in 2014 (compared to 3.38%, respectively 0.57% for the EU, for the same years).

2.2. Analysis of the export structure by broad industry sectors

The industrial structure is classified and analyzed through the difference in the industrial production factors and technical content. According to the production factors and technology content (Lall, 2006), the industries are classified into: **primary industry** (**PP**), **resource-intensive industry** (agriculture and forestry, **RB1**; other resource-intensive industries, **RB2**), **labour-intensive industry** (textile industry, **LT1**; other labour-intensive industries, **LT2**), **capital - intensive industry** (motor vehicle, **MT1**; processing industry, **MT2**; engineering industry, **MT3**), **technology-intensive industry** (electronics and electrical industry, **HT1**; other high-tech industries, **HT2**).

Fig.2 illustrates the industrial export structure of the Romanian industry in this broader classification. The Romanian industrial exports are more widely distributed, but they are mainly focused on capital-intensive and labour-intensive industries. Among them, the export scale of capital-intensive industry represented by China's technical engineering products is the largest (USD13.491 billion in 2014), followed by the motor vehicles (USD 9.632 billion in 2014) and other labour-intensive products (USD 7.662 billion in 2014). The growth of China's export of technical engineering products is the fastest (USD 13.491 billion in 2014), but the export scale of technology-intensive industry and China's technology processing industry is relatively small (USD 1.001 billion and USD 2.371 billion in 2014).

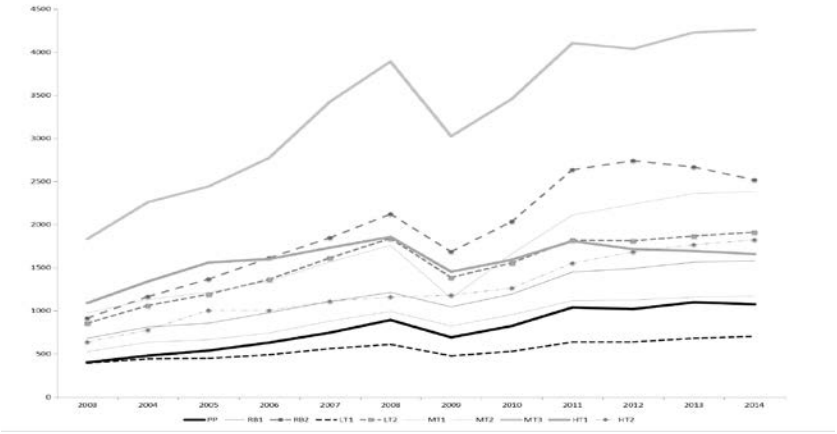
Fig. 2 Romania's export structure, by broad industry sectors (hundred million USD)



Source: computed using UN Comtrade database.

EU (Fig.3) is similar to Romania. In the broader classification for the industrial sector, the export scale of China's technical engineering industry and motor vehicle industry is relatively large, the primary products are moderate and the export scale of textile industry is relatively small. However, the technology-intensive industry with the smallest scale in Romania occupies a relatively high share in EU's industrial structure.

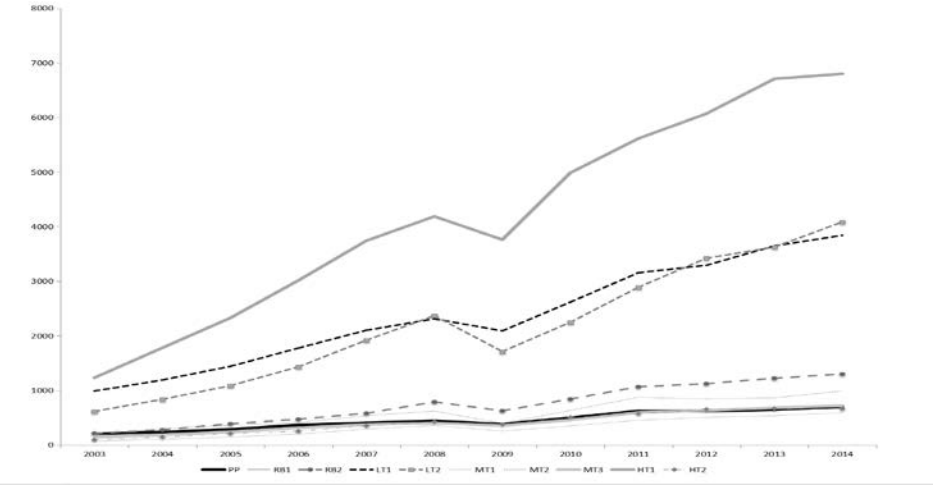
Fig.3 EU's export structure, by broad industry sectors (hundred million USD)



Source: computed based on the UN Comtrade database

China's export structure of industry in the broader classification (Fig.4) is widely different from that of Romania. In China, the export scale of electronics and electrical industry is the largest, while China's technical engineering industry and motor vehicle industry occupies a smaller share in the total export of the industry. It is worth mentioning that the scale of electronics and electrical industry is the smallest in the Romanian industrial structure, while the scale of China's technical engineering industry and the motor vehicle industry is the largest in the export structure of Romanian industry. From the point of view of export structure, the industries of the two countries have certain complementarities.

Fig. 4 China's export structure, by broad industry sectors (hundred million USD)



Data source: computed based on the UN Comtrade database

2.3. Analysis of comparative advantages of broad industry sectors

After investigating the industrial export structure of Romania, we continue the analysis by employing the Revealed Comparative Advantage (RCA) method in order to identify the comparative advantages of Romanian broad industry sectors vis-a-vis the EU and China. Revealed Comparative Advantage is a method used by the American economist, Balassa (1965) to measure the comparative advantages of trade in a country (area) in a certain class of goods or services, as evidenced by trade flows. In case of the analysis at industry level, RCA is represented by the ratio of the share of industry's export of the country to the share of the industry in the world trade, excluding the effect of aggregate national fluctuations and aggregate world fluctuations, which can better reflect the relative advantages after comparison with the export of a certain industry in a country and the world's average export level.

As shown in Table 1 below, according to the index of comparative advantages of Romania, the broad industry sectors with comparative advantages are ranked as following: agriculture and forestry (1.67), labour-intensive industry (LT1 and LT2 are respectively 1.76 and 1.20), motor vehicle industry (1.86), China's

technical engineering industry (1.53). The high-tech industry has the largest comparative disadvantage (HT1 and HT2 are respectively 0.44 and 0.36). The index of comparative advantage of technology-intensive industry is below 0.5, suggesting a significant comparative disadvantage of this branch. Overall, Romania has obvious competitive advantages in resources, labour and capital-intensive industries, but it lacks competitiveness in technology-intensive industry.

Table 1. Revealed comparative advantages (RCA) of broad industry sectors in Romania

	PP	RB1	RB2	LT1	LT2	MT1	MT2	MT3	HT1	HT2
2003	0.36	**1.16**	1.27	**4.70**	**1.72**	**0.28**	0.81	0.83	0.33	0.21
2004	0.37	**1.19**	1.23	**4.38**	**1.81**	**0.35**	0.90	0.97	0.30	0.28
2005	0.34	**1.10**	1.46	**3.98**	**1.81**	**0.54**	0.89	**1.04**	0.26	0.28
2006	0.35	**1.14**	1.43	**3.69**	**1.69**	**0.75**	0.85	**1.25**	0.30	0.31
2007	0.37	**1.24**	1.13	**3.12**	**1.69**	**0.95**	0.93	**1.33**	0.32	0.23
2008	0.41	**1.28**	1.13	**2.68**	**1.53**	**1.08**	0.97	**1.32**	0.52	0.31
2009	0.44	**1.40**	0.86	**2.31**	**1.23**	**1.82**	0.73	**1.37**	0.70	0.33
2010	0.47	**1.55**	0.76	**2.10**	**1.39**	**1.76**	0.76	**1.33**	0.74	0.34
2011	0.48	**1.59**	0.71	**2.04**	**1.40**	**1.72**	0.79	**1.37**	0.76	0.36
2012	0.48	**1.71**	0.70	**2.07**	**1.34**	**1.78**	0.82	**1.44**	0.54	0.35
2013	0.58	**1.70**	0.61	**1.84**	**1.25**	**1.96**	0.69	**1.55**	0.46	0.36
2014	0.65	**1.67**	0.64	**1.76**	**1.20**	**1.86**	0.69	**1.53**	0.44	0.36

Source: computed using UN Comtrade database.

Note: The RCA values in bold indicate "comparative advantages".

As shown in Table 2 below, the list of industrial sectors with comparative advantages in EU includes not only agriculture, forestry and capital-intensive industries, for which Romania has also comparative advantages, but it also includes high-tech industry, for which Romania has a disadvantage (HT2, 1.95).

Table 2 Revealed comparative advantages (RCA) of broad industry sectors in the EU

	PP	**RB1**	**RB2**	**LT1**	**LT2**	**MT1**	**MT2**	**MT3**	**HT1**	**HT2**
2003	0.33	**1.04**	**1.23**	0.70	0.98	**1.07**	**1.04**	**1.37**	0.71	**1.69**
2004	0.31	**1.05**	**1.18**	0.69	0.97	**1.05**	**1.00**	**1.37**	0.72	**1.69**
2005	0.29	**1.04**	**1.12**	0.66	0.98	**1.05**	**0.96**	**1.36**	0.76	**2.01**
2006	0.27	**1.12**	**1.17**	0.68	1.02	**1.10**	**1.01**	**1.42**	0.71	**1.78**
2007	0.29	**1.06**	**1.11**	0.68	0.98	**1.07**	**0.99**	**1.46**	0.71	**1.67**
2008	0.28	**1.09**	**1.05**	0.74	1.03	**1.22**	**0.99**	**1.56**	0.76	**1.67**
2009	0.30	**1.04**	**1.10**	0.63	0.97	**1.09**	**1.05**	**1.46**	0.66	**1.92**
2010	0.30	**1.11**	**1.09**	0.65	1.01	**1.33**	**1.06**	**1.52**	0.64	**1.91**

2011	0.28	**1.07**	**1.04**	0.64	0.95	**1.37**	**0.97**	**1.47**	0.64	**1.99**
2012	0.28	**1.11**	**1.08**	0.65	0.93	**1.41**	**1.00**	**1.45**	0.60	**2.01**
2013	0.29	**1.12**	**1.02**	0.64	0.94	**1.44**	**1.03**	**1.49**	0.56	**2.02**
2014	0.33	**1.10**	**0.99**	0.63	0.89	**1.37**	**1.02**	**1.45**	0.52	**1.95**

Source: computed using UN Comtrade database.

Note: The RCA values in bold indicate "comparative advantages"

Table 3: Revealed comparative advantages (RCA) of broad industry sectors in China

	PP	**RB1**	**RB2**	**LT1**	**LT2**	**MT1**	**MT2**	**MT3**	**HT1**	**HT2**
2003	0.38	0.49	0.65	**3.95**	**1.58**	0.17	0.84	0.24	**1.81**	0.56
2004	0.31	0.49	0.58	**3.80**	**1.56**	0.20	0.96	0.23	**1.94**	0.64
2005	0.27	0.51	0.56	**3.77**	**1.58**	0.22	0.92	0.24	**2.01**	0.75
2006	0.25	0.55	0.53	**3.84**	**1.65**	0.25	0.88	0.25	**2.06**	0.69
2007	0.23	0.52	0.50	**3.69**	**1.68**	0.29	0.87	0.23	**2.20**	0.77
2008	0.18	0.49	0.53	**3.79**	**1.79**	0.33	0.84	0.22	**2.32**	0.82
2009	0.22	0.47	0.54	**3.69**	**1.60**	0.32	0.67	0.23	**2.26**	0.82
2010	0.20	0.48	0.51	**3.67**	**1.67**	0.32	0.80	0.23	**2.27**	0.88
2011	0.20	0.52	0.50	**3.75**	**1.78**	0.35	0.90	0.25	**2.35**	0.87
2012	0.18	0.52	0.48	**3.71**	**1.92**	0.35	0.82	0.25	**2.31**	0.86
2013	0.18	0.51	0.49	**3.62**	**1.92**	0.34	0.81	0.25	**2.34**	0.80
2014	0.21	0.50	0.51	**3.44**	**1.91**	0.34	0.86	0.24	**2.15**	0.71

Source: computed using UN Comtrade database.

Note: The RCA values in bold indicate "comparative advantages"

As shown in Table 3 above, China has a comparative advantage in the labour-intensive industry and the electronics and electrical industry (HT1, 2.15). Economic and trade cooperation between Romania and China can effectively compensate Romania’s disadvantage of electronics and electrical industry, while the advantages of Romania's agriculture and forestry industry and capital-intensive industry can make up for China's deficiencies in the field, thus achieving mutually beneficial development.

3. Analysis of industrial competitiveness at detailed level

3.1. Industrial competitiveness of 28 industrial sectors

In this section, the analysis is using the Revealed Comparative Advantage indices for Romania, the EU and China, computed using the UN Comtrade database, according to the classification by 28 industrial sectors.

As shown in Table 4, Romania's industries with core competitiveness are characterized by capital-intensive or resource-intensive elements, which are, respectively, tobacco processing, wood processing and bamboo and rattan grass, rubber, furniture, leather fur and down feather, clothing and other fiber products. In addition, Romania has comparative advantages in the textiles, chemical fiber, ferrous metal smelting and

rolling, metal products, general machinery, transportation equipment and electrical machinery and equipment, with stronger industrial competitiveness.

However, the disadvantages of some labour-intensive or technology-intensive industries in Romania are also very prominent. It is the case mainly of stationery and sporting, non-metallic minerals, professional equipment, instrumentation and stationery & office machinery and beverages. In addition, Romania has a very weak competitiveness in plastics industry, non-ferrous metal smelting and rolling processing industry, paper and paper products industry and food processing industry.

Table 4: Revealed comparative advantages (RCA) of 28 industrial sectors in Romania

S/N	Industry	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
1	Food processing	0.27	0.30	0.29	0.28	0.28	0.31	0.44	0.49	0.53	0.54	0.53	0.51
2	Beverages	0.27	0.24	0.23	0.28	0.32	0.47	0.30	0.30	0.30	0.30	0.29	0.29
3	Tobacco processing	0.21	0.05	0.08	0.21	***2.89***	***5.17***	***6.67***	***6.36***	***6.33***	***5.96***	***5.95***	***7.40***
4	Textile industry	**1.02**	**1.05**	**1.15**	**1.34**	**1.32**	**1.25**	**1.22**	**1.17**	**1.14**	**1.19**	**1.13**	**1.10**
5	Clothing and fiber products manufacturing	***7.66***	***7.25***	***6.28***	***5.31***	***4.21***	***3.56***	***2.86***	***2.58***	***2.48***	***2.60***	***2.23***	***2.10***
6	Leather fur and down feather	***7.04***	***6.15***	***5.67***	***5.45***	***4.67***	***4.02***	***3.48***	***3.13***	***3.01***	***2.78***	***2.48***	***2.35***
7	Wood processing, bamboo and rattan grass	***3.34***	***3.49***	***3.34***	***3.42***	***3.41***	***3.44***	***3.71***	***4.12***	***4.04***	***4.77***	***4.98***	***4.65***
8	Furniture	***4.37***	***4.43***	***4.23***	***4.13***	***4.05***	***3.74***	***3.73***	***3.55***	***3.56***	***3.43***	***3.48***	***3.60***
9	Paper and paper products	0.98	0.94	0.79	0.77	0.76	0.65	0.63	0.65	0.61	0.72	0.71	0.75
10	Recorded media in the printing industry	0.19	0.30	0.30	0.30	0.31	0.29	0.33	0.37	0.44	0.59	0.57	0.55
11	the stationery and sporting goods	0.75	0.60	0.51	0.43	0.49	0.52	0.48	0.49	0.45	0.44	0.36	0.33
12	Petroleum processing and coking industry	2.28	1.97	2.57	2.18	1.63	1.52	1.16	0.94	0.87	0.83	0.77	0.92
13	Chemical raw materials and chemicals	0.61	0.71	0.73	0.73	0.70	0.73	0.46	0.51	0.56	0.56	0.44	0.42
14	Pharmaceutical	0.05	0.05	0.06	0.06	0.11	0.18	0.37	0.52	0.59	0.71	0.66	0.54
15	Chemical fiber	0.14	0.19	0.18	0.32	**1.03**	**1.26**	**1.53**	**1.66**	**1.79**	**1.92**	**1.70**	**1.64**
16	Rubber	***2.22***	***2.30***	***2.47***	***2.59***	***3.27***	***3.66***	***3.81***	***3.95***	***4.07***	***4.27***	***4.33***	***4.34***
17	Plastic	0.31	0.35	0.42	0.54	0.51	0.55	0.54	0.61	0.67	0.71	0.75	0.77
18	Non - metallic minerals	0.68	0.56	0.46	0.47	0.40	0.30	0.27	0.27	0.26	0.29	0.24	0.24
19	Ferrous metal smelting and rolling	**3.03**	**3.09**	**2.95**	**2.46**	**2.35**	**1.98**	**1.51**	**1.86**	**1.87**	**1.76**	**1.48**	**1.41**
20	Nonferrous metal smelting and rolling	1.16	1.14	1.07	1.02	1.04	0.95	0.65	0.65	0.68	0.79	0.78	0.74
21	Metalwork	0.94	0.97	**1.07**	**1.23**	**1.34**	**1.31**	**1.21**	**1.36**	**1.42**	**1.41**	**1.30**	**1.27**
22	Ordinary machinery	0.69	0.88	0.84	1.00	**1.13**	**1.06**	**1.05**	**1.07**	**1.13**	**1.17**	**1.30**	**1.28**
23	Professional equipment	0.31	0.31	0.35	0.40	0.39	0.45	0.43	0.34	0.31	0.36	0.36	0.42
24	Transportation equipment	0.48	0.55	0.71	0.92	**1.07**	**1.20**	**1.82**	**1.62**	**1.56**	**1.60**	**1.79**	**1.66**
25	Electrical machinery and equipment	0.81	0.92	**1.07**	**1.24**	**1.35**	**1.51**	**1.41**	**1.34**	**1.49**	**1.53**	**1.43**	**1.48**
26	Electronic and communication equipment	0.38	0.32	0.20	0.17	0.21	0.52	0.95	1.17	1.18	0.66	0.54	0.49
27	Instrumentation and stationery & office machinery	0.13	0.12	0.20	0.32	0.28	0.40	0.39	0.39	0.42	0.40	0.39	0.42
28	Others	0.13	0.11	0.17	0.09	0.40	0.40	0.39	0.38	0.40	0.61	0.81	0.64

Source: computed using UN Comtrade database.

Note: The RCA values in bold indicate the industries with "comparative advantages"; those in bold and italic indicate that the "comparative advantages" of the industry are more prominent; regular fonts for RCA values is used for the disadvantaged industries.

3.2. Analysis of horizontal comparison on industrial competitiveness at detailed level

With the rank of competitiveness of the industrial sector in Romania as a reference, the rank of industries in EU and China are shown in Table 5.

Table 5: Comparison of competitiveness rank of 28 industrial sectors in Romania, the EU and China

Industry	Romanian rank	EU's rank	Chinese Rank
Tobacco processing	**1**	**12**	*28*
Wood processing and bamboo rattan grass	**2**	*14*	**8**
Rubber	**3**	*18*	**13**
Furniture	**4**	*15*	**5**
Leather fur and down feather	**5**	*19*	**3**
Clothing and other textile products	**6**	*26*	**1**
Transportation equipment	**7**	**6**	*23*
Chemical fiber	**8**	*27*	**14**
Electrical machinery and equipment	**9**	*23*	**7**
Ferrous metal smelting and rolling processing	**10**	*20*	**12**
General machinery	**11**	**4**	*16*
Metalwork	**12**	**8**	**9**
Textile	**13**	*25*	**4**
Petroleum processing and coking	*14*	*13*	*25*
Plastics	*15*	*17*	**11**
Paper and paper products	*16*	**9**	*22*
Non-ferrous metal smelting and rolling processing	*17*	*22*	*21*
Others	*18*	**5**	*17*
Printing and reproduction of recorded media	*19*	**10**	*20*
Medical	*20*	**2**	*27*
Food processing	*21*	*21*	*24*
Electronic and communication equipment	*22*	*28*	**2**
Professional equipment	*23*	**3**	*18*
Chemical materials and chemical product	*24*	**7**	*19*
Instrumentation and stationery & office machinery	*25*	*16*	**10**
Stationery and sporting goods	*26*	*24*	**6**
Beverages	*27*	**1**	*26*
Non-metallic minerals	*28*	**11**	**15**

Source: computed using UN Comtrade database.

Note: RCA in bold indicate the industries with "comparative advantages"; the values in italic indicate the disadvantaged industries.

According to the RCA values, Romania's competitive industries are those ranked in the top 13, while the industries with the rank between 14 to 28 do not have competitive advantages and their competitiveness is getting lower and lower.

There are 13 industries with competitive advantages in Romania, including four industries with competitive advantages also in the EU, namely tobacco processing industry, transportation equipment industry, general machinery industry and metal product industry. Therefore, these industries are facing competition within the EU. However, the EU has weak competitiveness in the wood processing and bamboo rattan grass industry, rubber industry, furniture industry, leather fur and down feather industry, clothing and other fiber products industry, chemical fiber industry, electrical machinery and equipment industry, ferrous metal smelting and rolling processing industry and textile industry, while Romania still has an advantage in these nine industries. For the top 13 advantaged industries in Romania, China has three industries with weak competitive advantages, including tobacco processing industry, transportation equipment industry and general machinery industry, and these industries are ranked after China's industrial rankings. There is a need to actively carry out economic and trade cooperation between China and Romania to promote the development of these industries, which is conducive to the strengthening of the industrial structure, optimization and value chain upgrading, and it represents also the only way to enhance China's industrial competitiveness.

Among the 15 industries with relatively weak industrial competitiveness in Romania, China has stronger industrial competitiveness in five industries, namely: plastics, electronic and communication equipment, instrumentation and stationery & office machinery, stationery and sporting goods and non-metallic mineral products. These industries have capital-intensive or technology-intensive endowment, with possibility to discuss the industry connection in Sino-Romanian economic and trade cooperation.

4. Suggestions for enhancing the industrial cooperation between China and Romania

The sectoral analysis indicates that Romania's industries with competitive advantages could be ranked as following: tobacco processing, wood processing and bamboo rattan grass, rubber, furniture, leather fur and down feature, clothing and other fiber products, chemical fiber, electrical machinery and equipment, ferrous metal smelting and rolling processing, textiles and other (13 industrial sectors in total), whilst with weak competitiveness are concerned the oil processing and coking industry, plastics industry, electronics and communication equipment industry, instrumentation and stationery & office machinery, stationary and sporting goods industry, non-metallic mineral industry and other 15 industrial sectors.

Because China's overall industrial competitive advantages are mainly in the labour-intensive and technology-intensive industries, which are the weakness of Romania's industrial competitiveness and by contrast, Romania has clear advantages in capital-intensive and resource-intensive industries that are relatively weak in China, it is suggested that Sino-Romanian economic and trade cooperation might be carried out as "industrial connection and industrial cooperation", in order to put in practice the vision of complementing the bilateral industries, optimizing the industrial structure, improving the industrial value chain and enhancing the industrial competitiveness.

The starting point for enhancing industrial connection between China and Romania could be a mixture of two approaches:

1) "Industrial connection and industrial cooperation" is concentrated in the industries with "Romania's advantages and China's disadvantages", determining complementary effects in the industry. In accordance with the gap between advantages and disadvantages, it would be appropriate for tobacco processing industry, transportation equipment industry and general machinery industry;
2) "Industrial connection and industrial cooperation" is concentrated in the industries with "China's advantages, Romania's disadvantages", to enhance the bilateral industrial competitiveness. In accordance with the gap between advantages and disadvantages, it could be applied for plastic industry, electronics and communication equipment industry, instrumentation and stationery & office machinery, stationery and sporting goods industry and non-metallic mineral industry.

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Features and expansion of China's energy market

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***Abstract**: The article examines the characteristics of the energy sector in China including coal, oil, hydro-power, nuclear, renewable energy. Complementary to a general portray regarding the various sections of the Chinese energy sector, the paper also pursuits to analyze a part of the connections between energy, labor, land and the environment, as well as entities of authority, administration and decision-making. China became in the last twenty years the largest energy consumer in the world which combined with the economic progress of the country triggered not only challenges of how to ensure the supply-demand equilibrium but of what position China will have in the international landscape as it accustoms and complies to its on-going seat as an energy global force. The material wishes to show both the positive and negative consequences that energy expansion has on citizens' lives, and also conflicts of interests that in some cases are emerging from this development. It encloses a short overall presentation to topics of civil society and geopolitical concerns in China, with the scope to identify the social, political, economic and environmental context, in which China's energy emergence is taking shape, and its role in the word political and economic system. The article also takes into consideration the involvement of Chinese companies in the energy market from Romania, which is part of China's strategy to advance on the European energy market. It examines the evolution of the relationship between the China and Romania referring to energy issues and it reviews the prospects for future development of joint energetic projects.*

***Keywords**: energy demand and supply, Chinese energy market, Energy partnerships Romania-China*

1. Introduction on China's current energy trends

China's rise has been compared in the economics literature with that of the US or Germany in the first half of the twentieth century, or with that of Japan in the latter part of the century. At the beginning of their development, these major economic powers have invested heavily in modern infrastructure and applied economic policies that have determined the transfer of millions of citizens from agriculture to manufacturing, thus ensuring long periods of economic growth. At the moment China collects the fruits of applying a similar formula, amid the introduction of gradual reform measures meant to encourage free enterprise, expanding private property, competition and openness to the international market, the influx of foreign investment and import of advanced technologies, in parallel with the gradual and prudent limitation of centralized state control on production, trade and prices (Pencea, 2012).

Within this progress on so many layers, the Chinese government has been putting in the last decade the issue of energy development on top of its agenda and the topic has become a priority for many organizations. Nowadays China encounters an extensively growing energy demand and an analogous extension of supply. In the same time, an increased awareness of climate change pushes the country to diversify its energy supply, hence all energy sources and technologies are developing. Objectives targeting energy efficiency also represent a pivotal section of the government's strategy, and this is particularly an area where many things need improvement. The Chinese government has made important commitments to international community to reduce energy intensity by 2020. The 10^{th}, 11^{th} and 12^{th} 5 Year Economic Plans have all prioritized issues relating to energy development (Xinhua, 2012).

The country's energy system must be understood within the wider process of change in China, and China's changing role within the world division of labor. On the one hand, what exists in China today could not have developed outside of the history of China, especially from its revolution and the founding of the People's Republic of China in 1949. On the other hand, as with the country in its entirety, there have been major changes in the energy sector, as the country has moved towards what it terms a socialist market economy. The energy sector has experienced major restructuring, especially since the late 1990's/early 2000's. The process of creating a market based system is being accelerated, increasingly, giving full scope to the basic role of the market in allocating resources, and encouraging various forms ownership in the energy sector.

In 1998, the petroleum sector was restructured, featuring the establishment of new vertically integrated management system of oil industry. In 2002, China's power industry went through a process of major reform, in which the generation and distribution aspects were separated from one another. In 2005, the coal industry was also restructured. Nonetheless, in spite of these changes, China's energy make-up and the relative weight of each energy source/technology are still decided upon in a coherent integrated political manner, rather than being left exclusively to the market. The Chinese government's approach to energy is based on an understanding of science and technology as the primary productive forces. The government is working to gradually establish a market-oriented system for technological innovation, in which enterprises play the leading role and which combines the efforts of enterprises, universities and research institutes. An important pillar of this approach is to develop China's capacity to manufacture energy equipment. This is often done through key state projects. Basic scientific research is key to independent innovation. In this way, China has made impressive gains in narrowing its technological gap with the developed countries in the energy sector, and great efforts have been made to both develop and popularize technologies in various fields, including energy technologies in general, energy saving, substitution, recycling and pollution control (Liu, 2009).

China's legal framework is also an important area for developing its energy sector. China has enacted and put in force the Clean Production Promotion Law and Renewable Energy Law, combined with several supporting policies and measures. At the international level, China actively participates in international energy cooperation. It is a member of the energy working group of the Asia-Pacific Economic Cooperation (APEC) and of the Association of Southeast Asian Nations (ASEAN) and while China is not a member of the International Energy Agency, as membership is currently limited to members of the OECD, China maintains close relations with it.

2. China's energy mix: description of national and global determinant factors and limitations

Energy development in China (as elsewhere) is shaped and constrained by a variety of local, regional, national and international factors. Energy production and consumption is characterized by a number of features. On the one hand, throughout the country's history since 1949, there has been a very strong political commitment from the state to ensure that the bulk of the population has access to affordable electricity and other energy sources. This has always been, and still remains, a key political concern. Most (but not all) communities, including in rural areas, have access to electricity and can meet their energy requirements, but domestic consumption levels are very low in rural areas as compared to big cities, and just cover basic domestic needs. Heating and cooling are a big issue for residential use, especially in urban areas. Modern houses are electrified and have gas. However, many of the older and poorer houses still rely on coal in some cities and rural areas. Many houses have solar water heaters on their roofs, and these have been made widely available by due to their cheap pricing on the market. There is an important program to develop small scale wind use in remote off-grid areas, and rural use of biogas is important in some areas. In recent years, the massive and extremely rapid urbanization process that China has gone through (and is still experiencing), and the corresponding growth of middle class consumerism has been an extremely important driving force behind a rapidly increased energy demand and consumption. This has many aspects. In particular, the growth of consumerism and the increased use of private automobiles are all massively increasing demand for both electricity and oil (USEIA, 2013).

The country's energy matrix consists of virtually all fuels and energy technologies. The government seeks predominantly for the security of energy supply but, in the same time, climate change commitments have been taken very seriously both nationally and globally.

Energy in China						
	Capita	Primary energy	Production	Import	Electricity	CO_2 emissions
	million	TWh	TWh	TWh	TWh	Mt
2010	1,296	18,717	17,873	1,051	2,055	4,732
2011	1,320	22,746	21,097	1,939	3,073	6,028
2012	1,326	24,614	23,182	2,148	3,252	6,508
2013	1,331	26,250	24,248	3,197	3,503	6,832
2014	1,338	28,111	25,690	3,905	3,938	7,270
Change 2010-14	3.3%	50%	44%	272%	92%	54%
Mtoe = 11.63 TWh, exclude Hong Kong China, Prim. energy includes energy losses that are 2/3 for nuclear power						

Source: IEA Key World Energy Statistics 2014

Primary energy use in China was 28,111 TWh per million persons in 2014. According to IEA, the primary energy use grew 50% and electricity use 92% from 2010 to 2014. The energy import was almost four times bigger in 2014, compared to 2010 and the CO_2 emissions growth was 54% in five years (2010-2014).

The bulk of the country's electricity supply is met from coal. The overall volume of coal being consumed continues to increase, while its percentage in the total energy mix is gradually decreasing. These are somewhat contradictory trends. The government is strongly committed to reducing the overall percentage that is supplied by coal due to the different social and environmental problems it causes. This is driving the expansion of other energy sectors. In particular, recent years have seen a major expansion get underway in the use of wind energy, large hydropower, and also nuclear energy, all of which are seen as important substitutes for coal. There is also a big expansion of solar energy (especially Concentrated Solar Power) planned for the future, but this is not yet as advanced as the other branches of the sector. There is already large scale use of solar water heating used in rural and some urban areas. There is also an important role for primary biomass and biogas digestion, especially in rural areas. In addition to diversifying energy sources, energy reduction and efficiency measures are seen as an equally important part of a "clean energy strategy", and major improvements have been made (Tu, 2011).

Electricity production in China (TWh)			
	From coal	Total	%
2004	1,713	2,200	78%
2007	2,656	3,279	81%
2008	2,733	3,457	79%
2009	2,913	3,696	79%
2010	3,273	4,208	78%
2011	3,724	4,715	79%
2012	3,850	4,937	78%
2013	4,200	5,398	78%
2014	4,354	5,583	78%
			excluding Hong Kong

Source: IEA Key World Energy Statistics 2014

As of 2014, China leads the world in the production and use of wind power, solar photovoltaic power, and smart grid technologies, generating almost as much water, wind, and solar energy as all of France and Germany's power plants combined. In recent history, China's power industry is characterized by fast growth and an enormous installed base. In 2014, it had the largest installed electricity generation capacity in the world with 1.505 GW and generated 5.583 TWh China also has the largest thermal power capacity, the largest hydropower capacity, the largest wind power capacity and the largest solar capacity in the world. Despite an

expected rapid increase in installed capacity scheduled in 2014 for both wind and solar, and expected increase to 60 GW in nuclear by 2020, coal will still account between 65% and 75% of capacity in 2020 (IEA, 2015).

Chinese energy experts are estimating that by 2050 the percentage of China's energy requirements that are satisfied by coal-fired plants will have declined to 30-50% of total energy consumption and that the remaining 50-70% will be provided by a combination of oil, natural gas, and renewable energy sources, including nuclear power, hydropower, biomass, solar energy, wind energy, and other renewable energy sources. Still, large hydropower, which is controversially defined by the government as a renewable energy technology, has a massive social and environmental impact, often leading to the displacement of literally millions of people and the flooding of large areas of land.

The increased use of nuclear energy presents major long-term safety concerns. In terms of nuclear power generation, China will advance from the moderate development strategy to accelerating development strategy. Nuclear power will play an even more important role in China's future power development. Especially in the developed coastal areas with heavy power load, nuclear power will become the backbone of the power structure there. China has planned to build up another 30 sets of nuclear power generator within 15 years, with total installed capacity of 80 GWs by 2020, accounting for about 4% of China's total installed capacity of the electric power industry. This percentage is expected to double every 10 years for several decades out. Plans are for 200 GWs installed by 2030, which will include a large shift to Fast Breeder reactor and 1.500 GWs by the end of this century. As of March 2016, the People's Republic of China has 33 nuclear reactors operating with a capacity of 28.8 GW and 22 under construction, with a capacity of 22.1 GW.

China's National Development and Reform Commission has indicated the intention to raise the percentage of China's electricity produced by nuclear power from the current 2% to 6% by 2020 (compared to 20% in the United States and 74% in France). Nuclear power contributed 3% of the total production in 2015 – 170 billion kWh. However, rapid nuclear expansion may lead to a shortfall of fuel, equipment, qualified plant workers, and safety inspectors (IEA, 2015). Instead, efforts are made to “clean up” the social and environmental impacts of these energy industries as best as possible, in terms of making their immediate consequence less damaging and less dangerous. There is a strong government commitment to this. Bearing this in mind, China’s commitment to renewable energy is amongst the strongest in the world. In addition to being a major consumer of energy from renewable energy source, China has also rapidly become a world leader in the manufacture of renewable energy equipment, such as both large and small wind turbines, solar photovoltaic panels and solar water heaters, and also turbines for hydropower stations (both large and small), as well as in technology development (Mastni, 2014).

The top 5 countries in 2015, based on total PV installed capacity (MW) according to IEA is:

1) China: 43,530 MW (22.5%);
2) Germany: 39,700 MW (20.6%);
3) Japan: 34,410 MW (17.8%);
4) United States: 25,620 MW (13.3%);
5) Italy: 18,920 MW (9.8%).

As the world's largest market for both photovoltaics and solar thermal energy, in 2015, China was also the world's leading installer of solar photovoltaics reaching a total installed capacity of 35.78GW by end-June 2015.

Photovoltaics		
Year	**Capacity (MW)**	**Installed/yr**
2010	800	500
2011	3,300	2,500
2012	8,300	5,000
2013	~17,800	~9,500
2014	28,199	10,560
2015	43,180	15,130
Note: Figures for 2013 were retroactively changed. Clarification TBA. *Source*: IEA, China National Energy Administration (2015 figures)		

A major constraining factor is related to the fact that energy production in China, as in many areas of the world, is characterized by the fact that the energy rich areas are not areas where there is high energy demand (electricity of otherwise). Certain regions are important energy regions (eg Shanxi, Inner Mongolia have coal, Xinjiang, Ganzu for wind (actually 7 national wind bases), Tibet will become solar and hydro region. Hydropower is important in Yunnan, Szichuan and Tibet. Several of these regions are ethnic minority regions. On the other hand, most of the energy consumption occurs in the east of the county. This means that the transportation of energy (either in the form of electricity on the grid, or fuel {especially coal} in vehicles) is an extremely important issue. Lack of infrastructure is an important concern here, eg the grid is not strong enough to integrate all wind turbines and other renewable energy. Energy storage options are also not yet as advanced as they need to be. Another key constraint at the national level is the need to ensure political stability through high economic growth and urbanization. The last thirty years of China's open economic development has led to a rapid process of urbanization, industrialization and consumerism. This economic growth based development model is heavily pushed by the government. It has brought greater wealth and higher living standards for many people, especially in cities, though has also led to great inequalities. This form of economic growth has also been based on an increased energy production and consumption, which are still for the most part based in fossil fuels. As such, energy supply is increasingly central to ensuring political stability (Lin, Purra, 2012).

3. Problems of ownership, direction and administration for the key actors in China's energy sector

A number of actors operate within China's energy sector. This includes: a wide range of governmental agencies, energy companies, financial institutions, international political institution, communities and workers affected by energy production and consumption, universities, think tanks, NGOs and other civil society organizations - all both from China and from other countries. Since the early 2000s, in parallel to the restructuring of different energy sectors, a fundamental restructuring of the political institutions in the energy sector also took place. The energy companies were made independent of the main Ministry of Energy, which in turn was later dissolved. As such, the political power in the energy sector was reduced. After several restructurings in a short space of time, the main government body responsible for energy planning and decision making is the National Reform and Development Commission (NRDC), which has within it the Energy Research Institute (ERI). Central government still retains a powerful role, but much less so than when the Ministry of Energy existed. Local governments are mainly responsible for negotiating with companies about infrastructure (Fridley & co., 2012).

The restructuring of China's energy sector has mainly not involved privatization, but rather a process of corporatization. The state-owned companies which have been created operate at least somewhat autonomously from, but in close cooperation with the political structures. A fundamental change is that they are now mandated to operate according to profit logic. This presents the difficult challenge of both meeting the energy needs of the population and also industry, agriculture and other needs (not least including the military), while also ensuring that the energy companies make a profit. In the past, before restructuring, the energy sector often ran at a loss, and was heavily subsidized by other sectors of the economy.

All the powerful state-owned enterprises play a vital role in China's energy system, but they are also experiencing an important overseas expansion. In many ways the corporatization process has meant that the companies operate in quite similar ways to multinational companies, and they are becoming obliged to project themselves globally in pursuit of profits, which in turn means they have to compete in global markets with other private and state-owned companies from around the world. However, their pursuit of profits is closely guided, if not actually controlled by and subordinated to, China's domestic energy policy. Sometimes there is a strong overlap of interests, and sometimes there is a conflict.

However, as the renewable energy sector develops, this is producing some significant developments with regard to ownership. While most of the major renewable energy projects and installed infrastructures are owned by state-owned companies (mainly the electric power companies), the major manufacturing capacity of wind turbines and solar panels is being undertaken by private companies, which benefit from extensive state support. Examples of this include as Goldwind, Sinovel, or Suntech Power (which recently entered into bankruptcy). However, there is also one major state-owned enterprise that manufactures wind turbines, Dongfang Electric Corporation (DEC). As with the other branches of the energy sector, there is a significant concentration of ownership occurring in the renewable energy sector, and the companies are becoming increasingly important world leaders in the world-market (Liu, 2009).

The electrical grid, which is essentially still a monopoly, is interested to maximize profits, making the relative bargaining power of each branch of the power sector more important. This means that, despite the fact that government has an overall policy in which the targets for different energy technologies and sources is determined, economic competition between the different energy sectors nonetheless becomes important in determining the country's energy mix. This is especially so as ownership within the different branches becomes more concentrated. One important factor in this regard is the role that coal plays. Coal constitutes an important inertia factor in relation to moving towards other energy sources and industrial sectors associated with these sources. China's coal industry is incredibly economically and politically powerful compared to these other branches of the energy sector. As coal mining consolidates into larger companies due to restructuring, this gives the sector greater corporate weight with which to compete with other sectors. Another factor is that many industrial companies use coal directly, rather than using electricity. This benefits coal with respect to other energy sources. Another important concern is the inability to sell renewable energy due to companies' reluctance to purchase it, due to the (real and perceived) lack of stability of supply as compared to coal. All of this has important implications for scale.

The main thrust of the energy sector favors large technology, large corporate ownership structures and centralized decision making structures. Increased centralization and concentration is occurring in all branches of the energy sector, with a corresponding intensification of competition and global expansion of the energy companies. This is motivated mainly by profitability, efficiency and competiveness factors. In relation to coal, this process is also driven by safety concerns. However, in the past there was a strong emphasis on smaller scale technologies as well; eg decentralized small coal mines (this was also linked to a partial privatization process), small scale dams under local government and community control; household and village level biogas digestors, often under village or individual household control. China still has the world's biggest use of small scale hydropower, biogas and solar water heaters, though its definition of small scale hydro involves a bigger scale than most other definitions. China is also an important user of small scale wind energy (especially in remote rural areas that are not served by the grid), and manufacturer of small turbines. However, these are not significant in comparison to the overall use of the large technologies.

Closely linked to the above is the question of energy prices, markets and trade. These are also important mechanisms for distributing resources in the sector, and for shaping structures of ownership and control. The need for energy companies to make a profit, instead of functioning at a loss, means that now the companies are expected to introduce "cost reflective pricing" in the energy sector, so as to reflect changes in market supply and demand, resource availability and environmental costs. This is essential for creating a functioning market. However, in order to avoid political instability, the government is implementing market-based price reforms with great caution. Energy prices for residential use are currently still heavily subsidized, regulated and, to a certain extent, also politically controlled. Consequently, energy is still largely affordable to the bulk of the population. The government faces the difficult task of introducing price reforms in such a way as to make it acceptable to all interests and social sectors. In relation to market reforms, China has made active efforts to introduce legal reforms that make joint ventures and other foreign co-operations in the energy sector easier and more attractive for foreign investors. These are based on transparency and rule based systems, and China's entry into the World Trade Organization (WTO) in 2011 had a major impact on its energy sector (Wang, Qiu, Kuang, 2009).

4. The relationship between China and Romania regarding the energy field

China has managed to be one of the big winners of the economic crisis commenced in 2008. The Chinese companies' investments in the European Union Member States have experienced an upward trend after that year, succeeding during 2010-2014 to increase from USD 6 billion to over USD 27 billion. Romania hasn't been eluded by the Chinese investors' money, although the major projects announced several years ago continue to linger or have been forgotten. However, there are signs that the Chinese investors' interest towards our country has revived lately.

The Chinese are interested in contracting large projects in Romania. Companies as China General Nuclear Power Corporation, Huadian, Huawei, ZTE, China Development Bank and others have already opened offices or subsidiaries in Romania. The Sino-Romanian cooperation is currently in a promising accelerating period.

Projects in the field of nuclear energy, hydro energy, thermal energy, highways, etc. under negotiation between the Chinese and Romanian parties reach a total value of several billion EUR. The most spectacular

arrival of the Chinese in Romania took place late 2015 when CEFC China Energy took over the Petromidia refinery and 500 fuel stations by buying the majority stake of the KMG (KazMunayGas) International group (former Rompetrol Group) from the Kazakh state company KazMunayGas. China CEFC Energy is involved in various business areas, such as transport, infrastructure, real estate, hotelier industry, logistics, sports, beverages, forestry, ranking on the sixth place among the Chinese private companies (Stoica, 2016).

Some energy projects which were made public several years ago as China's large investments in Romania, have not yet taken shape. A part of them are still under discussions, like the construction of 2 nuclear reactors with China General Nuclear Power Corp (an investment of approximately EUR 6 billion) and the building of a 600 MW in thermopower plant, with China Huadian group (about EUR 1 billion), but others are adjourned or even suspended. A few of them can be mentioned: the building of the hydroelectric plant (an investment estimated to EUR 1.1-1.3 billion), where the Chinese have stated their intention to get involved, but no company has been chosen for the project, the construction of a new thermo energy group which is on the verge of bankruptcy and the building of a 300 MW thermopower group. Another important arrival of the Chinese capital in Romania occurred with the purchase of 30% of Zeta Petroleum by Golden Meditech Holdings Limited. Zeta Petroleum was owner of a petroleum block, where the Chinese will be partners with the Russians from Gazprom, as the latter have common ownership on the block. Sino-Romanian cooperation is in line with China's and European Union's development strategies. Currently, China promotes the implementation of "The Economic belt of the Silk Road and of the Maritime Silk Road in the 21st century", expands its cooperation in international production capacity and implements new concepts of development on innovation, harmonization, openness and sharing the results of the development process.

The cooperation between China and Central and Eastern European countries has witnessed rapid development. The bridge over the Danube in Belgrade, built in cooperation by China and Serbia, has already been completed and is open to traffic, and the railroad Hungary-Serbia will be completed in two-year' time through the cooperation between China, Hungary and Serbia and will become a important component of rapid land and sea route China-Europe.

"The long-term cooperation plan between China and Central and Eastern Europe" on the direction and priorities during 2015-2020 was developed in 2015 and aims to further capitalize the cooperation potential and to boost efficiency and the quality of the '16+1 cooperation' mechanism.

5. Conclusion

China has grown in the last decade by becoming not only the second world's superpower (according to its GDP expressed in nominal terms) but also by consolidating its strength in the energy field. In its pursuit of development, the Chinese energy system went through a wide process of change which affected the labor, the land and the environment, as well as the entities of authority, administration and decision-making.

China has arrived to be in 2016 the largest energy consumer in the world which in connection with the economic growth of the country attracted provocations regarding the supply-demand balance and about the standpoint that China will have in the international landscape as it manages its new position as an energy global force.

The paper showed the characteristics of the Chinese energy mix, the consequences that energy progress had on citizens' lives, and also the conflicts that can occur in some cases. It drew attention to problems of market, relationship between consumption and productions as well as potential for manufacturing and issues of international cooperation. A special place for future research is taken by the evolution of the relationship between the China and Romania referring to energy issues and it reviews the prospects for future development of joint energetic projects which are still to be developed and carried on.

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The Tech-Based Economic Development and the Future of Jobs

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Abstract: *Public awareness regarding high-tech importance in improving economic growth is becoming more and more crucial in analysing an evolving labour market with greater impact on the future global economy. High-tech sectors have been essential for achieving the sustainable development of both advanced and emerging economies, hence our paper has as main objective to study the most significant trends in tech-based development emphasizing the role of technological adjustment in promoting the major changes in the future of jobs. Taking into account the spillover effects of high technologies for boosting economic growth, our research aims to provide a comparative analysis regarding the leading countries in the field. The present paper takes into consideration selected relevant technology indicators and World Development Indicators in order to evaluate the countries' potential regarding their high-tech advancement and adaptation of the labour market to the market requirements. Using a quantitative analysis and a qualitative approach (based on the most relevant theories in the literature such as the "triple helix" model for tech-based development), the present paper shows that a cutting-edge technology also requires new skill sets for working in certain circumstances.*

Keywords*: high-tech, technology index, future of jobs, research and development, "triple helix" model*

1. Introduction: the relationship between tech-based development and the future of jobs

The high-tech sector is related to those industries that use the scientific knowledge in the production of goods and services. Certain authors (Hill et al., 2014) point out that high-tech industries are commonly considered those industries in which the scientific knowledge used is rapidly advancing and so are the attributes of the products and services resulting from its application. The most often used example of high-tech industry is the computer industry. Among the most important high-tech industries in terms of their contribution to national GDP/are: telecommunication (where new technologies based on the Internet and wireless connection have proliferated, consumer electronics with the digital technology underlying products from high-definition DVD players to videogame terminals and digital camera, pharmaceuticals, where new technologies are based on cell biology and genomics, aerospace with the combination of new composite materials and more efficient jet engines).

While high-tech product types are continuously evolving, there are some shared features identified by the most important researches in the field (See Table 1).

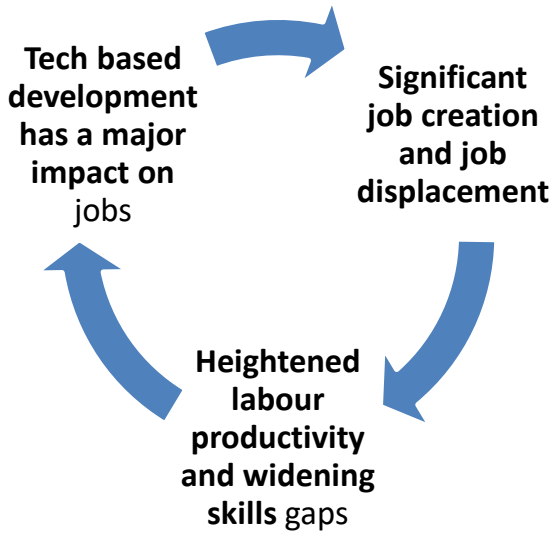
Table 1: Specific features of high-tech products

High –tech products features	Author, Year								
	Goldman, 1982	Riggs, 1983	Shanklin, Ryans, 1984	Von Hippel, 1986	McIntyre, Grunenwart, Rosenau and Vernor, 1988	Nystrom, 1990	Allen 1992	Hecker, 1999	Sahadev, Jayachandran, 2004
Short-product life circle[1]	x	x	x		x	x	x	x	x
Closely related to technological development		x	x				x	x	x
Symbiotic with science		x	x				x	x	
Connected with existing technological infrastructure				x	x				
Difficult to explain functioning criteria				x					

Source: Authors' representation based on the studied literature.

Taking into consideration the main drivers of tech-based development, our research highlights the role of technological adjustment for promoting the major changes in the future of jobs. In our opinion, the relationship between tech-based development and the future of jobs is shaped by the creative destruction concept (See Figure 1).

Figure 1: Drivers of transformation regarding the future of jobs



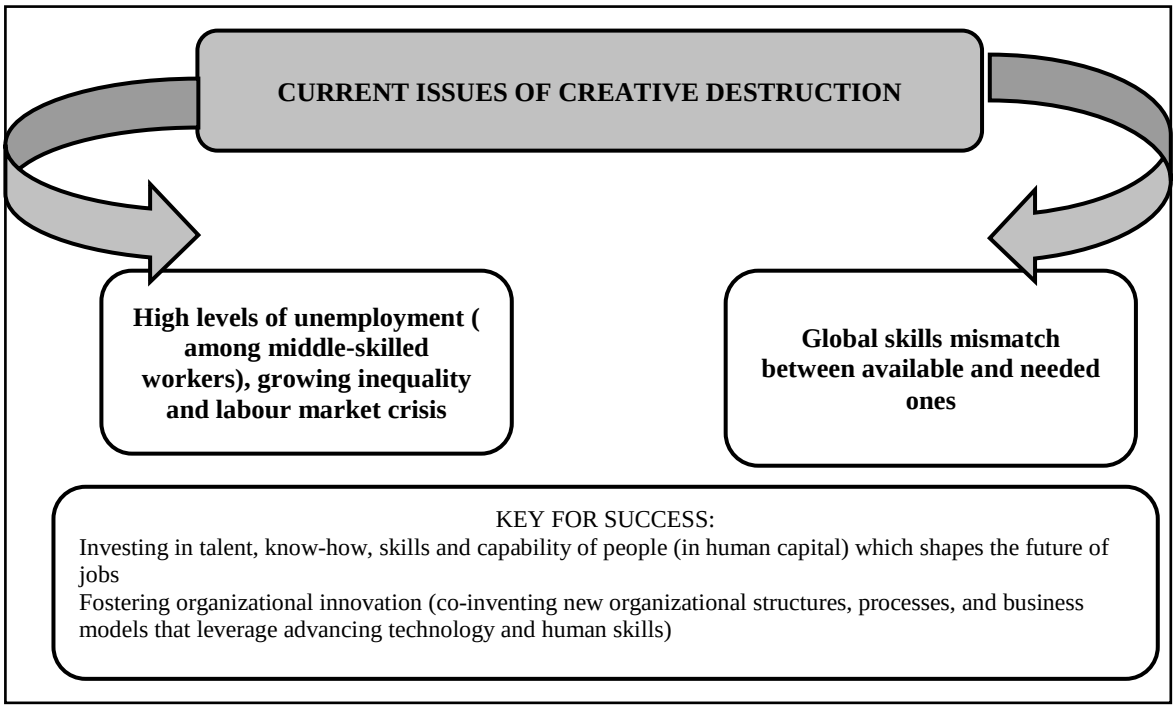
Source: Authors' representation based on studied literature.

Job displacement is related to the fact that human high skills are more valuable than ever, but other have become worthless while in many industries and countries, the most in-demand occupations or specialties did not exist 10 years ago, and the pace of change is set to accelerate. In this process of creative destruction

[1] As Goldman (1992) points out that many high-technology products are characterized by a "short" product life cycle (PLC) - a short life on the market, a steep decline stage and the lack of a maturity stage.

there are two major issues: the high levels of unemployment of middle-skilled workers and the mismatches between available and needed skills (See Figure 2).

Figure 2: Current issues of creative destruction



Source: Authors' representation based on studied literature.

2. The triple helix model in tech based development

As some analyses (Dumitrescu, Poladian, Drăgoi, 2015) have pointed out, , investing in cutting-edge technologies is essential for the success of tech-based growth, since in the ICT era such technologies are diffused and automatically absorbed in the economic development. Taking this into account, we consider the degree of policy framework openness is of high relevance in order to leverage overall technology-based growth and the transformation of their economy (See Figure 3). In our opinion, in the quest to promote a "great transformation" of sectors and of the economy, both industrial advance and research and policies progress must promote technological learning and competence building as main engines for tech-based development. In practice this goal requires incentives and instruments pertaining to both policies mentioned (industrial and R&D) to approach technological development from different perspectives.

For example, while the industrial development strategies set overall economic targets, the research and development policies could provide the institutional infrastructure for learning, as well as individual targets and supportive incentives to firms. In order to create an effective "triple helix" model for tech-based development, it is necessary first to ensure human capital and material resources as well as the availability of cooperation between the institutions along with the circulation of ideas and innovations. Etzkowitz (2008) refers to these as human, material and organizational factors. Among human capital factors he indicates the need for a critical mass of scientists and engineers linked through social networks, research groups and a pool of scientists and engineers interested in setting up their own firms. In his view, the essential material resources are the capital from private or government sources that could provide inexpensive and appropriate space for new innovative start-ups.

To maximize the likelihood of successfully implementing a strategy for knowledge-based economic developments and at the same time high technologies, organisational factors are needed. According to Etzkowitz (2008) such factors are:

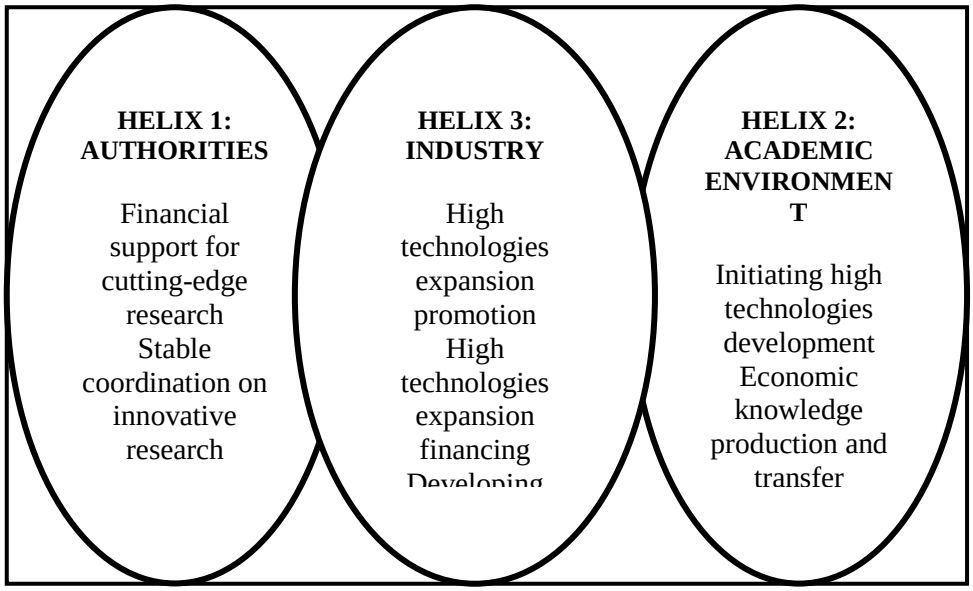
- opportunities for scientists and engineers to learn business skills or gain access to persons with these skills;

- university policies designed to encourage faculty members and students to interact with industry; applied research institutes, centres, and incubator facilities to assist firms with development problems and to provide mediating linkages between academic scientists, engineers and industry.

Konde (2004) highlights that in the less technologically developed countries the "triple helix" formation is weak since each element of such a development model is working within an isolated environment. Therefore, the main aspects of the "triple helix" model are represented by internal communication and knowledge exchange within each element as well as by communication and knowledge exchange among all elements. The sharing of information and knowledge is feasible if it is exchanged intensively within the "triple helix". Thus, Dzisag and Etzkowitz (2008) are pointing out that the circulation of ideas and innovations are key criteria for the functioning of the "triple helix" model. It should be noted that based on the "triple helix" theory (Etzkowitz et al., 2008), parties participating in the knowledge creation process are taking over the roles of other participants which conditions dynamic interaction, interweaves interests and opinions. Academic systems are undergoing changes in order to channel their work towards commercial needs. However, for to the "triple helix" to function, the cooperation between industry and universities represents a critical problem. For truly stimulating tech-based development the interests of the industry must be integrated into the planning and organization of scientific research at universities.

Therefore, scientists should consider the impact of their developed scientific products on the industry as well as scientists working in industry businesses should be able to access the newest information regarding evolutionary science advancements. The evolutionary path that the "triple helix" model takes in axes acting interchanging on the circumstances, time and opportunities, creates a dynamic environment of acting parties, whose acting must be concerted in order to reach a common goal. This requires the creation of a knowledge-based organizational model which would aim at integrating each party interested in the whole system.

Figure 3: The triple helix model for tech-based development



Source: Authors' representation based on the studied literature

2.1. The countries potential in terms of their high-tech advancement and the adaptation of thelabour market to the future of jobs

In order to evaluate the national potential in terms to high-tech advancement and the adaptation of the labour market to the changing requirements we have selected (based on a series of indicators – global technology index, capacity for innovation, global innovation index, R&D expenditures and high-technology exports) relevant advanced and emerging economies: Japan, the US, the Russian Federation, China, South Korea, the Czech Republic, Hungary, Poland and Romania.

In the current global environment the selected countries have achieved different performances regarding tech-based development (See Table 2).

Table 2: Indicators for tech-based development

Country	Global Technology index (MPI)						Global Competitiveness Index (WEF)				Global Innovation Index (WIPO)	
	Technology index		I. R&D investment		II. Patents per capita		Innovation environment		Capacity for innovation			
	2011 (out of 75)	2015 (out of 139)	2011	2015	2011	2015	2011 (out of 142)	2015 (out of 140)	2011 (out of 142)	2015 (out of 140)	2012 (out of 142)	2015 (out of 140)
South Korea	8	**1**	7	3	-	1	14	19	20	24	18	11
Japan	2	**2**	4	5	2	2	4	5	1	14	22	16
US	3	**4**	6	8	1	5	5	4	7	2	5	4
China	30	**14**	26	17	-	11	29	31	23	49	35	25
Russian Federation	21	**22**	22	29	36	18	71	68	38	84	62	43
Czech Republic	25	**29**	21	21	26	43	33	35	25	26	28	27
Hungary	33	**34**	32	27	24	47	34	51	41	131	31	33
Poland	37	**46**	45	34	44	40	58	64	49	72	49	39
Romania	49	**65**	50	48	52	49	95	75	78	63	48	48

Source: Authors' representation based on Martin Prosperity Institute (MPI), World Economic Forum (WEF) and World Intellectual Property Organization (WIPO) data.

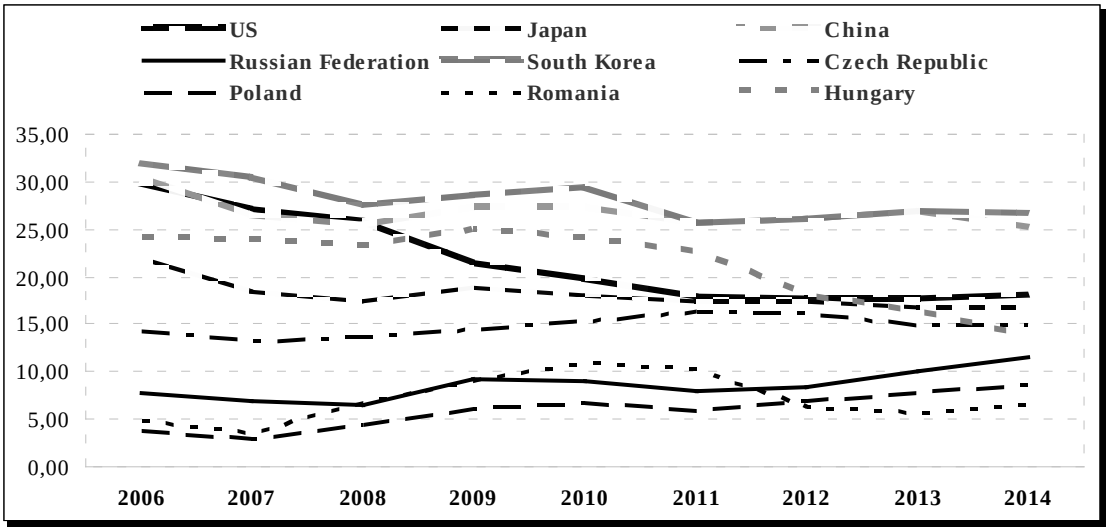
As we can see from Table 2, even if South Korea and Japan don't have the advantage of a large market size as in the US and China, these countries have performed very well in the field of high-tech development being rated the first and the second in Global Technology Index in 2015. The overall highly innovative environment in Japan has also been favoured, according to World Economic Forum (2015), by very sophisticated businesses and unique products and production processes, high-quality research institutions and company spending on R&D, coupled with an excellent availability of scientists and engineers.

As for the selected emerging economies, the Russian Federation has been rated higher than the Czech Republic and Hungary in the Technology Index, in part due to the enhancement of the overall innovative environment since 2011. However, its Capacity for Innovation has slid down the rankings since 2011 - 46 places to 84th in 2015. The highest capability for conducting own research and pioneering new products among the selected emerging economies was that of companies from the Czech Republic (the 26th in the Capacity for Innovation), due to the strength of large spending on R&D.

Even if the ranking in the Global Innovation Index differs from the previous two, it reveal the same innovation leaders: the U.S., South Korea and Japan. China joins the top 25 (the 25th), being followed by the Czech Republic (the 29th), Hungary (the 34th) and The Russian Federation (the 43rd).

The technological performance of a country could be assessed taking into consideration the country's export structure, particularly the part of high-tech products exported by it. Thus, one relevant measure that we use for this purpose is *high-technology exports* (% of manufactured exports in USD billion) which is a World Bank indicator.

Graph 1: High-tech exports as % of manufactured exports (2006-2014)



Source: Authors based on World Bank data

South Korea has taken first place among selected countries in 2014, outrunning China, the US and Japan in relation to this indicator. However, China has clear progresses on high-tech exports, which have increased 35 times since 1996 and have risen almost twofold since 2009. According to the Asian Development Bank, China has brought to an end Japan's dominance of Asia's high-technology exports in 2014 (Bloomberg, 2015), recording double-digit growth in its patent filings in 2014 (WIPO, 2015). Notwithstanding these progresses the leaders in breakthrough innovation are still a small group of countries, Japan, the U.S. and the South Korea belonging to this group.

3. Drivers of high tech performances

The recent global financial and economic crisis has prompted both developed and emerging economies to rethink their growth model, generating strategies based on new technology[2]. Each country has its own set of elements used to foster and accelerate technology-based growth.

There is wide consensus that the main assets or so-called "drivers"of tech-based economic development are:

- The intellectual infrastructure,
- The spillovers of knowledge (from universities, informal networks), physical infrastructure, technically skilled workforce, capital, quality of life, entrepreneurial culture (Berglund, 2011) etc.

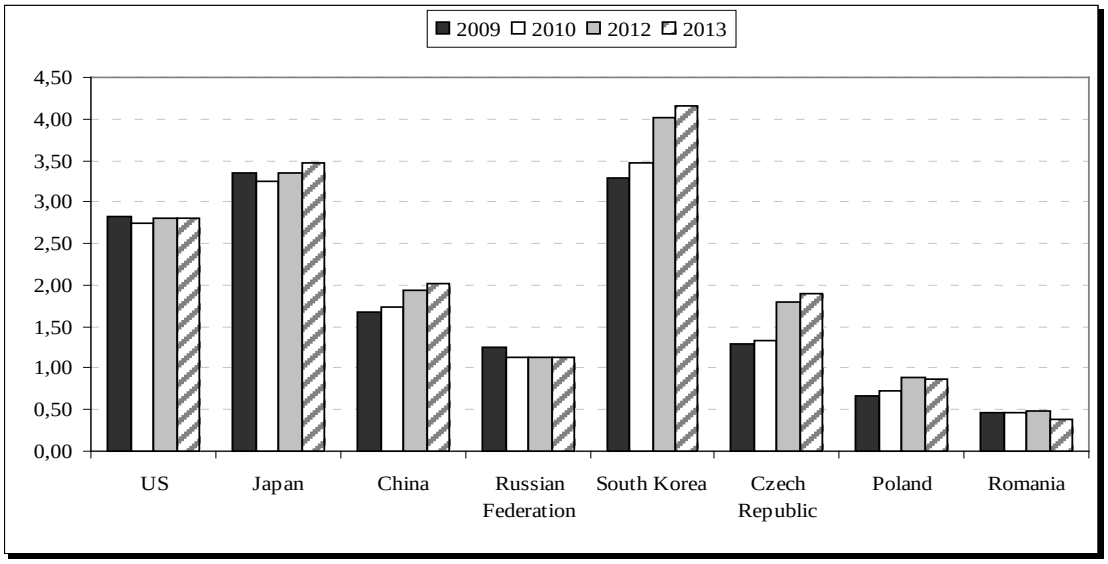
Both authorities and firms might play a major role in boosting high-tech development thorough investing in R&D. The main task for authorities in high technologies development is to encourage their expansion on the basis of the "triple helix" model. Etzkowitz (2008) concludes that this encouragement could be channelled through the following actions: the establishment of a legitimate authority in order to reduce uncertainty in interaction (e.g. government guarantees are given to private capital so that with such insurance it may take greater risks in investing in new ventures); using the tax system in a targeted fashion to provide special incentives and benefits for R&D expenditures; using the legal system to establish special rights such as patents or temporary monopolies to promote innovation; provision of a special research funding to establish a linear model of innovation (e.g. provision of public venture capital to create an assisted linear model of innovation).

A firm can enhance its absorptive capacity of new technologies by training its personnel, by carrying out R&D, and by using advanced manufacturing equipment (Schiller, Diez, 2007).

Our research has found that there is a direct link between R&D expenses and country's ranking in tech-based development global hierarchy (See Table 2 and Graph 2).

[2] i.e. Industry 4.0 in Germany, Re-industrialization in the US, Transition to an innovative socially-oriented type of development in the Russian Federation, Innovation-Driven Development in China etc.

Graph 2: R&D gross domestic expenditure (% of GDP)



Source: Author's synthesis based on World Bank data.

As shown in Graph 2, most countries have continuously invested in R&D and not even the crisis has endangered this trend. Investing in human capital and education is an essential condition of success. In order to achieve high-tech development and matching to labour market future challenges, the future of jobs is indisputably linked to investing in education. Such investment is the key for boosting knowledge based economy. While general education varies widely both across and within countries, it should be noted that countries should find a way to stimulate tech-based growth by investing in education in order to spur economic development in an inclusive manner.

4. Conclusion

The recent global financial and economic crisis has prompted developed and emerging economies to rethink their model of growth. Countries have their own set of elements used to foster and accelerate tech-based development. All these elements should be consolidated in a new model of growth (the triple helix model) based on several pillars: ensuring good quality education, enhancing organizational innovation and increasing state role in elaborating high-tech strategies and national education plans. Tech-based growth also needs the enforcement of national strategies for deepening exchanges of knowledge and experience among countries on training and skills development policies and systems. Our research has found that there is a *common pattern* of longstanding champions countries in the field of tech-based development: while innovation has remained a essential priority, supported by a steady flow of *R&D spending*, it is equally important to bear in mind that education and skills hold the key for achieving performances in the future of jobs, tackling unemployment, promoting competitiveness, and nurturing more inclusive and cohesive societies.

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The Agricultural Cooperative in Romania and Worldwide

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Abstract: *Presently, it is commonly accepted that agriculture represents a significant sector in the Romanian economy due to its size and potential, but its development is still sluggish compared with its true potential. Considering this undisputable reality, our research aims to highlight that public investments in rural infrastructure, public services, training and education may provide to the small farmers the help they need in order to become competitive in an increasingly globalized market. For small farms, the establishment of associative forms may provide the necessary inputs and outputs (in terms of technology and financial solutions) for achieving sustainable growth. Our article also aims to assess the potential of microfinance solutions for small entrepreneurs (SMEs and microenterprises) in the rural areas. The microfinance may provide an integrated package of support services (financial counseling, consulting and design services). Currently, Romania has over 2.5 million subsistence farms (rural households) and 5.5 million persons who are financial excluded. Our research aims to underline that a solution for the development of the subsistence farms could be provided through the cooperative associations in terms of flows of agricultural raw materials and technological support for the processing and capitalization of the products.*

Ke words: *agricultural cooperative, social, economic, microfinance, family farms.*

1. Introduction

Recently, Law no.164/2016 was amending and supplementing the agricultural cooperatives Law no 566/2004. This law establishes the legal framework of the organization and functioning of cooperatives in agriculture. The agricultural cooperative is an autonomous association of individuals and/or legal persons, as appropriate, private legal entity, established on the basis of the expressed consent of the parties and which is organized and operates under the provisions of the law. Thus, the agricultural cooperative is an autonomous association with an unlimited number of members with variable capital, which deals with economic, technical and social issues in the private interests of its members. In the EU, agricultural cooperatives vary in terms of form and type from country to country. They are essentially based on the same organizational and operating principles that are on set out in European Council Directive. 67/532/25 of 25 July 1967. According to this Directive, agricultural cooperative includes legal entities in different areas such as: agricultural service cooperatives - which provides services for small producers; purchases and sales agricultural cooperatives - organizes both purchases of materials and the technical resources required for agricultural production and the sales of agricultural products; agricultural product processing cooperatives - provides typical products; manufacturing and small agricultural cooperatives in the farming industry; agricultural cooperatives operating and managing the agricultural land, forestry, fisheries and livestock; agricultural cooperatives for financing, mutual assistance and insurance. An agricultural cooperative with commercial activities provides goods and services in agriculture in this order: a) providing the conditions for all cooperative members to obtain economic advantages; b) ensuring the supply of agricultural production means for the cooperative members; c) the purchase of agricultural goods–vegetables, animal and fish products,–according to market standards; d) creating conditions for agricultural products processing plant, animal and fish products to be obtained food quality and consumer market standards; e) recovery of production obtained; f) socio-economic development of the rural areas. The agricultural cooperatives are based on the following principles:

a. The principle of voluntary and open association;
b. The principle of democratic control by the cooperative members;
c. The principle of economic participation of cooperative members;
d. The principle of autonomy and independence of agricultural cooperatives;

e. The principle of education, training and information of cooperative members;
f. The principle of cooperation between agricultural cooperatives;
g. The principle of concern for the sustainable development of the community.

2. The cooperative movement in Romania - brief history

The cooperative movement has a long tradition in Romania, our country being, together with cooperative organizations in England, Belgium, Italy and France, a founding member of the "International Cooperative Alliance (ICA)". An innovator in this respect in Romania was Spiru Haret (1851-1912) who in 1899 initiated a draft on the establishment of popular banks, the involvement of teachers in the cooperative activity, the organization of consumer cooperatives and others. After the World War I, an outstanding representative of the cooperative idea was Gromoslav Mladenatz (1887-1958), who graduated from university in Germany, and obtained a doctorate in economics with the thesis "The concept of cooperative". Professor at the Academy of High Commercial and Industrial Studies between 1929 - 1951, he is the author of "Cooperative Treaty" (1933) and of the book "History of cooperative thinking" (1935). In his book "History of cooperatives doctrines" (1931), the cooperative represents "a free association of a number of smaller producers or consumers, who establish a joint venture through which an exchange of services between partners". The first forms of association in rural Romania emerged with the introduction of the modern cooperative principles set out by Ion Ionescu de la Brad (1818-1891), an economist, statistician, agronomist and a prominent representative of the Romanian agricultural sciences. He expressed his viewpoint on the different types of associations in the popular publication "Romanian Peasant (Țăranul român)." Thus, the first association of this kind in Romania, a credit and mutual aid association was set up first in Bistrita, Transylvania, in 1851, then in Braila in 1855, Rasinari village in the county of Sibiu in 1867 and then in Bucharest in 1870. The cooperative was, in the spirit of time, a collective economic unit, which included various occupations with low economic potential: small farmers, craftsmen, employees. Its aim was to form of needs-based cooperative association of members and obtain benefits from the activity that they are performing. Thus, the cooperative system did not abolish property and freedom, but enhanced the economic potential of farms.. Agricultural cooperatives as a form of associative work undertaken jointly, were in Mladenatz's opinion the only form of social organization that the rural economy had available by combining individual ownership of land with modern agricultural collective ownership of the stock. As the price of Romanian agricultural products fell on the international market during the economic crisis of 1929 - 1933, he recommended the involvement of cooperatives in the cereals trade, in order to eliminate intermediaries and adopt an efficient production structure. The establishment of farmers in associative associative units opened new opportunities for economic development by attracting local advantages and using local or regional power in order to increase the prosperity of the collective members, of their families and of the community.

3. The beginning of cooperative movement in Europe

The consumer cooperative from the small English town of Rochdale (founded in 1844) is considered to be the first modern cooperative, based solely on its own members without outside help. It began as a consumer cooperative and evolved into a multi-purpose cooperative with social and economic activity. The leaders of the cooperative of modern England were Robert Owen and William King (who supported the voluntary nature of cooperatives, but also political neutrality and religious identity). In France the movement was led by Charles Fourier, Philip Bsan (founder of the first production cooperatives) and Louis Blanc (who proposed the replacement of free competition with co-production) and in Germany by Victor Aimé Huber (precursor of consumer cooperatives) and Ferdinand Lassalle (who supported freedom and independence from state cooperatives). In Germany it was for the first time that a cooperative offered loans to farmers with Friedrich-Wilhelm Raiffeisen as a promotor (1864). (Filip ALEXANDRESCU, Flavius MIHALACHE, 2011.)

4. Agricultural cooperatives in the European Union

According to the Directive 67/532/25, cooperatives are entities that are named differently in each state, as per the local law but are based on cooperative principles. At primary level the farmers are associated in simple forms of associations which in the EU were called cooperative on different degree, they are formed based on join undertaking of the following objectives:

- agricultural works;
- - the joint work of land;
- - shared use of production capacities;
- - making investments in various fields.

At a secondary level there are organized associations of primary agricultural cooperatives which are called “of second degree” and aimed to invest in upstream and downstream agriculture for the collection or processing of agricultural products. At a tertiary level, the cooperatives are organized by the III-rd grade. These includes networks of cooperative factories that provide processing and marketing services or banks, bringing together expertise and resources in a particular area or region. Agricultural holdings, especially the smaller ones, develops cooperation and integration relations with large agrifood companies, which purchase raw agricultural materials by the contract. The Western European agrifood market promotes cooperation in all forms of social organization of farmers: small farms, medium and large agricultural cooperatives and cooperative societies, national or transnational food companies. The principles that underlie the relations of cooperation in EU agriculture are: freedom of choice as regards the form of cooperation; obligation on members to bring equity and undertake the economic activity of the cooperative and participate in the delivery of products, compliant technologies for the production of agricultural raw materials delivered to the cooperative; the ,,one man - a vote“ principle in the adoption of the decisions taken by the cooperative regardless of capital; the principle of cash dividends according to the status; principle of territoriality, or "limiting the scope of action of a given community cooperative”. In the European Union, the agricultural cooperatives are represented by national organizations and are directed and supported by Community bodies: the General Committee of Agricultural Co-operatives (COGECA); the Committee of Agricultural Producers (COPA) and the International Cooperative Alliance (ICA).

Case studies presentation

FRANCE - there are 21,000 cooperatives, which include about 75% of French farms. This shows that 3.5% of the economically active population is part of agricultural associations. In addition to manufacturing, French cooperatives offers advice to their members. Due to their long experience they provide valuable advice in the terms of agronomy, economics and strategic planning. It should be that they also actively contribute to the development of environmentally friendly agriculture. Cooperatives invests in innovation, expanding the scope of their activity and finding new sources of revenue. An example is investment in biofuels. Also, farmers' associations are use different management tools to control developments in agricultural prices.

SPAIN - About 15% of the population is part of cooperative organizations, most of which were established under the regional legislation, not national legislation. Unlike in other European countries, the number of Spanish cooperatives is above average. At the same time they are quite small, only 39% of them having over a thousand members, which prevents them from obtaining higher profits. They ar as different as they are numerous: from modest local cooperatives to cooperatives that deliver to industrial level. There are also large cooperatives that process the products they sell to retail distributors. However, about 75% of the turnover reported by the Spanish cooperatives is in the hands of a quarter of the cooperative and this because of mergers and takeovers.

ISRAEL - About 70% of the agricultural land in Israel is used by cooperative members. The association is voluntary and the exit of the cooperative is not prohibited. People in the forefront of associations are are democratically elected, usually from among the members. Sometimes leading management bodies come from outside but must necessarily have experience in the management of cooperatives or in the management of cooperative members. Being tightly linked, the Israeli agricultural cooperatives are organized on two levels: locally and regionally. The local first level cooperatives are divided into three types: associations at the village level, kibbutzim and moshav, the last two being the most numerous. The difference between these three forms of organization resides in how they control production and consumption.

United State of America - There are less cooperative than in other countries, only 3.000. By contrast most American farms are part of them. We can distinguish cooperatives that deal witth sales, closing transactions, supply and credit. The sales cooperatives deal with the proces and marketing of agricultural products. Basically, everything taht grows and produce in the USA is managed by cooperatives. Also, they provide jobs for most residents of rural areas. In the support of farmers who do not know how to negotiate there are cooperatives specializing in concluding transactions, helping them obtain reasonable prices for the commodities they produce. Farm supply cooperatives engaged in the manufacture, sale and distribution of

products that are essential for the proper administration of the household, such as fuel. The cooperative businesses are managed by a board of directors elected by the members. Each member is entitled to a single vote and all votes are equal, unlike limited companies or other forms of business.

5. Conclusions and considerations regarding the importance of microfinance

In most of the cases, potential investors and farmers are connected to the market economy system only through small European and/or national grants. This trend is highlighted by the "main priorities and measures for the development of the regions selected from the politic strategies of the Regional Development Fund, integrated into the structure of the priority objectives and measures appropriately contained in the National Development Plan" (Dobrescu, 2014) and by the microfinance measures in the current financial framework at European level (the topic of the research conducted within the proposed ITS framework aims to develop a model to support microfinance in the rural areas). The Seoul Summit conclusions have also underlined the importance of corporate social responsibility for balanced growth while showing the importance of micro financing models that are targeting the reduction of the poverty in rural areas and the stimulation of social and financial inclusion. Also, discussed in this summit were topics related to the reform of international financial institutions, the strengthening of the global financial safety and mechanisms, in a separate session of the new G20 agenda on development. Taking all these into consideration, it is our opinion that the cooperative associative forms for small farms might be a new chance for their development as regards the inputs - seeds, technology, microfinance, consulting- and concerning technical agronomical solution and product marketing support.

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Public Policies for Sustainable Rural Development: Evidence from China and Romania

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Abstract: *Rural areas have an important potential for sustaining economic growth. While preserving important natural and human resources, rural areas also represent a key challenge in terms of balanced public policies for sustainable development both in China and Romania. Although there are considerable differences between these two countries in terms of population, geography and territorial size, in the field of rural area development we may identify significant similarities regarding some important issues: poverty, unemployment, poor rural infrastructure and access to education, transport and other public services. Taking into account these similarities, our paper presents a comparative analysis of the main trends in the public policies for sustainable rural development of both countries, highlighting, through a SWOT analysis, the most important opportunities and threats they have to cope with. In the final part of our research we suggest several policy recommendations, including a brief assessment of the cooperation opportunities the two countries may have to improve their rural areas development.*

Keywords*: rural development, European policy for rural economy, Chinese policy for rural areas, sustainable development*

1. Sustainable rural development – a brief theoretical introduction

There have been various approaches to the issue of rural development, in terms of the pursued objectives, the theories put forth, but also regarding the implemented policies. In terms of the objectives, if during the 1950s and 1960s the main concern was the contribution of rural areas to the economic growth, in the 1970s and 1980s, the focus of rural development policies shifted to the fair distribution of income, the reduction of unemployment and poverty alleviation in the countryside. In the 1990s, instead, the main rural development objective was to improve the villagers' quality of life (their standard of living, level of education, etc.), and then, beginning with the years 2000, the ideal of sustainable development has taken centre stage.

In this context, it appears important to us to specify that the evolution of rural development theories was decisively influenced by the successive changes of the dominant theories regarding economic development. As such, if the main influence during the 1950s was exerted by the Rostow model (the linear stage economic development model), the most influential theory during the 1960s became that of the structural changes (the Lewis model), followed by the dependency theory (according to which there is a dependency of the periphery on the centre, or of the poor countries on the rich countries) in the 1970s and then by the neoclassical economic theory and the endogenous development theories, in the 1980s and 1990s (OECD 2016, p. 67).

During all this time, a series of predominant strategy and policy approaches on both the rural development, the development of agriculture and (of) the rural communities in general, have also succeeded one after the other. The idea of agriculture modernisation and (of) implementing agricultural productivity-enhancing universal techniques was predominant in the 1950s, for example. The 1960s and the 1970s

represented the beginning of the so-called Green Revolution: in certain rural areas in developing countries, agricultural production grew considerably due to the industrialisation of agriculture, in particular due to the introduction of fertilisers and pesticides, but the costs also grew significantly, causing the ruin of poor farmers who continued to practice traditional agriculture. In the 1980s, the rural development programmes and strategies began to increasingly rely on the local resources and specificities, as well as on the development of rural communities, while during 1990-2000 various investment programmes targeting different socioeconomic and environmental issues began to be implemented. Such programmes are financed either by the World Bank and the International Monetary Fund – Comprehensive Development Framework (CDF), Poverty Reduction Strategy Papers (PRSPs), Community-Driven Development (CDD) – or by the United Nations – the Millennium Development Goals (MDGs).

Given these fundamental elements regarding the evolution of rural development policy objectives, in the following sections of this work our analysis attempts to present the most important rural development challenges faced by the two countries subject to our research: China and Romania. Although the economic and political backgrounds are completely different, in both states the rural area is vast, with an important potential for economic development, but is subject to multiple challenges: development inequalities as compared to urban areas, high poverty, unemployment, insufficient infrastructure development, the difficult access of the population to education, insufficient access to essential quality of life elements (water and sewerage services, transport, electricity). In both states, agriculture is the engine of the economic development of rural areas, but this sector continues to require new policies, able to foster the modernisation and technological upgrading of agricultural holdings, and an increased sustainability of agricultural practices.

It is worth mentioning that in both states, ample reform processes have been implemented in the field of rural development. If, in Romania, these reforms took place under the ambitious objectives of the EU Common Agricultural Policy[1], in China the rural area reform policies have been shaped in accordance with the national economic growth objectives.

2. Rural development reform policies in China and Romania – a comparative analysis

As above mentioned, both in China and in Romania rural areas are facing a series of similar challenges, but there is a fundamental difference between the two states, related to land ownership – one of the main income factors for the rural population. This is the starting point of our further endeavour of looking, on the one hand, at the aspects in which the rural development issues in China and Romania either converge, or diverge, and, on the other hand, at the reforms undertaken in the two countries in response to these challenges.

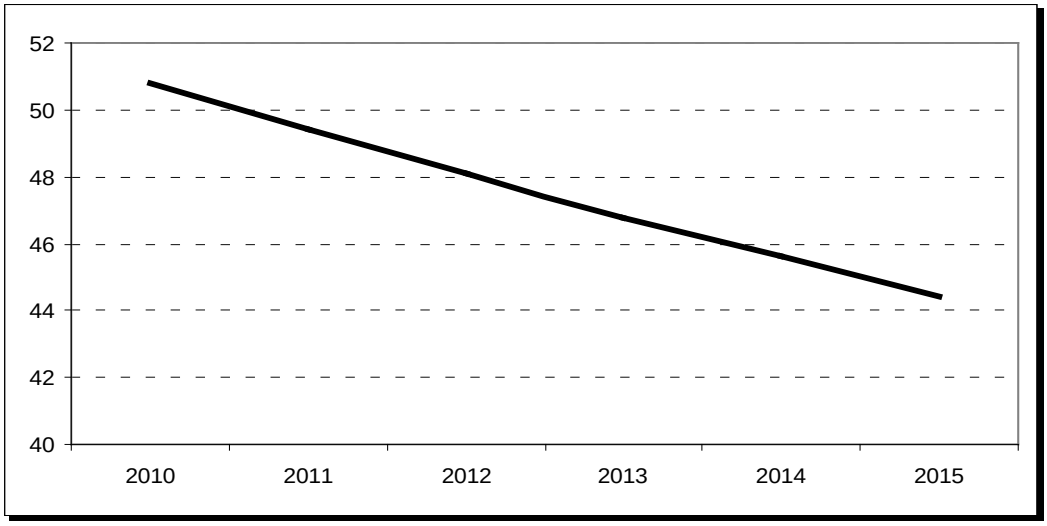
2.1. Rural development reforms in China

Over the last decades, China has shown strong economic development and accelerated urbanization, phenomena which have led to the improvement of the population's standard of living and to the country's assertion as a major actor on the international stage. According to OECD (2009) analyses, in parallel with "urban China's" spectacular transformations, the rural economy has also changed significantly under the impact of a series of structural reforms, initiated by the authorities with the purpose of increasing food safety, bridging the urban-rural gap, alleviating rural poverty, as well as raising the competitiveness of agriculture. Our analysis below highlights both the importance of rural areas for the Chinese economy as a whole, the strategic directions of the reform in the field and the estimated impact of narrowing the rural-urban development gap.

As revealed by the World Bank statistics, in spite of the obvious downward trend of the rural population's weight/share into the overall population, a large part of Chinese people still live in the countryside. Only between 2010-2015 this index has declined from about 51%, to over 46% (see Graph 1), but its level is still very high as compared to that of other countries. As such, Chinese leaders have placed rural development among the national priorities and have devised strategies and implemented reform policies aiming at the betterment of the quality of life in rural areas.

[1] Given that in 2007 Romania became a Member State of the European Union, it had to bring its rural development objectives and models in line with the strategic targets of the Common Agricultural Policy.

Graph 1: The share of the rural population in China's total population (%)



Source: Processing by the authors based on the data provided by the World Bank.

Beginning with the "economic openess" stage (in the 1980s), in order to spur rural development and to improve the competitiveness of the agricultural sector, Chinese authorities initiated a series of reforms on the rural land use and farmers' income growth. In fact, according to a recent strategic document (State Council of PRC, 2013), policies aimed at increasing farmers' income continue to represent a strategic objective and "a guarantee for the sustainable economic and social development of rural areas." The reform of land ownership and (of) land use rights is an important pillar of the strategy for poverty alleviation in rural areas. (see Box 1).

Box 1: Property reform in the rural environment

1. ***The Household Responsibility System (1978)*** *introduced the first regulations on rural property, and established that the land belonging to a farm, although formally remaining within the collective household, could be rented to a family, initially for a period of five years, which was extended gradually, first (in 1984) to 15 years and later on (in 1993) to 30 years. Following this first agricultural reform, by 1983, the entire arable land was allocated to individual households under this system. According to a study by the World Bank and the National Development and Reform Commission of the Council of State (World Bank, NDRC[2], 2014), the Household Responsibility System* ***was the driving force that has prompted the agricultural sector growth and poverty reduction in China's rural areas, over the last decades.***

2. ***Another important stage of the ample rural development reform process was the adoption of Document no. 16/1996 (Notice on Further Stabilising and Improving the Rural Land Contracting Relationship)*** *which enabled the transfer of rights of possession over the land against a value agreed upon by the parties, on condition of acceptance by the leadership of the collective household and, at the same time, it restricted the unilateral adjustment by the latter of the rights of possession and use for individual households. The document explicitly prohibited the use by the collective house of measures imposed unilaterally on the title holders and users, with regard to the individual administration of farms.*

3. ***The Property Law was adopted in 2007*** *and it clarified the differences between all the types of property (state, collective and private). Also, this legal framework specified the fact that the land held in collective ownership belonged to all the members of the community in question and not to an associative entity. At the same time, the farmers' use rights were qualified as ownership rights (which determined many confusions and represented an impediment for an efficient land rental and selling system), establishing that after the 30 years of rental, the farmer who was using a certain piece of land could extend the rental agreement.*

4. *An official document of 2011 on the ownership over the land in the rural area (****The State Council's Document no. 9 of 2011) prohibits migrant workers' land requisition by the collective households*** *(whether residence land, arable land, forest land or grassland)* ***when they move to town or apply for town residence.***

Source: Synthesis by the authors based on the legislation consulted.

The "double management" system (the existence of collective households concomitantly with the individual administration of farms) has enabled the improvement of agricultural production, stimulated the farmers' initiative and promoted a more competitive rural development.

[2] National Development and Reform Commission.

Over the last decades, the rural property reforms have laid the foundations of a new economic system in China's rural areas. The implementation of the Household Responsibility System enabled a certain liberalisation of agricultural production, the fundamental purpose of the reforms being both to develop production forces and also to encourage the exchange of products between the households, breeding a true "economy of goods" as a basis for increased prosperity in the rural areas. Certain studies (Kahrl et al., 2005) show that institutional reforms on land ownership created a "wave of enthusiasm" among farmers. These reforms also contributed to the increase of agricultural production and of labour productivity. The individual contractual land use system enabled farmers to dispose of the goods obtained "as surplus" beside those required by the collective household, but also it let them use their free time outside the mandatory working hours in the collective households. As a result, farmers were stimulated to also engage in other non-agricultural activities, in order to supplement their income.

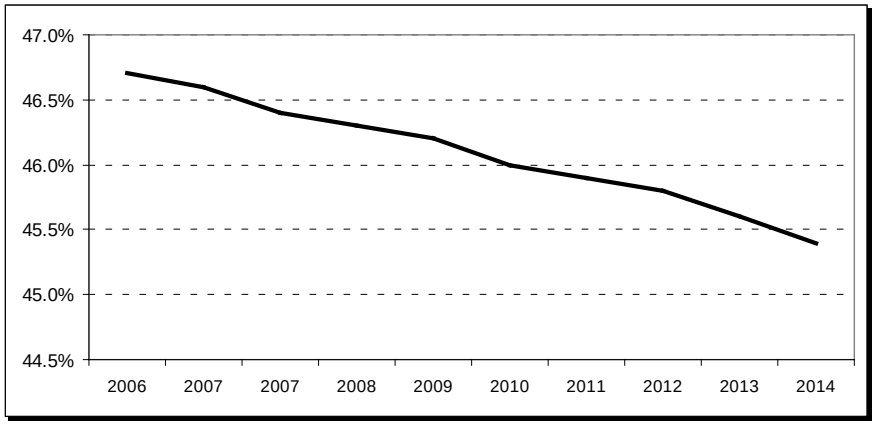
Although the progress of land ownership reform in rural areas is important, certain analyses (Westmore, 2015) show that new measures clarifying ownership are required as a prerequisite to increase the quality of life of rural inhabitants, but also to enhance the competitiveness of agriculture. Such measures are important in order to ensure a system that would enable a full transfer of land rights under market conditions, as well as to permit increased fairness of the conditions in which land is expropriated for public utility objectives (in particular in relation to the compensations granted to farmers using the land in question).

Certain opinions (Westmore, 2015) show that with China's remarkable development over the last decades, the share of the agricultural sector in the entire economy decreased, although its productivity grew. This is due to the investments made to raise the degree of mechanisation in agriculture and to enhance the productivity of the farms where the activity evolved from labour-intensive, to capital-intensive agricultural production. There are studies (Koehn et al., 2013) that find that in China the mechanization and technological upgrading of agriculture continue, however, to be still at an early stage, facing a persistent and considerable gap as compared to advanced economies. The analysis we refer to shows that the share of the population working in the agricultural sector is still significant (35%) in China, compared to the average in the advanced economies (2-3%). However, the scope of the reforms that the Chinese Government intends to implement in order to accelerate the closing of this gap is impressive. As such, according to the reform plans in the field of agriculture employment, by 2020, the Chinese Government intends to grant resident status in the urban area for around 100 million migrant workers coming from rural areas. A study in this regard (Kahrl et al., 2005) shows that the development of the Chinese agricultural sector depends on the evolution of the reform in four key-areas – workforce, land ownership, water resources and technological development –, being subject to a series of challenges in each of these areas. For example, in China's Northern regions, the sustainability of water resources (indispensable for agricultural production) is severely endangered. The same analysis also points out that the intensity of using chemical fertilisers is very high in Chinese agriculture as compared to the international standards, and this represents a source of risk for the population in terms of food safety. A possible solution for these challenges would be for public investment to focus on tapping into the advantages brought by biotechnologies and the technological advances in the field of irrigation. Although the challenges to speeding-up the development of a more competitive agricultural sector persist, as shown above, rural reform has undoubtedly been beneficial for Chinese agriculture, leading to the rapid increase of the agricultural production – cereals in particular – and to the structural optimisation of the sector.

2.2. Rural development reforms in Romania under the impact of the Common Agriculture Policy objectives

In Romania, a significant part of the population lives in the rural areas, although a visibly descending trend in this regard has been seen in the post-accession years (see Graph 2), the rural area having a huge development potential but being subject to systemic problems: insufficient infrastructure development, poverty, high unemployment and the need for more sustainable agricultural practices.

Graph 2: The share of the rural population in the total Romanian population (%)



Source: Processing by the authors based on the data provided by the World Bank.

As underlined in the introductory part of our work, over the last few years, the reform of rural development policies in Romania has followed the transformation paradigm imposed by the multiple reforms of the Common Agricultural Policy. The most recent reform of this policy, dating back in 2013, established as strategic objectives for the Member States the revitalisation of rural areas and the reduction of interregional development gaps, in this context, Romania being empowered to select measures adapted to its own needs and manage its rural development programmes according to these needs, while the EU partially funds the costs (through the "co-financing" process). The EU framework for funding agriculture and rural development for the 2014-2020 time-frame establishes that through the Flexibility Mechanism it will be possible to transfer up to 15% of the funds between the two pillars (agriculture and markets – Pillar I/rural development – Pillar II). This will enable Romania to reach more easily its specific rural development objectives. In concrete terms, this is the new architecture of direct payments, which become better targeted and more equitable, while preserving, at the same time, the "environmental component" and aiming at strengthening the safety networks in the field of rural development.

In this context, it must be noted that the mechanism for the fulfilment of the direct payment criteria, the so called "cross-compliance," which represents the general framework guiding the Member States in obtaining financing under the Common Agricultural Policy, has become, since 1 January 2015, better targeted with regard to the environmental component, through the introduction of a new instrument: the direct "green" payments." This type of financial support will reach up to 30% of the total funds allocated to direct payments and will be accessible by the farmers who observe three mandatory agricultural practices: (i) conservation of permanent grassland, (ii) cultivation areas focused on organic production and (iii) crop diversification. Direct "green" payments must be included in the rural development programmes of the Member States because they have the advantage of incentivising agricultural practices that respect the environment and the ecosystems. Certain analyses (Was et al., 2014) indicate the immense potential existing in the new financing context of the Common Agricultural Policy for 2014-2020, in terms of sustainability and the "greening" of agricultural practices of EU farmers.

According to the data provided by DG Agriculture & Rural Development, Romania is among the Member States which attach importance to the sustainability objective, a fact which is emphasized by the structure of the rural development measures implemented in recent years (see Box 2).

Box 2: Rural development measures in Romania

The most recent Rural Development Programme (RDP) for Romania was formally adopted by the European Commission on 26 May 2015, outlining Romania's priorities for using nearly EUR 9.5 billion of public money available for the 7-year time-span 2014-2020 (EUR 8.1 billion from the EU budget, including EUR 112.3 million transferred from the Common Agricultural Policy direct payments, plus EUR 1.34 billion of national co-funding).

In Romania, the RDP aims at promoting the diversification of rural economy and the creation of new job opportunities to help mitigate the surplus of workforce in the agricultural sector, as well as at enhancing rural incomes. Nearly 3 000 projects are supported for setting-up/developing non-agricultural businesses in rural areas. Under the LEADER initiatives, Local Action Groups will implement local development strategies,

covering 100% of the eligible rural territory. Almost 800 projects will be supported to improve small-scale rural infrastructure and living conditions for around 27% of the rural population. These projects will include investments in local roads, waste and water supply facilities, nurseries, kindergartens, after-schools, and agricultural high schools. Following the most recent reform policies, in Romania, EUR 2.4 billion were allocated for investments in physical assets, EUR 1.4 billion for payments to areas facing natural or other specific constraints and EUR 1.3 billion for basic services and village renewal in rural areas, while EUR 1.1 billion were designated for farm and business development.

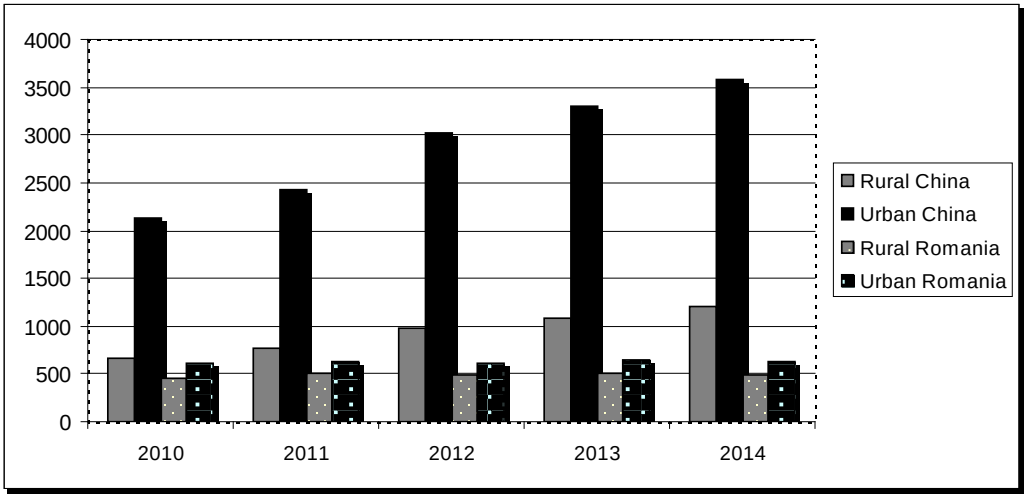
Source: Synthesis by the authors based on the DG Agriculture &Rural Development data

3. Policy responses to the main rural development challenges in China and in Romania

If earlier in our analysis we showed the impact of the most significant reforms on rural development, hereinafter we make a brief presentation of the main policies implemented by the two countries as a response to the challenges to sustainable rural development and in order to reduce urban-rural development gaps.

For both countries the issue of the rural-urban development gap, in particular with regard to income, is important, with the population in rural area having significantly lower incomes as compared to the urban population (see Graph 3). Through certain targeted policies (for instance by giving to the rural population the possibility to migrate and work in urban areas, or to the agricultural workers the opportunity to engage in other, non-agricultural, part-time activities in the countryside and also to market their excess production) China managed to start reducing (closing) this income gap over the recent years.

Graph 3: The urban-rural income gap in China and Romania (EUR)



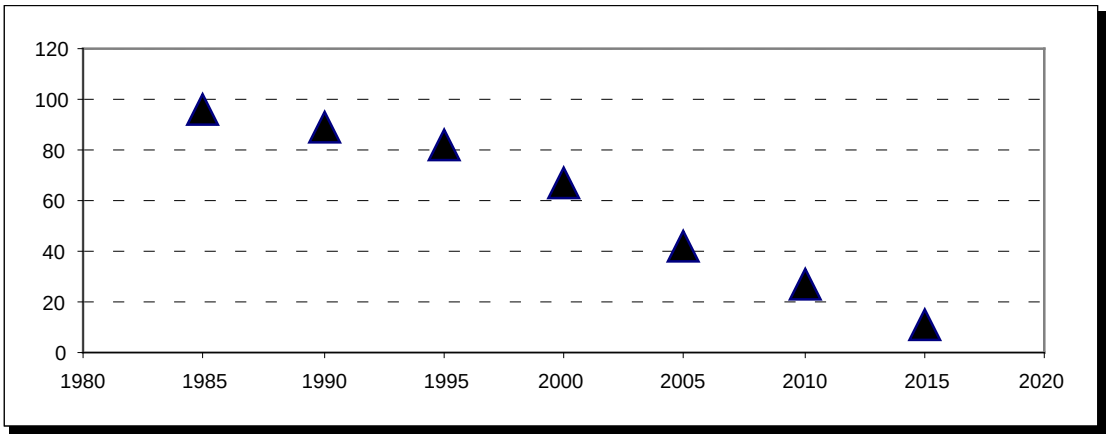
Source: Processing by the authors based on the data provided by the World Bank.

Note: Many of the rural residents from Romania are currently employed in urban areas.

The problem of poverty in the rural areas is endemic for both countries, one of the causes being the insufficient diversification of the economic activities and the high dependency of jobs on the agricultural sector. As a result, both countries tried to implement certain policies to respond to this major challenge for sustainable development in rural areas.

As such, according to the most recent statistics of the World Bank, in 2015, around 11% of Chinese rural population still lived below the poverty threshold (set at USD 3.19/day), mainly due to the small size of farms, which had prevented their modernisation, but also to the poor access to crediting, reflected in the low level of farm investments. Nevertheless, the World Bank statistics also reveal a rapid decrease of the percentage of rural population living below the poverty line, during the last decades (see Graph 4), with China among the leading countries which had contributed to setting this trend.

Graph 4: The rural population living below the poverty threshold(% of the total population)



Source: Processed by the authors, based on the data provided by the World Bank.

To reduce the development gap between the urban and the rural areas, according to certain approaches in the literature (Rehman, et al., 2016), the issue of the residence rights reform, more precisely of the hukou registration system, remains essential. Recent national reports (Guoqiang, 2016) show that the removal of the barriers to migration could complete the land ownership reforms, facilitating income growth in rural areas and poverty alleviation, all the more so since it was on economic grounds that the massive human migration from villages to the large urban agglomerations had started. According to Westmore (2015), between 2005-2015 the top five provinces by the average income per capita were the destination of choice for 65% of the migrants coming from the rural areas. In 2011, the Suzhou prefecture implemented a pilot initiative for this kind of a temporary residence permits system which applied to the majority of migrants. It results from certain evaluations of this project (Ding et al., 2013) that the implemented system, based on electronic records, was a success and it enabled authorities to maintain a clear registration of the resident population, while providing access to public services as well. However, it must be mentioned that a significant challenge against the hukou system reform is related to the costs of such an initiative. Westmore's evaluations (2015) show that in the absence of new significant investments, granting residence permits for all migrants would put very high pressure on the public services, in most urban areas. Moreover, in the context of the current budgetary system, such a regulation would require either an important transfer of funds from the central to the local authorities in order to cover the cost of public services, or the development of alternative legal sources of budgeting, for local authorities. This would also require a reform of the fiscal system with a view to supplementing the incomings of the regional and sub-regional authorities (for instance, such a reform might include the taxation of the trade in possession rights, not only in ownership rights, as well as the introduction of property taxation, or of the local authorities' right to issue bonds).

In Romania, the issue of increasing farmers' income remains critical for the future of rural development. To this end, public authorities may use both the direct payment instrument, and other public policy mechanisms (financed in the wider framework of the Common Agricultural Policy), among which we mention: income support for farmers and assistance for complying with sustainable agricultural practices[3], market-support measures (these come into play, for example, when adverse weather conditions destabilise markets) and rural development measures (which are intended to help farmers modernise their farms and become more competitive, while protecting the environment, contributing to the diversification of farming and non-farming activities and to enhancing the vitality of rural communities). In our opinion, to be truly optimal for sustainable rural development, those mechanisms must be managed coherently. For example, direct payments provide farmers with a steady income and reward them for providing environmental benefits which are in the public interest. Likewise, rural development measures make it easier to modernise farms while encouraging diversification of activities in rural areas.

Another important rural development challenge for both states is the modernisation of agricultural holdings. Both in China, and in Romania, agricultural property is quite fragmented, making it more difficult for

[3] Under the Common Agricultural Policy 2013 reform, 30% of direct payments will be linked to European farmers' compliance with sustainable agricultural practices which are beneficial to soil quality, biodiversity and the environment generally, such as crop diversification, the maintenance of permanent grassland or the preservation of ecological areas on farms.

farmers to access financing. Under these conditions, certain crediting instruments that support them in the purchase of modern equipment and advanced technologies would be required. Romania, for instance, could use the Common Agriculture Policy new measures to facilitate collective investment, help small farms to develop and encourage transfers of agronomic know-how between farmers through a European Innovation Partnership in the farming sector. In China's case, given that the size of arable land per capita is reduced as compared to other economies, the farmers are constrained to use intensive agricultural practice and an increased quantity of fertilisers. Thus, in order to attain sustainable rural development, national projects should finance production methods that seek to preserve soil fertility as much as possible. This is why the technical assistance offered to farmers for the use of new technologies, less detrimental for the environment, should represent a priority for the future agricultural reforms, in order to reduce the overuse of chemicals which is currently the common practice on Chinese farms.

In order to increase the greening of agriculture, an improved clarification of land ownership rights could be highly beneficial, enabling workers in the rural areas who are not involved in agricultural activities to transfer their rights to specialised agricultural producers. The transition from the prevalence of small farms to the association into extended farms could be beneficial for the sustainability of agricultural practices, large farms having the required potential to apply new agricultural technologies and to promote intensive agriculture.

4. SWOT analysis on rural development in China and Romania

4.1. Strengths

In China, as shown by the statistics, the development of the agricultural sector has recorded an obvious upward trend over the recent years, the land ownership reform playing a decisive role in this respect. By implementing rural reforms on the use of the land in the framework of the Household Responsibility System, the way towards poverty reduction in the rural areas and towards agricultural productivity enhancement has been opened. Also, an important reduction of the rural-urban development gap has taken place.

In Romania, the CAP financing framework makes available to the authorities the necessary instruments for the targeted financing of the rural area. In this way, the transformation of aid decoupled from production into a multifunctional support system may be done by replacing single payments per holding with a payment system with seven components: 1) a "basic payment" per hectare; 2) an additional aid to compensate the costs related to the supply of public environmental goods that are not paid for by the market (the ecological or "green" component); 3) an additional payment for young farmers; 4) a redistribution payment enabling the consolidation of the aid for the first 30 hectares of a holding; 5) the granting of an additional income support in the areas with natural constraints; 6) aid coupled with production due to economic or social reasons; 7) a simplified system favouring small farmers who benefit from less than EUR 1 250 de euro. The new aid per hectare is reserved exclusively for active farmers. Moreover, the direct payment packages available to each Member State will be gradually adjusted so that all payments will turn into minimum payments in euro per hectare, by 2019 (the so-called "external convergence" process). In this respect, it should also be mentioned that, while the prevalence of small-scale farms has been seen as a weakness in Romania's rural areas until now, in our opinion, the Common Agricultural Policy rules allow small farms to benefit from direct payments: this could include eligibility of grassland with trees and rocks, or minimum payments under simplified schemes, for family farms.

4.2. Weaknesses

The insufficient modernisation of Chinese agriculture is the main weakness identified by our analysis. As Chinese agriculture continues to modernise, farmers will need new skills to tap into the new technologies in order to obtain the most substantial productivity increases possible. The farmers' skills are also essential for adapting agricultural production to the specificity of demand, as consumption habits have departed from traditional patterns once household income has begun to increase. In this context, government policies aimed at increasing the productivity of agricultural holdings should first of all address the following three objectives: (i) support for the population remaining in the rural areas and working in agriculture to make it more competitive; (ii) the provision of assistance, possibly by means of subsidies, to those who seek the improvement of their professional qualification in order to operate the new technologies; (iii) the creation of "support networks" for farmers who have difficulty adapting to the use of new production technologies.

With over 3.63 million agricultural holdings, **Romania** concentrates 33.5% of the total number of farms in the EU, but they account for only 7.5% of the cultivated area at the EU level. This discrepancy reflects **the predominance of small farms and a very low average area of the agricultural holding in Romania. The very low levels of standard production per area suggest that there is significant room for optimizing the typology of farms.** To achieve this, Romanian farmers must have good knowledge of the CAP and PNDR financing instruments. For example, to access financing under the PNDR the standard production coefficient is an essential instrument. In most financing measures under the new PNDR, the level of the standard production standard – SO[4] is an important criterion, one that may even lead to elimination.

On the other hand, farmers must have a medium-and long-term vision, pay increased attention to the effects of climate change and take advantage of the adjusting measures to climate change financed by the new international and national public policies, including the PNDR.

It must also be specified that in Romania, family farms are often subject to market failures. The lack of markets for the goods they produce, due to cheap imports and tighter regulations on the informal sale of smallholder products are weighty obstacles for small farm development. Small-scale farmers are unable to obtain a stable income, while the profitability of local small-scale production is further damaged by the unrealistic standards imposed on small producers by the large hypermarkets' competition.

4.3. Opportunities

Although visible progress has been achieved in terms of agriculture development in China, further technological upgrading would lead to considerable better results. Technological modernization and the acceleration of innovation in rural China remain essential triggers of agricultural productivity growth. Westmore (2015), for example, shows that in addition to the reforms concerning the size of the agricultural holdings and the improvement of resource allocation, productivity growth in agriculture could be also stimulated by implementing public policies which act as incentives for innovation. The incentivising potential of the policies aimed at increasing productivity would be considerable, if, through the domino effect, a successful innovative idea adopted (through the double management system) at national level is afterwards disseminated in as many regions as possible.

So far, public sector was traditionally the main pole for the support of research and development (R&D) in agriculture. However, since 2000, with the magnitude of the privatisation process and the development of businesses in agriculture, many agricultural companies began to invest in their own R&D&I activities, in particular in the field of technological development. Innovation activities have also been carried out by institutions (in particular by the Agricultural Cooperatives, regulated by the Specialised Agricultural Cooperative Law adopted in 2007), and those activities have been accompanied by training which enable farmers to observe the new technologies. These actions have set the stage for positive externalities from the use of the new technological advances and innovations in farming. This type of stimulation of innovation and modernisation in agriculture has grown exponentially in recent years (however, with better development in China's Northern regions), and certain analyses (Garnevska, 2011) show that the process could be stimulated further by the implementation of direct financing lines from government sources, in order to ensure the technical support for such institutions.

In Romania, rural development priorities are broken down into "focus areas". For example, the prioritisation of resource efficiency includes the focus areas "reducing greenhouse gas and ammonia emissions from agriculture" and "fostering carbon conservation in agriculture and forestry". Within its RDPs, Romania may set quantified targets for these focus areas. Those areas then set out which measures they will use to achieve these targets and how much funding they will allocate to each measure.

At least 30% of funding for each RDP must be dedicated to measures relevant for the environment and climate change and at least 5% to LEADER (a programme designed to strengthen the rural economy by encouraging locals to take action at the local level rather than imposing off-the-shelf action on them).

4.4. Threats

One threat against the development of the rural sector in China is the form of the current hukou, in that it may disadvantage farms and companies operating in rural areas, by depriving them of qualified labour, while increasing, at the same time, the development gaps between the rural and urban environments.

[4] Resulting from the multiplication of production by the agricultural area.

To find a solution for these inequities, a series of new regulations have been implemented so far regarding the hukou status, among which the most important relate to the lifting of transfer restrictions regarding small town hukou status and the relaxation of regulations for medium-sized towns. Another novelty is the introduction of legal provisions that guarantee to rural workers who work in towns that they can maintain their rights to rent the land in rural areas. Until these regulations had been adopted, the perspective of losing their land has discouraged the migration of workers from the villages.

In the view of certain national analysts (Guoqiang, 2016), the reform of the hukou system should be deepened because current regulations still continue to be restrictive in terms of the access to large cities (cities of more than 10 million persons) and metropolitan areas (over 20 million persons), which are more attractive for the majority of migrant workers due to better wages opportunities, but are too crowded to receive new inhabitants. In these areas, the eligibility for hukou status is based on a system of points that favours the long-term residents and the residents with a high level of education and skill.

For Romania, the European Commission's package of Seed Regulations, as it is currently proposed, may be seen as a threat to agro-biodiversity, and to traditional farm management by small-scale family farmers. In this respect, we believe that clear guidance for the Member States is required to avoid unintended consequences such as economic losses for family farmers and losses of local varieties and breeds. Also, an element of vulnerability is the lack of a common voice of rural economic actors at national scale, and the lack of access to information – the many agencies which farmers need to contact for a variety of assistance measures are poorly coordinated and difficult to access.

5. Conclusions – policy recommendations for the increase of sustainable rural development

In China, as far as reducing rural-urban development gap is concerned, the reform of the current residence system seems to be a priority all the more since, in its current form, the hukou system is discriminatory for the inhabitants of rural areas who would like to move to urban areas to engage in non-agricultural activities. At present, we consider that a road-block to the economic development in China's rural areas lies in the discriminating nature of the current regulations, because migrants with residence permits (hukou) registered in the rural area do not have access to public services in the towns in which they work, in particular to the healthcare and education systems, to pension schemes, or to unemployment and other social benefits. As a result, although over the last few years, certain progress has been made, in 2015, approximately 50% of the migrant workers coming from the rural areas still did not have employment contracts and most of those with such contracts had been hired on a limited period. Also, in our opinion, the new reforms should "disconnect" eligibility for access to public services from the hukou status. This intention could be materialised through the introduction of residence permits that would ensure the holder total access to public services, while also preserving the migrants' rights over the land in their rural area of origin. At the same time, rural development in China could also be accelerated by the promotion of policies on subsidising the purchase of modern equipment and the cultivation of a larger range of varieties, including those obtained by means of biotechnologies, thus contributing both to the raise of agricultural productivity and to the increase of the farmers' income. At present the fact that provinces have different levels of subsidisation for the purchase of technologies may lead to an unbalanced development. The importance of a well thought of and balanced legal framework is emphasized by the case of the subsidy granted to increase seed variety. Initially, this subsidy was granted to seed producing companies to market new varieties and types of cultures. However, as a result of the identification of cases of corruption and abuse at the level of these companies, the subsidy was converted into a direct payment to the farmers.

In Romania, in order to boost sustainable rural development, national authorities should consider six priorities under which they may *grant* funds for rural development: fostering knowledge transfer and innovation; enhancing competitiveness; promoting food chain organisation & risk management; restoring, preserving & enhancing ecosystems; promoting resource efficiency and transition to a low-carbon economy and promoting social inclusion, poverty reduction and economic development in rural areas.

Last, but not least we should mention that bilateral cooperation in the field of rural development could be beneficial for enhancing the sustainable development of this sector in both countries. Currently, friendly cooperation between China and the Central and Eastern European Countries is offering new opportunities for the China-Romania cooperation in the field of rural development. An important vector of this partnership could be to intensify cooperation in agricultural investment, and to encourage Chinese agri-businesses to invest in

livestock, vineyard cultivation and processing, irrigation facilities and agricultural machinery in Romania (such cooperation could be developed under the framework of the bilateral Memorandum of Understanding on Further Strengthening Agricultural Cooperation, signed by China and Romania in 2014). Another pillar of the Chinese-Romanian cooperation could be to enhance information exchange and sharing of know-how in some specific sectors (such as organic farming, eco-friendly agricultural practices or bottom-up rural development projects), and promote agricultural trade through exhibitions and trade fairs.

In addition to cooperation opportunities, it is important to specify that both states, in order to truly achieve a sustainable dimension of rural development, need to stimulate financing for training and the dissemination of knowledge and information among farmers, in particular with regard to the environmentally-friendly agricultural practices employed and with regard to the financing opportunities for such practices (at national, but also at regional or international level). In order to strengthen the green component of the future rural development in both countries, cooperation between farmers and the managers of rural estates must be encouraged (in particular to ensure the connectivity of certain environmental measures with measures related to the protection of ecosystems in rural areas), in parallel with the better organisation of the training and counselling activities in the rural area which should offer information on how to access funds and credits for sustainable agricultural practices.

In our opinion, although both states made remarkable progress in the field of rural development, major regions of both countries still suffer from rural poverty and lack of environmental protection. In order to substantially improve rural development levels in China and Romania, public policies need to provide incentives for employment growth, water and environmental sustainability along with technological advancement in the field of agricultural production.

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The RMB Internationalization and the Reform of the International Monetary System

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Abstract: *The RMB internationalization is one of the major Chinese financial strategies in the aftermath of the global financial crisis. It is driven by an increasing importance of China in the global economy, as well as by its efforts to reform the international monetary system. The paper examines to what extent the RMB is used internationally and outlines the major steps taken from the policy point of view. The Chinese government reaffirms its decision on financial opening and on domestic financial reform, being committed to make the RMB fully convertible by 2020. The author concludes that such forward-looking policy steps, along with the RMB flexible exchange rate, will reshape the Chinese economy and its role within the world economy.*

Keywords: *RMB internationalization, international monetary system, SDR reform, capital account opening, domestic financial market, offshore RMB market*

1. Introduction

The reform of the international monetary system was triggered by the global financial crisis in 2008. However, from a long-term perspective, it was the result of changing economic powers (Gao, 2015). Over the past decades, emerging economies have become engines of growth, massive reserve holders and the largest creditors of developed economies. China has become the second largest economy, but it has struggled with a so called "dollar trap", meaning that it has recycled its savings into dollar-denominated assets while being subject to dollar volatility (Krugman 2009). The global financial crisis certainly has provided a momentum for China to challenge the reality, yet the root motivation for the RMB internationalization was an increasing economic weight of China in the world.

In 2009, the governor of the Chinese central bank, Zhou Xiaochuan, proposed to design a super-sovereign reserve currency. He criticized the predominance of fundamental financial flaws in a single dominant currency system and the existence of Triffin Dilemma (Zhou 2009). The key message of this theoretical proposal was to encourage countries to delink the global financial stability from the balance of payment of one country. Although such an idea is infeasible in practice, it implicitly presents the disagreement of China with the current international monetary system. In fact, China is ready to seek options for increasing its voice within the existing international financial institutions, and to reduce its over-reliance on the US dollar (Gao and Yu, 2012).

Considering this background, the issues of the Chinese currency strategy and the effort of China in reforming the international monetary system have drawn significant attention from policy makers, academic researchers, and market participants worldwide. Particularly, the issue of the RMB internationalization has became the center of the international monetary system's reform. Academic studies have focused on the factors for the RMB to become an international currency, on benefits and costs associated with the RMB internationalization, on Chinese policy choices and the sequence to support the strategy, and on its potential impacts on regional monetary integration and international monetary system (Gao, 2016).

The paper investigates the following issues: how China exerts its influence in order to strengthen its position within international financial institutions, with the focus of Special Drawing Rights (SDR) reform; to what extent the RMB expands its functions as an international currency, and why the Chinese policy sequences and the development of RMB offshore and onshore markets is important for the process of RMB internationalization. The paper concludes with the views on a broader implication of the Chinese currency strategy for the economic reform and the openness in China, and for the future direction of the international monetary system.

2. The increasing role of China within international financial institutions

The IMF is one of the most important Bretton Woods institutions. However, Asian developing countries have had an unhappy experience with the IMF during the financial crisis in 1997-1998 – when the countries in crisis have requested IMF to provide emergent liquidity support, they have had to agree with the IMF conditionality. The conditionality was strict and required the countries to carry out policy adjustments and structure reforms. At that time, the IMF policy recommendations for distressed countries were largely influenced by the prevailing "Washington Consensus", which have turned into wrong solutions for Asian countries to overcome the problems. Such experience has become one of the reasons for Asian countries - ASEAN, China, Japan and Korea (known as 10+3) - to establish their own financial supporting mechanism, namely, Chiang Mai Initiative (CMI). The CMI has been improved and enlarged several times, since its establishment in 2000. Now it has become a multilateral mechanism - Chiang Mai Initiative Multi-lateralization (CMIM), with a capacity of 240 billion of dollars. China and Japan take the lead and are the biggest shareholders. The purpose of CMIM is not only providing the crisis support in Asia, but also is a supplement to the IMF. More importantly, ASEAN+3 Macroeconomic Research Office (AMRO) was established in 2010. It is located in Singapore, performing economic surveillance and policy dialogue among member countries. Although the AMRO has limited capacity, compared with the IMF, it has begun to function as a regional version of the IMF. Being the biggest shareholder in the AMRO, China plays a key role in shaping a regional financial institution in Asia.

At the global level, the IMF is still the principle institution for preserving the global financial stability. After the Asian financial crisis, the IMF has reflected the constraints and the drawbacks and has decided to reform itself in many aspects. For instance, the IMF credit lines are now more flexible and more adaptable for crisis support. The IMF quota resources have doubled since global financial crisis. The IMF has finished the new round of quota reform, giving emerging economies more seats of executive directors. China, as one of the main contributors, has substantially increased its quota share and its voting power.

3. The Special Drawing Rights reform

Another major reform of the IMF refers to its SDR by including the RMB into the SDR basket. The RMB inclusion in the SDR basket is logical, given that China has the largest share in the world trade, and given the Chinese effort concerning the liberalization of its capital account and of the exchange rate regime. Such an insignificant change in the basket composition, actually, raises tremendous potentials for diversification of the international reserve system.

From the SDR view, having one of the most traded currencies on board could certainly improve its presentation. The previous composition of the basket, with USD, Euro, Pound Sterling and Japanese Yen, was apparently irrelevant given world trade shares and reserve accounts diversification. More importantly, the inclusion of China in this basket could bring fresh blood into the SDR, and could make it closer to the purpose of the original design of the SDR: an ideal SDR basket, compared with a single sovereign currency, has weaker link to one country's current account deficit and is less reliant on one country's debt issuance. Unfortunately, such a potential advantage has never been materialized. Instead, the US dollar remains the single important liquid asset worldwide, which becomes a major source of financial instability. As a country with a major current account surplus and an important creditor, China has the potential to become another supplier of a global asset, which can make the current reserve currency system more balanced and diversified.

Recently China has begun to diversify its assets, approaching the SDR as a candidate and tking some steps to boost the use of SDR. For instance, Governor Zhou has reiterated the importance of an enhanced SDR on many occasions. On 6 April, 2016, the People's Bank of China (PBoC) began using the SDR as a reporting currency for China's foreign exchange reserve data, expecting to improve the measurement of the reserve value and to enhance the role of the SDR as a unit of account. In August 2016, the International Bank for Reconstruction and Development issued its first tranche of SDR-denominated bonds on the Chinese Interbank Bond Market. In its statement, the PBoC has agreed to facilitate the trading and the settlement of SDR-denominated bonds, has improved its liquidity and has promoted further openness and development of Chinese bond market. This bond issuance would also help broaden the use of the SDR.

Since its currency is included in the SDR basket, China expectsto use it as a leverage to boost RMB internationalization. The SDR is not a currency. It is only a claim on the freely usable currencies of IMF members for the time being. In other words, the IMF member countries can make a SDR trading arrangement

either on voluntarily base or through the IMF as an intermediary. Therefore, the RMB inclusion can certainly be a firm support for performing the RMB function as a reserve currency among member countries. Apart from that, global investors can also take advantage of new issuances of the RMB bonds and other financial instruments, following the confirmation of the RMB membership in the SDR.

There is also another expectation for China. In 2015, when Christine Lagarde, the IMF Managing Director, mentioned about the possibility to transform the RMB into an SDR component, during the time of the IMF review on RMB, the world has turned its attention on China. This has happened because the IMF has not provided a clear definition regarding the condition on a "free usable" currency. Moreover, every move made by China was interpreted as an effort to meet this condition. For instance, the PBoC decided to relax its intervention on the RMB middle price on August 11, 2015. That action was approached as a step for meeting the IMF requirements and for establishing the clearing system before the deadline of the IMF evaluation. China has decided to further open the interbank market and to establish the RMB clearing system (CIPS), which were also viewed as actions for that purpose. Therefore, the RMB inclusion in the SDR has become a "committed device" for further financial opening and liberalization of China, at least untill the approval of the formal status in the IMF Executive Board.

However, such "committed device" is not cost-free. One major concern is that spillovers of financial instability may occur in two ways. The impact on market volatility is getting stronger than before. This impact is a new one for China, while previously it has solved this problem by using the capital control tool. In the current context, China has to learn two things: to adopt macro-prudential policies for curbing excessive capital flows; to manage market expectation in order to stabilize foreign exchange volatility. Chinese monetary policy is no longer domestic, while market expectation across the world can also have an impact on domestic policies.

Joining the SDR basket is not the end of the process of the RMB internationalization. Financial opening and domestic reforms are two parallel paths. A well sequenced domestic policy framework is also crucial. The magical "committed device" has been a success for China. The future of the RMB depends more on the success of the domestic financial reform and liberalization.

4. The rise of RMB and the Chinese supporting polices

Since 2008, when China has signed the first RMB bilateral currency swap with Korea, and since 2009, when China has relaxed its control on the RMB in trade settlement, the international use of the RMB has increased rapidly. As a payment currency, the RMB is ranked fifth in the world, according to SWIFT RMB Tracker. About 28.7% of Chinese trade is settled in the RMB; 10% of Chinese direct investment is denominated in RMB (PBoC 2016). The RMB offshore deposits and bond issuances have rapidly grown , especially during the time of RMB appreciation. Domestically, the RMB market is more open to non-resident investors than before. The Chinese government has reaffirmed the objective of RMB free convertibility by 2020 within the Congress third plenum plan. Moreover, the RMB's influence is increasing, especially in Asia, alongside with the economic importance of China in the region.

The rise of the RMB role is a challenge for the dollar. However, a replacement of the dollar within the international financial system is not feasible. Currently, the dollar is still the most important currency in the world. For instance, the dollar has accounted about 64% of the world foreign reserves, almost half of transactions are carried out in dollars on the global foreign exchange market. The dollar has accounted about 48% of bank loans, Dollar-denominated debt securities has accounted 45%. In other words, the dollar is still the most transacted currency. Considering the fact that the dollar has the most liquid, deep and broad market in the world, the scope for other currencies to compete with the dollar is very limited.

The success of the RMB internationalization is based on many factors. Apart from the economic size, the influence and the openness of China's capital account, the development of the domestic financial market another determinant factor (Gao, 2016). Furthermore, a global currency requires a credible , transparent and independent monetary authority. In conclusion, when putting all these factors together, the RMB has a long way to go.

Especially, for the time being, China is facing more challenges than before. Capital account liberalization, exchange rate flexibility and domestic financial liberalization are three key policies for a better chance of RMB to become an international currency (Gao, 2016). Currently, China faces the difficulty to manage the triangle situation: given that autonomy of monetary policy is China's priority, then the monetary authority has to balance between the exchange rate stability and the capital account opening. Exchange rate

flexibility is not a must for currency internationalization. But it gives more rooms for convertibility and openness, which is essential for the accessibility of the currency for non-residents.

Since 2005, China has reformed its exchange rate regime toward a more flexible and market-determined one. The past appreciation of the currency has raised market appetite, making the currency attractive for investors. In August 2015, the PBoC decided to stop its interventions on the currency middle price. However, this movehas led to sharp devaluation of the RMB. There were many factors that have caused this depreciation, such as, the expectation of rate rise by the Fed and the slower growth rate in China. The ongoing capital opening was also a major catalyst. In fact, currency devaluation and capital outflow reinforced each other over the period 2015-2016. In December 2015, the PBoC decided to introduce a currency basket – CFETS (China Foreign Exchange Trade System) to anchor the RMB exchange rates. In the meantime, the PBoC has begun slowing down the pace of capital account opening. In the late 2016, the PBoC tightened the controls of cross-border capital movements, rolling back from the previous commitment of the RMB full convertibility.

In theory, a more flexible exchange rate can be an external shock buffer, providing more freedom for monetary authorities to focus on the domestic objectives. As for capital flows, prudential capital management are a preferable tool to mitigate financial risks, as they are market-oriented measures rather than administrative controls. They are adaptable for individual countries and can be adjusted for different circumstances and for different period of time. For instance, the measures include various treatments of non-resident accounts, reserve requirements, foreign exchange related tools, etc.. However, the recent hesitance of China to speed up capital account opening is, in fact, a reflection that China still regards capital controls as the first and the last defense lines.

5. Implications of the offshore and onshore RMB market

The development of the RMB offshore has multiple implications. First, China aimed to create RMB pool outside mainland China. Due to limited convertibility, the RMB liquidity outside China has been insufficient for market transactions since the beginning. The success of the US dollar actually provides an example for the RMB. US dollar is the most transacted currency in the world. One of the factors that have contributed to this position was the development of the euro-dollar market in 50-60s. There were three pillars supporting the euro-dollar market: Marshall Plan that provided a huge supply of the dollar outside the US; the Bretton Wood System that gave the dollar a unique role as a global currency anchor; and the US domestic financial regulation that created incentives for transactions in offshore market during that period. If the experience of the US dollar is of any guide, the RMB can also create an euro-RMB market while maintaining a limited currency convertibility.

Second, the international use of the RMB has an impact on the domestic monetary policy. Normally, if the offshore is pure, which by definition means that transactions take place between non-residents, its impact on the effectiveness of the domestic monetary policy is limited. However, literature provides no conclusion whether currency internationalization can affect a country's domestic money aggregates and its credit policy (Gao, 2009). In practice, Germany was hesitant towards the Deutsche-mark offshore market in the 1980s, due to uncontrollable impact on domestic money aggregate; Japan was also worried about the disturbing impact of the yen offshore transactions on its window guidance policy in the early 1980s. The RMB offshore has its own characteristics. For instance, most of the RMB transactions on Hong Kong market have Chinese counterparties. Such involvement of Chinese residents makes the RMB market a hybrid of onshore and offshore. Therefore, there is a need to differentiate various types of offshore markets depending on whether the transactions are between residents and non-residents, or only between non-residents, as different transactions have different implications for domestic market and policy.

Third, domestic market development is important for the RMB international usage.The market liquidity is the result of a large number of players, sufficient choices of products, and narrowed bid-ask spreads. A liquid market, in turn, can attract more players and generate demand for both residents and nonresidents for the transacted currencies. A country's asset structure can also affect currency internationalization. For instance, a market-based system where direct financing dominates the asset structure is more favorable for international transactions of a currency, compared with a bank-based system. A market-based system is common for the USA; a bank-based system is common for Japan and for the Eurozone. China is also a typical bank-dominating system, where bank loans have accounted over 60% of its total social financing, while bond and equity accounted about 10%. China now is expecting a change of its asset structure by increasing the share of direct

financing. However, such a shift is unlikely to materialize in a short period for a country with a long history of bank dominance, the existence of large numbers of State Owned Enterprises (SOEs), and the lack of reliable rating agencies.

The last, an efficient and developed financial infrastructure is also important for currency internationalization, as it can tremendously reduce the transaction cost. China is constructing its own single clearing system, the CIPS. It could give the RMB a big push when it is completed, as virtual financial transactions have no geographic boundaries, and they are much larger in terms of volume than trade transactions. More importantly, this system could also become a catalyst for the RMB used as a vehicle - a third currency used between non-residents, an area where currently the US dollar has no competitors.

6. Conclusion

The accession of China to the WTO was regarded as a successful "committed device" for the domestic reform by facing external pressure and foreign competition. A decade later, China has the goal to repeat its success and to utilize the RMB strategy for breaking domestic financial bottlenecks. This intention was quite subtle at the beginning, but it turned into two parallel processes. In fact, financial openness and liberalization are more meaningful than currency internationalization itself.

Ultimately, whether a currency becomes an international one is the choice of the market. The strengthened role of China within the global economy and world trade, ongoing financial opening, domestic financial reform, exchange rate flexibility, and the ability of the government to manage risks incurred by both external shocks and internal economic instability are crucial for the next step of the RMB strategy. Additionally, apart from economic influence, political factors and the change of international economic environment, such as the rise of de-globalization trends and trade protectionism, are also important elements that determine the future of the RMB on the global financial arena.

The RMB internationalization is the own strategy of China. However, it has global consequences. The international financial system is moving away from the dollar hegemony to a multipolar one, where market instability and short-term volatility are unavoidable. Therefore, international financial cooperation is necessary. In the long-term, the success of the RMB internationalization, domestic reforms and economic opening would be a great contribution of China to reshaping the international financial architecture.

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Volatility of Cross-Border Financial Flows and Policy Responses

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***Abstract**: The last global financial crisis has shown that the volatility of financial flows has adverse impacts on growth prospects and has an important role from a financial stability perspective. The article has the purpose to analyze why Europe was the most affected region by a reversal and a heightened volatility of cross-border flows both during the global financial crisis and in the aftermath of it, and to identify the main policy responses to this issue at the international and European level. For achieving these purposes the authors review the benefits and the costs of financial integration and present the main characteristics of cross-border capital flows with destabilizing effects on financial markets. The analysis finds that significant progress related to managing the volatility of financial flows through regulatory and supervisory reform of the financial market have been made since 2008, both at the international and European level. However, further steps should be taken for enhancing cross-border cooperation at the global level in order to effectively use the limited implementation resources. For preserving the financial stability in Europe further actions should be implemented to address the existing weaknesses related to adverse incentives or moral hazard risks by a deeper financial and fiscal integration.*

***Keywords**: cross-border financial flows, financial integration, volatility, financial crisis, financial stability, policy responses, the U.S., the euro area*

1. Introduction

The global financial crisis of 2008 was more disruptive than other crises in the past and propagated more rapidly. It has revealed that international financial integration in addition to substantial benefits for financial stability also presents various threats and potential risks, and even advanced economies are vulnerable to cross-border underregulated financial flows. A reversal and an increased volatility of financial flows may have adverse impacts on growth prospects and matters from a financial stability perspective (Forster, 2011). This is why enhancing the resilience of the global financial system, while retaining the benefits of integrated and competitive financial markets, is a very actual issue.

One of the main *benefits of cross-border banking* arises from its effects on risk diversification. The assets of cross-border banks are less exposed to a country-specific shock, which reduces their likelihood of failure as well as the likelihood of being constrained in their lending. The presence of foreign banks in a country can be a stabilizing force for the host country. In the case when local banks are affected by a local shock, foreign banks may substitute them in the lending market. Foreign banks may also be more efficient. When they enter developing markets they tend to have more advanced risk-management systems. The spread of best practice may benefit domestic banks as well, further enhancing stability (Allen et al., 2011). Moreover, cross-border diversification of large banks improves the soundness of the banking system by making individual bank failures less possible. Another research suggests that banking integration leads to more synchronised business cycles at the country level, the evidence of which is available for both the U.S. and Europe (Kalemli-Ozcan et al., 2009). Cross-border banking improves overall economic performance by ensuring that productive capital is channeled towards the most efficient firms, thereby reducing the risk of crises stemming from the mispricing of investment risk (Giannetti&Ongena, 2009). Some authors have shown that financial integration assists domestic financial systems in allocating resources across industrial sectors in a way which improves the overall diversification of the economy and lowers its volatility. As a result, an optimally diversified economy is

less prone to recessions, and so the real sector responds less to the same shock than an economy which relies on just a few sectors (Manganelli&Popov, 2010).

However, there are several risks generated by cross-border financial flows given their destabilizing potential. Firstly, foreign capital is likely to be more mobile than domestic capital, and in a crisis it could have a distorting effect on financial conditions. Another important destabilising force is the contagion effect: in the same way as cross-border banking insulates the domestic economy from domestic shocks, it also exposes it to foreign shocks. Cross-border banks are more likely to be systemically relevant banks and their failure may impose significantly higher costs on economies than the failure of a domestic bank (Allen et al., 2011). In the pre-crisis period banking integration has lowered the cost of finance and has induced firms to take on excessive leverage, exacerbating the effect of financial crisis on the corporate sector. Both financial integration and cross-border banking accelerated the transmission of the crisis from its origins in U.S. housing markets to wholesale financial markets. According to some authors cross-border banking integration has been associated with the transmission of financial distress from banks' balance sheets to the corporate sector of countries which were not the origins of the shock (Popov&Udell, 2010). Another argument against financial integration is that free flow of capital widens the wealth gap between rich and poor countries and exposes domestic financial systems to the risk of instability (Fecht et al., 2009).

Studies on complex networks of financial institutions argue that a dense interconnection through bilateral exposures, could offer risk-sharing opportunities only in case of small shocks. If exceeded a certain level of interconnection the network contributes to the propagation of shocks (Acemoglu et al., 2015; Elliott et al., 2014). The deep financial link between the U.S. and European banks in the pre-crisis period has spread the crisis through several channels, most of which are closely related to cross-border financial exposures and banking linkages, which have facilitated the transmission of shocks. In the first round, the contagion has materialized through cross-border lending and not through domestic credit granted by foreign subsidiaries, which could explain why new EU member states and other emerging countries have felt the impact of the crisis at a later stage (Brunnermeier, 2009). Subsequently there were affected even banks with no cross-border exposures or linkages, as the liquidity crisis in international markets affected the local markets. In conclusion, there were three channels of contagion during the global financial crisis, firstly, through direct cross-border lending, secondly, through domestic credit granted by subsidiaries of multinational banks and the third channel of crisis propagation was a limited access of local banks to international financing.

Taking into consideration all this pros and cons, to benefit of greater financial integration, while limiting adverse effects, is quite complicated given that banks play a central role in intermediating these flows. Banks operate in an environment where political and regulatory forces are not coordinated and are unpredictable. According to González-Páramo (2010) it is not international financial integration per se that is to blame for financial instability and its impact on the real economy, but lack of transparency, wrong incentives, sub-optimal regulation, and deficient banking business models. Since 2008, important steps have been taken in the process of strengthening the financial stability at the international and European level, by eliminating major deficiencies in the regulatory and supervisory framework.

2. Main destabilizing characteristics of cross-border financial flows

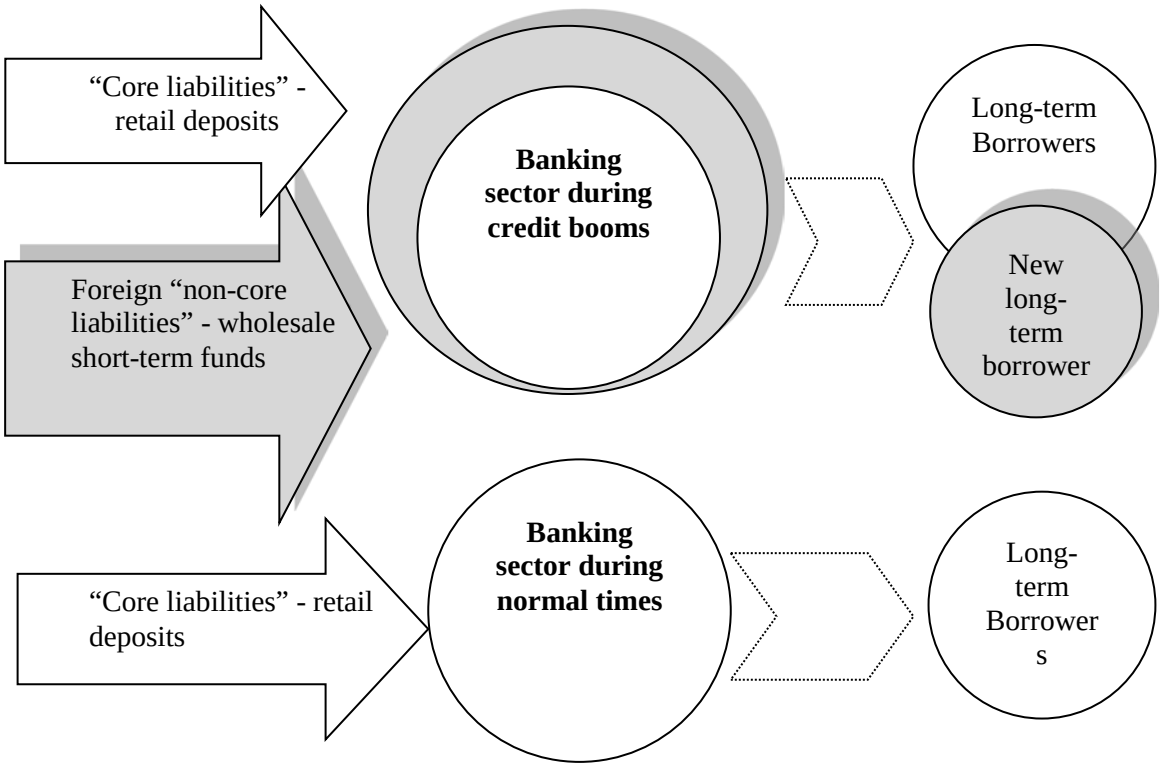
The evolution of global capital flow shows that different types of capital have different reaction in a crisis, debt financing having a more destabilizing impact on financial markets. The most procyclical financial flows are credit flows, and, by contrast, foreign direct investments were less volatile since 2008 (IMF, 2010). Milesi-Ferretti and Tile (2011) have empirically confirmed that the sudden stop in capital flows during the crisis was primarily concentrated in bank-related flows.

Thus, the first characteristic of cross-border financial flows that has a destabilizing effect on financial markets is the *procyclicality of bank lending.* It is given by the *excess elasticity* of the financial sector, i.e. the supply of credit to the real economy is much more elastic than would be justified by macroeconomic fundamentals (Borio, 2012). That means that in good times, firms are able to obtain easier access to external financing, credit flows rise, which acts as an economic stimulus, known as the "financial accelerator". And vice versa, when economic conditions worsen, even firms with high creditworthiness have difficulties to make a credit. The underestimation of risk in booms contributes to excessive risk-taking and to amplification of risks when financial cycle reverses. This is why an upward trend of loans is an important predictor of financial crises.

The second characteristic with a destabilizing effect on financial conditions that amplifies the procyclicality of the financial system is the unstable funding pattern of cross-border flows. In a credit boom,

when traditional funding sources of banks ("core liabilities" as retail deposits) overcome the credit demand, banks tend to use alternatives as wholesale short-term funds ("non-core liabilities") to cover the rising credit demand (Figure 1).

Figure 1: Banking funding during normal times and credit booms



Source: Author's adaptation based on the studied literature

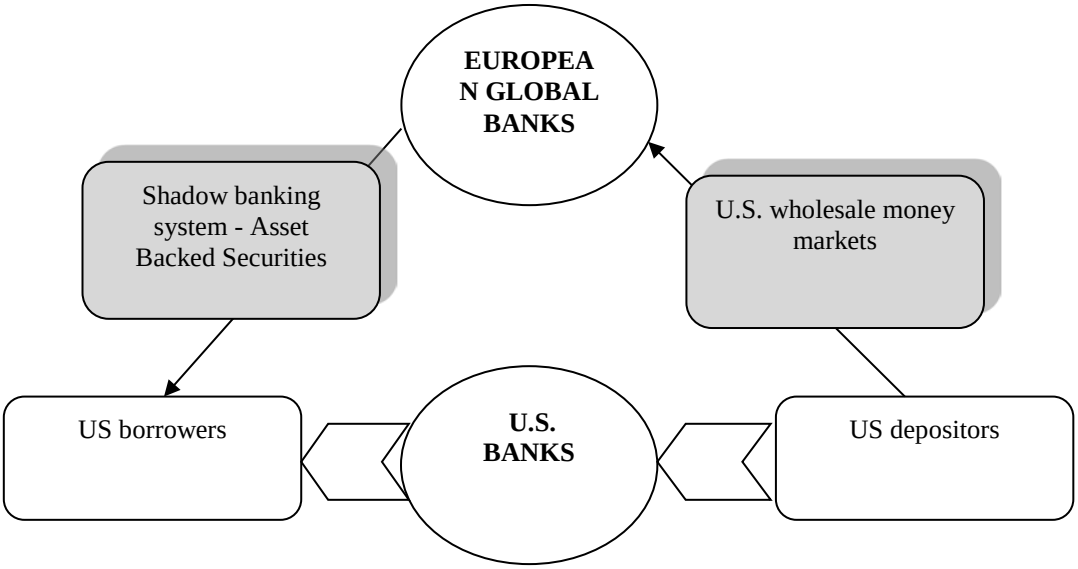
This type of funding is unstable due to the fact that funding of long-term assets with short-term funding in the interbank market by financial intermediaries, has negative systemic consequences when the cycle turns. As well, lending decisions of foreign creditor banks in international interbank markets are highly procyclical. Thus, the amount of non-core bank liabilities, especially to the foreign sector, is the most robust indicator of the vulnerability of a banking sector to the crisis (Hahm, Shin and Shin, 2011).

3. Evidence on the deep financial link between the euro area and the U.S.

Major players in the global financial flows both before the crisis and in the aftermath were European banks. Before the crisis their main strategy consisted in raising funds in dollars and investing them in U.S. assets generated by shadow banking institutions[1]. Most of the funding sources of European banks came from the U.S. wholesale money markets. The background for such a financial strategy has been created by the investment decisions of "saving glut" economies, as China and other Asian emerging economies (Bernanke et al., 2011). By investing in government bonds, these countries have lowered U.S. Treasury yields and have spurred European banks to find higher-yielding investments. One attractive option were Asset Backed Securities and Asset Backed Commercial Papers issued by the U.S. shadow bank institutions (Figure 2).

[1] "Shadow banking" is a blanket term to describe financial activities that take place among nonbank financial institutions outside the scope of regulators. These include investment banks, mortgage lenders, money market funds, insurance companies, hedge funds, private equity funds and payday lenders, all of which are a significant and growing source of credit in the economy. The shadow banking system has escaped regulation primarily because it does not accept traditional bank deposits. As a result, many of the institutions and instruments have been able to employ higher market, credit and liquidity risks, and do not have capital requirements commensurate with those risks. (Source: www.investopedia.com)

Figure 2: The round-trip flows of capital from the U.S. via the European banks



Source: Brunnermeier et al., 2012

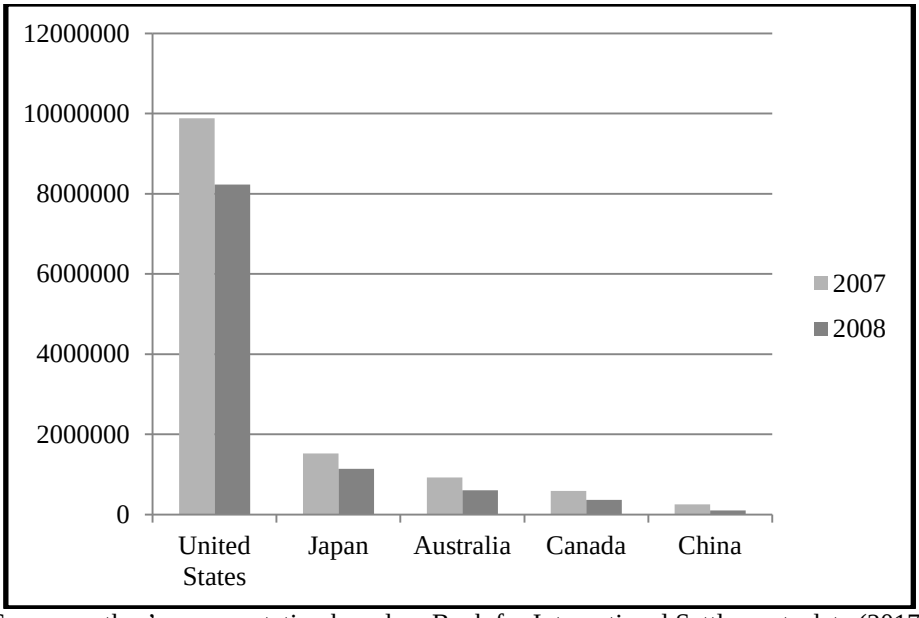
European global banks have an intermediating role between the U.S. savers and borrowers, influencing in this way the credit conditions and sustaining shadow banking in the U.S. They lent to U.S borrowers by investing into asset backed securities. This activity generated a deep financial link between European and the U.S. financial systems and spurred the contagion effect from one system to another during the crisis.

Global European banks that have recorded significant losses related to subprime assets, have transmitted the liquidity crisis by limiting external lending more than other banks. Ongena et al. (2015) and Puri et al. (2011) show that European banks with large exposures to subprime assets of U.S. banks were more vulnerable to liquidity shock and have contracted their lending in the period immediately following the subprime crisis.

The launching of the euro and the features of the regulatory environment have created favorable conditions for growing banking capacity of the euro area by increasing cross-border banking. Moreover, the European banking sector has implemented Basel II framework more rapidly than U.S. banks. By contrast, the U.S. has maintained a cap on leverage for regulated banking sector, limiting banks to expand their balance sheets (Gilbert, 2006). In addition, European banks have expanded their exposures on the U.S. being guided by ratings provided by U.S. rating agencies on mortgage-backed securities. However, the U.S. Financial Crisis Inquiry Commission uncovered that these ratings were overvalued by the U.S. rating agencies, which induced a false safety investment trust to European banks (Financial Crisis Inquiry Commission, 2011).

The Figure 3 shows a huge gap between euro area banking exposure on the U.S. and on other counterparties (Japan, Australia, Canada and China), reflecting its vulnerability to financial risks arising from the U.S. This exposure was the weak point of the banking system of the euro area, reflecting a *low level of investment diversification*, with a strong orientation towards the U.S. in a blind and risky chase after big profits.

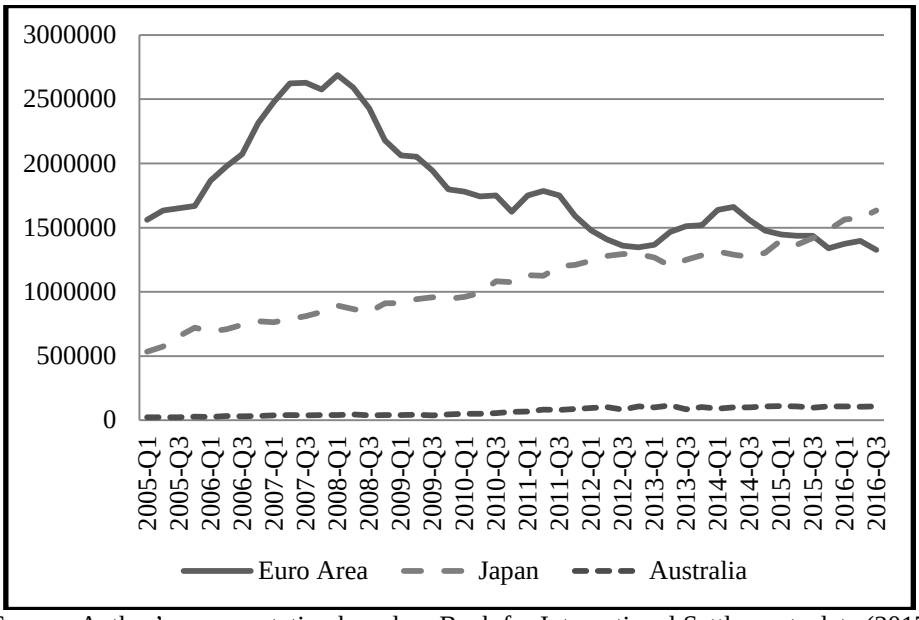
Figure 3: Cross-border claims of euro area banks on counterparties



Source: author's representation based on Bank for International Settlements data (2017)

As a result, the contraction of European banks' balance sheets was one of the most severe during the crisis, enhancing further economic and financial imbalances. By contrast, banks from Japan and Australia were less exposed to U.S. assets, suffering lower balance sheets' contraction in the aftermath of the crisis (Figure 4).

Figure 4: Cross-border claims of the euro area, Japan and Australia on U.S. borrowers



Source: Author's representation based on Bank for International Settlements data (2017)

Since 2008, the euro area has faced significant disruptions of cross-border capital flows, generating a sudden stop of inflows and a sudden start of outflows (Lane, 2013). These disruptions have lead to a severe financial account reversal, which has been compensated by liquidity operations provided by the European Central Bank. By cutting back their lending to the real economy, European banks have affected real economic growth and tax revenues of their countries. As a consequence fiscal debt level of European countries became less sustainable, increasing their sovereign debt risk. Under these conditions, both foreign and domestic investors shrunk their investments to sovereigns and banks. The recapitalization of banks through public funds (so called bail out) enhanced sovereign risk even more. The transmission of financial distress to the real economy evolved at record speed, affecting the confidence in financial system and hitting business investment

and household demand. As a result, European countries have faced the deepest recession since the 1930s, with the sharpest contraction of the GDP in the history (European Commission, 2009). The response of European authorities to the downturn has been swift and decisive.

4. Main steps towards reforming the regulatory and supervisory framework

The global financial crisis has revealed that increasing cross-border nature of banking was not accompanied by a regulatory framework at the global level. In order to cover this gap, in 2008, was launched a multilateral process governing reform of financial regulation led by the G20, aiming to increase the resilience of the global financial system while preserving its open and integrated structure. For achieving this purpose was established the Financial Stability Board (FSB), entrusted with the task of overseeing regulatory steps and monitoring the implementation of the reform agenda. Moreover, the establishment of colleges of supervisors for all major cross-border financial institutions was an additional tool for enhancing cooperation among international authorities. The implementation progress on the financial reform agenda has been steady but uneven, further cross-border cooperation being needed to overcome obstacles to effective implementation of reforms, particularly for over-the-counter derivatives and resolution regimes (Financial Stability Board, 2015). All of these reforms require national authorities to have legal powers and efficient processes for sharing information, to have developed firm-specific cooperation agreements with host authorities on crisis management groups for global systemically important banks.

An important response was provided by Basel Committee on Banking Supervision, under the aegis of the G20, regarding the banking system reform. It has developed a package of measures on increasing the resilience, safety and soundness of the banking system consistent with long-term economic growth. The new Basel III framework has set significantly higher requirements for loss absorption and places greater emphasis on higher-quality capital (increasing the quality and level of capital), while better capturing the full scope of risks that banks face (enhancing risk capture). Key new aspects of this framework include a leverage ratio requirement (constraining leverage), capital buffers to mitigate various sources of systemic risk (adding a macro-prudential dimension), and a set of standards limiting liquidity and maturity transformation (mitigating liquidity risk) (Basel Committee on Banking Supervision, 2015).

However, the global coordination and the process of governing the international financial systems were impeded by several *obstacles*:

- Some domestic banking interests overweight the stricter capital requirements of Basel III, making the process of its negotiation and implementation a long-running one.
- Different pace of international banking rules implementation across countries creates tensions and distortions.
- A lack of a global coordination of the monetary policy hinders the general goal of a global financial regulation.

Considering these obstacles in achieving a single global regulatory framework and coordinating the monetary policy across countries, governments should design more resilient frameworks to mitigate the risks related to cross-border financial flows volatility at the national level. The best policies that may sustain the goal of financial stability are macroeconomic and structural policies, along with monetary and macro-prudential policies.

By providing targeted regulations on banks engaged in cross-border activities, governments could manage cross-border movements. In addition to micro-prudential policies focused on loss absorbtion of bank capital, macro-prudential policy framework provides early warning indicators on the procyclicality of the financial system and signals potential vulnerability to financial stability. For capturing these vulnerabilities, macro-prudential policies should have a double perspective; by taking into account both the asset side and the liability side of a bank's balance sheet. Such an approach acts against excessively credit growth in economic boom and reduce the vulnerability of unstable funding to reversals in international liquidity conditions. Two important tools *for the asset side* purpose management are: loan-to-value ratio and debt-service-to-income caps[2]. These tools limit bank lending and prevent the use of non-core liabilities to fund credit activity, and lean against the decline in lending standards that is common for rapid credit growth. *For the liability side* it may be

[2] Loan-to-value ratio regulation restricts the amount of the loan so as not to exceed some percentage of the value of the collateral. Debt-service-to-income caps operate by limiting the debt service costs of the borrower so as not to exceed some fixed percentage of verified income.

applied levies on the non-core liabilities (wholesale funding). The crisis has shown that banks that turned to unstable funding patterns as wholesale funding bear greater risks to financial stability. This is an important reason for paying attention to the organizational and financial structure of global banks, and to cap such unstable funding patterns. That would help moderate capital flows that could exacerbate procyclical behavior and generate risks. In this regard, in addition to macro-prudential policies, a financial stability-oriented monetary policy is also recommended, which implies that monetary policy acts against the early build-up of financial imbalances.

For the euro area, the *main deficiencies* regarding the regulatory framework which have exacerbated the financial instability during the global financial crisis were (Allen, 2011):

- Limited resolution options that have led to inefficient resolution of large European banks.
- The micro-prudential approach of financial regulation that has been unable to maintain financial stability. No specific considerations were given to systemic risk, systemically important institutions or cross-border banks.
- The rules to maintain fiscal discipline within the euro area that have been ineffective because of the lack of proper enforcement mechanisms.

Due to cross-border character of distressed banks, European authorities have faced major difficulties regarding the provision of fiscal support during the crisis. While monetary policy was unified within the euro area at the level of the ECB, no similar institutional arrangement existed on the regulatory level. One major response for restoring the financial stability was the adoption of the ECOFIN roadmap in 2009 on financial supervision, stability and regulation and the proposals for a new supervisory framework in the European Union based on the recommendations of the Larosière Group. In addition, a broad consensus has arisen in favor of a macro-prudential orientation of supervision.

Major steps were taken towards reducing the fragmentation of the regulatory framework, supervisory structures and crisis mechanisms, both at the European Union and at the euro area level. At the European Union level, it was created the European System of Financial Supervision (ESFS) - a system of micro- and macro-prudential authorities aimed to ensure consistent and coherent financial supervision [3]. However, the coordination of financial supervision via ESFS was not sufficient to prevent fragmentation of the European financial market. Even further steps taken by European authorities to establish a single rulebook for all financial actors in the EU countries were not sufficient to uniform the European financial system. The euro area debt crisis has revealed the necessity for a deeper integration of the banking system especially for the euro area countries, which are particularly interdependent. In order to enhance the coordination at the euro area level and to attain a full banking integration Banking Union was created. It complemented the single currency area and the single market. Non-euro area countries can also join it. The main components of banking union are: a Single Supervisory Mechanism (SSM), already in operation, and a Single Resolution Mechanism (SRM) with bail in procedure. These two mechanisms are still not sufficient for attaining the goal of a full banking integration. Only the same level of confidence in the safety of deposits across countries could lead to a genuine banking union. However, different fiscal conditions and macroeconomic policies within member countries have led to differences in the financing costs faced by similar firms in these countries. This may undermine the competitiveness of banks in member states with a less favorable fiscal position in normal times, as well as amplify deposit outflows in times of turmoil, negatively affecting financial stability (ECB, 2016). Thus a further step to a fully-fledged banking union should be a European Deposit Insurance Scheme (EDIS). It is an important milestone in closing the gap in the legislative framework governing the institutional and regulatory framework of the banking union. Moreover, it would reduce the complexity of the present heterogeneous safety nets and eliminate the need for interaction and cooperation between national deposit guarantee schemes (DGSs) in cross-border bank failures (ECB, 2016). In parallel to EDIS the following actions should be pursued:

- ensuring additional risk-reducing measures, i.e. an alignment of national options and discretions in banking prudential rules,
- further work on the convergence of insolvency laws and other prudential measures,
- progress towards further integration of economic and fiscal policies at the European level.

[3] The micro-prudential pillar at European level is formed by the European Banking Authority (EBA), the European Securities and Markets Authority (ESMA) and the European Insurance and Occupational Pensions Authority (EIOPA), which work together in the Joint Committee of the European Supervisory Authorities (ESAs). Macro-prudential oversight is performed by the European Systemic Risk Board (ESRB).

The EDIS and the risk-reduction measures have the potential to strengthen and stabilize the banking union to the benefit of the entire Economic and Monetary Union (EMU). By adopting the legislation on SSM, SRM, the Capital Requirements Directive IV, the Directive on Deposit Guarantee Schemes, the Bank Recovery and Resolution Directive and a single supervisory handbook, European authorities have significantly contributed to creating a genuine banking union and to reducing market fragmentation. Given the strong link between the fiscal position of a member country and the confidence in its national DGS, further progress should be insured towards further economic and fiscal integration, including a capital markets union and a fiscal union. There is a need to continue reforms regarding the supervisory and regulatory institutions, both at the European and international level, in order to take full advantage of financial integration meant to support the economic and social development and to better counteract any external financial shock.

5. Conclusions

It has been shown that increased interconnection among financial markets and the deepening of cross-border banking, when coupled with the underregulation, as well as with significant complexity in the design of financial instruments, could contribute to increase the systemic risk and exacerbate the cross-border transmission of financial shocks. The financial crisis has revealed that, although financial integration improves the access to financial markets and the opportunities for risk diversification, it may also increase the scope for financial contagion across the countries. It is therefore important that the financial stability arrangements keep pace with the degree of financial integration.

At the global level, the main challenges for the G20 financial regulatory reforms are linked to further cross-border cooperation, particularly for over-the-counter derivatives and resolution regimes. As well a stronger coordination of monitoring efforts regarding the implementation of reforms and greater sharing of experiences are needed in order to effectively use the limited implementation resources of national authorities. Financial stability arrangements should be particularly ambitious in the euro area, which is characterized by a high degree of financial market's fragmentation. The framework for the Economic and Monetary Union needs to be improved addressing existing weaknesses related to adverse incentives or moral hazard risks via the fiscal and economic governance framework. The further measures to reduce risks in the banking union are of considerable importance for financial stability. The best way forward to ensure financial stability and benefit from financial integration is by ensuring a parallel process of establishing an EDIS and progressing on further risk-reduction measures, and integrating economic and fiscal policies at the European level.

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The Development of Sino-Romanian Relations After 1989

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***Abstract**: The Sino-Romanian relations after 1989 have experienced three stages: the development and deepening of friendly and cooperative relations (1989~2003), the establishment and development of a comprehensive friendly cooperative partnership (2004~2011), the deepening of a comprehensive friendly cooperative partnership (2012~). The bilateral relations have been developing steadily and have played an exemplary and leading role in the development of relations between China and CEECs. The development of Sino-Romanian relations has benefited from the traditional friendship between the two countries, the respect for each other, the consensus on major regional and international issues, the complementary economic advantages and the decision-making of the two governments. But the level of bilateral relations, as well as the economic and trade cooperation has yet to be improved. The problems that need to be solved are how to promote the economic and trade cooperation at a higher level, how to deal with the challenges of stakeholders and how to reduce the negative impact of the frequent changes of the Romanian government.*

***Keywords:** Sino-Romanian relations, friendly and cooperative relations, comprehensive friendly cooperative partnership, CEECs, 16+1 cooperation, the Belt and Road Initiative*

Since China and Romania established the diplomatic ties in October 5, 1949, they have maintained friendly and cooperative relations. After 1989, the bilateral relations entered a new era.

1. The development and deepening of friendly and cooperative relations (1989~2003)

After the 1989 upheaval in Romania, China adhered to its consistent position: "Ideologies and social systems should not become the obstacle to establishing and developing the relations between different countries.....The relations should be established on the basis of common interests.....In accordance with the principles of respect for the choice of the people of every country and not interfering in the internal affairs of other countries, China will maintain friendly exchanges and economic cooperation with Poland, Hungary, Czech and Slovak Federal Republic, Romania and Bulgaria." (Qian, 1991) Romania also saw China as one of its important partners and gave great priority to its relations with China. Therefore, the two countries could adapt to the new situation quickly and continue to develop and deepen the friendly and cooperative relations.

As early as December 21, 1989, China said it would not interfere in the internal affairs of other countries and believed that Romania could handle its own affairs (People's Daily, 1989). After Romanian National Salvation Front Council was founded, China stated that it respected the choice of the Romanian people and would maintain and develop friendly relations with Romania on the basis of the five principles of peaceful coexistence. Chinese President Yang Shangkun and Premier Li Peng telegraphed his congratulations to the leader of Romanian National Salvation Front Council, Ion Iliescu, and to the Romanian Prime Minister Peter Roman, respectively. Red Cross Society of China decided to provide emergency humanitarian assistance to Romania. In August 1990, Chinese deputy foreign minister Tian Zengpei visited Romania and came to a consensus with deputy state secretary of Romanian foreign ministry:the development of the Sino-Romanian relations was in the interests of both countries and it should not be influenced by the change of Romanian domestic situation (Zhou, 1990).

In January 1991, Romanian President Ion Iliescu paid an official visit to China, which Chinese President Yang Shangkun called "a starting point" of the development of traditional friendly relations between China and Romania (Zhou, 1991). In July 1994, during his visit to Romania, Chinese Premier Li Peng singed the Joint Declaration by the Government of the People's Republic of China and the Government of Romania on the Friendly and Cooperative Relations. The Joint Declaration pointed out: "The development and deepening of

friendly and cooperative relations is in line with the interests of the people of our two countries and contribute to maintain peace and stability in the region and the world." (People's Daily, 1994a) It also set the guiding principles for the development of relations between the two countries:

Based on the principle of mutual respect for the independence, sovereignty and territorial integrity, non-interference in each other's internal affairs, equality and mutual benefit, peaceful coexistence and other recognized principles of international law, the friendly and mutually beneficial cooperative relations in the field of politics, economics, science and technology should be developed.

The rights of people all over the world to decide their own fate and choose the political system, economic system and the path of social development freely as well as the human basic rights and freedom should be respected. The differences of ideology, economic model and development path should not hinder the normal development of the relations between the two countries. (People's Daily, 1994a)

Furthermore, Chinese President Jiang Zemin's visit to Romania in the end of June and early July 1996, Romanian President Emil Constantinescu's visit to China in September 1997 and Romanian Prime Minister Adrian Nestase's visit to China in June 2002 pushed the friendly and cooperative relations forward. In May 2003, when the Chinese people fought against "SARS", Prime Minister Nastase visited China and brought some medical equipment, which can be described as "a friend in need is a friend indeed." In August 2003, President Iliescu visited China and signed the Joint Declaration by the Government of the People's Republic of China and the Government of Romania with Chinese President Hu Jintao, which "announce that the two countries will develop a comprehensive friendly cooperative partnership." (Chinese Ministry of Foreign Affairs website, 2003)

Meanwhile, the economic and trade cooperation between China and Romania was adjusted and developed under the new situation. Since 1990, the government accounting in foreign trade has been changed to cash payments. The bilateral trade volume declined from $300 million in 1992 to $208 million in 1996, and then to $191 million in 1999 (Li, 2006, p.195). In order to promote economic and trade cooperation, Chinese government and Romanian government signed the Agreement on the Avoidance of Double Taxation and Tax Evasion (1991), the Agreement on the Encouragement and Reciprocal Protection of Investment (1994), the Economic and Trade Agreement (1994), the Agreement on Scientific and Technological Cooperation (1996), and etc. In 1994, the China-Romania Committee on Economic and Technological Cooperation was changed to the China-Romania Committee on Economic and Trade Cooperation, whose annual meeting held alternately in the capitals of the two countries. Both governments also held economic forums and organized other activities to promote bilateral economic and trade relations. In the high-level exchanges, the leaders of the two countries have repeatedly stressed that promoting economic and trade cooperation was an important goal of the bilateral relations.

Since the mid-1990s, some Chinese companies have started to invest in the field of telecommunications, pharmaceuticals, clothing, wood processing, bicycle assembly and cigarette industry in Romania. F&J Group, which registered in Romania in 1992, established a factory in 1994. China National Tobacco Corporation (CNTC) set up a joint venture,Sinoroma Industry Company in 1997. DHS was established in Romania in 1998. In 2000, the bilateral trade volume began to rise. The trade volume was $753.06 million and $975.65 million in 2002 and 2003 respectively, which increased 112.6% and 29.6% over the previous year (see Table 1). In 2003, Niro Group, a joint venture with a 30% Chinese stake, spent € 200 million to found a trade hub—"Red Dragon" near Bucharest (Pencea & Oehler-Sincai, 2014). Also in 2003, HUAWEI entered the Romanian communications market. In August 2003, ZTE signed an agreement with Posta Romana to help Romanian telecoms system transformation, which was the largest economic cooperation project between the two countries at that time (Li, 2006, p.197).

Table 1: Trade Volume between China and Romania, 2002~2015, million dollars

	Trade	Export	Import	Annual change (%)		
				Trade	Export	Import
2002	753.06	362.00	391.06	112.6	44.6	276.9
2003	975.65	505.55	470.10	29.6	39.7	20.2
2004	1383.96	1057.18	326.78	41.9	109.1	-30.5
2005	1661.53	1369.24	292.29	20.1	29.5	-10.6
2006	6314.48	6083.61	230.87	280.0	344.3	-21.0
2007	2366.01	2084.48	281.52	-62.5	-65.7	21.9

2008	3211.93	2851.27	360.66	35.8	36.8	28.1
2009	2810.38	2377.29	433.10	-13.5	-17.7	20.3
2010	3761.44	3006.18	755.27	33.8	26.5	74.4
2011	4401.95	3453.85	948.09	17.1	15.0	25.4
2012	3776.95	2797.35	979.60	-14.2	-19.0	3.5
2013	4030.93	2822.75	1208.18	6.7	0.9	23.3
2014	4749.70	3225.42	1524.28	17.8	14.3	26
2015	4460.28	3162.88	1297.40	-6	-1.9	-14.7

Source: Department of European Affairs, Ministry of Commerce of the People's Republic of China, http://ozs.mofcom.gov.cn.

2. The establishment and development of a comprehensive friendly cooperative partnership (2004~2011)

In June 2004, Chinese President Hu Jintao visited Romania and signed the *Joint Declaration by the Government of the People's Republic of China and the Government of Romania on Establishing a Comprehensive Friendly Cooperative Partnership*, with the Romanian President Ion Iliescu. The two countries announced the establishment of a comprehensive friendly cooperative partnership and set forth the common position from four aspects: political relations, economic and trade cooperation, international cooperation and other cooperation (Chinese Ministry of Foreign Affairs website, 2004a). The Joint Declaration pointed out the direction for comprehensive development of Sino-Romanian relations in the new century.

In March 2006, Romanian President Traian Basescu visited China and reached four important consensuses to further develop a comprehensive friendly cooperative partnership with Chinese President Hu Jintao: maintaining high-level exchanges, expanding economic and trade cooperation, promoting cultural exchanges and strengthening multilateral cooperation. To implement these four consensuses, Chairman Wu Bangguo of China's National People's Congress (NPC) standing committee visited Romania in May 2006. This was the first visit of Chairman of the NPC standing committee to Romania. In May 2008, Chairman Jia Qinglin of the National Committee of the Chinese People's Political Consultative Conference (CPPCC) visited Romania and made a speech in the Romanian Senate, in which he praised the Sino-Romanian relations: "China and Romania have become the all-round cooperation partners. The peoples of the two countries have become the all-weather friends. The Sino-Romanian relations have become a good example of state-to-state relations." (Chinese Ministry of Foreign Affairs website, 2008) He added: "Our common task is to inherit the past, usher in the future and develop the Sino-Romanian comprehensive friendly cooperative partnership continuously, so as to better benefit the two countries and the two peoples." (Chinese Ministry of Foreign Affairs website, 2008) He proposed making efforts at four aspects: enhancing political mutual trust, expanding economic and trade cooperation, deepening cultural exchanges and strengthening international coordination (Chinese Ministry of Foreign Affairs website, 2008). On the occasion of the 60th anniversary of diplomatic ties, in October 2009, Chinese Vice President Xi Jinping made an official visit to Romania. When he met with Romanian President Traian Basescu, he highly appraised the Sino-Romanian relations:

"The friendship and cooperation has always been the main melody of the Sino-Romanian relations in the past 60 years. The relations between the two countries can be viewed as a model of state-to-state relations of equality and mutual trust in politics, mutual benefit and cooperation in economics as well as coordination closely in international affairs." (Chinese Ministry of Foreign Affairs website, 2009)

He pointed out: "The common task facing both countries is to take the 60th anniversary of diplomatic ties as a starting point to consolidate friendship and deepen cooperation." (Chinese Ministry of Foreign Affairs website, 2009). At the same time he put forward four proposals, which were: to maintain frequent high-level exchanges, improve the quality of economic and trade cooperation, expand cultural exchanges and strengthen international cooperation (Chinese Ministry of Foreign Affairs website, 2009). During this period, a lot of Romanian senior officials have visited China. Besides, Romanian President Traian Basescu attended the opening ceremony of 2008 Beijing Olympics. Foreign Minister Teodor Baconschi attended the Romanian National Pavilion day, in the 2010 Shanghai World Expo. After the Wenchuan earthquake in 2008, Romanian President, Prime Minister and Foreign Minister all expressed their condolences to the Chinese people. President of Chamber of Deputies Bogdan Olteanu and President Traian Basescu also gave their condolences to the

Chinese Embassy in Romania successively. Romanian Red Cross initiated a three-month nationwide fundraising. Romanian Gendarmerie provided over $200 thousand cash assistance to the earthquake zone.

Economic and trade cooperation is an important part of the comprehensive friendly cooperative partnership and is highly valued by China and Romania. In the Joint Declaration on Establishing a Comprehensive Friendly Cooperative Partnership, both countries not only emphasized that expanding economic and trade cooperation would contribute to the healthy, steady development of the bilateral relations, but also pointed out that the large cooperation projects, especially the projects in the field of information and communication technology, infrastructure, agriculture, environmental protection and so on, were an important channel to promote the development of economic and trade relations (Chinese Ministry of Foreign Affairs website, 2004a). Thereafter, China has constantly explored new ways and means of economic and trade cooperation on the principle of complementary advantages and mutual benefits, in order to strengthen communication and cooperation between the enterprises of the two countries, expand and balance the bilateral trade volume and implement large cooperation projects. Romania regarded China as an important economic partner in Asia, hoping to expand bilateral trade scale and welcome more Chinese entrepreneurs to invest in Romania. The Economic Cooperation Agreement by the Government of the People's Republic of China and the Government of Romania, the Additional Protocol of Agreement on the Encouragement and Reciprocal Protection of Investment，the Statement of Intent to Strengthen the Exchanges and Cooperation in the Field of SMEs by the Ministry of Commerce of the People's Republic of China and the Ministry of SMEs, Trade and Business Environment of Romania were signed one by one in October 2006, April 2007 and May 2008. In 2007, China Development Bank set up a working group in Romania.

The bilateral trade volume increased sharply in 2004, and jumped to $6314.48 million in 2006. Then it has increased significantly compared to it before 2004, though there were some fluctuations (see Table 1). China's investment flow in Romania also increased sharply in 2004, and reached $11.98 million in 2008 (see Table 2). China's investment stock in Romania increased year by year from 2004 to 2011, which was more than that in most of CEECs (see Table 3). Some Chinese enterprises have been developing well in Romania. HUAWEI Romania has become the top 100 enterprises in Romania. ZTE has cooperated closely with two major fixed network operators,Telecom Romania and RCS&RDS. F&J Group invested in the construction of ECEP. Sinoroma Industry Company expanded to China Tobacco International Europe Company (CTIEC). DHS has become a famous brand of Romanian bicycle industry. The Niro Group used €100 million Chinese investment to construct a whole trade and business center, China Town (Pencea & Oehler-Sincai, 2014).

Table 2: China's Direct Investment Flow in CEECs[1], 2003~2014, million dollars

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
AL	--	--	--	0.01	--	--	--	0.08	--	--	0.56	--
BG	0.35	0.35	1.72	--	--	--	-2.43	16.29	53.90	54.17	20.69	20.42
PL	1.55	0.10	0.13	--	11.75	10.70	10.37	16.74	48.66	7.50	18.34	44.17
BA	1.46	--	--	--	--	--	1.51	0.06	0.04	0.06	--	--
CZ	--	0.46	--	9.10	4.97	12.79	15.60	2.11	8.84	18.02	17.84	2.46
HR	--	--	--	--	1.20	--	2.6	0.03	0.05	0.05	--	3.55
LV	1.58	--	--	--	-1.74	--	-0.03	--	--	--	--	--
LT	--	--	--	--	--	--	--	--	--	1.00	5.51	--
Romania	**0.61**	**2.68**	**2.87**	**9.63**	**6.80**	**11.98**	**5.29**	**10.84**	**0.30**	**25.41**	**2.17**	**42.25**
MK	--	--	--	--	--	--	--	--	--	0.06	--	--
RS	--	--	--	--	--	--	--	2.10	0.21	2.10	11.50	11.69
SK	--	--	--	--	--	--	0.26	0.46	5.94	2.19	0.33	45.66
HU	1.18	0.10	0.65	0.37	8.63	2.15	8.21	370.10	11.61	41.40	25.67	34.02

Source: China Commerce Yearbook 2015, China Commerce and Trade Press, 2015.

Table 3: China's Direct Investment Stock in CEECs, 2003~2014, million dollars

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
AL	--	--	0.50	0.51	0.51	0.51	4.35	4.43	4.43	4.43	7.03	7.03

[1] European two letter country code abbreviations, http://www.worldatlas.com/aatlas/ctycodes.htm

EE	0	--	1.26	1.26	1.26	1.26	7.50	7.50	7.50	3.50	3.50	3.50
BG	0.60	1.46	2.99	4.74	4.74	4.74	2.31	18.60	72.56	126.74	149.85	170.27
PL	2.72	2.87	12.39	87.18	98.93	109.93	120.30	140.31	201.26	208.11	257.04	329.35
BA	1.46	4.01	3.51	3.51	3.51	3.51	5.92	5.98	6.01	6.07	6.13	6.13
ME	--	--	--	--	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
CZ	0.33	1.11	1.38	14.67	19.64	32.43	49.34	52.33	66.83	202.45	204.68	242.69
HR	--	--	0.75	0.75	7.84	7.84	8.10	8.13	8.18	8.63	8.31	11.87
LV	1.61	1.61	1.61	2.31	0.57	0.57	0.54	0.54	0.54	0.54	0.54	0.54
LT	--	--	3.93	3.93	3.93	3.93	3.93	3.93	3.93	6.97	12.48	12.48
Romania	**29.75**	**31.1**	**39.4**	**65.6**	**72.9**	**85.7**	**93.3**	**125.0**	**125.8**	**161.1**	**145.1**	**191.4**
MK	--	--	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.26	2.09	2.11
RS	--	--	--	--	2.00	2.00	2.68	4.84	5.05	6.47	18.54	29.71
ME	--	--	2.00	2.00	--	--	--	--	--	--	--	--
SK	0.10	0.10	0.10	0.10	5.10	5.10	9.36	9.82	25.78	86.01	82.77	127.79
SI	--	--	0.12	1.40	1.40	1.40	5.00	5.00	5.00	5.00	5.00	5.00
HU	5.43	5.42	2.81	53.7	78.2	88.8	97.4	465.7	475.4	507.4	532.4	556.4

Source: China Commerce Yearbook 2015, China Commerce and Trade Press, 2015.

3. The deepening of a comprehensive friendly cooperative partnership (2012~)

In April 2012, Chinese Premier Wen Jiabao held a meeting with the leaders of 16 CEECs, including the Romanian Prime Minister Mihai Ungureanu in Warsaw. Premier Wen Jiabao proposed China's Twelve Measures for Promoting Friendly Cooperation with CEECs. From then on, the 16+1 cooperation platform was created. In September and October 2013, when Chinese President Xi Jinping visited Central Asia and Southeast Asia, he raised the initiative of jointly building the Silk Road Economic Belt and the 21st Century Maritime Silk Road (the Belt and Road). In March 2015, Vision and Proposed Actions Outlined on Jointly Building Silk Road Economic Belt and 21st Century Maritime Silk Road was issued by the National Development and Reform Commission, Ministry of Foreign Affairs, and Ministry of Commerce of the People's Republic of China. In November 2015, at the 4th Summit of China and CEECs in Suzhou, the Participants welcomed and supported the important agreement between the Chinese and EU leaders on establishing the China-EU Connectivity Platform, as well as on developing synergies between the Belt and Road initiative of China and the Investment Plan for Europe, and between 16+1 cooperation and China-EU relations (Chinese Ministry of Foreign Affairs website, 2015). The Sino-Romanian relations had new opportunities within the framework of 16+1 cooperation and the Belt and Road.

Since 2012, the annual Summit of China and CEECs has provided a more convenient platform for Sino-Romanian high-level contacts and to promote bilateral relations. Especially in November 2013, when the 2nd Summit of China and CEECs was held in Bucharest, Chinese Premier Li Keqiang paid an official visit to Romania. This was his first visit to Romania after he became Premier and he was the first Chinese Premier to visit the country in 19 years. During his visit, the two governments issued the Joint Declaration by the Government of the People's Republic of China and the Government of Romania on Deepening Bilateral Cooperation in the New Circumstances. It said:

"China-Romania comprehensive friendly cooperative partnership is regarded as an example of inter-state relations in the current period.

To deepen a Comprehensive Friendly Cooperative Partnership further conforms to the aspiration and fundamental interest of the two countries and peoples. The two sides will enrich the connotation of the traditional friendship, further develop mutually beneficial and win-win cooperation, as well as promote common prosperity of the two countries under the principle of mutual respect, equality and mutual benefit." (Chinese Ministry of Foreign Affairs website, 2013a)

Besides, at the end of June and early July in 2013, Romanian Prime Minister Victor Ponta attended the Local Leaders' Meeting of China and CEECs in Chongqing, China. During his stay in Beijing, Chinese President Xi Jinping and Premier Li Keqiang met with him. At the end of August and early September in 2014, Prime Minister Victor Ponta visited China again on the occasion of the 65th anniversary of the establishment of bilateral diplomatic ties between China and Romania and the 10th anniversary of the inauguration of the China-Romania comprehensive friendly cooperative partnership. In September 2015, Chinese President Xi Jinping met with Romanian President Klaus Iohannis during his visit in the United States and attended the 70th

anniversary of the founding of the United Nations. These high-level exchanges deepened Sino-Romanian comprehensive friendly cooperative partnership.

The economic and trade cooperation is the top priority of 16+1 cooperation and the Belt and Road initiative. Before the 1st Summit of China and CEECs in 2012, the China-CEECs Economic and Trade Forum was held in Budapest in June 2011. Since 2012, the Summit and the Forum have been held at the same time, and so far the Forum has been held five sessions.

The initiative to jointly build the Belt and Road "…is aimed at promoting orderly and free flow of economic factors, highly efficient allocation of resources and deep integrating of markets; encouraging the countries along the Belt and Road to achieve economic policy coordination and carry out broader and more in-depth regional cooperation of higher standards; and jointly creating an open, inclusive and balanced regional economic cooperation architecture that benefits all." (China Daily, 2015)

With the advance of 16+1 cooperation and the Belt and Road initiative, the economic and trade cooperation between China and Romania has become more and more pragmatic.

During the 1st Summit of China and CEECs in 2012, Chinese Premier Wen Jiabao said the Chinese government would actively promote the enterprises and financial institutions to discuss how to construct large infrastructure with Romanian counterparts and would expand cooperation with Romania in the areas of investment, agriculture, tourism, culture etc. (Cooperation between China and Central and Eastern European Countries website, 2012). In October 2012, China and Romania signed the Agreement on Strengthening Cooperation in the Field of Infrastructure in Bucharest. When Romanian Prime Minister Victor Ponta visited China in 2013, Chinese leaders put emphasis on advancing pragmatic cooperation, especially in the field of economics and trade, investment and new energy (Chinese Ministry of Foreign Affairs website, 2013b; 2013c).

Furthermore, when he attended the 2nd Summit of China and CEECs and visited Romania, Chinese Premier Li Keqiang pointed out that the two countries needed to expand their energy cooperation and the cooperation in the construction of railway and other infrastructure. He called for more Romanian exports of agricultural and animal products to China. He and the Romanian Prime Minister Victor Ponta also decided to set up working groups for talks on major cooperation projects in such areas as railway and energy (Cooperation between China and Central and Eastern European Countries website, 2013a). Meanwhile, the two countries signed 13 commercial contracts or letters of intent, covering such areas as economics, trade, investment, quality inspection, energy and agriculture. When Romanian Prime Minister Victor Ponta revisited China in 2014, Chinese Premier Li Keqiang stressed to promote energy and large infrastructure project cooperation, speed up the research on the construction of the high-speed rail project from Bucharest to Constanta, develop agricultural potential, strengthen scientific and technological cooperation, trade and investment in agricultural field. The two prime ministers also witnessed the signing of the cooperation documents in the field of energy, finance and infrastructure (Chinese Ministry of Foreign Affairs website, 2014a; 2014b).

During the 3rd Summit of China and CEECs in Belgrade, Premier Li Keqiang and Prime Minister Ponta said to step up nuclear power, thermal power and high-speed rail cooperation. The Belgrade Guidelines for Cooperation between China and CEECs jointly formulated and issued by the participants at the summit welcomed the signing of nuclear energy cooperation documents between China and Romania, as well as Romania's initiative of setting up a center for Dialogue and Cooperation in energy-related projects (Cooperation between China and Central and Eastern European Countries website, 2014).

In 2015, the Suzhou Guidelines for Cooperation between China and CEECs jointly formulated and issued by the participants at the 4th Summit of China and CEECs declared: "The Participants welcome and support Romania's initiative of setting up a Center for Dialogue in energy-related projects. The 1st meeting of the Center will be organized in Romania in 2016." (Chinese Ministry of Foreign Affairs website, 2015) China and Romania signed cooperation agreements on quality inspection and a MoU regarding the relevant nuclear power project. Both countries would sign a new agreement on avoidance of double taxation as appropriate (Chinese Ministry of Foreign Affairs website, 2015). In the industrial park cooperation forum, one of the three sub-forums of the 5th China-CEECs Economic and Trade Forum at the same time, Viorel Beltechi, Commercial Counsellor of the Embassy of Romania to the People's Republic of China said that Romania, as a country along the Belt and Road, hoped to cooperate with China in energy, infrastructure, agriculture and manufacturing equipment, industrial park and other fields. He welcomed Chinese investment in construction of industrial park and introduced some preferential policies for foreign investors (CRI Online, 2015).

The pragmatic cooperation between China and Romania has made significant progress. In November 2013, China Ming Yang Wind Power Group Limited signed a framework agreement with Speranta & Succesul S.A., a leading renewable energy developer in Romania. The agreement covered wind farm development,

supply of EPC services and equipment procurement of a 200MW wind farm project. In October 2014, China Huadian Engineering and Romania's energy holding Complexul Energetic Oltenia signed an agreement whereby they will set up a joint venture for the construction of a new thermoelectric plant at Romanian state-owned thermal power producer Rovinari. In November 2015, China General Nuclear Power Group (CGN) and Romanian Societatea Nationala Nuclearelectrica S.A. (SNN) signed a MoU on development, construction, operation and decommissioning of Units 3 & 4 of Cernavoda NPP. This project has received the support letter issued by the Romanian government in January 2016 and has been identified as a priority investment project in May 2016. In addition, some Chinese enterprises, such as Sungrow, Goldwind, Dahua Technology, China Energy Conservation and Environmental Protection Group, have entered the Romanian market. China's investment flow in Romania increased significantly in 2012 and increased to $42.25 million in 2014 (see Table 2). China's investment stock in Romania also increased (see Table 3). In contrast, the bilateral trade volume grew somewhat weakly (see Table 1).

4. Thinking of Sino-Romanian Relations

The Sino-Romanian relations have been developing steadily after 1989. Romania is a country which established a comprehensive friendly cooperative partnership with China earlier among CEECs. The Sino-Romanian relations have played an exemplary and leading role in the development of relations between China and CEECs. In 1994, during visiting Romania, Chinese Premier Li Peng reiterated the policy of China towards CEECs and summed up the basic principles of developing relations between China and CEECs under the new historical conditions (People's Daily, 1994b). In 2004, during his visit to Romania, Chinese President Hu Jintao put forward four proposals on developing relations between China and CEECs (Chinese Ministry of Foreign Affairs website, 2004b). In 2013, Chinese Premier Li Keqiang listed three major principles of cooperation between China and CEECs and made a six-point proposal on deepening cooperation when he visited Romania and attended the 2nd Summit of China and CEECs (Cooperation between China and Central and Eastern European Countries website, 2013b). After the summit, China and the 16 CEECs jointly released the Bucharest Guidelines for Cooperation between China and CEECs, which drew a blueprint for 16+1 cooperation.

The reasons why the Sino-Romanian relations have been developing steadily are as follows:

First, the traditional friendship between China and Romania lays a solid foundation for the sustainable development of bilateral relations.

Romania is the third country to recognize the People's Republic of China. Over the past 67 years, the two countries have been friendly and shared weal and woe with each other. When Romania suffered from devastating floods in 1970, Chinese people provided money to help Romania in its relief and reconstruction efforts. At the 26th Session of the United Nations General Assembly in 1971, Romania casted a valuable vote to restore all the legal rights of the People's Republic of China in the United Nations. In the 1970s and 1980s, the two countries not only maintained frequent high-level exchanges and mutual support in international affairs, but also cooperated in the field of economics, trade, science, technology and culture. Just like Chinese Premier Li Keqiang in his speech at the parliament of Romania in November 2013 said:

"Sino-Romanian friendship have withstood the test of time and is deeply rooted, evergreen and eternally renewed. The friendship between the two peoples across time and space has laid a solid foundation for the sustainable development of Sino-Romanian relations." (Xinhuanet, 2013)

Second, the respect for each other and the consensus on major regional and international issues is an indispensable prerequisite for the steady development of bilateral relations.

China and Romania always respect each other's choice of development path, as well as internal and external policies. Both also accommodate each other's core interests and major concerns. China speaks highly of the economic and social achievements of Romania, understands and respects the efforts of Romania to join the European and Euro-Atlantic integration and appreciates the positive role of Romania in safeguarding world peace and stability. Likewise, Romania speaks highly of the results that China has achieved in adopting the policy of reform and opening up and the important contribution that China has made in promoting world peace and stability. Romania also adheres to the one-China principle and supports China's grand cause of reunification. Moreover, there is consensus on current major international and regional issues between China and Romania. The two sides agree to abide by the purposes and principles of the "UN Charter" and the universally recognized norms of international law, improve the ability of the UN to deal with the problems of the contemporary world properly, support the UN to strengthen cooperation with regional and sub-regional organizations and strengthen the role and authority of the UN Security Council. Both countries agree that the

democratization of international relations is the desire of the vast majority of countries and people in the international community, the use of force and the threat of force should not be used in international relations and disputes between countries should be solved in a peaceful way. Both countries support the development of China-CEECs cooperation and China-EU comprehensive strategic partnership and enhance consultation and cooperation on the fight against terrorism, organized crime, drugs and weapons trafficking, as well as dealing with climate change and promoting sustainable development.

Third, the complementary economic advantages of the two countries provide constant power for the development of bilateral relations.

Chinese Premier Li Keqiang pointed out:

"China is the largest developing country in the world, Romania is the second largest country in population and area in CEECs. Romania seeks cooperation to the east and China opens to the west, which makes the two countries meet each other half way and their common interests are growing." (Xinhuanet, 2013)

For China, Romania has advantageous natural conditions, rich resources, huge agricultural potential, strong industrial base and fast-growing services, so it has the resource and industrial advantages; it has higher-quality and lower-cost labour force, so it has the labour advantage; it is located in the junction of the EU and CIS and Balkan countries as the "East Gate" of the EU, convenient in traffic, so it has the geographical advantage; it is one of the largest markets in Central and Eastern Europe, and its products can be no obstacle to enter the EU market, so it has the market advantage (Chinese Ministry of Commerce website, 2015). These advantages help China to meet the domestic energy needs, promote the industrial transformation and upgrading, enter the EU market and expand international market share. For Romania, China's vast market, abundant infrastructure construction force, relatively advanced equipment manufacturing industry and adequate capital meet the needs of Romania, which faces a funding gap and a task of rebuilding and upgrading infrastructure.

Fourth, the political decision made by the two governments plays a leading role in promoting the development of bilateral relations.

To develop the bilateral relations is the consistent policy of China and Romania. The Chinese government attaches great importance to the development of relations with Romania. Especially since 16+1 cooperation and the Belt and Road initiative introduced, Romania, as a vital pivot of China-CEECs and China-EU cooperation as well as an important country along the Belt and Road，has been getting more and more attention from China. Similarly, the successive governments in Romania attach great importance to and speak highly of the relations with China. The former President Traian Basescu put the development of relations with China at the top of Romanian foreign relations (Xinhuanet, 2005; 2006). Incumbent President Klaus Iohannis said that to deepen friendly cooperation between Romania and China conformed to the common interest of the two countries and their people (Xinhuanet, 2015). In June 2016, Romanian government decided to discuss joining the Asian Infrastructure Investment Bank.

However, we really have to see that the level of bilateral relations, as well as the economic and trade cooperation has yet to be improved and there are still some problems that need to be solved.

First, how should China and Romania do to promote the economic and trade cooperation at a higher level?

Complementary economic advantages do not mean that China and Romania can enjoy the fruits of cooperation. To strengthen economic and trade cooperation needs the joint efforts of both countries. For instance, Chinese enterprises should be familiar with Romanian laws and regulations related to investment, taxation, employment and so on, and they should evaluate their operational costs reasonably. They should understand the infrastructure, transportation, logistics and preferential policies in project site, as well as the credit status of joint venture partners, project feasibility, market prospect of product etc. They also should bid and dispatch labour according to law strictly (Chinese Ministry of Commerce website, 2015). Romanian enterprises should try to find more high-quality products and advanced technology, expand exports to China so as to ease the bilateral trade imbalance. At present, how to use the opportunities brought by 16+1 cooperation and the Belt and Road initiative to promote the economic and trade cooperation at a higher level, is the urgent task facing China and Romania.

Second, how should China and Romania do to deal with the challenges of stakeholders?

The most likely challenge comes from the EU. Although not only has China repeatedly stressed that 16+1 cooperation and China-EU relations meet each other half way, and 16+1 cooperation contributes to further develop China-EU comprehensive strategic partnership, but also China and the EU reached the agreement on developing synergies between the Belt and Road initiative of China and the Investment Plan for Europe, and between 16+1 cooperation and China-EU relations in 2015, the EU still worries that 16+1

cooperation and the Belt and Road initiative will break the EU rules, even split the EU. This situation may have negative effect on the Sino-Romanian relations. As a member state of the EU, Romania's cooperation with China is inevitably subject to the restrictions of the EU rules. In addition, the widening of differences between China and the United States, the further development of Sino-Russian relations and the intensified game between the United States and Russia may hinder the improvement of Sino-Romanian relations. In turn, the improvement of Sino-Romanian relations may also be conductive to a certain extent to the positive development of relations between China and the EU, as well as between China and the United States.

Third, how should China and Romania do to reduce the negative impact of frequent change of Romanian government?

Romanian governments changed frequently in recent years. The interim government is in power now and there will be a new parliamentary election at the end of 2016. The ruling elites have somewhat been involved and will probably be involved in the unstable political situation, which is not good for them to formulate and implement the far-reaching, pragmatic and effective measures to deepen cooperation with China, though developing friendly relations with China is the consensus of political parties and the policy of successive governments in Romania. How to mitigate the negative impact seems to be a question which is difficult to find an answer. Nevertheless, to what extent the frequent change of Romanian government has affected and will affect the Sino-Romanian relations will need detailed investigation and evaluation.

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Prospect and Forecast of “16+1” Local Cooperation

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Abstract: *In 2012, the platform for “16 + 1” cooperation was born. The China-CEECs Association of Provincial Governors (the Association) was formed in August 2014. A number of 15 provinces and municipalities from China and 29 provinces (states, cities) from CEECs became founding members of the Association. Until now, the Local Leaders Meeting has been held three times. The local governments and enterprises of “16+1” have used the meetings to promote interconnection, boost trade and investment and work together in energy conservation, environmental protection, clean energy and other areas. In the future, the Association needs to attract more partners into local cooperation in order to pave the way for the connection of the “OBOR” initiative and the “16+1” platform, set the stage for increased friendship and prosperity for China, the CEECs and the EU.*

Keywords*: “16+1”，China，CEECs, local cooperation, “OBOR”, SWOT analysis*

1. Introduction

In 2012, the platform for "16 + 1" cooperation was born. Just a few years later, cooperation in all kinds of fields between China and 16 Central and Eastern European Countries (CEECs) has achieved remarkable results. Especially since 2013, China and the16 CEECs have developed exchanges in the fields of politics, economy, science and technology and humanities. Local leader’s cooperation also has gained rapid development.

On July 2013, the first 16+1” local leaders meeting was held in the Chongqing municipality and on that occasion the "Chongqing Initiative" was issued. From a historical perspective, this may be an innovation in terms of cooperation style for the“16+1” platform. As the first attempt, leaders of 15 Chinese provinces (autonomous regions, municipalities) and leaders of provinces (states, cities) in the 16 CEECs attended the meeting. This meeting has offered a good chance for the interconnection between the enterprises from China and the CEECs, also including people-to-people exchanges and the opportunity to strengthen the friendship and understanding between participants.

In August 2014, the second”16+1” local leaders' meeting was held in Prague, the Czech Republic. This meeting announced the establishment of the China-CEEC Association of Provincial Governors（named further on “the Association”). A number of 15 provinces and municipalities from China and 29 provinces (states, cities) from the CEECs became the founding members of the Association.

On the 16th -17th of June, 2016, the third ”16+1” local leaders' meeting was held in Tangshan, the province of Hebei. High level leaders from China and CEECs attended the conference and 58 local leaders and some enterprise delegations from the CEECs also attended. The meeting set “New Opportunities, New Fields and New Spaces for Local Cooperation between China and CEECs” as the main theme of debates. 14 activities, such as the “Cross-border investment and trade cooperation forum”, 6 exhibitions, such as the Province/state

industrial cooperation show have been organized, and the international economic and trade fair in Hebei province was held in the same period. The meeting included five forums: (i) *"OBOR" construction and international production capacity cooperation*, (ii) *Mass entrepreneurship and innovation*, (iii) *Environmental protection and clean energy*, (iv) *Higher education and employment* and (v) *Agrifood safety and development of international trade.*

On the 16th of June, the Association held the second working meeting on the *Constitution of the China-CEEC Association of Provincial Governors* and issued *the Tangshan consensus.* From Tangshan meeting, we could find out that the local leaders' meetings of the "16+1" focused on economic cooperation and people-to-people exchanges. The opening ceremony revealed the national attention to local cooperation issues, the forums focused on the "16 + 1" cooperation initiative as part of the OBOR and exhibitions made the participants understand each other better. Until now, the meetings have been held in different countries and in China, which chose the western and central cities with a view to promoting the development in the Mid-west.

The China-CEEC Association of Provincial Governors is an important platform for local communication and cooperation. All members of the Association are willing to promote its further growth, to offer better services to the cooperation among enterprises, and to welcome the voluntary accession of more provinces (states, cities), so as to jointly promote the local development.

"*The Tangshan consensus*" made it clear that it is necessary to: (i) bring into full play the role of the China-CEEC Association of Provincial Governors, (ii) actively promote the friendly exchanges among localities, (iii) accelerate the cooperation in connectivity, (iv) promote the cooperation in trade and investment, (v) carry out international cooperation in productivity enhancement, (vi) carry forward cooperation in energy conservation, environmental protection and clean energy, (vii) further expand the cooperation in agriculture, (viii) strengthen the cooperation in technology and innovation and (ix) intensify the people-to-people exchanges.

The local cooperation within the 16+1 format is closely linked with, and implemented by observing the *Bucharest Guidelines for Cooperation between China and Central and Eastern European Countries* (2013) and the *Belgrade Guidelines* (2014). In November 2015 the 4th Meeting of the Heads of Government of China and the Central and Eastern European Countries was held in Suzhou and the "*Suzhou Guidelines"* and the "*Medium-Term Agenda for Cooperation between China and Central and Eastern European Countries"* （"*Agenda*"） were set up. The "Agenda" supports cooperation at the local level. The 3rd local leader's meeting has created *Tangshan effects*.

2. Tangshan effects

Through the Tangshan meeting, the16 CEECs, as well as the attending domestic provinces and cities could have a deeper perceptual cognition of the Hebei province. The Hebei province also made full use of the many platforms set by the meeting to show their own characteristics and advantages and to created opportunities for cooperation between the local administrations of other countries and their own. The multiple "cards" showed by the Hebei province promoter's triggered good "Tangshan effects".

2.1. The "Cultural and Communication Card"

Although the meeting lasted just a few days, governments at all levels in Hebei payed great importance and was organized carefully. Some of the teachers, students and officials of Hebei had graduated Beijing University of Foreign Studies, the CEECs languages, and some of them had even gone to CEECs to strengthen

their language skill and professional knowledge for service to the meeting. During the meeting, all the staff and volunteers have closely contacted more than thousand diplomatic, official staff and entrepreneurs from the CEECs. These experiences are very important for Hebei province to reserve human resources with international view.

Recently, the Hebei province has launched the "international language talent plan". In the next five years, the Hebei foreign languages college plans to set up language courses of more than 60 countries along the OBOR routes, to train more language talents.

In recent years, Hebei Foreign Languages College has signed cooperation agreements with 17 universities from 14 CEECs and set up 13 language courses, covering all of the 16 CEECs. In addition, many universities in Hebei have established research centers for CEECs. For example, the Hebei Geological University established the Czech Research Center and the Czech Prime Minister, Sobotka, went to the opening ceremony. In order to promote the cooperation between Czech and Heibei provinces, the Center invited domestic experts on CEECs to study Czech politics, economy and culture and so on. For Latvia, several universities have established exchanging mechanisms with Huabei Science and Technology College. The College has established the “Center of OBOR for China and Latvia”. In November 2015, the Center hosted visiting Latvian Prime Minister.

2.2. The "Friendship Card"

When it comes to history of friendly cooperation between China and Central and Eastern Europe, elderly people will probably know *Sino-Czechoslovakia Friendship Farm*. It is located in Cangzhou city, Hebei province. This farm with 60 years history is the witness of friendship between China and the Czech and Slovak republics. The farm reflected the foresight and wisdom of the local government and people of Hebei.

After the Shanghai Expo in 2010, the Czech and Slovak pavilions were moved to the Farm as tourist attractions. An industrial park has been set up in the farm to attract Czech and Slovak investment. Nowadays, one training center has been created by FAIR aviation training school of Czech and the farm. The industrial park introduced Slovakia wine and Czech beer processing production line, making high quality products to domestic consumers. On the "16 + 1" local cooperation platform, the farm as the symbol of friendly cooperation between China and CEECs became a unique card for Hebei.

During the Tangshan meeting, the Hebei province established friendly province/state relations with the Molavia-Silisia region in the Czech Republic, Województwo Mazowieckie in Poland and Pest Megye in Hungary and it signed a memorandum with Prešovsky kraj in Slovakia. Also, Shijiazhuang established friendship relations with the city of Nagykanizsa, Hungary.

2.3. The "Production Capacity Card"

The economic structure of Hebei province is dominated by heavy industry and energy sectors. In recent years, facing the low carbon policy, the innovation-driven economy goal and the “New Normal” of China’s economy, Hebei started industrial transformation and upgrading and also started to encourage competitive industries to go out for international business with the countries along the OBOR routes. In November 2015, at the 4th meeting of Heads of Government of China and Central and Eastern European Countries, Premier Li Keqiang invited the CEECs leaders to take a ride together by one of China's high-speed trains. The train, marked with the sign "16 + 1 > 17" was produced by Tangshan Railway Vehicle co., LTD. At present, China's high-speed train has run on the railway tracks in Macedonia. More than 400 world leaders experienced the

voyage by high speed train, and also experienced the Hebei or China strength of the railway equipment and technology. During the conference, foreign guests of CEECs also visited the high-speed train producing company.

Hebei steel co., Ltd is another "China industry card". In June, 2016, President Xi Jinping visited Serbia, and on that occasion, the Hebei steel co., Ltd decided to merge with steel enterprises in Serbia. It has become an important achievement for Hebei province to promote the international productivity cooperation with CEECs. In addition, relying on the "Made in China 2025" and the "Internet plus " plan devised by the central government, Hebei promoted advanced domestic manufacturing linked with industries of CEECs through exhibitions such as the ones on Big data, Healthcare, Intelligent terminal, Biological medicine, New energy vehicles and other strategic emerging industries. China-CEECs enterprise cross-border investment and trade fair attracted more than 200 enterprises from CEECs and 500 domestic enterprises. The organizer manages to facilitate the exchanges among the entrepreneurs from China and foreign countries by offering interpreters on spots or online service.

For the “2022 Winter Olympics”, the Tangshan meeting also set up special exhibition, displaying Zhangjiakou’s new opportunities in the field of ice and snow sports industry, to the guests. Slovenia, Croatia and Bosnia and Herzegovina have been looking for business opportunities for the 2022 Winter Olympics and also for cooperation in the health industry. On the occasion of this meeting, the Hebei administration and companies signed 16 projects, including five foreign investment projects, a total investment worth of 563 million dollars. In addition, it also signed two technical cooperation projects and three education cooperation projects.

2.4. The "Local Card"

Hebei also actively used the meeting to promote the characteristic industries of counties, showing the characteristic industries of 39 counties to the domestic and foreign businessmen. Specialty products such as Tangshan ceramics and paper cutting in Yu County have been showed. Similarly, the represented provinces/states from the Central and Eastern European countries have also brought their best and most competitive industries to the Meeting, including Skoda cars, the world's most advanced level of flight simulator, health care products and wine, etc. nearly two hundred kinds of exhibits. The exhibition attracted more than 120 companies from abroad, such as the Czech automobile, electrical equipment, medicine and so on.

In 2015, the trade of China with the Central and Eastern European countries reached $56.2 billion, among which, the total trade of Hebei province with CEECs amounted to $510 million. By the end of 2015, 113 enterprises from CEECs invested in Hebei province, cumulating a total investment of $196 million. In recent years, cooperation in equipment manufacturing, aviation, food processing, education, tourism and other fields between Hebei and CEECs has achieved positive results. The Tangshan meeting announced that the fourth “16+1” local leaders' meeting will be held in 2018 in Bulgaria.

3. SWOT analysis for “16+1” local cooperation and Conclusions

Strengths	**Weaknesses**
Based on the Sino-EU comprehensive strategic partnership; China-EU 2020 Strategic Agenda for Cooperation; Political friendship between"16 + 1"; Based on OBOR and "16 + 1"cooperation; CHINA RAILWAY Express; AIIB, Silk Fund;	Asymmetry between the China and CEECs; Different culture ; Aging society; Hard to finance; Absence website of 16+1 local cooperation; Visa difficulties ; Absence of direct airline;
Opportunities	**Threats**
Strong cooperation desire of China and CEECs ; Transition in CEECs; Economy growth; China as the member of EBRD; Smart growth and innovation for both sides; Delay of accessing the Euro area;	Terrorism; Far-right political power rises in CEECs; Support for independence of Chinese Taiwan, Tibet and Xinjiang by some political power in CEECs; Brexit; Fund will be reduced from EU; Instability of the International system;

As the SWOT analysis shows, we need to take advantage of the cooperation between China and CEECs to create a good environment for 16+1 local cooperation. All the participants should make their efforts to solve the weaknesses through communication and coordination. The 16+1 participants may not control the threats faced by all countries. We should develop multiple cooperation with other countries.

Cooperation at the local level can contribute to the all-round and balanced growth of China and of the CEECs. There are broad prospects for China-CEEC cooperation. The connection between the *One Belt and One Road Initiative* and the development strategy of CEECs provides new opportunities for the local cooperation between China and CEECs in such fields as economy and trade, technology, culture and education, as *Tangshan effects* show us.

References:

[1] “16+1” Summit, Bucharest Guidelines, Belgrade Guidelines, Suzhou Guidelines and Medium-Term Agenda for Cooperation between China and Central and Eastern European Countries, *http://www.china-ceec.org/eng.*

[2] 河北日报 (Heibei Daily), 第三次中国—中东欧国家地方领导人会议在唐山开幕，http://hbrb.hebnews.cn/html/2016-06/18/content_108142.htm.

A look into the Complexities of the One Belt, One Road Strategy

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***Abstract**: Well-known for their practical thinking and approaches, Chinese planners took the most simple and obvious ideea – that strong interconnections among countries favour economic activity, growth and wealth creation – and they turned this ideea into the most ambitious, bold and complex strategy: the revival of the ancient Silk Road, in a multi-dimensional, modern version, upgraded for the 21st century. This paper looks at the One Belt One Road (OBOR) strategy from the angle of complexity which springs from both its design and goals, and from its implementation which is prone to face significant challenges and risks. It examines the interests at stake, the risks involved, the potential benefits to be reaped and the nascent after-effects of this daring and far-reaching endeavour.*

***Keywords**: Silk Road, OBOR, One Belt One Road, China, cooperation*

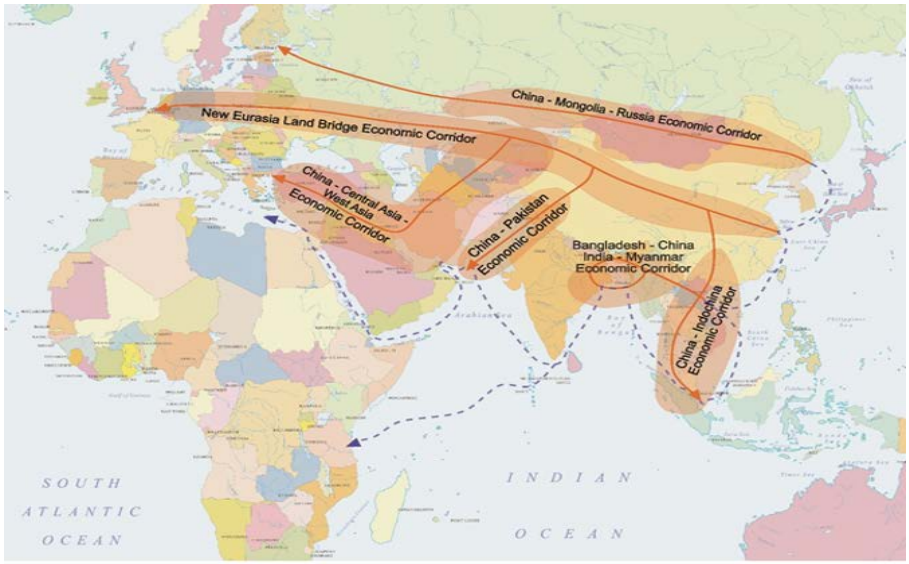
1. OBOR – complexity in the conceptual blueprint

Already well-known for their pragmatic thinking and approaches, Chinese planners took the most simple ideea – the one that, by connecting Eastern-most and Western-most developed extremities of the Eurasian continent (that is China's East coast, at one end, and the Western European countries at the other), the economic activities and trade along the newly created connections would flourish - and they developed this ideea into the most ambitious, bold and complex strategy: the revival of the anciet Silk Road in a modern version, upgraded for the 21st century. The strategy, which implies the building - sometimes from scratch – of composite networks of highways, railroads, air lines, sea-lanes, pipe-lines, electrical grids, digital systems etc., linking ports, airports, energy hubs, industrial and technological parks, developed and developing communities, is, obviously, a highly complex endeavour, both in its design and goals, and as it concerns its implementation, which is prone to face numerous challenges and risks. On the other hand, if successful, this daring initiative could generate huge benefits in terms of faster economic growth and development, innovation leaps, industrialization and modernization of the countries lagging behind, positive synergies and spillovers, job creation and improved living standards for the populations involved.

After almost four decades of successful implementation and outstanding results of the *reform and opening up* strategy thought of by Deng Xiaoping, China needed a new vision to invigorate its growth, avoid „the middle income trap" and ensure ongoing development in a sustainable way. This new strategy was unveiled by president Xi Jinping in the autumn of 2013 and was laid out in more detail in the document „*Vision and Actions on Jointly Building the Silk Road Economic Belt and the 21st-Century Maritime Silk Road"* [1], framed by the National Development and Reform Commission (NDRC) and the ministries of Foreign Affairs (MoFA) and of Commerce (MoC), in 2015. As envisioned in this document, the new inter-continental linkages between Asia, Africa and Europe should have two components – a terrestrial one (the Belt) and a maritime one (the Road) - named, for short, *One Belt, One Road* (OBOR). In spite of the name, though, ***the OBOR initiative is not about just two routes, but it includes, besides the maritime lanes, every other type of land transport networks, developed around six main corridors*** (Map 1), plus ***airline connections, energy, telecommunications and production networks, as well as more intense interpersonal cultural, academic and scientific exchanges.*** As such, OBOR will be much beyond the mere re-creation and expansion of the ancient trading routes.

[1] Document further abbreviated in this paper as *Vision and Actions*

Map 1: The 6 Land Corridors of OBOR



Source: The Diplomat (2016)

Although it is Chinese by design, its promoters underline that the OBOR strategy is **not a „solo voice", but a „chorus" performance** aiming at creating „... a Belt and Road that is politically cohesive, economically integrated and socially harmonious...", able to narrow development gaps – both within and among its participant countries - and to foster greater institutional, physical and people-to-people connectivity (Yang Yanyi, 2015). **Participation is open** to any interested party, but, if it were to approximate, there are at least 65 countries along the envisioned routes (Table 1) which are currently considered by the OBOR literature and, potentially, other additional 48 countries[2], including some of the founding members of the Asian Infrastructure Investment Bank (AIIB) (Chin&He, 2016).

Table 1: 65 Countries along the One Belt One Road routes

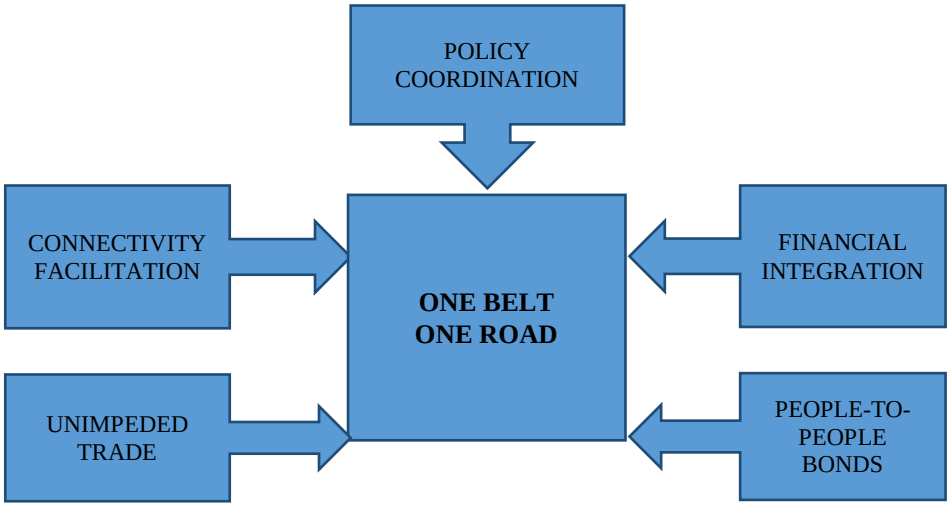
Region	Countries
East Asia	China, Mongolia
Southeast Asia	Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Timor Leste, Vietnam
Central Asia	Kazakhstan, Kyrgystan, Tajikistan, Turkmenistan, Uzbekistan
Middle East and North Africa	Bahrain, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Palestine, Syria, United Arab Emirates (UAE), Yemen
South Asia	Afganistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka
Europe	Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Rep., Estonia, Georgia, Hungary, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Turkey, Ukraine

Source: World Bank (country grouping by regions based on World Bank Classification)

Belt and Road targets five major areas of cooperation (the „*Five links"*) in its implementation and development (Figure 1), which expands substantialy its complexity :

[2] **Middle East and North Africa**: Algeria, Djibouti, Malta, Morroco, Tunisia; **Europe**: Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Italy, Luxembourg, Netherlands, Norway, Portygal, Spain, Sweden, Switzerland, UK; **Sub-Saharan Africa**: Burundi, Comoros, Ethiopia, Guineea, Kenya, Madagascar, Mauritania, Mauritius, Mozambique, Rwanda, Seychelles, Somalia, Sothe Africa, South Sudan, Tanzania,Uganda, Zambia, Zimbabwe; **Oceania**: Australia, New Zeeland; **Latin America**: Argentina, Brazil, Peru;

Fig.1: 5 Major areas of cooperation under the *One Belt One Road* strategy



Source: The author's representation, resting on NDRC, MoFA & MoC (2015) – *Vision and Actions*

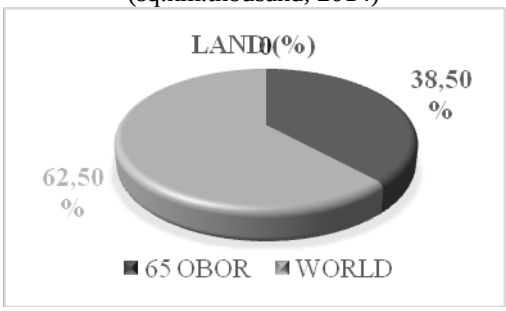
1) ***policy coordination*** among participating countries, by way of multi-level intergovernmental macro policy mechanisms (without replacing the existing ones, but using and extending them);
2) ***facilitation of connectivity*** (through transport, energy, telecommunications and all the other forms of networking). On land, OBOR will take advantage of, and build on the existing international transport routes, core cities, key economic and trade zones and industrial parks. At sea, it will focus on jointly building efficient and secure lanes between major OBOR seaports (Wong, 2015).
3) ***unimpeded trade*** (by trade liberalization, removing barriers to investment, enhancing cooperation in various forms, developing free trade zones, cross-border e-commerce, improving industrial chains distribution and the regional division of labour, etc) ;
4) ***financial integration*** (by deepening financial cooperation, improving rules, developing the bond market in Asia, encouraging private funds to invest in OBOR countries etc.);
5) ***people-to-people bonding*** (through extensive cultural, academic and interpersonal exchanges, outbound tourism, cooperation in education, arts, science, technology, innovation etc.).

The main stress of the OBOR strategy is primarily laid on connectivity as a precondition of growth and development, and, therefore, in Chinese vision, building and upgrading infrastructure deserves priority. As such, besides China's own investment plans, the strategy calls for an effort of coordinating all the local infrastructure investment programs in the countries along OBOR within this grand vision of transcontinental linkage, so that an uninterrupted, strongly interconnected area, stretching over tens of thousands of kilometers, is created for trade, investment and cooperation.

a. . The impressive geographic coverage of the OBOR initiative, its size and scope, contribute to its increased complexity. In terms of geographic coverage, the 65 countries along Belt and Road account for *over 38% of the world land surface* (Figure 2). Many of these territories are rich in natural resources and have a great potential of development, but they are also difficult landforms (very high mountains, deserts) with harsh weather conditions which makes them sparsely populated and render infrastructure building and any economic activities much more difficult and expensive. For the OBOR strategy, capitalizing on the natural richness of these stretches of land is an important incentive and a goal, but that calls for high and risky investments, and it implies long-term construction, complex technical solutions, belated and sometimes insecure returns.

Fig. 2: OBOR land as % of world total

(sq.km.thousand, 2014)

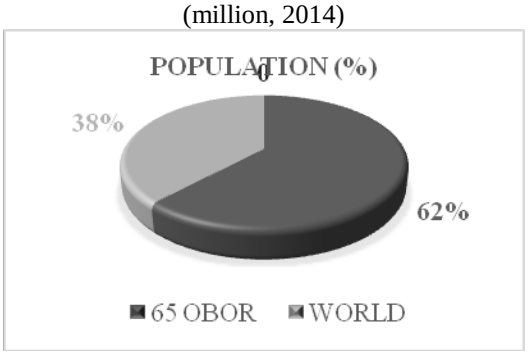


Source: the author's representation, World Bank (2016a)

b. . The extensive and, potentially, expanding geographic coverage of China's initiative is increasing the complexity of Belt and Road also in terms of *the populations involved, which already account for an impressive 62% of the world totals* (Figure 3). These populations, living in three continents, belong to many ethnic groups and are extremely different as regards their history, language, culture, religion, native customs, political organization, local governance and living standards. Some of their countries (in Africa, Middle East, Asia) are politically instable, some are caught in endless rivalries and conflicts, some face separatist movements and some are at war. Many of these populations live in very insecure areas, facing all sorts of threats, from piracy and plunder, to smuggling, illegal trade and local corruption, and even to terrorist atacks and to wars. Investor companies and their project implementation face many of these threats and risks too.

Fig. 3: OBOR population as % of world total

(million, 2014)



Source: the author's representation, World Bank data

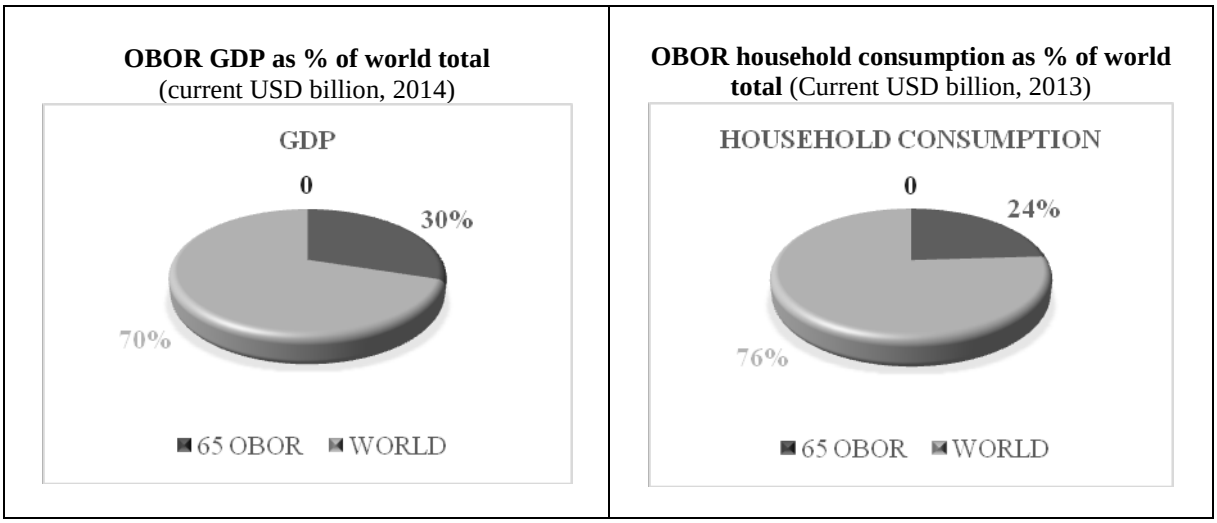
All these harsh realities add to the complexity of challenges to be met and increase the level of risk associated with the accomplishment of the Belt and Road goals. At this point, the strategy blueprint expresses the belief that, to mitigate all of these hardships, the only sustainable solution is to generate economic growth and development in these countries. While this is entirely true, it is also much easier said than done against such local background and, therefore, the investor companies which will venture in these areas will have to assume a higher degree of risk and to prepare accordingly. However, to carry out investments in such regions, usually avoided by private companies, China will most probably resort to its State-Owned Enterprises (SOEs) financially backed by its policy banks, targeting, primarily strategic, rather than financial gains and sacrificing efficiency to this end (Stratfor, 2015).

c. The diversity of the 65 countries expected to get involved in the implementation of OBOR is huge not only in terms of their geography, demography or culture, but also as regards their development level (approximated by GDP/capita at PPP), their business environment, their legal framework and degree of law enforcement, as well as in terms of their technical and quality standards. The 65 include both developing countries of less than USD 3 000/capita (Nepal, Tajikistan, Timor Leste), and countries of over USD

70000/capita (Brunei, UAE, Kuweit, Singapore), or even of over USD 100 000/capita (Qatar) (World Bank, 2016). However, almost half of these countries (31) are below the world GDP/capita average[3] - China and a few European countries (Albania, Bosnia Herzegovina, Macedonia, Moldova, Serbia) included - and most of them need large and systematic investments to propel their growth.

Overall, the 65 countries along Belt and Road account for ***30% of the world GDP, and for 24% of the world household consumption*** (Figure 4). Given that they also account for an impressive 62% of the total world population, their contribution to the global GDP and, most of all, their share in the global household consumption is obviously quite low. The opportunities are staggering, but, in many cases, so are the challenges and the risks.

Fig. 4: OBOR countries' contribution to world GDP and household consumption



Source: the author's representation, World Bank data

Among these countries, some of the most populous countries of the world may be cited, many of them still developing or emergent economies and, also, some of them industrializing and trying to catch up. Nevertheless, all of them need infrastructure development and almost all face important budget shortfalls in this respect.

In a global picture of the infrastructure financing trends given by IFC/World Bank (2016), it is estimated that *the emerging markets worldwide can absorb yearly USD 2 trillion in infrastructure spending and that about half of that demand remains unmet*. Also, their forecast is that *the infrastructure needs of the developing economies will double annualy, for the next decade*. In Asia's case, according to the Asian Development Bank's estimates, the total continental needs of infrastructure investments amount to USD 8 trillion between 2010-2020 (ADB, 2010), or the equivalent of about USD 800 billion annually. IFC/World Bank indirectly confirms ADB estimates, by contending that the bulk of the infrastructure investments needed by emerging markets (of USD 2 trillion) will be required by East Asia, China included. Other sources speak *about cumulated infrastructure needs in all the countries along the OBOR routes, amounting to USD 21 trillion* (McKinsey&Co., HKTDC, 2016).

With its enormous financial resources and in spite of all the costs and risks, China is well positioned, interested and willing to invest in, or to negociate loans with even the less-secure countries, because it is ***motivated by its own long-term strategic and economic (domestic and global) interests*** (Stratfor, 2015). To this end, since 2014, China has established three new financial entities which will provide financing for infrastructure investment under the Belt and Road initiative, additionally to that provided by China's global policy banks – China Development Bank (CDB) and China Export-Import Bank (CEIB) – and to other state-owned lenders, such as the Bank of China (McKinsey&Co., HKTDC, 2016). These are:

1) the ***Silk Road Fund***, with an initial capital of USD 40 bn., financed from China's foreign reserves (plus the ***Green Silk Road Fund,*** of USD 4 bn. for renewable energy projects);

[3] USD 15 465 = the average world GDP/capita at PPP, current international dollars, 2015, according to the World Bank, http://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD?view=chart, accessed at 5.09.2016

2) the ***New Development Bank (BRICS Bank),*** with an initial capital of USD 50 bn., financed by the BRICS countries;
3) the ***Asian Infrastructure Investment Bank (AIIB),*** with initially registered capital of USD 100 bn. expected to reach USD 250 bn., by 2020, from its 57 founding members.

It is worth mentioning that Chinese policy banks already dominate global development finance[4] and that their activity is complemented by the ***14 regional development funds, cumulating USD 116 billion overall capital, created by China, of which at least 10 funds, totaling about USD 79 billion might get involved in OBOR projects***[5] (Hing Lee Chan, 2016).

2. OBOR – complexity of goals

The Belt and Road strategy is obviously a Chinese-centric and Asian-centric one, displaying an almost totally unconcealed expression of China's interests, both in terms of domestic and foreign policy.

China's domestic economic policy targets, by way of OBOR

China has overtly presented *the New Silk Road Strategy primarily as an instrument for adjusting its own domestic imbalances, by supply-side, structural reforms*. As it is in full transition from a development model (investment and export driven) to another (driven by services and domestic consumption) and against the backdrop of an international environment defined by sluggish demand and growth, China has to face a host of domestic challenges: *overcapacity* and *inefficiencies* in a number of industries (steel, cement, glass, coal mining, real estate, infrastructure etc.), especially in state-owned enterprises (SOEs), which are also burdened with huge debts; *unbalanced geographic development* (a highly developed East coast and many inland, Northern and Western regions lagging far behind); *unsustainable and slowing growth* (unbalanced economic structure; high energy and natural resources needs and high dependence on commodity imports - primarily oil and gas - for its resource-intensive activities; investment and production inefficiencies; low positioning into the regional and global value chains; rampant pollution; relatively low innovation and underdeveloped services etc).

Taking all of these into account, China hopes that „going West", opening and connecting markets under the OBOR strategy, could meet many of its domestic reform challenges, among which:

1) to create jobs (for entire value chains, mainly Asian), to export its know-how and expertise in infrastructure building and to create external demand for Chinese industrial goods (building machinery and equipment, construction materials, petrochemicals, high speed railways and wagons, pipelines, telecomunication equipment, etc) by developing infrastructure projects abroad;
2) to give a boost to its renewable energy industry, especially to the solar energy, which suffers from insufficient orders and excess capacity;
3) to spur economic development in its poorer regions in the central and Western parts of the country, rebalance its overall geographic development and mitigate, in this way, wealth disparities among regions, the rural-urban development gap, urban migration and unrest from ethnic minorities;
4) to relocate (inside and outside the country) some of its low-end, labour-intensive industries with lost competitiveness against the rising Chinese wages on the East coast and to revive, consequently, the „flying geese" Asian development model;
5) to better reposition its industries in the regional value chains;
6) to encourage regional synergies that stimulate domestic entrepreneurship and inovation;
7) to encourage the tertialization of the economy and the Chinese export of services;
8) to stimulate innovation-led development and avoid „the middle-income trap";
9) to create a large and stable middle class, able to sustain a domestic consumption - driven development model;
10) to ensure long-term, sustainable growth and rising living standards for its population.

[4] The international ranking by the banks' global assets in 2015 was: 1. China Development Bank; 2. World Bank; 3. Export-Import Bank of China; (Hing Lee Chan, 2016).

[5] **Asia**: Silk Road Fund, Green Silk Road Fund, China-ASEAN Fund (with ADB); **Eurasia:** China-CEE Investment Fund, Russia-China Investment Fund; **Africa:** China-Africa Development Fund, Africa Growing Together Fund, China-Africa Production Capacity/Industrial Cooperation Fund; **Global South:** South-South Climate Fund, South-South Cooperation Fund. http://ippreview.com/index.php/Home/Blog/single/id/181.html.

China's foreign policy targets, by way of OBOR

OBOR is also designed as both a framework and a tool for meeting some of the country's important regional and global goals, among which:

1) ***to secure long-term and safer access to the rich energy resources of developing Asia and Africa*** (Central Asia, Middle East, Northern Africa). By constructing new pipelines between China and the hydrocarbon-rich Central Asian countries and by transporting the Middle-Eastern and African oil through the Pakistan-China corridor (using the Chinese-revamped port of Gwadar) instead of taking the South China Sea lanes - where the Malacca and Hormuz straits are vulnerable to a blockade - the country is trying ***to improve its energy security*** (Currently, China's dependence on oil imports is of about 60%, and 70% of its overall oil imports pass through the Malacca Straits) (Jiang, 2015);
2) ***to improve relations and mitigate conflicts with neighbours;***
3) ***to secure access*** to the European market and to develop other foreign markets along OBOR, ***for its exports of industrial goods***;
4) ***to facilitate and foster larger exchanges, higher investments, increased production and growth, along the OBOR routes***;
5) ***to negociate with the OBOR countries preferential treatment on the back of the large Chinese outbound investments*** - fiscal concessions, other facilities -, ***to lower China's cost of doing business and boost its products'competitiveness,*** giving rise to global ripple effects (Sahoo, 2016);
6) ***to invest China's huge foreign reserves and earn reasonable returns from large-scale transport and energy infrastructure projects abroad;***
7) ***to implement profitable, long term strategies along OBOR routes*** (such as, for instance, by developing ***quality infrastructure corridors*** which become attractive for industrial investments and turn themselves, in time, into ***industrial corridors*** where the transaction costs get minimized, leading to higher competitiveness, increased production, employment and profits);
8) ***to advance in the global value chains, transiting from low-end/low-quality, to high-end/high quality manufacturing;***
9) ***to capitalize on the attractiveness of the Chinese development model and „export" it to other developing countries, strengthening their ties with China and China's influence in those respective countries;***
10) ***to uphold the „going out" policy and the internationalization of China's companies***;
11) ***to broaden the international usage of China's currency*** (RMB) and help its internationalization by advancing RMB-denominated loans or credit lines for projects;
12) ***to increase China's regional and global influence, cement its position as a major power on the global scene and increase its role in setting the international agenda and „writing the rules" that govern international relations*** (Jiang, 2015)***;***
13) ***to push for a free trade zone (FTZ) covering the entire OBOR countries area, in the longer run*** (Churchman, 2016).

As it can be noticed, the targets envisioned by China through its OBOR strategy are many, very complex and far-reaching. This very fact may become a serious drag in terms of its implementation, the more so if the challenges and risks in different regions combine.

Some of the other OBOR participans' hopes and worries

The *Belt and Road* planners trust that the initiative will contribute to creating a more harmonious Eurasia, with everybody having to gain. As it was already shown, a significant part of the OBOR participants are developing, industrializing and catching-up countries, with large investment needs, but depressed financial means. Additionally, some of these countries lack the know-how and skills to design, organize and manage large-scale projects and are often plagued by corruption and faulty law enforcement. Foreign investments and know-how are vital inputs for many of these countries, either for pushing further their development efforts, or to start changing their fate. For all of them, anyway, Chinese potential infrastructure and manufacturing investments are extremely attractive and embody a chance to develop and improve their living standards. On the other hand, although the developing economies along the OBOR are assured that the strategy is a win-win one, asymetries do exist and they may generate drawbacks. For instance:

FOREIGN TRADE. The OBOR strategy clearly aims at opening the markets as far as Western Europe to create demand for China's industrial goods throughout Eurasia and Africa, and to access valuable commodities from the countries along the OBOR routes. But:

1) ***If China continues to subsidize its export industries in various ways, competition in these markets will be unfair,*** Chinese exports will, then, trigger other exporters' market exit and bankruptcies among the local producers, followed by job losses, impaired living standards and, in time, higher import dependency of these countries, with a negative impact on their balance of payments and current accounts;
2) On the other hand, ***it is not equaly clear if China opens its markets too, and to what extent***. ***If China is only going to negociate long-term imports of commodities at preferential prices and terms, against its infrastructure investments, this will probably meet very well China's needs, but it will not make its partner countries richer, even if they will benefit from some job creation. The more so, if all the new jobs and procurement needed for project implementation go entirely to China***. To help these countries develop, ***they should be entrusted with some parts of the projects' implementation and/or procurement*** and, also, ***China should constantly increase and diversify its imports from these countries,*** besides those of commodities. Additionally, ***to maximize external support for the strategy - and let the market allocate resources - Chinese-led funding initiatives should be open to foreign contractors*** (Pantucci, 2016).
3) At the same time, a situation of ***growing indebtness of these countries to China*** (following investments) ***and synchronized deficit growth in their balance of payments and current accounts should be avoided if these countries are to be truly helped develop and become able to pay back their debts.*** Also, creating a balanced trade relationship is critical for easing tensions between countries.

CHINESE INVESTMENTS. All the countries along Belt and Road need investments. As OBOR has such a large coverage, including many countries with competing interests which are not easily harmonized, ***China should refrain from using a „divide et impera" policy of investment alocation, encouraging a race to the bottom among potential recipient countries***.

INDUSTRIAL RELOCATIONS from China to the other OBOR-participant countries could make positive contributions to their rapid industrialization, job creation, economic growth and development, but ***China should consider ways of not also transfering to the recipient countries the high pollution problems it is currently facing itself. Additionally, to encourage the local production and job creation, it should foster its imports of manufactured goods produced in the relocated units,*** helping this countries establish an investment-and-export-led development model in their economies and become the next generation of „flying geese".

REGIONAL VALUE CHAIN DEVELOPMENT. The same applies to the industries in which China gradually moves up the industrial value chains (VCs), leaving its former positions to be ocupied by lower-costs neighbours. ***By promoting OBOR, China hopes to remodel the Asian VCs into complete production cycles in which it ocupies the dominant position over the entire downstream processing***, similarly to what Japan did in the 1980s-1990s when it was facing industrial overcapacity and economic slowdown pressures. But, if it reproduces the Japanese experience (using the regional VCs and production networks as instruments of its own export growth, rather than helping its partner countries develop by absorbing growing imports of their manufactured goods) China would, most probably, get the same unwanted results (bilateral tensions with partner countries). Therefore, ***China should not treat its partners in the VCs as just destinations for its own excess capacity, products or capital, but it should try to become their primary market for final products, to consequently alleviate trade imbalances, strengthen ties and grow its influence in the region, while genuinely helping these countries develop. As such, a big challenge for China would be to strike the right balance between expanding the international market for its own products, on the one hand, and boosting domestic demand to absorb more imports and address the rising trade imbalance with its partners, on the other.*** Regional VCs boost market integration, but this benefits all only if it contributes to a balanced trade relationship (Yu, 2016).

REGIONAL INFLUENCE AND CONFLICT MITIGATION. As shown above, by increasing its presence in the Belt and Road participant countries, China may either improve its local image and influence – as it hopes – or, on the contrary. It all depends on the way in which it manages this undertaking. By forcing certain conditionalities or ways of action on its partners, by systematicaly and primarily seeing to its own interests, pretending favourable treatment and ignoring local expectations and needs, or by bending local or international rules, it will only increase tensions in the neighbourhood and farther. This is why the principles iterated in the *Vision and Actions* document on OBOR, where it is contended that the initiative is ment to be *„open and inclusive"*, promote *„mutual benefit"*, abide to *„market rules and international norms"* and to the principles of peaceful coexistence, must be obeyed to the letter.

3. OBOR – complexity in implementation

Some early accomplishments

There have certainly been some very favourable developments for the OBOR strategy, in recent years, and, currently, there even are some early accomplishments worth mentioning. Among the ***favourable circumstances***, we must highlight the ***proliferation of free trade agreements (FTAs) in Asia*** - where their number jumped from only 9, to 58 between 2000-2015, while some other 64 new ones are either proposed, or already under negotiation.

We also highlight *the higher annual growth rate of trade between OBOR the countries, China included (13,1% , 1990-2013), as compared to that of the overall world trade (7,8%)*. Furthermore, it is worth noting that, after the financial crisis, this discrepancy has become even larger: 13,9% average growth rate in OBOR trade, as compared to just 4.6% in world trade. Particularly spectacular was China's export growth to these countries: over the decade between 2004-2014, its exports have risen over 6 times, from less than USD 100 billion in 2004, (accounting for 16,5% of China's total exports), to over USD 630 billion (25,8%) ten years later (Yue, 2016). In 2015, China's total trade with the countries participating to the Belt and Road initiative exceeded USD 1 trillion, accounting for a quarter of its foreign trade (Xinhua, 2016 a).

According to the same source, since 2013 - when the strategy was announced - more than 70 countries and international organizations have participated in the initiative and more than 30 countries have signed cooperation deals with China. Also, more than 200 enterprises have signed cooperation agreements along the OBOR routes (Tian, 2016). Official figures speak about 900 deals under way, worth about USD 890 bn., and also about cumulative Chinese investments in OBOR countries which will amount to a total of 4 trillion US dollars (Economist, 2016).

It is also important to mention that ***critical institutional building*** has taken place during the last few years, primarily by founding of the OBOR ***new financing institutions*** (the Silk Road Fund, AIIB, BRICS Bank), but also by establishing ***specialized OBOR departments*** at all levels, from the top of the Chinese leadership system down to the enterprise level.

In terms of ***outbound direct investments (ODI)***, it is remarkable that, by official data, in 2015 Chinese investments in OBOR countries rose twice as much as their total ODI and that 44% of the total engineering projects were signed with OBOR countries. This proportion grew to 52%, in the first half of 2016 (Economist, 2016). More recent data show, additionally, that since its announcement in 2013, to the end of 2016, the OBOR strategy has led to Chinese ODI amounting to USD 50 billion in these countries (The Standard, 2017).

Challenges and risks of OBOR implementation

Challenges of geopolitical nature.The Chongqing-Duisburg route – resulted by interconnecting the railway systems of China, Kazakhstan, Russia, Belarus and Germany – was practically in place for almost a decade without becoming operational due to ***difficult and stagnating negotiations*** with Russia and the other transit countries. China had to make a ***huge diplomatic effort*** to conclude a customs agreement with Russia and also to establish a joint transport company to run the business. It needed ten years. This example highlights one of the biggest challenges for OBOR: ***the resistance by other powers, which fear of losing their influence in the region, or have their economic interests affected*** (in this case, Russia saw in the OBOR rail networks a competitor and menace for its own Trans-Siberian rail).

China's larger neighbourhood is one of historically chronic regional rivalries and confrontations which developed, at times, into conflicts. ***Regional political sensitivities*** are also overabundant and, even if countries might be willing to become recipients of infrastructure investment from China, they will be, most probably, reluctant to accepting the sino-centric rules attached. Russia and India, for instance, two major regional players, have already shown discomfort with OBOR implementation (India as regards the China-Pakistan Economic Corridor and some other projects in the territories which it claims from China, Russia regarding the projects involving Central Asian countries, an area which it consides its own backyard) (Ntousas, 2016). The USA and Japan, on the other hand, have vigorously opposed and lobbied against the AIIB establishment and Western participation, for similar reasons.

Challenges of economic and technical nature. Economic rationality has determined Chinese planners to design OBOR as a strategy which makes full use of the existing assets, (either in the form of existing infrastructure networks, ports, airports etc., or as previous local strategies, investment projects, financing mechanisms, institutions etc.). Although this approach is ment to lower costs and to simplify project

implementation, in practice many problems might still arise. For instance, returning to our Chongqing-Duisburg route example, we notice that even if the connection is currently functional, unavoidable operational issues which generate important inefficiencies maintain: there are ***technical incompatibilities between participant railroad systems***, such as the ***different track gauges***[6] in the transit countries. Consequently, containers have to be reloaded to rail cars of a different gauge at the frontiers, adding to the length and cost of transports. On the other hand, because trade between China and Europe is highly unbalanced, there are important ***difficulties in providing full load for the cargo trains returning to China***, which, once again, has a negative impact on costs and efficiency.

If significant difficulties such as these arise when using the existing infrastructure, even bigger problems may appear when attempting to build sizeable, entirely new infrastructure networks. ***One of the biggest challenges in such endeavours will surely be how and where to draw the line between the respective roles of governments and markets***. Although the initiators of Belt and Road stress that the strategy will *„ give play to the decisive role of the market in resource allocation and the primary role of enterprises*", in practice this will be difficult to be done, considering that the beneficiary countries are mostly under-developed market economies, in great need of large, long-term investments, but exposing investors to many risks. Such high-cost, long-term, high-risk investments are not easily undertaken by private companies. They most often need governmental funding and involvement, and that is why inter-governmental policy-coordination and cooperation are critical to the OBOR implementation.

Some of these projects, which from their very inception are obviously going to be ineffectual, at least in the short run, may be considered important and necessary in a longer-term view, as other interests, of strategic nature, might prevail against the purely economic arithmetic and logic. In such cases the states are the ones that have to assume resposibilities and risks. For instance, Russia and China have agreed in principle on building a fast train rail connecting their two capital cities. The distance between Moskow and Beijing is of about 7000 km and by high-speed trains the jurney is supposed to take only two days, but the building costs would be huge and impossible to ever be recovered from cargo rates or passengers fares. In a short-term view such investments cannot be justified, but in a long-run perspective, if a range of cities is being built along the way, calculations may change entirely (Yeo, 2015).

Another huge challenge for China – already mentioned above - would be to strike the optimal balance between its need to expand the external market for its products and the imperative of upholding its partner countries' growth and bilateral amity by absorbing increasingly more of the OBOR countries' exports. It is critical for the OBOR successful implementation that China refrains from using the strategy only for its own benefit, but, on the contrary, it turns it into a „two-way street" (SCMP, 2016 a).

But probably the highest challenge of OBOR implementation, expressed in the numerous and diverse risks it generates, is its large and extremely patchy composition by country (Ntousas, 2016). Trying to link Asia, Africa and Europe means not only to overcome distance, tough relief forms, harsh climate and a multitude of other physical barriers, but also to try to overcome historical rivalries, border disputes, competing economic interests and divergent visions on project implementation issues. It also means to consider the multitude of organizational and regulatory frameworks existing in these countries, the legal and bureaucratic mismatches that may appear between their respective systems and, also, the market failures that may arise, such as rent-seeking or corruption.

Risk assessment. The are many risks associated to this highly complex strategy, that come to the fore both while it is implemented and, also, as some of its outcomes become functional. While in some regions there are serious ***security and political risks*** to be faced from the very onset of project implementation, new threats might appear afterwards, too. For instance, building infrastructure connections in unstable, conflict-ridden regions, such as Balochistan,[7] could be done only with special security measures. But, when the projects are finished, besides their positive impact, the new links may increse risks, providing new transport networks and impoved access to information (ITC networks) not only for people and companies pursuing honest activities, but also for illicit and dangerous undertakings (illegal traffic of goods and people, smuggling, religious extremism and terrorist acts etc.). Political risks also might arise when leadership changes, opposition takes a

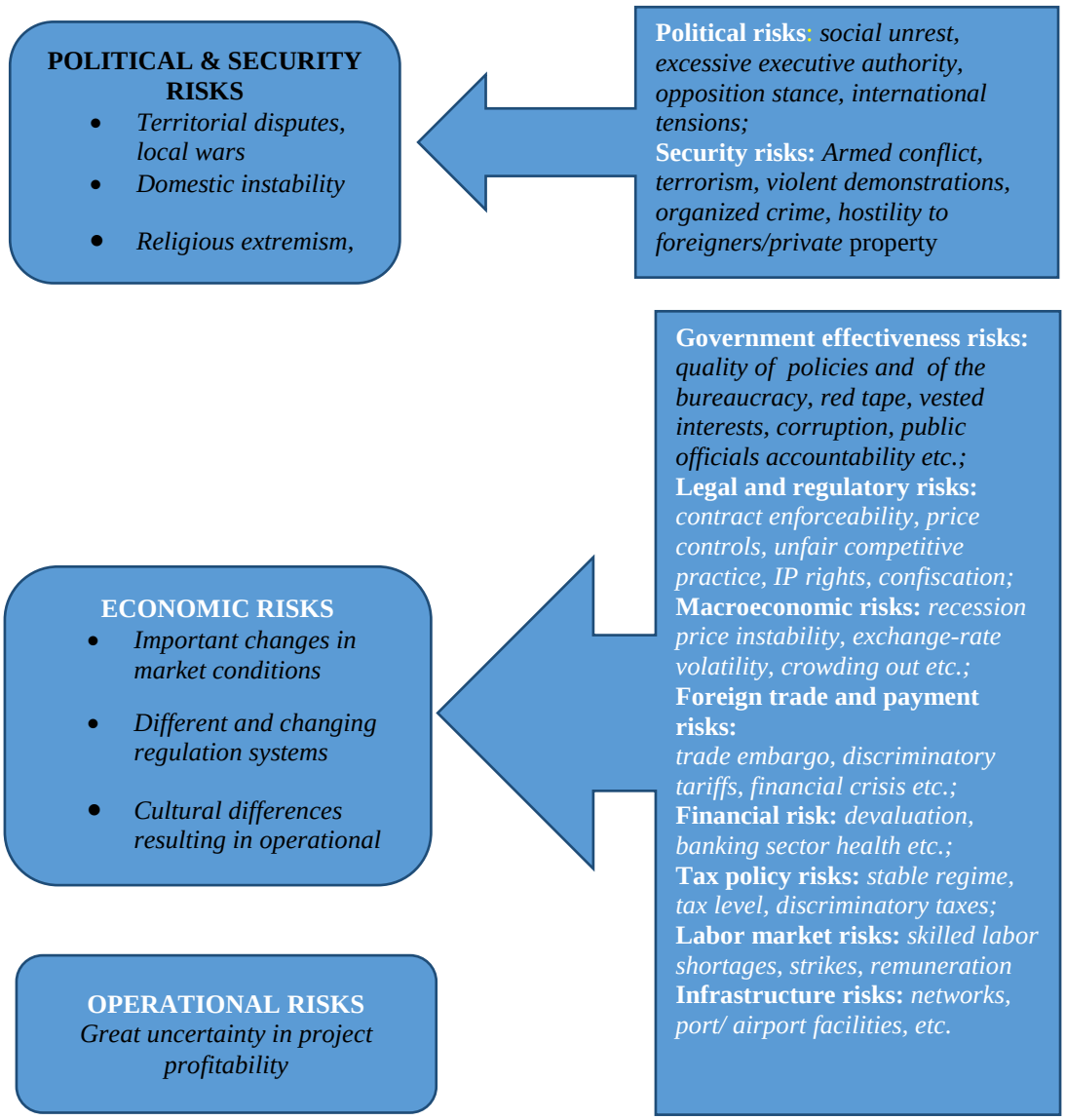
[6] While China and almost all the Western Europe have standard gauge tracks, Russia and Belarus use Russian gauge and Spain, even wider Iberian gauge (Wikipedia, accessed at September, the 9th, 2016 https://en.wikipedia.org/wiki/Yiwu%E2%80%93Madrid_railway_line).

[7] Beijing and Islamabad have concluded an agreement under which Pakistan alocates an army division of 10 000 soldiers to protect Chinese workers involved in infrastructure projects in Balochistan (Stratfor, 2015).

strong stance against projects, or in cases of social unrest. Tensions between neighbour countries may increase political and security risks, too.

There are also numberless ***economic risks***, born from unexpected changes in the market conditions, in the legal and regulatory frameworks, or just emerged as a result of the local cultural specificities. All of these can, in turn, generate operational risks leading to a high degree of uncertainty in project profitability (Figure 5; Tables 2 and 3). From a risk assesment report by the Economist Intelligence Unit (2015) which looks at 10 risk categories (as in Figure no. 4) and rate them from 0 to 100 by risk intensity, it comes out that different risks combine into different paterns by country, with a few types prevailing in each case (Tables no. 2 and 3). On the whole, all these various risks compose a graphic image of the potential threats to OBOR implementation, in the form of a regional risk map (Map 2).

Fig. 5: Potential risks in OBOR implementation



Source: the autor's own representation, resting on Ernst&Young (2015) and EIU (2015) and (2016)

Table no. 2: The highest-risk OBOR countries, by risk category

Risk category	**High risk countries** (highest score*)
1. Security risks	Iraq (96); Pakistan (86); Philippines (79); Cambodia (61);
2. Political stability risks	Tajikistan (80); Iraq (80); Turkey (70); Azerbaijan (70); Ukraine (70); Moldova (70); Jordan (70); Iran

	(70); Cambodia (70); Bahrain (70); Russia (65); Thailand (65); Armenia (60); Oman (60); Pakistan (60); Bangladesh (60);
3. Government effectiveness risks	Tajikistan (96); Iraq (89); Azerbaijan (86); Russia (86); Cambodia (86); Kazakhstan (86); Laos (82); Kyrgyz R. (82); Bangladesh (79); Iran (79); Pakistan (79); Moldova (75); Ukraine (71); Myanmar (71); Saudi Arabia (71); Mongolia (71); Vietnam (68); Egypt (68); Turkey (68); Thailand (68); Cambodia (65); Armenia (64); India (64); Indonesia (64); Sri Lanka (61); Philippines (61);
4. Legal & regulatory risks	Tajikistan (88); Kyrgyz R.(85); Myanmar (85); Iraq (80); Iran (80); Ukraine (78); Laos (72); Kazakhstan (70); Russia (70); Bangladesh (68); Azerbaijan (68); Indonesia (62);
5. Macroeconomic risks	Georgia (65); Iran (65); Egypt (65); Russia (65);
6. Foreign trade and payment risks	Tajikistan (93); Iran (82); Pakistan (75); Laos (68); Russia (61);
7. Financial risks	Mongolia (79); Iraq (79); Tajikistan (83); Kyrgyz R. (79); Moldova (75); Iran (71); Myanmar (71); Laos (71); Azerbaijan (67); Pakistan (62);
8. Tax policy risks	India (88);
9. Labour market risks	Cambodia (75); Mongolia (61); Indonesia (61); Vietnam (61);
10. Infrastructure risks	Iraq (94); Mongolia (81); Myanmar (81); Laos (78); Pakistan (78); Kyrgyz Rep. (75); Bangladesh (75); Cambodia (69); Armenia (66);

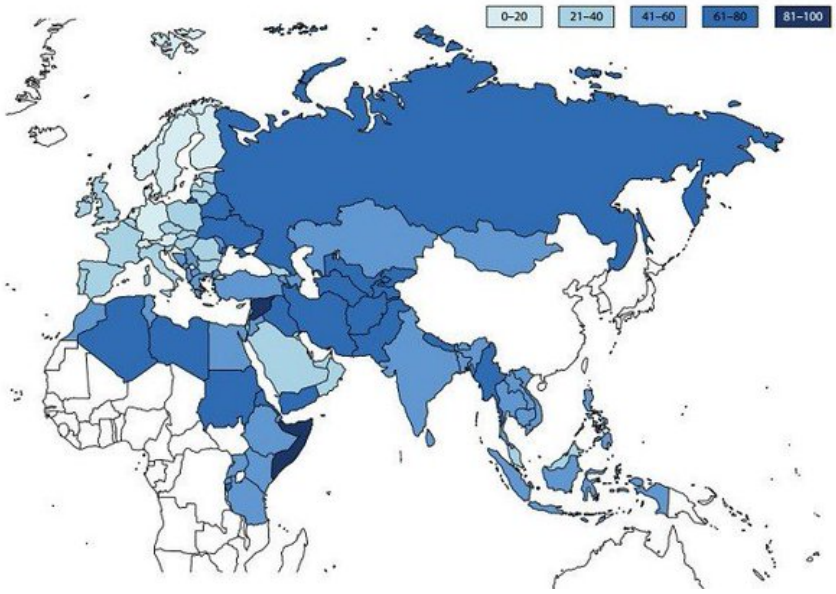
Source: the author, resting on EIU (2015) and (2016); Note:*by EIU methodology, 0-100 scale,100 = most risky. Only the countries with the highest scores, ranging either between 60-79, or 81-100, have been selected.

Table no. 3: The lowest-risk OBOR countries, by risk category

Risk category	**Low risk countries** (lowest score*)
1. Security risks	Singapore (7); Czech Rep.(11); Hungary (14); UAE (14); Qatar(14); Poland (18); Romania (18); Kuwait (18); Oman (18);
2. Political stability risks	
3. Government effectiveness risks	Singapore (7);
4. Legal & regulatory risks	Singapore (8);
5. Macroeconomic risks	Malaysia (10); Oman (15);
6. Foreign trade and payment risks	Singapore (4); Qatar (11); Oman (11); UAE (14); Romania (18);
7. Financial risks	Singapore (4); Israel (17); Malaysia (17);
8. Tax policy risks	Singapore (6); UAE (12); Oman (12); Bahrain (12); Poland (19); Israel (19); Qatar (19);
9. Labour market risks	
10. Infrastructure risks	UAE (19);

Source: the author, resting on EIU (2015) and (2016); Note: *by EIU methodology, 0-100 scale,100 = most risky. Only the countries with the lowest scores, ranging between 0-20, have been selected.

Map 2: Overall country operational risk on „One Belt, One Road"



Source: Economist Intelligence Unit (EIU, 2015)

We, therefore, notice that some of the most risky countries are in Central Asia (Tajikistan, Azerbaijan, Turkmenistan, Kyrgyz Rep., Kazakhstan etc) and the Middle East (Iraq, Iran, Syria), but there are also important risks to be faced in some countries of Southern Asia (Pakistan, Bangladesh, India etc.), South Eastern Asia (Myanmar, Philippines, Cambodia, Laos, Indonesia etc.) and even Europe (Ukraine, Moldova, Russia, Georgia). On the other hand, the less risky countries, with scores under 20 for some risk categories, are a few rich oil and gas exporters in the Middle East (Qatar, Oman, Kuweit, Bahrain) and some of the Central and Eastern European (CEE) countries (Czech Rep., Hungary, Poland, Romania). Yet, above all of these safe countries, the best position is that of Singapore, with scores under 10, and even under 5, in more risk categories, and with an overall operational risk of just 11. The rest of the 65 OBOR countries score in the range of the average levels (between 20 and 60) in most of the risk categories, CEE countries included.

We also note that the risk category which gathers the largest number of high-risk countries is the *government effectiveness risk*. This seems of the utmost importance and significance, as long as Belt and Road relies heavily on governmental involvement in project support and implementation, as well as on policy coordination among governments.

4. Conclusions: the complexity of the OBOR expected impact

Currently, China is the only country which has thought out and has advanced a long-term vision and development strategy for itself, for its three-continents extended neighbourhood and, by way of spillover effects, for the global economy as a whole. On the one hand, the strategy aims at restructuring and rebalancing China's economy, so that it can continue growth, development and living standards improvement, and, on the other hand, it aims at consolidating China's leading regional and global role.

Given its size, its high and progressing integration into the global economy, ***when China changes, the entire world has to change too, and, also, when China's position on the regional and global stage is redefined, then the whole world architecture will have to be reshaped***. Therefore, although it is obviously difficult and very early to make an accurate estimation of the Belt and Road regional and global impact, given its complexity, depth and large geographic coverage, we can presume that this impact is going to be colossal, touching almost every activity and every corner of the world.

Although quite a big number of the OBOR projects will fail, while others will not be cost-effective (in the short-run, at least), overall, the 35-years-long strategy ***will increase the linkages, the bilateral and multilateral relations, the cooperation and interdependence between the countries involved.*** Even if only a part of what this vision seeks to accomplish will be done, the impact will still be remarkable, but we expect that China will uphold and push forward this strategy at any cost, primarily because it is designed for its own better future and, secondly, because it is a question of national ambition and pride to succeed implementing such an

uniquely daring and challenging plan. As such, OBOR is expected, according to some analysts, to *„... leave an economic legacy bigger than the Marshall Plan, or the European Union's enlargement"* (SCMP, 2016)

As it is designed by China, largely financed by China and beginning to be implemented from China, ***this evolving process of growing interconnectedness, as well as its consequences, will have China in its center, firmly establishing, as such, its leading regional position and an undisputed place among the most powerful leaders of the world. China will influence – actively or passively - every economic, politic(al) or strategic decision made, every global process, every negociation, its companies, goods, capital, currency will be increasingly present all over the world, its development model will be replicated by some countries, its culture will expand its reach and its leaders will have a bigger role in global rule setting. In other words, the OBOR strategy can be and, probably, it will be a global game-changer.***

Francis Fukuyama (2016) comes to a similar conclusion. He considers the One Belt One Road strategy *„...a striking departure in Chinese policy"*, because, through it, China seeks for the first time to ***export to other countries its development model,*** consisting in state investments in infrastructure, which nourish industrial capacity development and create consumer demand for Chinese products outside China. He considers that such a development pathway - which was remarkably successful in China - has better chances to enrich poor countries than the Western model, which focuses on investments in health, civil rights and anticorruption. Therefore, if the OBOR strategy is successful, *„...the whole of Eurasia from Indonesia, to Poland, will be transformed in the coming generation."*

What changes might happen? We presume that at least some of the following:

- A redistribution of some of the Chinese industrial capacities throughout the OBOR countries and the restructuring of the Asian value chains, resulting in a new regional labour division, with a global impact;
- Rapid and simultaneous industrialization, modernization and urbanization of the lower-developed economies along the Belt and Road; manufacturing upgrading, industrial diversification and a considerable economic activity boost all along the OBOR routes;
- Increased demand for infrastructure-connected industries (building machinery, steel, cement, pipes, bullet trains etc.) both for China and for other producer countries, in the construction phase of networks; a new and growing demand in the operational-phase of the networks, for a host of other products and services offered by the OBOR countries and, in general, by global markets (trade creation);
- Increased competition between more transport routes and cargo transport modes, leading to lower transport fares, regionally and globally. These will be reflected into improved operational costs and economic efficiency;
- Regional trade creation will trigger local production growth, job creation and increasing households' income in the OBOR countries, which will be reflected into higher living standards and growing consumption needs;
- A redrawn energy map and economics in Asia will be born, with global impact on prices, trade and investment flows, structure and nature;
- Development and economic growth will receive a strong boost in whole Silk Road area and, consequently, the OBOR countries will advance in the world hierarchies;
- As such, a world having currently two huge, well-defined, trade cores (one in the Atlantic basin, and the other in the Pacific) may turn into a three-cores world, in which a new trade-and-economic cooperation core, geographically placed between the first two, will be that of the Belt and Road countries (Map 3). The global trade system might undergo its most profound restructuring since the Uruguay Round (1994) and after 2008 (Zhang Monan, 2016).

Map 3: A potential world with 3 trade and economic cores?

Source: the author

While the countries along the OBOR routes, alltogether, are already reaching trade and investment growth rates above the world average[8], their intra-regional trade and cooperation is still relatively low and in an early stage of development. But, the Belt and Road strategy might change that, as well as the entire trade growth mode, which might adjusts to new modalities of integrating international trade, direct investment and the industrial shift (Zhang Monan, 2016). For Europe, One Belt, One Road strategy is beneficial in its first stages of infrastructure development and it should, therefore, be encouraged and upheld. Especially for *„...the de-industrialized and de-populated East European states that joined the EU a decade ago,..., the Silk Road economic Belt Initiative would be a much needed source of economic revitalisation*." (Gatev, 2015). On the other hand, the strategy's later phases, which might aim to evolve towards a free trade agreement (FTA) covering all the participant countries, will concentrate benefits – in case such a FTA is concluded - into the Asian countries, China included, at Europe's disadvantage, but, as shown by a recent research, the EU trade will be harmed in a relatively limited way (Garcia Herrero & Xu, 2016). All of the elements of this bright scenario are possible, provided that China avoids becoming hegemonic, refrains from forcefully imposing its interests, rules, model, ideology on the other partner countries but, on the contrary, it thrives itself while helping its OBOR partner-countries industrialize, export more, develop, advance technologically and improve their living standards.

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The 16 + 1 Mechanism and One Belt One Road Initiative, New Channels of Promoting Sino-Czech Relations

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Abstract: *The 16 + 1 mechanism and One Belt One Road initiative have played a prominent role in promoting economic and trade cooperation between China and Central and Eastern European Countries. Along with strengthening mutual political trust and improving economic and trade cooperation mechanisms between China and the Czech Republic, bilateral trade is continuously growing, while mutual investment is significantly expanding. The two countries are willing to explore the potential of economic complementarities and constantly promote cooperation in fields such as machinery manufacturing, energy, finance and infrastructure. Looking to the future, the present paper underlines that economic and trade cooperation between China and the Czech Republic will face some opportunities, but also some challenges.*

Keywords*: China, Central and Eastern Europe, the Czech Republic, Economic and Trade Cooperation, the 16+1 Mechanism, One Belt One Road Initiative*

1. Introduction

At the end of March 2016, China's president Xi Jinping visited the Czech Republic, when together with the Czech Republic's president Milos Zeman signed a joint statement about establishing a strategic partnership between the two countries. They reached a consensus on promoting the connection of One Belt One Road initiative with the development strategy of the Czech Republic, the junction of the Chinese international capacity cooperation with Czech preponderant industries and the linkage of the 16+1 cooperation framework with bilateral cooperation between China and the Czech Republic. Chinese-Czech relations which went through twists and turns and ups and downs, have entered the best period in the history under the new Chinese initiatives, namely the 16 + 1 cooperation framework and One Belt One Road Construction in recent years. Comprehensive cooperation in many areas gradually began and economic and trade cooperation represents now the most important element in the relations between the two countries.

The argumentation begins with the promoting function of 16 + 1 mechanism and One Belt One Road strategy to economic and trade cooperation between China and the Czech Republic, it continues with the introduction of current situation of bilateral trade and mutual investment. Finally, this paper analyses some factors affecting the future of economic and trade cooperation between the two partners.

2. The establishment of the 16 + 1 mechanism and support for One Belt One Road construction from Central and Eastern European Countries

For quite a long time since 1989, both China and the Central and Eastern European Countries looked up to the western countries. China had more economic contact with the western developed economies, while the transformation of the Central and Eastern European Countries has progressed according to the model of the Western Europe and their economies became open mainly to the Western Europe. Therefore, in most cases, with several exceptions, contact and mutual knowledge and understanding between China and Central and Eastern European Countries were relatively less (Zhu, 2016). Along with the outbreak of the global financial crisis and the euro zone debt crisis, interest of China and Central and Eastern European Countries in each other increased, and they promoted the position of the other party in their foreign relations.

Central and Eastern European Countries realized that China has become the world's largest commodity trading nation, the second largest economy, the largest manufacturing country and third largest foreign investor, is one of the important actors coping with global problems and that they should treat China as an important political and economic partner. In addition, as most Central and Eastern European Countries became EU

Member States, they gradually strengthened self-confidence and began to take a balanced view on the international system. The continued fiscal problems in the euro zone forced the Western European Countries to reduce their investment towards Central and Eastern Europe. In order to boost economic growth and promote diversification of economic development, Central and Eastern European Countries began to look for partners outside Europe. Against the background of sluggish recovery in the global economy and the intensification of international competition, China's economic growth slowed down, while in the meantime its interdependence with the other countries in the world increased more and more. For China, whether to carry out the strategy of diversification of foreign trade markets or to implement the strategy of "going out", the geographic location and economic significance of the Central and Eastern Europe is extraordinary and there is a significant space and potential to cooperate with them. Central and Eastern European Countries are emerging economies, connect the prosperous markets in Asia and Europe and are important driving forces of the economic recovery in Europe (Xiao, 2015, p. 6). Not only they have traditional friendship, similar experience of transformation and economic complementarities with China, but also they have relatively stable political and economic situation, relatively ideal investment environment, still enough high skilled labour force, solid basis of manufacturing industry and convenient transportation network.

At the beginning, China decided to strengthen bilateral relations with Central and Eastern European Countries. In 2009 and 2011 China successively established strategic partnerships with Serbia and Poland. In mid-2011, China began to cooperate with Central and Eastern European Countries as a whole (Szczudlik, 2015, p. 50). In June, 2011 China-Central and Eastern European Countries economic and trade forum was successfully held in Budapest, China's prime minister Wen Jiabao took part in it and presented proposals for closer cooperation between China and Central and Eastern Europe. In April, 2012 China's prime minister Wen Jiabao and government leaders of sixteen Central and Eastern European Countries met in Warsaw, and reached agreement on strengthening cultural exchanges and pragmatic cooperation in the field of economy and trade. Wen Jiabao also announced 12 measures of enhancing cooperation with Central and Eastern European Countries. From then on, a comprehensive, wide-ranging and multi-level cooperation pattern gradually took shape. Although the 16 Central and Eastern European Countries form a relatively heterogeneous group, as there are obvious differences in their level of economic development, comprehensive national power, historical development, legislative framework and demand for cooperation with China, however communication and cooperation with China within the framework of 16 + 1 has continuously strengthened in the fields of trade and investment, finance, energy, science and technology, cultural exchanges and local cooperation.

In 2013 China put forward One Belt One Road initiative and in March 2015 it issued the Vision and Action files of One Belt One Road, in order to promote trade between East and West, mutual learning between different civilizations and the prosperity and development of all countries along One Belt One Road. Sixteen Central and Eastern European Countries are all along the One Belt One Road. They differ from China in governance model, cultural tradition and ideology, but both China and the Central and Eastern European Countries are all attractive investment destinations, they emphasize mutual benefit and win-win cooperation, are committed to improve the market economic system, expand opening to the world, perfect laws and regulations and speed up economic development. The Central and Eastern European Countries have great potential for cooperation with China in the fields such as modernization of industry, energy conservation, environmental protection, infrastructure, etc. They support and are willing to actively participate in the One Belt One Road construction. So far, six Central and Eastern European Countries, Hungary, Poland, the Czech Republic, Bulgaria, Serbia and Slovakia have signed with China inter-governmental memoranda about promoting One Belt One Road.

3. The influence of the 16+1 Cooperation and One Belt One Road construction on the economic and trade cooperation between China and the Czech Republic

After the political upheaval in Eastern Europe in 1989, bilateral relations between China and Czechoslovakia, which had a traditional friendship, became somehow distant and the two countries were not a priority in the foreign policy of each other. After the Czech Republic became independent from the Czech and Slovak federal Republic, on January 1, 1993, the Czech leaders insisted on the diplomatic principle of “human rights first”, often had contradiction and conflict with China around Taiwan, Tibet, human rights and other sensitive issues concerning China's core interests. So the political relations between the two countries were at a lower level for a long time. At the same time, the economic and trade cooperation between the two countries went on and somehow strengthened, just the scale of the bilateral trade and investment still remained small.

Substantive progress was made in the bilateral economic and trade cooperation after the establishment of 16 + 1 mechanism and the birth of One Belt One Road strategy.

Since 2012, the Czech government has gradually changed its position on the issue of relations with China and adopted a more pragmatic attitude. In the early 2014, the coalition government led by the Czech Social Democratic Party came to power and significant changes took place in the Czech Republic's policy toward China. The Czech government identified the development of relations with China as one of the priorities in foreign policy, it abandoned ideological prejudice, paid more attention to the economic interests in diplomacy. In April 2014, the Czech foreign minister visited China after fifteen years and bilateral relations changed direction. Since then, the two countries enjoyed frequent high-level visits, increased political mutual trust, expanded bilateral trade and investment. The Czech Republic tried to get on the development express of China, attract more and more Chinese investment and encourage more native companies to enter the Chinese market. At the same time, as an important country along One Belt One Road and a EU Member State, the Czech Republic intended to become a bridgehead for China's enterprises intending to enter the EU and the bellwether among Central and Eastern European Countries in cooperating with China. The Czech Republic also hopes that it could take joint action with China in developing the third party market in the Balkans, Africa, the Middle East, Latin America and other places.

3.1. The Economic and Trade Cooperation Mechanism became better and better

The mechanism of inter-governmental joint economic committee played a macro guidance role for the economic and trade cooperation between the two countries, helped the them expand the scale of their bilateral trade and balance its development, helped expand the two-way investment. In August 2014, the regular meetings of the committee, which were interrupted since the end of 2008, were restarted.

In the past two years, top leaders of the two countries intensively visited the other country. During the visits, the two countries signed a series of agreements and memoranda to strengthen their economic ties. During the President Zeman's visit to China in October 2014, the Export Bank of the Czech Republic and the Export-Import Bank of China signed a cooperation agreement, the National Energy Administration of China and the Ministry of Trade and Industry of the Czech Republic signed a memorandum on civil nuclear cooperation.

In November 2015, when the Czech Republic's prime minister Sobotka visited China, the two governments signed a memorandum on further cooperation under One Belt One Road initiative, the Industrial and Commercial Bank of China signed memoranda of cooperation with the Czech government, the Czech Export Bank and Czech Trade Ministry, respectively. The Ministry of Commerce of China and the Industry and Trade Ministry of the Czech Republic signed a memorandum on setting up a working group promoting mutual investment.

In March 2016, during China's President Xi Jinping's visit to the Czech Republic, the two governments signed a memorandum on joint preparing the draft plan of bilateral cooperation, the Council for Promotion of International Trade of China and the Ministry of Industry and Trade of the Czech Republic signed a memorandum on participation of China in Brno International Machinery Exhibition in 2016, as a partner, the Council for Promotion of International Trade of China signed a cooperation agreement with the Chamber of Commerce of the Czech Republic, the Export Credit Insurance Company of China signed a memorandum on supporting investment and cooperation in third markets with Ministry of Industry and Trade of the Czech Republic. The Ministry of Commerce of China and the Ministry of Industry and Trade of the Czech Republic signed a memorandum on cooperation in the field of industrial parks, the National Development and Reform Commission of China and the Ministry of Industry and Trade of the Czech Republic signed a memorandum on strengthening information connectivity within the framework of One Belt One Road construction, the Civil Aviation Administration of China and Ministry of Communications of the Czech Republic signed a technical cooperation agreement (Business Info, 2016).

3.2. Bilateral trade is continuously growing

Trade is the original form of Chinese-Czech economic and trade cooperation. Nowadays, the Czech Republic is China's second largest trading partner in Central and Eastern Europe, China is the Czech Republic's fourth largest trading partner, the second largest source of imports and the 18th largest export destination.

According to the trade statistics of Eurostat, in 2015 bilateral trade between China and the Czech Republic amounted to $13.51 billion, with a year-on-year growth of 17.6%. The export of the Czech Republic to China amounted to $1.83 billion, a year-on-year decrease of 10.0%, while the import of the Czech Republic

from China amounted to $11.67 billion, year-on-year increase of 23.6%. The trade deficit of the Czech Republic amounted to $9.84 billion, a year-on-year growth of 32.8% (MoC, 2016a).

Although the Czech Republic's exports to China have tripled from 2007 to 2015, however the degree of bilateral trade imbalance is still high, the Czech Republic runs a long-term trade deficit and the trade deficit with China is widening continually.

Both products of China's exports to the Czech Republic and products of China's import from the Czech Republic are mainly mechanical and electrical products, transport equipment, optical and medical equipment, toys, games supplies, sporting goods and so on. In the past two years, exports of mechanical and electrical products amounted to 50% of the total Czech exports to China, while at the level of imports it amounted to 75%-80% of the total Czech imports from China. Chinese exports of transportation equipments, but also leather bags to the Czech Republic recorded an obvious growth; China's imports of paper, chemical products, furniture and toys from the Czech Republic also increased significantly.

3.3. The areas and scale of mutual investment are significantly expanding

For a long time, the scale of China-Czech mutual investment remained at a low level. By the end of 2014, about 20 Chinese enterprises invested in the Czech Republic. Foreign direct investment from China to the Czech Republic altogether amounted to $243 million (MoC, 2016b), less than 0.1% of the total amount of foreign direct investment which the Czech Republic attracted. The major fields in which Chinese enterprises invested in the Czech Republic were as follows: electronic equipment, communication equipment, food processing, automotive industry, printing equipment, medical products and glassware.

In the past two years, the investment activities of Chinese enterprises in the Czech Republic have been increasingly active and Chinese investment in the Czech Republic has become a bright spot and growth point in China-Czech economic and trade cooperation. In 2015, China CEFC Energy Company Ltd. acquired some important Czech enterprises, involving aviation, media, finance, sports, real estate, medical and healthcare and so on, leading the investment boom of Chinese enterprises in the Czech Republic. At the end of March 2016, during the Chinese president Xi Jinping's visit to the Czech Republic, the two countries signed 30 economic cooperation agreements, involving energy, finance, nuclear power, aviation, chemical industry, infrastructure and other fields. The total value of the signed agreements reached euro 10.9 billion, of which an amount of euro 3.5 billion was planned to be implemented in 2016 and the balance of euro 7.4 billion before 2020. Out of the amount of euro 10.9 billion, circa euro 8.6 billion represent Chinese investment in the Czech Republic, while euro 2.3 billion represent Chinese imports from the Czech Republic (Ceske Noviny, 2016).

By the end of 2015, the total investment of the Czech Republic in China amounted to $1.8 billion (Ma, 2016). There are two important investment projects of the Czech Republic in China. At the beginning of 2016, Shanghai Skoda Auto Company planned to invest euro 2.1 billion for expanding model series and development of new technology, so that annual sales in the Chinese market could reach 500000 units before 2020. The other investment project is Home Credit Group expanding business in China, which specializes in consumer finance and retail banking. By now, Home Credit Group provided consumer loan service in 14 provinces and more than 150 cities, its business covers also rural areas. It decided to invest additional 6 billion Yuan in China in the next two years.

4. Opportunities and challenges of Sino-Czech economic and trade cooperation

Although the proportion of the bilateral trade volume in the total amount of foreign trade of each country is still small and the scale of the mutual investment is also limited, both economies are highly complementary to each other and economic and trade cooperation is full of hopes.

4.1. Opportunities of China-Czech economic and trade cooperation

4.1.1. Cooperation in manufacturing industry has huge potential

In 2015, the Chinese government launched a grand plan named "Made in China 2025", that aimed at helping China manage the shift from a big manufacturing country to a powerful manufacturing country. On the occasion of Brno International Mechanical Industry Exhibition which was held in September 2015, the Czech government proposed the Czech Industry Plan 4.0, so as to create more high value-added products through strengthening technological innovation. The Czech Republic has a high level of science and technology and

advanced manufacturing industry. In order to play comparative advantage, carry out international cooperation of productive capacity, China hopes to achieve effective connectivity of the Made in China 2025 plan with the Czech Industry Plan 4.0. The Czech Republic treats China, with its huge market, as one of its most important trading partners and pays attention to Chinese technical advantages in many aspects, therefore it also welcomes China's active participation in the Czech Industrial Plan 4.0. The two countries regard the establishment of a strategic partnership as a chance to continually strengthen cooperation in fields such as aviation equipment manufacturing, automobile manufacturing, machine tool manufacturing and so on, within the framework of 16+1 Cooperation and One Belt One Road strategy.

4.1.2 Energy cooperation has broad prospects

China put forward going out strategy of nuclear power companies, while the Czech Republic has advanced technology and good performance in nuclear power industry. The two countries committed themselves to integrate the advantageous resources of each side so as to realize mutual benefit and win-win results. In March 2016, China-Central and Eastern Investment Cooperation Fund, whose establishment was initiated by the Import and Export Bank of China, bought a 95% stake of the Czech Republic's second largest photovoltaic power plant. During China's president Xi Jinping's visit to the Czech Republic, the two countries signed a series of agreements and memoranda strengthening energy cooperation, involving cooperation in the field of wind power, solar power, nuclear power and other renewable energy sources. In addition, China made great efforts to participate in some energy projects in Central and Eastern Europe by becoming a shareholder of J&T financial group, and seeking opportunities to participate in the expansion project of the existing two nuclear plants in the Czech Republic – the Dukovany and Temelin nuclear power plants.

4.1.3. Financial cooperation will be deepened

With the rapid growth of bilateral trade, as well as the implementation of One Belt One Road initiative, there is an increasing demand to strengthen financial cooperation between the two countries. In Central and Eastern Europe, the Czech financial system is relatively healthy, without large foreign debt, and the financial market is very developed. China welcomes Czech financial enterprises to do business in China, supporting the Czech Republic's intention to become financial centre of cooperation between China and Central and Eastern European countries. The Czech Republic supports China's financial institutions to set up branches in the Czech Republic. After the Bank of China set up a branch in Prague in August 2015, the Industrial and Commercial Bank of China will also set up branch there. Financial institutions of the two countries also signed a strategic cooperation agreement which plans to gather more financial resources setting up investment funds, industry funds and other means, supporting Chinese companies to invest in the Czech Republic's finance, energy, petrochemical industry, electromechanical industry, infrastructure and other fields and strengthening cooperation in cross-border crisis management.

4.1.4. Cooperation in the field of infrastructure has started

The Czech Republic is also committed to become transportation and logistics hub within the larger cooperation of China and the Central and Eastern European countries. Mr. Jan Kohout, the former Czech foreign minister and the founder of New Silk Road Institute in Prague said that the conception of new Silk Road in the land and on the sea should also add new Silk Road in the air. The extremely advantageous geographical location of the Czech Republic, allows it become a passenger and cargo air hub (Parlamentnilisty, 2016). In fact, the two countries have already started to cooperate in air, land and water transport. Prague airport has gradually become an important gateway for Chinese and Asian tourists and investors, to enter Central and Eastern Europe. Chinese companies plan to purchase a company engaged in railway construction and railway transport in the Czech Republic. In terms of water transport, the enterprises from the two countries signed an agreement on cooperation in the analysis phase of a canal project connecting the Danube, the Oder and the Elba rivers.

4.1.5. Tourism cooperation will be continuously strengthened

In order to deepen the tourism cooperation, the two countries mainly adopted the following steps: Firstly, three direct flights between China and the Czech Republic were opened: Beijing-Prague, Shanghai-Prague, Chengdu-Prague. Secondly, a new consulate was opened in Chengdu, strengthening the visa service

and providing convenience of personnel exchanges. Thirdly, the two countries carried out many kinds of promotional activities of tourism, the Czech Tourism set up representative offices in Beijing, Shanghai and Hong Kong. In 2015, the number of Chinese tourists to the Czech Republic rapidly grew to 285,000. The Czech Tourism Bureau estimated that in 2016 the number of Chinese tourists to the Czech Republic will exceed 350,000 people.

4.2. The Challenge for the China-Czech Economic and Trade Cooperation

China-Czech economic and trade cooperation will also face some challenges which are worth being paid attention by both sides and being found good solutions, so as to avoid the negative impact on the deepening economic and trade cooperation, in the future.

4.2.1. The problem of trade deficit of the Czech Republic with China

In recent years, along with growing bilateral trade volume, the trade deficit of the Czech Republic is continually expanding, which drew considerable attention from the Czech Republic. It seizes the opportunity of One Belt One Road construction to expand export to China. According to the results of a survey of small and medium-sized enterprises and craftsmen federation in early 2016, 34% of the exporting enterprises expect to expand their exports to China and 17% of the companies wish to enter the Chinese market (Zpravni Aktualne, 2016).

China pays attention to the interests and concerns of the Czech Republic and has taken some measures to promote bilateral trade development and alleviate the Czech Republic's trade deficit, jointly, with the Czech side. For example, in March 2016, the National Development Bank of China signed a financial cooperation agreement with Export Bank of the Czech Republic. This agreement helps the Czech exporters to more easily enter the Chinese market and it contributes to reducing entrepot trade of Czech commodities to China through third countries, increasing the possibilities of direct export of Czech goods to China. As such, it may significantly improve the trade imbalance. Mr. Milos Welser, leader of the department for special projects and international mergers of the Export Bank of the Czech Republic, said that in the next few years the Czech Republic's export to China will be doubled (Hospodarske Noviny, 2016). How effective it will be, it remains to be seen in the future. If the Czech trade deficit with China will not be properly solved for a long time, it will certainly weaken the enthusiasm and activities of Czech politicians and businessmen to develop the economic and trade cooperation with China.

4.2.2. The problem of form of Chinese investment in the Czech Republic

Due to Czech president Milos Zeman's visit to China in September 2015, and to Chinese president Xi Jinping's visit to the Czech Republic in March 2016, Chinese enterprises determined two investment booms in the Czech Republic, causing heated discussions in his country, which mainly focus on the Chinese investment form. Many people from the Czech business community believe that the main form of China's investment in the Czech Republic is merger and acquisition of the existing enterprises and of the well-known brands, rather than green-field investment, so as to obtain access to advanced technology, brands, distribution channels and the possibility of entering the EU market more easily. The Czech side hopes that in the future the purpose of China's investment will gradually turn to expand the scale of the existing production and to create new jobs. Once the expectations of the Czech side will not be fulfilled, its attitude to Chinese investment will likely change quite significantly.

4.2.3. Some Czechs are skeptical as regards the strengthening of the economic and trade cooperation with China

In Czech political circles, right-wing forces think that on the issues regarding the relations with China, the Czech Republic should adhere to the principle of "human rights first", and they continuously criticize - through media, in parliament and through the non-governmental organizations - the Government and the Presidency, who are considered short-sighted, because they only focus on the economic interests. Additionally, a considerable part of the small and medium-sized enterprises in the Czech Republic regard China as a dangerous partner, it fears that China's enterprises have no good faith and this fear even surpasses the expectation of finding an ideal partner (Zpravy Aktualne, 2016).

In Czech academic circles, some scholars put forward the following opinions: the visits of the supreme leaders of the two countries brought too high expectations and a lot of cooperation projects currently only stay on the paper, haven't been implemented concretely. In the future it is worth considering that some sectors which have security risk, for example energy, should not be opened to Chinese enterprises. The economic relation between China and the Czech Republic is very unbalanced, because Chinese companies can enter almost all economic sectors in the Czech Republic, but the Czech companies haven't equal corresponding opportunities in China (Kopecky, V. et all, 2016).

5. Conclusion

Through the connectivity of the 16+1 cooperation with One Belt One Road construction, through the Sino-EU comprehensive strategic partnership and the development strategies of the participating countries, a new way of developing relations between China and the traditionally friendly countries in the Central and Eastern Europe was opened and a new model of cooperation between countries in different continents, with different political systems, was explored.

Both China and the Czech Republic regard the 16+1 mechanism as an important platform of developing bilateral and multilateral relations. The Czech Republic actively uses the 16+1 cooperation platform to promote mutual investment and regional cooperation. It has gradually become one of the leading countries of the 16+1 mechanism in Central and Eastern Europe. China sees the Czech Republic as an important partner within the framework of the One Belt One Road strategy, it hopes to improve its technical level and enter the European market through cooperation with the Czech Republic. The Czech Republic is also willing to participate in One Belt One Road construction, using capital and opportunities provided by China to speed up economic growth. Under the impetus of 16+1 cooperation and One Belt One Road construction, Sino-Czech economic and trade cooperation has made significant progress.

This case study discusses the prospects of the Sino-Czech economic and trade cooperation, thinking that these two countries have huge cooperation potential in the following areas: manufacturing industry, energy, finance, infrastructure and tourism. Meanwhile, it points out that the Sino-Czech economic and trade cooperation will also face some challenges. Only if both sides have open and inclusive attitudes to the bilateral cooperation, make efforts to carry out economic and trade cooperation projects as soon as possible, start the dialogues between enterprises and Chinese enterprises pay more attention to product quality, can help eliminate unfavourable factors in cooperation. These facts and viewpoints should provide reference and enlightenment to cooperation between China and other countries in Central and Eastern Europe.

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Retail e-Commerce (E-tail) – evolution, characteristics and perspectives in China, the USA and Europe

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Abstract: *Our paper aims at analysing the development of retail electronic commerce in the selected countries focusing on its key features and prospects in a world in which connectivity via the Internet offers both sellers and buyers the platform for exchanging information on goods and services better enabling safer transactions in line with technological progress. For the selected states our paper assesses the dynamic of the main e-tail indicators (sales, share in total retail sales, the rankings, the relevant stimuli and the main players). We based our research on the available statistics, literature and specialised online platforms.*

Keywords*: e-Commerce, retail, B2C, China, the USA, Europe*

1. Introduction

There are several types of e-commerce (See Table 1) differentiated by the nature of the actors involved in the transaction (who is selling to whom). The most well-known are B2C, B2B and C2C. Business to Consumers (B2C), refers to a business that sells products or provides services to end-user consumers and is particular to e-retailers, the focus of our analysis.

Laudon and Traver (2014) argue that B2C commerce includes purchases of retail goods, travel services, and online content. This type of e-commerce represents the most commonly discussed type of e-commerce. Sarkar & Das (2016) define e-retail or electronic retail or e-tail as "the sale of goods and services via the Internet or other electronic channels, for personal or household use by consumers."

Table 1: Types of E-commerce

Type of E-commerce	Companies
B2C – business-to-consumer	Amazon (SUA), JD.com (China), OTTO (Germania), EMag (Romania)
B2B – business-to-business	Alibaba (China), Manta (SUA), Indiamart (India)
C2C- consumer-to-consumer	eBay (SUA), Taobao (China), Okazii (Romania)

Source: Authors, based on Laudon & Traver (2014).

B2B, also known as B to B or Business to Business refers to online transactions between companies, such as the ones between a manufacturer and a wholesaler or between a raw material provider and the manufacturer.

C2C, or C to C, or consumer to consumer refers to an online market environment in which people can trade to each other.

E-tailing becomes more and more important in a world in which people do not have enough time for shopping in the traditional way. The fierce competition for the global market forces entrepreneurs and employees to dedicate a lot to time to work, granting less time for family, leisure and shopping. E-tail comes to fill in this gap, saving time for customers. In this respect, shopping online has several advantages and also disadvantages (See Table 2).

Table 2: Pros and cons of e-tail

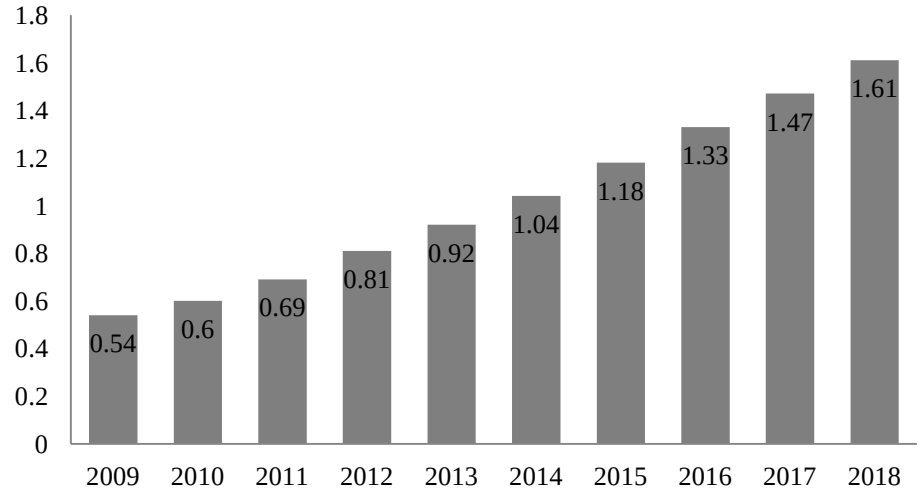
Advantages	Disadvantages/Problems
- No need to go to a traditional store (time-saving); - Direct access to a variety of online shops home and abroad; - Stores are open 24h; - No need to stand in queues (time-saving); - Reduction of information asymmetry among market participants (prices, features, specifications, etc.) that lead to better decision-making when shopping (time-saving); - Shoppers have the possibility to pay online; - Instantaneous purchase of digital goods; - Interactivity; - Orders can be personalised and customised - Logistics tracking.	- For some companies, the costs of introducing web sales are too high compared to the benefits; - The enterprise`s good or services are not suitable for selling online; - Problems related to logistics (shipping goods or delivering services) and problems related to payments; - Problems related to ICT security or data protection and the legal framework; - Low income or consumer purchasing power; - Lack of cultural or social acceptance; - Cost of the data plan; - Consumer taxes and fees; - Lack of mobile internet coverage or network access; - Lack of adjacent Infrastructure; -Limited Internet freedom and information security;

Source: Authors` compilation of available data from Eurostat and Mckinsey (2017)

According to Keith (2015), the world leader in e-commerce spending was China ($562.66 billion), followed by the USA ($349.06 billion) and the UK ($93.89 billion). Germany and France alone total $117.08 billion, placing the EU at least in the third place after the USA since the report does not provide data from all the EU countries.

In 2009 the contribution of e-commerce to the world GDP was only 0.54%. The data for 2016 indicate a growth rate of 1.33% and the prospects for 2018 present an acceleration to 1.61% (See Graphic 1).

Graphic 1: B2C e-commerce share of the global GDP 2009-2017, in %



Source: Statista.com, 2016

Therefore, electronic commerce contributed with almost $0.32 trillion to the world GDP in 2009 and its share will increase at $1.28 trillion by 2018.

The development of e-tail, as part of e-commerce, is directly connected to the evolution of the Internet.

2. Historical considerations

What we call today "the Internet" started back in 1960`s as a way to enable information exchange between the researchers in the USA. The need to enable information sharing within the US Army led to the creation of the Advanced Research Projects Agency Network (ARPANET) that had as beneficiaries besides the Army, a small circle of researchers and companies that had contracts with the Department of Defense. A lot of other networks emerged based on the sound experience of the first ones. The birthday of the Internet as we know it is considered to be on the 1st of January 1983, when the communication protocol between the existing networks was created, namely the Transfer Control Protocol/Internetwork Protocol (TCP/IP), allowing the networks to interact based on a common language.

The Internet gained popularity in the 1990`s, along with the development of the security protocols (SSL) and (DSL) which allowed quick and stable connection to the network. The next important step in the security online payment system was the establishment of the Payment Card Industry Security Standards Council (PCI). The steps mentioned above led to the creation of the required infrastructure for the development of e-commerce and its component, e-tail, the scope of our analysis.

With these technologies in place, it was only a matter of time until entrepreneurs realised their true potential. Among the pioneers in the field of e-commerce, we can mention Amazon.com, Inc. (the USA, 1995), Otto (Germany, 1995), and JD.com (1999). Nowadays, these companies represent some of the most productive businesses worldwide regarding revenues.

Amazon is the largest Internet-based retailer by total sales in the world. One of its website most appreciated feature is the review system which gives the users the possibility to rate the products and make comments. The online company is also known for its multi-level sales strategy (B2C, B2B, C2B, C2C).

In 2015, Amazon.com Inc surpassed another American giant, Walmart, the world largest company by revenue in 2016 (Fortune, 2016), being the most valuable retailer in the USA by market capitalization. Although Amazon was established in the mid`90, it became profitable only in 2003. By comparison, the Chinese rival (JD.com) achieved profitability in December 2001, only two years after the launch in 1999.

At present, Amazon owns separate retail websites for different countries (The USA, the UK, Germany, France, Italy, Spain, Netherlands, Canada, Australia, Brazil, Japan, China, India and Mexico). Amazon is also one of the first companies to establish an affiliate marketing program. Nowadays almost half of its sales come from affiliates and third party sellers who list and sell goods on the website.

JD.com was established in 1999 by Liu Qiangdong under the name of 360buy.com. Since its inauguration, the domain was changed twice, in 2007 (Jingdong Mall and again in 2013 to JD.com).

The company started its activity by selling online magneto-optical equipment. In 2004, the company also went online with its B2C platform. It was the moment when the CEO, Liu Qiangdong, thought of solving the slow delivery and fake goods problems in China's internet market. The company started to focus on selling electronics (3C products: computers, communication, and consumer electronics) directly out of its warehouses (210 at present). After three years, in 2007, the company implemented same day delivery for these products in the main cities by using its in-house courier. It also introduced the first mobile POS system which enabled the customers to pay by card upon delivery.

The company launched its English website in 2012. In 2013, after changing its name into JD.com, it received a capital injection of $700 million that helped the company to boost its revenues by improving logistics and the marketing campaigns. From revenues of 3 billion dollars in 2011 the company reached $18.6 billion in 2014 and $28.8 billion in 2015, making it the largest on-line direct-sales company in China.

JD.com success in China drew the attention of one of the most valuable company in the world, Wal-Mart. In June 2016, the two companies announced a major strategic alliance. This strategy intends to serve consumers across China (the largest potential online market) through an outstanding combination of retail and e-commerce (Carrew, R., Abkowitz, A., Nassauer, S., 2016).

Otto was established in 1949, by Werner Otto, as a mail order company that commercialises shoes. In the beginning, it only had three employees. In 1950, the company produced the first catalogue comprising the commercialised products and introduced payment by invoice.

In 1952 Otto launched the principle of collective ordering. Customers who ordered collectively for their neighbours, friends and relatives were awarded a five percent discount. To this day, collective orders represent an important distribution path.

In 1963 the company started receiving telephone orders. In 1969 the newly founded Hanseatic Bank made it possible for OTTO customers to shop on credit. After only three years, in 1972, Otto Versand funded its delivery service. The German reunification led to a temporary boom in the German economy during the first half of the 1990s. In the second half of the 1990s, the company revolved around the new media and expanding the business through a variety of ventures in Asia and Europe. Otto expands its field of business by entering new market segments. In 1995, Otto Versand's extensive range of goods became available online.

3. Top world e-tailers

The Top of 10 major E-tailers for the financial year 2014, places the American Amazon.com, Inc. in the first position with sales of $70,080 million, almost 3.5 times more than the second company, Apple Inc. ($20,600 million). Moreover, Amazon's sales are about four times higher compared with the ones of the third company, JD.com from China ($17,672 million).

The USA has five E-tailers in the top 10, EU (3) and China (2). The average e-sales for the American companies in the ranking is $22,696 million, for the Chinese ($10,696 million) and European ($6,502 million).

Table 3: Top 10 E-Retailers, 2014 (FY)

Rank	Top 250 retail revenue rank	Name of company	Country of Origin	e-tail sales ($ mil)	e-tail sales % of total retail revenue	Growth rate (%)	FY 2011-2014 CAGR[1] (%)
1	12	Amazon.com Inc.	U.S.	70,080	100.0	15.1	18.6
2	48	Apple Inc.	U.S.	20,600	49.0	12.6	29.9
3	58	JD.com Inc.	China	17,672	100.0	62.0	73.2
4	1	Wal-Mart Stores Inc.	U.S.	12,200	2.5	22	24.0
5	76	Otto (GmbH & Co KG)	Germany	8,397	65.4	5.6	6.7
6	5	Tesco PLC	U.K.	6,504	6.5	20.0	14.6
7	35	Macy`s Inc.	U.S.	5,400	19.2	30.1	34.9

[1] Compound annual growth rate

8	97	Liberty Interactive Corporation	U.S.	5,198	49.5	6.4	9.9
9	15	Casino Guichard-Perrachon S.A.	France	4,606	7.1	20.1	15.8
10		Suning Commerce Group Co., Ltd.	China	4,199	23.7	17.8	63.5

Source: Authors` selection from Deloitte`s, Global Powers of Retailing 2016

For a better analysis, it is relevant to see how the ranking of the top 50 e-tailers looks.

Table 4: Top 50 World e-tailers

Rank	USA	Total e-retail sales ($ mil)	China	Total e-retail sales ($ mil)	Europe	Country	Total e-retail sales ($ mil)
		157,795		**26,815**			**53,567**
1	Amazon Inc.	70,080	JD.com, Inc.	17,672	Otto (GmbH & Co KG)	Germany	8,397
2	Apple Inc.	20,600	Suning Commerce Group Co., ltd.	4,199	Tesco Plc	UK	6,504
3	Wal-Mart Stores, Inc.	12,200	Vipshop Holdings	3,701	Casino Guichard-Perrachon S.A.	France	4,606
4	Macy`s Inc.	5,400	E-Commerce China Dangdang Inc.	1,243	Home Retail Group Plc	UK	3,241
5	Liberty Interactive Corporation	5,198			Zalando AG	Germany	2,943
6	The Home Depot Inc.	3,765			John Lewis Partnership Plc	UK	2,854
7	Best Buy Co., Inc.	3,500			Centres Distributeurs E. Leclerc	France	2,605
8	Costco Wholesale Corporation	3,000			Next Plc	UK	2,488
9	Sears Holding Corp.	2,850			Shop Direct Group	UK	2,331
10	Newegg Inc.	2,800			Vente.privee.com	France	2,311
11	The Gap Inc.	2,500			Dixons Carphone Plc	UK	2,081
12	Staples Inc.	2,500			Metro AG	Germany	2,036
13	William-Sonoma, Inc.	2,371			J Sainsbury Plc	UK	1,775
14	Nordstrom Inc.	2,356			Carrefour S.A.	France	1,728

Rank	USA	Total e-retail sales ($ mil)	China	Total e-retail sales ($ mil)	Europe	Country	Total e-retail sales ($ mil)
		157,795		**26,815**			**53,567**
15	Kohl`s Corp.	2,168			Koninklijke Ahold N.V.	Netherlands	1,684
16	Office Depot Inc.	1,980			ASOS Plc	UK	1,579
17	Target Corp.	1,815			Ocado Group Plc	UK	1,570
18	L Brands Inc.	1,809			Groupe Auchan S.A.	France	1,534
19	HSN Inc.	1,722			Ulmart, CJSC	Russia	1,300
20	Overstock.com Inc.	1,497					
21	Lowe`s Companies Inc.	1,405					
22	Land`s End Inc.	1,321					
23	L.L. Bean Inc.	1,285					
24	Toy "R" Us Inc.	1,229					
25	J.C. Penney	1,225					
26	Nike Inc.	1,219					

Source: Authors` calculations based on Deloitte`s Global Powers of Retailing 2016

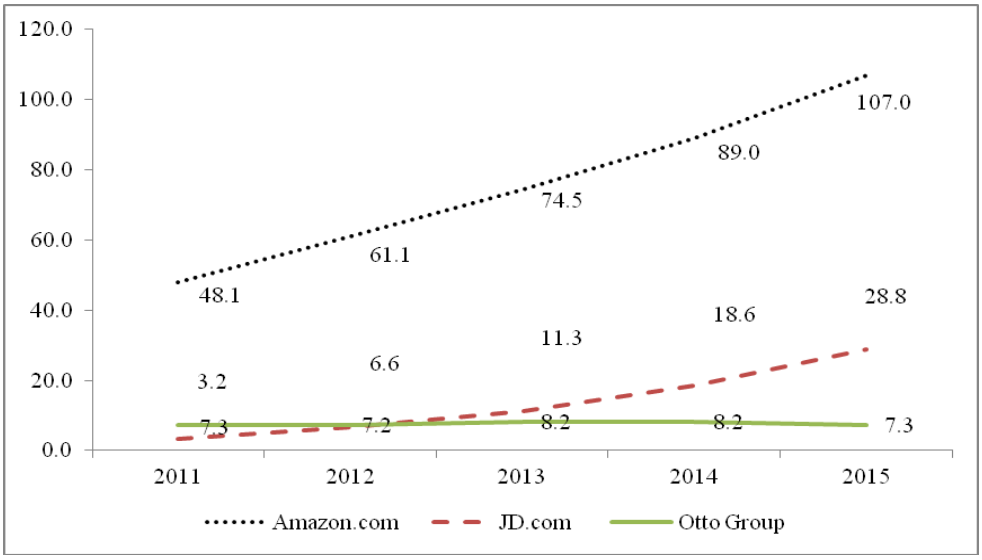
As expected, the USA have the highest number of e-tail companies in the Top 50 e-tailers (25), with total sales of $157,795 million in 2014. Europe is the next, with 19 companies with e-tail sales of $53,567 million. China has just four firms in the Top 50 totalling sales of $26,815 million.

In Europe, the best performer is the UK, totalling sales of $24,423 million. Germany, with e-tail sales of $13,376 million) is far behind the UK, even if Otto (GmbH & Co KG) is the leader of the continent and has the best rank for a European company in the Top 50 e-tailers. The third is France (e-tail sales of $12,784 million). It is worth being mentioned that Russia has an e-tailer in this ranking, namely Ulmart CJSC, with sales of $1,300 million in 2014.

The average e-sales for the analysed entities in the ranking is as follows: China ($6.7 billion), USA ($6.0 billion), the EU ($2.9 billion) and Europe ($2.8 million).

The most relevant e-tailers in the analysed economic entities are: Amazon.com (the USA), JD.com (China) and Otto (Germany).

Graphic 2: E-retail revenues for Amazon.com Inc., JD.com, Inc. and Otto Group between 2011 and 2015 ($ billions)



Source: statista.com, internetretailer.com, marketwatch.com, 2016

In the chart above Amazon.com is the leader the analysed group, registering revenues of $107 billion in 2015, followed by JD.com ($28 billion) and Otto Group with just $7.3 billion. The ranking concerning the compound annual growth (CAGR) rate of e-tail sales looks different (Table no. 3). JD.com of China is leading with a CAGR between 2011 and 2015 of 73.2%, followed by Amazon.com (18.6%) and Otto Group (6.7%).

4. Why is this analysis necessary?

EMarketer (2016) estimates show that the world retail sales exceeded $22 trillion in 2015, up 5.6% from 2014. In the same year, retail e-commerce sales made up 7.4% of the total retail market worldwide, or $1.671 billion. By 2019, that share will reach $3.578 trillion, yet retail e-commerce will account for just 12.8% of retail purchases. The percentage indicates the growth potential of e-tail.

Table 5: Retail sales worldwide by region between 2014 and 2019, ($ trillions)

Rank		2014	2015	2016	2017	2018	2019	CAGR (2014-2019)
1	Asia-Pacific	7.915	8.573	9.276	10.000	10.736	11.460	7.7%
2	Europe	5.871	5.992	6.11	6.251	6.408	6.566	2.3%
3	North America	5.090	5.254	5.431	5.615	5.799	5.989	3.3%
4	Western Europe	4.207	4.249	4.289	4.330	4.375	4.420	1.0%
5	Central & Eastern Europe	1.664	1.743	1.821	1.921	2.033	2.146	5.2%
	Worldwide	21.328	22.512	23.775	25.112	26.505	27.916	5.5%

Source: eMarketer, 2016, author`s calculations

Europe as a whole exceeds North America in this ranking, though Asia-Pacific leads it comfortably, also registering the highest compound annual growth rate (CAGR) of 7.7%.

Central & Easter Europe has the highest CAGR in Europe, 5.2% as compared to 1.0% the Western Europe displaying that here is much potential for trade in the region.

Table 6: E-tail sales as a percent of total retail sales worldwide, by Region, 2014-2019

Rank	Region	2014	2015	2016	2017	2018	2019
1	Asia-Pacific	8.2%	10.2%	12.4%	14.9%	17.6%	20.4%

Rank	Region	2014	2015	2016	2017	2018	2019
2	Western Europe	6.7%	7.5%	8.2%	8.9%	9.6%	10.2%
3	North America	6.3%	7.0%	7.7%	8.3%	9.0%	9.7%
4	Central and Eastern Europe	2.6%	3.0%	3.4%	3.9%	4.2%	4.6%
5	Worldwide	6.3%	7.4%	8.6%	9.9%	11.4%	12.8%

Source: eMarketer (2015)

In this selection, the most dynamic region in retail e-commerce is Asia-Pacific (forecasted at 20.4% of the e-tail share in total retail in 2019), followed by Western Europe (10.2%) and North America (9.7%). The growth of disposable income in China, India and Indonesia and the increasing number of internet users that buy online are the drivers of Asia-Pacific growth.

Table 7: E-tail sales worldwide by region, 2014-2019 ($, billion)

Rank	Region	2014	2015	2016	2017	2018	2019
1	Asia-Pacific	646.92	877.61	1,152.21	1,488.42	1,892.07	2,336.27
2	North America	321.23	367.44	415.71	466.92	521.74	579.93
3	Europe	323.22	370.27	413.93	459.99	503.80	547.43
4	Western Europe	280.62	317.89	351.38	385.91	418.20	448.69
5	Central & Eastern Europe	42.60	52.38	62.55	74.08	85.60	98.74
	Worldwide	1,336.16	1,670.99	2,050.36	2,498.48	3,015.15	3,578.06

Source: eMarketer. dec. 2015

Regarding retail e-commerce by regions, the Asia-Pacific is again in the first position in the analysed period, followed by North America, between 2015 and 2019. In 2014 and 2015, Europe surpassed North America, but the difference was not significant. In this ranking, in 2019, the EU would take the third position after China ($1,973.04 billion) and the USA ($534.95 billion) since the whole Europe does not exceed ($547.43 billion).

Table 8: The e-tail sales of our selected countries/regions, 2014-2019, $ billions

Rank	Country	2014	2015	2016	2017	2018	2019
1	China	472.91	672.01	911.25	1.208.31	1.568.39	1,973.04
2	Europe	323.22	370.27	413.93	459.99	503.80	547.43
3	USA	298.26	340.61	384.89	431.84	481.94	534.95

Source: eMarketer, 2016, author`s calculations

According to the statistical data provided by eMarketer (2016) the biggest e-retailers in their region, in 2015, were: China in Asia-Pacific ($672.01 billion), the USA in North America ($340.61 billion), and the UK in Europe ($99.39 billion).

Still, if we analyse the estimates for 2015, the per capita e-tail sales in China were of $488.36, as compared to the USA ($1,057.48) and Europe ($501.42). The projections for 2019 indicate that per capita e-tail sales in China will reach $1,406.45, the biggest increase (188%), in the USA ($1,603.83), an increase of 51.66% and in Europe only $740.05, the smallest percentage growth (47.59%).

In conclusion, the dynamics of e-tail in the analysed period indicate a solid growth potential for all three entities if we take into consideration the prospects of retail sales worldwide and per regions and the increasing share of e-tail in it.

5. E-tail growth stimuli

Since e-tail represents sales of goods and services via the Internet, there is a strong connection between it and the Internet access (See Table 9).

Table 9: Internet User Penetration (% of population)

	2014	2015	2016	2017	2018	2019	Population (2015)
USA	73.0	81.2	82.5	83.7	84.4	84.7	321,774,000
China	49,3	50.3	52.9	55.0	57.6	60.3	1,376,049,000
Western Europe	72.6	73.6	74.6	75.2	75.6	76.0	397,500,000
Central & Eastern Europe	52,2	55,2	57.7	60.0	61.9	63.8	345,600,000
Worldwide	40.7	43.0	45.0	47.1	49.3	51.5	7,340,093,980

Source: eMarketer, 2016, Internet World Stats, 2016, UN DESA DP, 2015 and authors`selection

In 2015, regarding internet user penetration (Table 9), the USA ranked first with 82.5% of its total population connected to the web, namely 261 million citizens. In 2019, the number of online Americans will increase to 283 million, a gain of 22 million users (calculations made based on data available in Table no. 10).

Table 10: Population dynamic

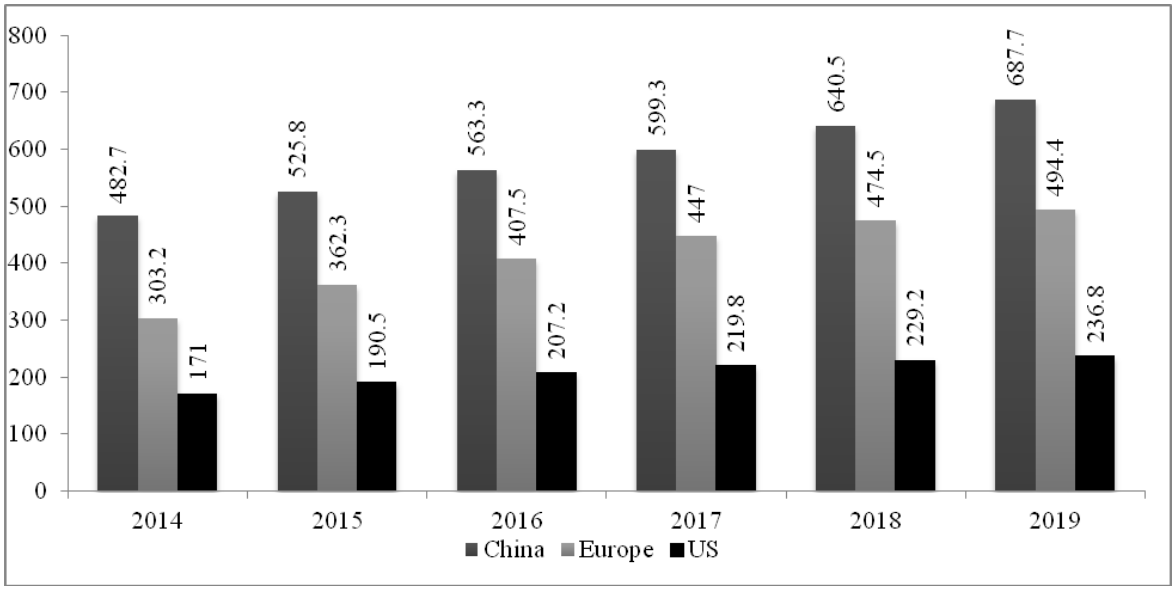
Country/region	Population 2015	Population between 20-64 years in 2015	Population 2019	Population between 20-64 years old in 2019
USA	321,774,000	192,420,852.00	333,546,000	193,890,289.80
China	1,376,049,000	928,833,075.00	1,402,848,000	917,462,592.00
Europe	738,442,000	454,880,272.00	739,725,000	441,615,825.00

Source: UN, DESA, DP, 2015

Europe follows in this ranking with 583 millions of users in 2015, and 598 million forecatsed in 2019, (80.86% of the total population) an increase of 15 million in five years, according to our calculations based on the data provided by eMarketer (2015).

The third place belong to China with 50.3% of its total population (693 million people with internet access). In 2019, China will reach an Internet user penetration of 60.3%. It is still a low share of internet users, in comparison with the USA or Europe but the country "has the numbers", namely 845,917,344 will be connected to the Internet at the end of the forecast period. Therefore, when we consider the number of the Internet users in 2019, as per eMarketer prospects, the following hierarchy looks a bit different, namely: China, Europe and the USA.

Graphic 3: Smartphone users (millions)



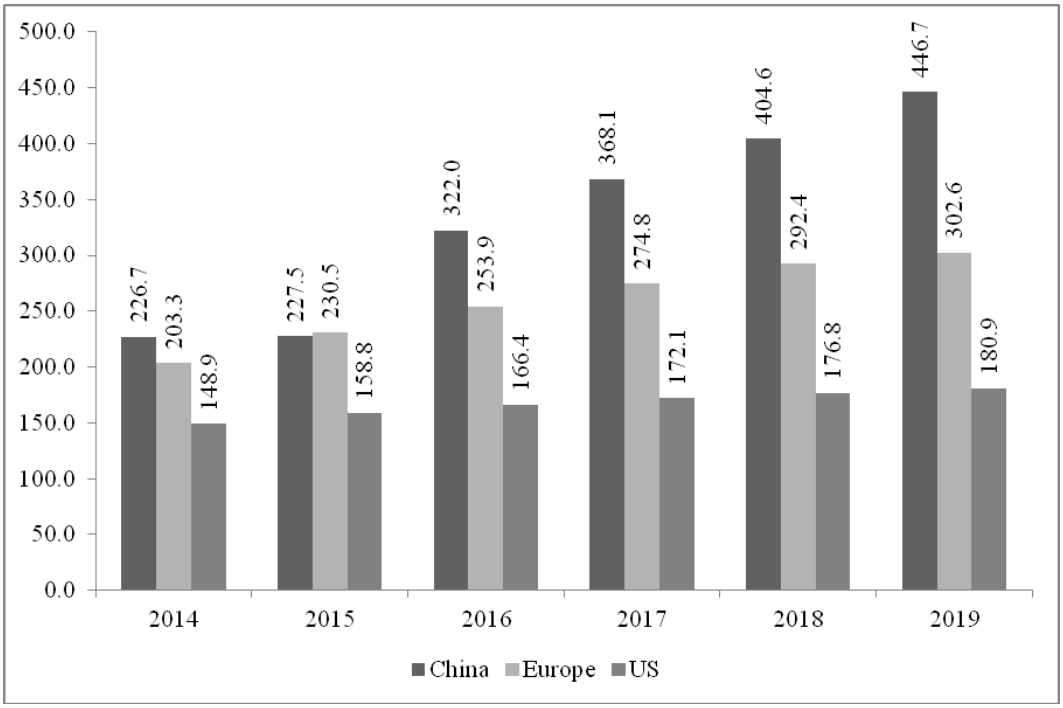
Source: eMarketer, 2016, authors` calculations

According to the chart above, by 2019, China will register a gain in the number of smartphone users of 205 million, the USA of 65.8 million users, and Europe of 191.2 million.

The potential to increase the number of users is high, considering the prospects regarding the population growth between 2015 and 2019 in China (26.7 million) and the USA (11.7 million). Europe will register a population gain of only 1.3 million in this period.

The group of economically active people, between 20 and 64 years old, will increase in the USA between 2015 and 2019 by 1,469,438 million. In China and Europe, the number of individuals from the same category will decrease by 11 million and 13 million respectively, according to our calculations based on the data provided by UN DESA DP, 2015.

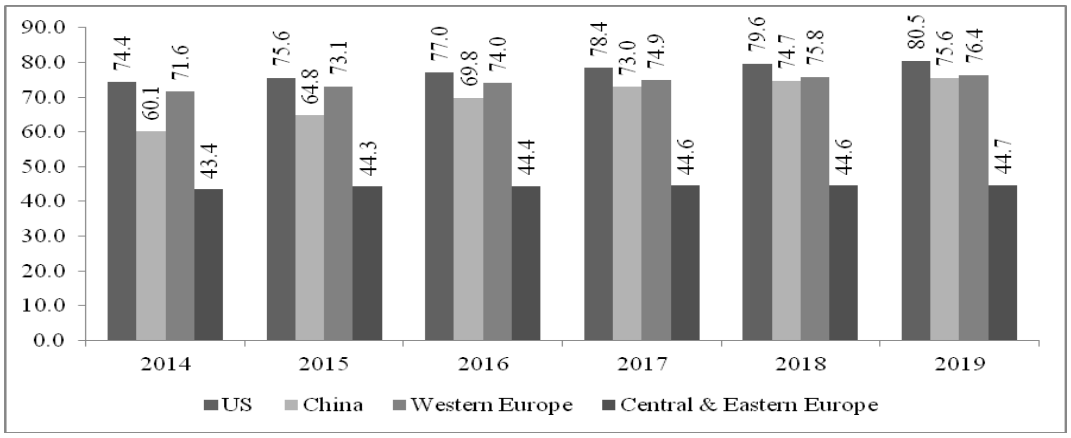
Graphic 4: Tablet users (millions)



Source: eMarketer, 2016, authors` calculations

By 2019, the highest increase in the number of tablet users will be recorded in China (97.04%), followed by Europe (48.84%) and the USA (21.49%). This dynamic suggests that there is a great potential market for tablets in China of at least 470.7 million units, in Europe of at least 139 million and the USA of at least 13 million tablet buyers.

Graphic 5: Digital buyer penetration



Source: eMarketer, 2016

The digital buyer penetration it is an indicator that shows the percentage of internet users that buy online goods and services. The USA have the highest digital buyer penetration between 2012 and 2019, followed by the countries in Western Europe, China and then the countries from Central and Eastern Europe. China will register the highest increase in the number of e-buyers from 372.8 million in 2014 to 600 million in 2019, respectively 60.0%, having a considerable growth potential given its population. Central & Eastern Europe countries have good prospects in this regard, an acceleration of 25.93% between 2014 and 2019 from 96.4 million to 121.4 million; the USA just 18.5% from 164.6 to 195.1 million digital buyers and Western Europe with 14.3%, from 191.4 million e-buyers in 2014 to 218.8 million in 2019. Only China`s increase is higher than the global increase of 56.9% in the same timeframe (eMarketer, 2016).

6. Conclusions

The data presented reveal the fact that e-tail as part of e-commerce, is a very active sector, having an excellent growth potential. This statement is based on the underlined trends regarding retail sales, the share of e-tail in the retail, internet user penetration, digital buyer penetration, and the growing number of smart phone and tablets users around the world. Thus, between 2014-2019, the retail sales worldwide growth is expected to register a CAGR of 5.5%, Asia-Pacific being the most dynamic region (CAGR of 7.7%). The e-tail share in total retail sales worldwide will grow in the same period at a higher CAGR (9.7%). Asia Pacific is the most dynamic region, the share e-tail sales in the total retail sales being expected to reach 20.4% by 2019.

China has the highest share of e-tail in total retail sales, followed by the USA and the Europe. The USA is the leader regarding the Internet and digital buyers' penetration, followed by Europe and China.

Regarding sales value in the top 50 e-tailers, the USA is the leader, with 26 companies and sales of $157 billion; Europe is the second (18 enterprises and sales of $54 billion) and China the third with four businesses and sales of $27 billion.

The top performers in USA, China and Europe have a different ranking when it comes to the CAGR of the e-tail sales. Thus, between 2011 and 2015, JD.com was the leader registering a CAGR of 73.2%, followed by Amazon.com (18.6%) and Otto Group (6.7%).

Although for some businesses the e-tail might still have some disadvantages (that might solve in time through the development of the delivery infrastructure), the online shoppers find it more and more attractive in an environment that values more the time spent at work over the leisure time.

The world retail trade is changing, migrating from the traditional malls, supermarkets and shops toward their virtual counterparts, due to the unprecedented development of virtual connectivity between people all over the world.

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Global Value Chains Trade and the Demand for Chinese Labor

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Abstract: *Developed countries have recently expanded the outsourcing production to China by transferring intermediate inputs with lower value-added, given the abundant and low-cost labor resources in China. Therefore, intermediate products trade is increasing rapidly, which is major composition of global value chains trade. The change of trade pattern not only increases the demand for various labors in China, but also leads to the change of labor demand and employment stability in labor market. This paper aims to study the effect of intermediate products trade on labor demand in total Chinese industry and sub-sectors by using dynamic panel data model. The results indicate that the intermediate product exports increase the labor demand, while the impact of intermediate product imports on labor demand is negative. Meanwhile, intermediate products trade has increased employment instability and unemployment risk in Chinese manufacturing sector.*

Keywords*: Global Value Chains; Intermediate Products Trade; Labor Demand; Dynamic Panel Data*

1. Introduction

With the deepening of international vertical specialization, developed countries gradually outsourced some products with low comparative advantage to developing countries，given their abundant and low cost labor resources. It is now common that developing countries export mainly labour-intensive products and assemble intermediate inputs to final goods, so global value chains trade increases dramatically. Multinational enterprises in developed countries kept some technology-intensive headquarter production in home countries, such as R&D, advertising and marketing and so on. These new production patterns and labor division systems have a deep impact on labor market of each country, including the labor demand level, income distribution, employment risks and stability.

In the field of global value chains trade and its influence on labor demand, Feenstra and Hanson (1996) defined outsourcing as the share of intermediate products in domestic imported materials, and studied the impacts of intermediate inputs imported on labor demand and income distribution in US. Meanwhile, Anderton and Brenton (1998) analyzed the impacts of intermediate products on employment and income of low skilled

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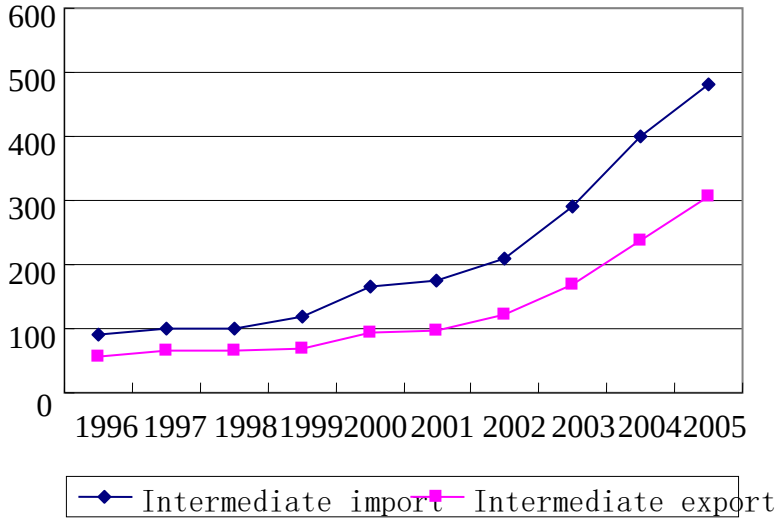
workers in the United Kingdom. Greenaway, Hine and Wright（1998's empirical study showed that increasing imports and exports will reduce the labor demand due to a higher openness, that can promote the labor efficiency. Rodrik (1997) explained that the improvement of trade openness can influence the wage elasticity of labour demand, which reflects the change of employment risks. In addition, Chinese scholars also contributed to the literature with many ideas and produced many articles in the field of trade openness and labor demand, and carried out a number of empirical studies on China.

2. The stylized facts of China: intermediate products trade, output, employment and wages

This paper uses data for employment, output and wages of 31 manufacturing sectors of China for 1996-2005 period. Looking at these data, one can notice the employment decline in most sectors, except, for few industries: stationery and sporting goods; electronics and telecommunications equipment; electricity and heat production Industrial employment was shrinking, on average by 33.69%. The chemical fiber and non-metallic mining sectors, that are all primary product sectors, had the largest declines. The output of the 31 sectors increased at high growth rates (on average by 260.87%), electronics and telecommunications equipment manufacturing and mining sector having the fastest growth rates. The industry average wages in the same period increased significantly (by 152.57%), while the metal products, wood processing and bamboo, rattan industries have particularly high wage growth rates.

Fig. 1 China's intermediate products trade of manufacturing sectors (billion dollars)



Source: Calculated based on United Nation COMTRADE Database.

Figure1 depicts the growth of total imports and total exports of intermediate products from 1996 to 2005 in Chinese 31 manufacturing sectors. The total imports and exports have an average growth rate of 21.5 percent over this period and especially after 2001, the growth is particularly rapid. The growth rate of exports and imports of intermediate products in the same period were 21.94% and 21.32% respectively, and the deficit increased from 35.1 billion dollars in 1996 to 176.5 billion dollars in 2005.

Table 1 Imports and exports of intermediate products manufactured by China's six sectors（100 million dollars）

	A、primary product sector	B、labor and resources-intensive sector	C、low technology sector

	Import value	Export value	Import value	Export value	Import value	Export value
1996	144.91	87.06	224.00	150.04	88.53	65.84
1997	171.46	101.68	247.89	177.92	84.16	80.96
1998	145.82	81.62	225.02	161.77	82.26	72.02
1999	188.40	77.62	241.93	165.26	92.02	68.06
2000	345.02	100.22	292.59	219.38	127.44	93.67
2001	323.70	105.94	287.91	242.67	157.79	51.17
2002	365.71	117.21	308.97	282.22	163.25	78.08
2003	540.56	156.59	370.23	374.30	259.19	137.03
2004	892.50	221.09	451.06	494.96	286.40	270.45
2005	1184.66	259.16	472.92	609.50	324.19	375.46
	D、medium-tech sector		E、high-tech sector		F、non-classified sector	
	Import value	Export value	Import value	Export value	Import value	Export value
1996	171.05	89.71	256.64	140.62	13.41	14.75
1997	202.46	114.21	285.45	169.53	18.79	20.48
1998	236.31	128.63	300.31	184.68	14.21	19.80
1999	308.93	167.09	352.33	197.23	13.57	20.29
2000	424.40	232.62	463.63	256.25	16.92	21.61
2001	471.66	248.01	502.99	307.59	14.93	22.44
2002	638.04	318.41	604.40	406.02	16.35	24.16
2003	937.67	429.33	782.79	550.40	12.88	27.07
2004	1284.01	623.42	1056.35	737.38	14.93	31.59
2005	1558.85	817.56	1268.46	960.86	16.31	37.49

Source：Author's calculation based on UNCOMTRADE dataset and UNCTAD (2002).

Table 1 calculates the intermediate goods trade value of six sectors in detail. The results show that among the intermediate imports, the following sectors have larger growth rate: primary products, medium-technology and high-tech. But medium-technology sector has the highest share in total imports. Among the intermediate exports, labor and resource-intensive sector, medium-technology sector and high-tech sector have higher growth rate, the latter accounting also for the largest proportion in total exports.

3. The dynamic panel data regression for estimating the labor equation

Our model is based on Greenaway, Hine and Wright (1998). We assume that industry *i* has a Cobb-Douglas production function in the period *t*:

$$Y_{it} = A^{\gamma} K_{it}^{\alpha} L_{it}^{\beta} \qquad (1)$$

Where Y is the real output，K is the capital stock, L is the use of labor. α and β are the coefficients of factors' proportions, γ allows for factors changing the efficiency of the production process. A profit-maximizing industry will employ labor and capital at such levels that the marginal revenue product of labor equals the wage (w) and the marginal revenue product of capital equals its user cost (c).

According to the equilibrium condition of producers，replacing $K = \frac{\alpha L_{it}}{\beta} \cdot \frac{w_i}{c}$ into（1）we get:

$$Y_{it} = A^{\gamma}\left(\frac{\alpha L_{it}}{\beta}\cdot\frac{w_i}{c}\right)^{\alpha}\cdot L_{it}^{\beta} \qquad (2)$$

Taking logarithms and rearranging (2)，we can get industry *i*'s labor demand function:

$$\ln L_{it} = \phi_0 + \phi_1 \ln(w_i / c) + \phi_2 \ln Y_{it} \qquad (3)$$

Where $\phi_0 = -(\gamma \ln A + \alpha \ln \alpha - \alpha \ln \beta)/(\alpha+\beta)$, $\phi_1 = -\alpha/(\alpha+\beta)$, $\phi_2 = 1/(\alpha+\beta)$

Generally speaking, technological efficiency is increasing with time t, meanwhile is depending on the intermediate products trade. So the coefficient A in the production function depends on the following determinant equation:

$$A_{it} = e^{\delta_0 T_i} M_{it}^{\delta_1} X_{it}^{\delta_2} \quad \delta_0, \delta_1, \delta_2 > 0 \qquad (4)$$

Here T is time trend; M is import penetration ratio, namely the ratio of the intermediate import on consumption, expressed as imports/(output+imports-exports); X is export-orientation ratio, namely the ratio of intermediate exports on output. Putting （4） into（2）, taking logarithms and rearranging, we get：

$$\ln L_{it} = \phi_0^* + \mu_0 T + \mu_1 \ln M_{it} + \mu_2 \ln X_{it} + \phi_1 \ln(w_i / c) + \phi_2 \ln Y_{it} \qquad (5)$$

where $\phi_0^* = -(\alpha \ln \alpha - \alpha \ln \beta)/(\alpha+\beta), \mu_0 = \mu\delta_0, \mu_1 = \mu\delta_1, \mu_2 = \mu\delta_2, \mu = \gamma/(\alpha+\beta)$

Considering the intertemporal effect of Independent variables on dependent variable, estimating equation can be converted into a dynamic form:

$$\ln L_{it} = \lambda_i + \mu_0 T + \sum_j \mu_{1j} \ln M_{i,t-j} + \sum_j \mu_{2j} \ln X_{i,t-j} + \sum_j \phi_{0j} \ln L_{i,t-j} + \sum_j \phi_{1j} \ln w_{i,t-j} + \sum_j \phi_{2j} \ln Y_{i,t-j} + \varepsilon_{it} \qquad (6)$$

Where L_{it} is the employment of industry *i* in year *t*; w_{it} is average real wage for industry *i* in year *t*（nominal industrial wage divided by CPI）; Y_{it} is the real output of industry *i* in period t（industry output divided by GDP deflator）; λ_i is the industry fixed effect; ε_{it} is the error term.

For a better estimation, we take the first differences in the employment equation to eliminate the industry specific fixed effect. The dynamic equation becomes:

$$\Delta \ln L_{it} = \mu_0 + \sum_j \mu_{1j} \Delta \ln M_{i,t-j} + \sum_j \mu_{2j} \Delta \ln X_{i,t-j} + \sum_j \phi_{0j} \Delta \ln L_{i,t-j} + \sum_j \phi_{1j} \Delta \ln w_{i,t-j} + \sum_j \phi_{2j} \Delta \ln Y_{i,t-j} + \varepsilon_{it} \qquad (7)$$

4. The regression results

4.1. General regression results

Table 2 shows the general regression results with dynamic panel data model based on 31 sectors in China. The first estimation's results indicate the impact of basic variables on employment demand in labor market. Lagged employment variable, lagged and current wage and output variables pass significance test and meet the expectations. The relationship between the lagged labor demand and the current period employment, which is positive, indicates the employment trend and the demand inertia. Labor demand is negatively related with current period average wage, but is positively related with lagged wage, which shows a price effect existing in labor market generally.

The second estimation includes intermediate products import and export variables. Meanwhile, the variables, such as lagged employment, current period and lagged wages and outputs pass t statistics. The signs of the import and export variables in current period and lagged period are exactly the same as expected, but most of the variables are not statistically significant.

The third estimation adds the intersection variable of wage and intermediate products trade based on the second group. The intersection variable can explain the interacted effect of both the above two variables on labor demand. In principle, the effect includes not only the influence of import and export on labor demand, but also the impact of trade change caused by wage change on employment. All coefficients are consistent with expectations and most of them pass the t-statistics test.

Table 2 Dynamic panel data regression results of intermediate products

Independent variables	Estimation 1		Estimation 2		Estimation 3	
	coefficient	t statistic	coefficient	t statistic	coefficient	t statistic
$\Delta lnL_{i,t-1}$	0.41	5.95***	0.56	6.77***	0.27	2.71***
$\Delta lnw_{i,t}$	-0.78	-11.79***	-1.00	-11.99***	-0.86	-3.94***
$\Delta lnw_{i,t-1}$	0.43	3.85***	0.58	4.85***	0.47	2.09**
$\Delta lnY_{i,t}$	0.13	6.91***	0.14	4.01***	0.14	4.17***
$\Delta lnY_{i,t-1}$	0.04	1.19	0.11	2.58**	0.15	3.23***
$\Delta lnX_{i,t-1}$			-0.01	-1.00	-1.28	-3.33***
$\Delta lnM_{i,t}$			-0.005	-0.28	-1.52	-1.79*
$\Delta lnM_{i,t-1}$			0.05	2.38**	1.24	1.51
$\Delta lnw_{i,t} \cdot \Delta lnX_{i,t}$					-0.08	-2.31**
$\Delta lnw_{i,t-1} \cdot \Delta lnX_{i,t-1}$					0.13	3.24***
$\Delta lnw_{i,t} \cdot \Delta lnM_{i,t}$					0.16	1.78*
$\Delta lnw_{i,t-1} \cdot \Delta lnM_{i,t-1}$					-0.13	-1.47
Adjusted R^2	0.41		0.42		0.44	
J statistics	30.26		115.98		122.96	
observation	248		246		246	

Notes: Instrumental variables are used in the regression. *** is 1% significant level，** is 5% significant level，* is 10% significant level.

4.2. Sub-sector regression results

Due to the data inadequacy of low-technology sector and not classified sector, the regression was run for the other four sectors. Overall, the regression results of the four sectors are more consistent with the regression run at whole industry level, but the impact of trade variables are not the same. Labor lagged variables, the average wage and output have significant effects on the labor employment of the various sectors, which shows the existence of trend effect, price effect and scale effect in the labor market. The exports of intermediate products have a positive impact on the labor demand of primary product sector, labor and resource-intensive sector and high-tech sector. The employment in the high-tech sector has the largest exports elasticity, but on the medium-technology exports have a negligible effect. Intermediate products imports have a substitution effect on labor employment in the sectors of labor and resource-intensive and medium-technology, the latter having a larger elasticity, while on the other two sectors imports have no significant effect.

Table 3 Dynamic panel data regression results for intermediate products of four types of sectors

	primary product sector	labor and resources intensive sector	medium-tech sector	high-tech sector
$\Delta lnL_{i,t-1}$	0.26 (4.43)***	0.11 (2.0)**	0.59 (4.93)***	0.77 (43.73)***
$\Delta lnw_{i,t}$	-0.57 (-6.16)***	-1.78 (-13.77)***	-0.99 (-12.52)***	-0.99 (-21.18)***
$\Delta lnw_{i,t-1}$	-0.05 (-0.34)	0.22 (2.12)**	0.8 (4.06)***	0.91 (13.07)***
$\Delta lnY_{i,t}$	0.15 (7.8)***	0.20 (7.39)***	0.1 (1.17)	0.11 (1.74)*
$\Delta lnY_{i,t-1}$	0.05 (1.45)	0.25 (4.53)***	0.04 (0.50)	-0.06 (-1.15)
$\Delta lnX_{i,}$	0.04 (2.07)**	0.07 (2.74)***	0.06 (1.06)	0.14 (2.9)***
$\Delta lnX_{i,t-1}$	-0.08 (-3.4)***	-0.18 (-6.77)***	-0.11 (-2.0)**	-0.1 (-2.35)**
$\Delta lnM_{i,t}$	-0.03 (-1.25)	-0.05 (-2.39)**	-0.22 (-3.99)***	0.09 (1.25)
$\Delta lnM_{i,t-1}$	0.06 (2.71)***	0.04 (1.38)	0.12 (1.91)*	0.03 (0.45)
Adjusted R^2	0.11	0.53	0.88	0.56
J statistics	39.14	35.95	16.33	14.25
observations	64	56	40	40

Notes: t statistics are in parentheses. *** is 1% significant level，** is 5% significant level，* is 10% significant level.

4.3. Wage elasticity of labor demand in China

Further, we can analyze the impact of intermediate products trade on the wage elasticity of labor demand. Wage elasticity reflects the sensitivity of labor demand to wage changes. Rodrik (1997) pointed out that the impact of international trade on labor demand reflect the changes of labor demand elasticity rather than the price of labor. The changes of total factor productivity and output can result in the change of wages and labor demand, also lead to the employment instability in labor market and income instability.

According to the test results of the basic equation (Table2 column1), labor demand elasticity is -0.78 and is statistically significant (with t-statistic -11.79). Putting the cross variables of intermediate products trade and wage in the equation (Table 3 column3), the judgment of the labor demand elasticity will become more complex, because it also depends on the value of the intermediate goods trade. From the regression results, we can recalculate the labor demand elasticity (-0.85) by taking the intermediate product trade into consideration.[2] We find the elasticity is higher than the elasticity not considering the effect of intermediate product trade, which show that intermediate products trade has increased employment instability and unemployment risk. The elasticity of labor demand was -0.8596 in 1997, -0.8613 in 2001, and then increased to -0.8656 in 2004. The increasing elasticity brings more risks to the labor market.

[2] The elasticity of labor demand equation containing the intersection variables is $\eta = \frac{\partial \Delta \ln L}{\partial \Delta \ln w} = \alpha + \beta \overline{\Delta \ln X} + \lambda \overline{\Delta \ln M}$.

With the sub-sector test results, we can get the labor demand elasticity in primary product sector, labor and resource-intensive sector, medium-technology sector and high-tech sector as -0.57, -1.78, -0.99, -0.99 respectively. The impact of wage changes on labor demand can be seen negative in all sectors, while the elasticity of labor demand in labor and resource-intensive sector is the largest; it has also the highest employment risk and volatility, and also the most likely to be influenced by intermediate goods trade.

4.4. The decomposition of factors affecting the labor demand

Based on the third group results in Table 2, we can analyze the structural factor decomposition effect of each explanatory variable affecting labor demand change. This paper found five factors affecting labor demand, according to regression results of the third column in Table 2 (see Table 4 for results).

In the structural decomposition of 31 sectors in China, the share of wage impact is the most important, accounting for 70.51 percent, and then is lagged employment occupying 63.81 percent. The output and intermediate trade account for -56.48 percent and 22.23 percent respectively. The results show that the wage, output and intermediate products trade have an important impact on the labor demand changes in overall manufacturing sectors of China.

Table 4 Decomposition of independent variables affecting labor demand（average percent）

	lagged employment	wage	output	Intermediate goods trade	Other variables
Average of 31 sectors	63.81	70.51	-56.48	22.23	-0.07
Primary product sector	9.34	43.46	-41.89	90.09	-0.99
Labor and resource intensive sector	5.65	-0.91	24.16	71.7	-0.58
Low tech sector	13.49	30.18	-4.11	60.87	-0.44
Medium-tech sector	53.89	-363.06	375.95	34.08	-0.85
High-tech sector	12.05	35.76	-28.91	81.95	-0.85
Non-classification	-346.70	-576.15	579.82	448.51	-5.49

Source: Calculated based on simulation of the regression.

5. Conclusions

This paper focused on the impact of intermediate products trade on the demand change for Chinese labour. We use export orientation and import penetration of intermediate products, real wage and output as independent variables to explain labour demand in total Chinese industry and sub-sectors by using dynamic panel data model. The results suggest several conclusions. First, intermediate goods exports have a significant stimulating effect on the Chinese demand for labour (elasticity is 0.8), which can be explained by vertical specialization in the international production system, namely outsourcing production transfers the production of many intermediate products to China in order to use the abundant and cheap labour for manufacturing and export. Second, intermediate goods imports have a negative effect on the Chinese demand for labour (elasticity is -1.52), which shows the substitution effect of the imports, this can bring a shock to the labour market of

China. Finally, the tests on either aggregate or sub-sector suggest that the output have a positive effect on labor demand, but the relation between real wage and labor demand is negative.

The test results of sub-sectors according to technology and factor intensity is similar to that of the basic equation. With respect to the labour demand elasticity, the elasticity of intermediate products trade has more significant effect than that of the total trade, which suggests that intermediate products trade has increased China's manufacture employment risk and instability. The sub-sectors elasticity estimation shows that labor-intensive sector has the largest labor demand elasticity, which is consistent with actual observation.

According to the empirical study, we can find that intermediate products exports greatly promote China's manufacturing employment, which is based on the comparative advantage of Chinese employees' low wages and skills. However, we need to note that, recently, Cai Fang, Chinese famous scholar who studies the labour transfer from rural to urban and from agricultural to industry and services, suggests that in the process of the transformation from a dual economy to one economic structure, the unlimited supply of labour resources will not be the case, and the wage and other employee benefits will increase inevitably. So the comparative advantage of Chinese labour will face enormous challenges, which has a major impact on the production of intermediate goods and the specialization path.

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World Merchandise Trade

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***Abstract**: This article is mainly based on the most recent statistical data of the World Trade Organization and some aspects related to the evolution of world merchandise trade, in terms of volume and value, in 2015. The volume of world merchandise trade continued to grow slowly in 2015 while the dollar value of it declined sharply as exports fell 14 per cent to US$ 16 trillion, down from US$ 19 trillion in the previous year. It presents also the contribution of the volume change and of the change in unit values (which account for fluctuations in prices and exchange rates) to the value trade growth (in current dollar terms). The discrepancy between trade growth in 2015 in terms of volume and value was mostly attributable to swings in commodity prices and exchange rates The course of economic globalization is also shortly looked on based on some data and considerations of Credit Suisse analysts. Three different scenarios were taken into account in this respect. First one in which globalization continues in the form we know it over the past thirty years, second one in which a multipolar world is a better representation of the state of affairs and third, a scenario in which globalization ends due to the rise of anti-globalization political movements. The second scenario seems to provide a better reflection of reality today, despite the fact that a certain slowdown is observable when taking into account the diminishing growth rate of physical trade, the slower penetration of foreign assets of the developed market companies and signs of reshoring of some business back home. Globalization remains intact in terms of consumption and marketing patterns, while companies seem more reluctant to invest abroad.*

***Keywords**: world merchandise trade, economic globalization*

1. The volume of world merchandise trade

The volume of world trade continued to grow slowly in 2015 recording a growth of 2.7 per cent, measured by the average of exports and imports (the volume of exports grew by 3%, while the volume of imports grew by 2,4%, , as illustrated by Chart 2.). Slow global trade growth was accompanied by a modest increase in world GDP, which grew 2.4 per cent in real terms at market exchange rates in the same period.

Several factors contributed to the lackluster performance, including economic slowdown in China, recessions in other large developing economies including Brazil, falling prices for oil and other primary commodities, strong fluctuations in exchange rates, and financial volatility driven by divergent monetary policies in developed countries. Faster economic growth and rising import demand in developed countries (in Europe and North America) partly made up for weaker demand elsewhere, leaving trade growth and output growth nearly unchanged compared with the previous year (2.8 per cent and 2.5 per cent, respectively, in 2014). Meanwhile, output slowed in China and contracted in Japan. China's economy slowed further in the first quarter of 2016. Growth also eased in the United States in the first quarter of 2016 but accelerated in the euro area. Japan's GDP continued to alternate between positive and negative growth.

2015 marked the fourth consecutive year with trade volume growth below 3 per cent, and the fourth year in a row with world trade growing at nearly the same rate as world GDP. Growth rates for trade and GDP in 2015 remained below their respective averages since 1990 of 5 per cent and 2.7 per cent. The recent slow in trade growth is unusual but not unprecedented, as for example the world trade growth was weaker between 1980 and 1985, when five out of six years saw trade growth below 3 per cent, including two years of outright contraction.

Chart 1. Growth in the volume of world merchandise trade in 2015 (Annual percentage change)

	Exports	Imports
World	**3.0**	**2.4**
North America	**0.8**	**6.5**
Canada	4.4	0.7
Mexico	4.0	13.3
United States	-0.9	6.5
South and Central America	**1.3**	**-5.8**
Europe	**3.7**	**4.3**
European Union	4.0	4.5
Commonwealth of Independent States (CIS)	**-0.6**	**-21.9**
Africa	**0.1**	**1.3**
Middle East	**8.6**	**-1.9**
Asia	**3.1**	**1.8**
Australia	3.3	4.5
China	4.6	-4.2
India	-2.1	-8.9
Japan	2.2	2.7

Source: World Trade Statistical Review 2016, WTO

As for the contributions to world trade volume growth by regions, Asia contributed more than any other region to the recovery of world trade after the financial crisis of 2008-09. However, the region's impact on global import demand declined in 2015 as China and other Asian economies cooled. in 2015 the region contributed just 0.6 percentage points to the global increase of 2.4 per cent, or 25 per cent of world import growth.

In contrast to Asia, Europe mostly weighed down world trade growth since the financial crisis, making a negative contribution to global import growth in 2012 and 2013. However, by 2015 Europe's contribution was again largely positive, accounting for 1.5 percentage points of the 2.4 per cent increase in world import volume for the year, or 64 per cent of global trade growth.

North America made a positive contribution to world import growth in 2015 (1.1 per cent), while negative contributions were recorded in 2015 for South and Central America (-0.2 per cent) and other regions including Africa, the Middle East and the Commonwealth of Independent States (-0.6 per cent).

On the supply side, "factory Asia" did more than any other region to lift merchandise export volume growth between 2011 and 2014, but its contribution fell below that of Europe in 2015. Asia was responsible for 1 percentage point of the 3.0 per cent rise in world merchandise exports (35 per cent of export growth).

Europe's 1.3 percentage point contribution accounted for 44 per cent of the rise, thanks in part to a reactivation of trade within the European Union. North America's contribution to export growth in volume terms was close to zero in 2015 as demand for US goods slowed in Canada, Asia and South and Central America

A product breakdown of world trade in dollar value (as in volume terms is not available), shows us that fuels and mining products were responsible for more than half of the plunge in trade values in 2015, but that slowing trade in manufactured goods and agricultural products also contributed significantly to the overall decline. Among manufactured goods, the products where trade values notably declined in 2015 were office and telecom equipment, chemicals and other machinery, while clothing and textiles only made small positive contributions to trade growth.

2. The contribution of the volume change and of the change in unit values (which account for fluctuations in prices and exchange rates) to the value trade growth (in current dollar terms).

During the 2000–2010 period, growth in trade value resulted from a balanced contribution of price and quantities: on average, a 9.7 per cent increase in value terms was due to a 4.3 per cent contribution of volume change and a 4.8 per cent change in prices. 2013 and 2015 saw a different contribution to value growth: volume growth stabilized at 2.7 per cent in a context of falling commodity prices. This resulted in a large decrease in value growth , as illustrated by Chart 2.

Chart 2. Average trade growth by volume, value and unit value (per cent)

Period	Volume	Unit Value	Value
1981-1985	2.9	-3.5	-0.7
1986-1990	5.8	6.2	12.3
1991-1995	6.2	1.9	8.4
1995-2000	7.0	-2.1	4.8
2001-2005	5.0	5.1	10.5
2006-2010	3.7	4.6	9.0
2011-2015	3.1	-1.3	1.8
2013-2015	2.6	-6.0	-3.6

Source: WTO Secretariat.

3. The value of world merchandise trade

Unlike merchandise trade in volume terms, which recorded a modest increase, the dollar value of world merchandise trade declined sharply in 2015 as exports fell 14 per cent to US$ 16 trillion, down from US$ 19 trillion in the previous year.

Chart 3. World merchandise exports and imports in 2015(Billion dollars and percentage)

	Exports	Imports
World	**15985**	**16299**
World	**100.0**	**100.0**
North America	**14.4**	**19.3**
United States	9.4	14.2
Canada	2.6	2.7
Mexico	2.4	2.5
South and Central America	**3.4**	**3.8**
Brazil	1.2	1.1
Chile	0.4	0.4
Europe	**37.3**	**36.2**
Germany	8.3	6.4
Netherlands	3.5	3.1
France	3.2	3.5
United Kingdom	2.9	3.8
Commonwealth of Independent States (CIS)	**3.1**	**2.1**
Africa	**2.4**	**3.4**
Middle East	**5.3**	**4.3**
Asia	**34.2**	**30.8**
China	14.2	10.3
Japan	3.9	4.0
India	1.7	2.4
Australia and New Zeeland	1.4	1.5

Source: World Trade Statistical Review 2016, WTO

The discrepancy between trade growth in 2015 in terms of volume and value was mostly attributable to large swings in commodity prices and exchange rates.

Fuels registered the largest price decline of any commodity group (down 63 per cent between June 2014 and December 2015), as a result of new sources of supply such as shale oil and an easing of world energy demand as economic growth slowed in Asia. The decline in metals prices (down 35 per cent over the same period) was smaller than the decline in fuels due to the fact that there was no increase in the supply of metals comparable to the development of shale oil in the United States. Prices of food and agricultural raw materials also fell, by around 22 per cent each between June 2014 and December 2015.

The appreciation of the US dollar contributed to falling commodity. The dollar appreciated 13 per cent on average against the currencies of US trading partners in 2015. The Chinese yuan appreciated along with the dollar, rising 10 per. The appreciation of the yuan may have contributed to the economic slowdown in China to the extent that it made Chinese exports more expensive in foreign markets. Meanwhile, major natural resource exporters such as Brazil and the Russian Federation saw their currencies drop sharply in value in 2014.

The top ten merchandise traders accounted for 52% of the world's total trade in 2015. Developing economies had a 42% share in world merchandise trade in 2015.

Chart 4. Leading exporters and importers in 2015 (Billion dollars)

Rank	EXPORTERS	Value	Rank	IMPORTERS	Value
1	China	2275	1	United States	2308
2	United States	1505	2	China	1682
3	Germany	1329	3	Germany	1050
4	Japan	625	4	Japan	648
5	Netherlands	567	5	United Kingdom	626
6	Korea	527	6	France	573
7	Hong Kong	511	7	Hong Kong	559
8	France	506	8	Netherlands	506
9	United Kingdom	460	9	Korea	436
10	Italy	459	10	Canada	436
11	Canada	408	11	Italy	409
12	Belgium	398	12	Mexico	405
13	Mexico	381	13	India	392
14	Singapore	351	14	Belgium	375
15	Russian Federation	340	15	Spain	309

Source: World Trade Statistical Review 2016, WTO

However, the value of merchandise trade and trade in commercial services in 2015 is nearly twice as high as in 2005. Asia, Europe and North America have accounted for 88% in total merchandise trade of WTO members over the past ten years. The share of developing economies in merchandise exports increased from 33% in 2005 to 42% in 2015. Merchandise trade between developing economies has increased from 41% to 52% of their global trade in the last ten years.

A negative implication in respect to the globalization process has the ratio of merchandise trade to GDP. It fell sharply in 2009 following the economic crisis, bounced back quickly in 2010-2011, declined gradually in 2012-2014, but fell significantly in 2015 to 23%.

4. The course of economic globalization

„The current wave of globalization is the second the world has seen, the first one occurring between the years 1870 to 1913, built on the fruits of the industrial revolution and the rise of the American economy. 'The current period effectively dates from the early 1990s, where events like the fall of communism, rounds of trade liberalism and the growing momentum of the Chinese economy accelerated globalization. This was then driven by US multi-nationals, the advent of the euro, the growth of financial markets and the development of many emerging economies.

However, in recent years the path that globalization is taking has become obstacle strewn and much less clear. The global financial crisis has slowed economic growth, left large amounts of indebtedness in its path and checked the rise of the financial services industry. The Eurozone appears to many to be in a state of perpetual crisis while the structural rise of China's economy has caused some to fear the role it will play geopolitically. Its cyclical slowdown is also promoting concern." This is a short description of the present state of affairs given about two years ago in a study by Credit Suisse that was trying to establish the direction that globalization is taking recently. Three different scenarios were taken into account.

Scenario 1: Globalization continues: The first of these is that globalization continues in the form we know it over the past thirty years. In substance western multinationals dominate the global business landscape, trade grows with few interruptions from protectionism and the internet economy grows, across borders.

Scenario 2: A multipolar world: This second scenario is based on the rise of Asia and a stabilization of the Euro-zone so that the world economy rests, broadly speaking, on three pillars—the Americas, Europe and Asia (led by China). At the corporate level, the significant change would be the rise of regional corporate champions, which in many cases would supplant global multinationals.

Scenario 3: The end of globalization: a slowing trend in economic growth and trade with the added possibility of a macro shock (from indebtedness, inequality, immigration), a rise in protectionism, currency wars, the rise of anti-globalization political movements and a backlash against global corporations.

Earlier, in 2014, Credit Suisse has calculated the so called CS Globalization Index based on economic, social and technological factors. Economic globalization within this index is estimated by trade openness (% of GDP), FDI (% of GDP) and FPI (% of GDP).

Trade openness has risen from around 32% in 1990 to over 54% in 2013 (based on Credit Suisse data), but has fallen in 2015 to 32% (based on World Trade Organization data). This is consistent with the decline of the value of world merchandise trade by almost 3 billion dollars in 2015.

On the other hand, taking corporates as one of the main channels through which globalization flows, Credit Suisse investigated the course of globalization by looking at the trends in the foreign sales and asset shares of major, listed corporations over the last decade.

Foreign sales accounted for 39% of total global corporate sales in 2014, well above the 2004 level when they accounted for 31%.

The trend for foreign assets, however, was different. The penetration of foreign assets is typically lower than that of foreign sales, as they accounted for just 19% of total assets in 2014 on average. In contrast to sales, the upward trend in foreign assets was brought to an end during the global financial crisis. Foreign assets accounted for 21% of the total in 2003, peaked at 26% in 2008, and then dropped to 18% in 2012. This pattern is similar across most sectors and regions.

If we consider the difference between developed and emerging markets companies, there does seem to be more of a retrenchment in the foreign asset exposure of developed world companies versus those in emerging markets, which seem to have expanded their overseas revenues vigorously while their overseas investment has not slowed to the same extent as developed markets.

Among sectors, technology companies are strongly associated with globalization. The sector enjoys a very high share of foreign sales relative to other sectors, but at the same time has the lowest share of foreign assets.

The financial sector, despite the financial crisis, has managed to keep foreign revenues relatively stable, but the share of foreign assets has contracted from the peak of 2007 by some 5%. Industrial and consumer goods companies have exhibited similar trends. The share of foreign assets of developed market companies is around 5% off its 2007 level.

As for emerging market companies, we see a rise in terms of both sales and investments abroad.

Overall, the results of the study of corporate investment and revenue growth show that globalization remains intact in terms of consumption and marketing patterns, while companies seem more reluctant to invest abroad. All is pointing towards a more multipolar world as in the second scenario of the Credit Suisse. The world is most multipolar in terms of trade patterns and economic activity. Trade is becoming more regional though there are signs of the erection of barriers to trade.

5. Conclusions

The volume of world merchandise trade continued to grow slowly in 2015 while the dollar value of it declined sharply as exports fell 14 per cent to US$ 16 trillion, down from US$ 19 trillion in the previous year. The discrepancy between trade growth in 2015 in terms of volume and value was mostly attributable to swings in commodity prices (large price declines) and exchange rates (the dollar appreciated 13 per cent on average against the currencies of US trading partners).

As for the trend of economic globalization, a certain slowdown is observable when taking into account the diminishing growth rate of physical trade, the slower penetration of foreign assets of the developed market companies and signs of reshoring of some business back home. Globalization remains intact in terms of consumption and marketing patterns, while companies seem more reluctant to invest abroad.

As the analysts from Credit Suisse say Our sense is that the world is currently in a benign transition from full globalization to a multipolar state, though this is not complete. Specifically, the world is most multipolar in terms of trade patterns and economic activity; but financially the world, although highly globalized, is much less multipolar with the USA still dominating markets. Companies continue to try to sell their goods across borders but are less willing to invest internationally.

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Introducing Identification Technology in Manufacturing Companies and Their Impact on Business Economics

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Abstract: *Automatic identification (AI) is a new type of communication, which uses passive components through the logistics chain for marking, transmission and automatically identifying information with these related elements. Product identification in manufacturing firms is helping to specify what material is a composite product, who the supplier or other properties of the product. Identification of the product also prevents the possible confusion. The product could be included in the information flow have to be alert for its movement (income, output, transfer). One of the most effective ways of acquiring data becomes the use of automatic identification. Bar codes are the cheapest and most common way labeling passive elements and allowing automatic identification on optical principle. Using of the bar code is secured transfer of data to a superior computing system. The aim of this article is to determine how much engineering manufacturing companies in The Czech Republic uses identification technology in the manufacture and design methodology for introducing identification technology into the manufacturing process for the synthesis of acquired secondary and primary data. It will thus provide a simple and easily applicable methodology that can be easily used manufacturing companies that are still not benefiting identification technology. In selected manufacturing companies the production process will be examined, with and without the use of identification technology. On the basis of this examination, the introduction of these technologies into production with an impact in business economics and cost savings will be analyzed.*

Keywords*: Automatic identification, manufactory, manufacturing company, manufacturing process, bar code.*

1. Introduction

In the competitive and dynamic environment of manufacturing companies, logistics is an important strategic factor for maintaining the competitiveness of companies. The use of identification technologies in the manufacturing process of companies contributes to increasing the logistics performance. Identification technology used in manufacturing allows management employees to have an almost immediate overview of all ongoing production processes in manufacturing. The use of identification technology ensures smooth logistics processes taking place in manufacturing. Using identification technology saves time in the manufacturing processes, brings about cost savings, and thus has a major direct impact on earnings.

Manufacturing companies, particularly in the field of engineering, food, pharmaceutical supplies, or the chemical industry, are users of the GS1 system[1] both on the global and local level. These companies are also involved in the formation and development of GS1 standards and are key players in terms of their implementation into business practices. GS1 is a global, non-profit association, dedicated to the creation and implementation of global standards for the use of identification technologies and solutions focused on improving the efficiency of the supply chain globally and across sectors. The GS1 system is the most widely

[1] The Organization of EAN Czech Republic was internationally renamed GS1 in 2006. In the Czech Republic, the designation GS1 Czech Republic is thus used.

used standard for supply chains in the world. It enables the use of automatic data collection means in all the important points of the supply chain. Thanks to the standards for electronic communication, the physical flow of goods can be effectively supplemented with the sharing of structured master and transactional data between business partners (GS1, 2017).

The use of identification technologies in manufacturing companies not only helps to identify the product and to specify what material the product is made of, it also provides information on who its supplier is or other properties of the product. Identification of the product also prevents possible confusion. In order for the product to be included in the information flow, a record of its movement must be made (receipt, issue, transfer). The use of automatic identification is becoming one of the most effective methods of acquiring data.

In a system where most of the information is processed by computers, great demands are placed on those parts of the system where the collection, creation and transmission of data occurs. In order for the efficiency of these systems to be further increased, it is precisely this problem that must be solved in an effective way (Beňadiková and Mada and Weinlich, 1994).

A large amount of individual data and information that does not have too much self-explanatory value arises every day from the manufacturing process, sales, purchasing, logistics flows or any economic operations. The purpose for collecting such an amount of data in each firm is primarily the need for the future use of this information. The future use of information primarily means gaining a competitive advantage and hence economic benefit for the company. Therefore, in order to use the information gathered, it is necessary to put it into context and especially store it in a way so that you can quickly manage to find it again.

Automatic identification (AI) is a new type of communication, which uses passive components passing through the logistics chain for the marking, transmission and following automatic identification of information related to these components (Freedom and Latýn, 2003). Automatic identification systems are used where the automation of processes in the manufacturing and non-manufacturing sector is required. While AI was previously used mainly in retailing, it is currently also used in the area of manufacturing and the management of production processes, monitoring manufacturing operations and material flow, the receipt of goods, storage, handling, and others. (Mačát and Sixta, 2005, Svoboda and Latýn, 2003).

Manufacturing companies, purchasing material for production, always try to have enough material, therefore the planning in the system must correctly indicate to the buyer what, when and in what quantity and quality they should order (Gros, 1996). The role of the systems lies in optimizing the amount of material across orders and the dynamic timing of the issuance of the order. More specifics can be found in communication with suppliers. The automotive industry uses supply schedules which transmit information systems among themselves through EDI electronic communication (Tvrdíková, 2008). In engineering, online purchasing portals are increasingly being used in the projects, through which the information system indicates to the supplier what to add, prints barcode labels and visualizes the material en route. When deploying barcode technology, it is therefore clear that they must take into account the impact of the specifics of each sector.

The barcode is existing automatic identification technology in the field of logistics and has become part of the supply chain. The introduction of barcode technology has had an impact on the supply chain in practice like few other previous technologies (Suraj, and Singh, 2009). The use of barcode technology significantly simplifies the registration of materials and goods in stock. After reading the barcode, information about the type of material or goods is displayed which is automatically subtracted or added at the warehouse. The transmission of information relates to inventory, the status of goods on the move, the location of stocks, input and output supplies, customers, staff and the utilization of warehouse space (Drahotský and Řezníček, 2003).

The use of barcodes significantly expanded in the 1970s. In the Czech Republic it was rather late. The development of bar codes in our country did not occur until the early 1990s, mainly due to the expansion of supermarkets and hypermarkets (Ježek, 1996). According to Mačáta and Sixty (2005) and Vaněčka (2006), barcodes are one of the cheaper and more widespread methods of labeling passive components and allowing automatic identification on the optical principle. By using the bar code, the transmission of data is ensured to the superior computing system. This greatly increases control over products, materials, and the circulation of documents etc. Barcode technology has a wide application in many areas, such as the identification of industrial products, daily consumer goods, during inventory management, etc. (Youssef and Salem, 2007). This technology provides numerous benefits to industry.

All may generally be divided into three main categories:

- The decline of entering incorrect data,
- shortening the time needed for control
- and increaing traceability.

GS1 is a nonprofit group that deals with the implementation of global standards throughout the supply chain. GS1 states that an experienced operator makes 1 error for every 300 keystrokes when entering data into the system. Entering data using barcode technology reduces the entering of erroneous data to 1 error per 1 million keystrokes (Hayat, 2012). With the advancement of mobile technology, many mobile phones are equipped with cameras that enable the function of scanning 2D barcodes. If software for reading a 2D barcode is installed in a telephone, the user can quickly find out information about the scanned product (Lin and CHeung and Siao, 2014) Barcode technology enables the tracking of the supply chain from the beginning to the end customer, as well as helping to trace back the history of the product up until its composition. Tracking the movement of the product is a complementary activity, aimed at enhancing product safety, streamlining and optimizing production planning and distribution systems and processes. It helps to locate the source of problems (defects, contamination) and effectively manage their removal (Musa and Gunasekaran and Yusuf, 2014).

For the successful reading of a bar code, direct visibility by the sensor is needed. However, in some areas this is impossible to secure - for example, in paint shops or in environments with high dust levels. In these cases, the principle of radio frequency identification (RFID) finds its use. RFID codes were first used in World War II (Štědroň and Budiš, 2009). RFID can be imagined as a unique wireless communication technology, which is used to identify the selected objects or persons (Hunt and Puglia and Puglia, 2007). RFID codes are expected to increase supply chain efficiency and transparency (Gaukler, and Seifert, 2007). RFID technology has a number of important beneficial aspects, compared to barcode technology, for example:

- long distance readability
- resistance to changing environmental conditions, for storing information,
- processing and acquisition of capacity, etc.

However, it has some serious drawbacks in the implementation to supply chains, such as read error, or safety problems (Kapoor and Piramithu and Zhou, 2009). This technology complements barcodes in areas where they cannot be used, or their deployment is ineffective. RFID has its limitations given by the physical principles of the dissemination of radio frequency waves. Unlike bar codes, RFID allows bulk reading and does not require direct visibility for the identification of objects. Thanks to these properties, RFID is regarded as a potential successor to the barcode and can complement or replace the barcode (McCathie and Michael, 2005).

2. Objectives

This article aims to analyze the management of processing large amounts of information in the manufacturing process using barcode technology. The analysis will be based on the findings of the identification requirements of specific businesses that operate on the Czech market in the field of engineering. Subsequently, the introduction of these technologies into the manufacturing process and the comparison of the manufacturing process with and without the use of identification technology will be analyzed. The article deals with an area that is not scientifically mapped out in the Czech Republic. This issue touches on several areas such as manufacturing management, business economics and logistics, which are topical and interesting both in terms of practical use and academic research. The outcome of the article will be the strengthening of management skills in the field of mechanical engineering in companies that manage business processes via barcode technology. This article should provide findings that will be useful for the companies themselves and experts.

3. Material and methods

The analysis of the management of processing large amounts of information in the manufacturing process using bar codes will take place based on the identification requirements of individual companies. Specific companies doing business in the Czech Republic in the field of engineering. The introduction of bar code technology in the manufacturing process of companies and the comparison of the manufacturing process with and without the use of barcodes will be analyzed. Information on engineering companies were obtained through structured interviews with knowledgeable individuals through the monitoring of the manufacturing process using barcode technology and a look into internal documents. These engineering firms have bar code technology established in manufacturing processes. The article is based on in-house company data, which, however, was relatively difficult to obtain. It is sensitive data used by company management for operational and strategic decisions and is not freely accessible.

In the course of working with the analysed companies, however, the selected range of data was promised, with whose use it will be possible to analyse the use of the impact of the introduction of identification technology on the economy of the company. The present article is the first of a series of articles analysing the introduction of bar codes in the selected Czech engineering companies.

The first analyzed company (A) is engaged in the manufacturing of rail, underground and tram lines. The company was founded in 1995. It is now a monopoly producer in the area of technology for railway and underground lines in the Czech Republic and a major manufacturer of technologies for tramway tracks in the Czech Republic and abroad. It also produces a complete range of spare parts for switches, it provides service activities for newly delivered products, performs the regenerating of used switches from tracks and their re-use, provides services related to the maintenance of the railway superstructure of the track such as welding frogs, grinding switches, straightening tongues and track material after accidents, the replacement of spare parts etc. In 2016, the company had 580 employees. The revenue of the company in 2016 amounted to EUR 58.6 mil. For the conversion of sales from CZK to EUR the exchange rate of the CNB of 27 CZK / EUR was used.

Another analyzed company (B) is engaged in the manufacturing of laser cut parts. The **company** is a solely Czech company, which was founded in 2008. **The main focus of the company is the custom and serial production of precision burnouts through laser burning.** Since 2010, the company has significantly strengthened the machinery equipment and gradually, with the increase in production volume, expanded to also focus on other sectors, namely on bending on CNC presses and a machine shop, where the material cutting, grinding, welding, manual plasma cutting, assembly, product assembly and other processes are carried out. In 2016, the company had 188 employees and the turnover of the company amounted to EUR 5.8 mil.

4. Results

The presented companies implemented barcode technology several years ago. The first company, engaged in the manufacture of crossings, has the entire production process connected by a system that supports barcodes. This system is built by linking a barcode system with an in-house information system. Each employee working according to the production plan hands over the finished work by registration in the in-house information system. The employee performs this operation using the terminal, which is located directly at individual workplaces. This terminal is equipped with a bar code reader in the form of a ballpoint pen. The employee need only log into the system using the personal number and read by swiping the barcode along the production plan sheet. This operation is performed with all the production plan sheets thereby entering the finished work into the system. All employees on all shifts enter this data in the same way. At one in the morning, the entire production plan in all contracts is automatically recalculated and the timeliness of information about the production process is thus ensured. The introduction of barcode technology in manufacturing has provided many advantages such as the sharp decline of entering incorrect data, reducing the time for checking, increasing traceability, drastically reducing the time required to enter data into the system, awareness about the status of orders in production, etc. The introduction of barcode technology in this company caused the easing of work for three workers, who previously had to enter all performed operations into the system manually. Now they can focus on other administrative duties. The company's management also stated that these three experienced operators, who were responsible for manually entering data into the in-house information system, made on average one mistake for every twenty registered operations. Managers now indicate that the error rate after the introduction of barcode technology decreased by more than 87%.

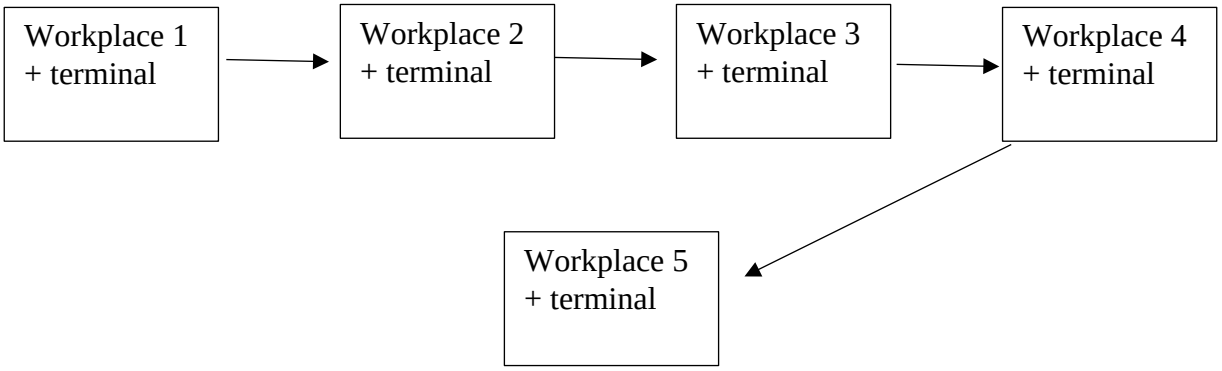
Table 1: Comparison of the advantages and disadvantages of barcode technology in company A Source: Own processing

Company A	
Advantages	Disadvantages
Sharp decline in entering incorrect data	Time required to implement
Reduction in the time required for data	Demanding for IT administration
Shortening the time for checking	Employee training
Enhancing traceability during production	Financial demands on acquisition
Information on the status of orders in manufacturing	
Easing of administrative work	
Finding out the repeatability of orders	

Source: own processing

Table 1 shows a comparison of the advantages and disadvantages connected to the introduction of barcode technology. The management of the company acknowledges that the introduction of technology paid off for the company not only in terms of personnel, but also from the perspective of the entire management of production. The benefits that this technology has brought them are much more beneficial than any system used before the introduction of bar codes.

Diagram 1. The manufacturing process of company A with the designating of the terminals



Source: own processing

Diagram 1 shows the location of the individual workstations with terminals. Workers in the individual workplaces have access to terminals with reading devices and can thus seamlessly send off work results without unnecessary movement.

The second company, which is engaged in laser burning, introduced bar code technology in 2015. The company has an in-house system connected with bar code technology the same as the previous company. The company also uses bar code technology in the storage of material and also has it linked with several suppliers of material. This fact facilitates many activities such as taking over material from a supplier, speeding up the discovery of the current status of stocks of materials in the warehouse and information about its use. The advantages of the introduction of barcode technology in this engineering company are almost the same as in the previous company. Determining the repeatability of orders is one of the specific advantages for this company, as the main activity of the company is custom manufacturing. This finding helps management to identify the most common types of recurring projects and modify the manufacturing process according to this. Furthermore, the company's management states that after the introduction of barcode technology into the manufacturing process, the error rate when entering data into the system has been reduced compared to manual entry by almost 93%.

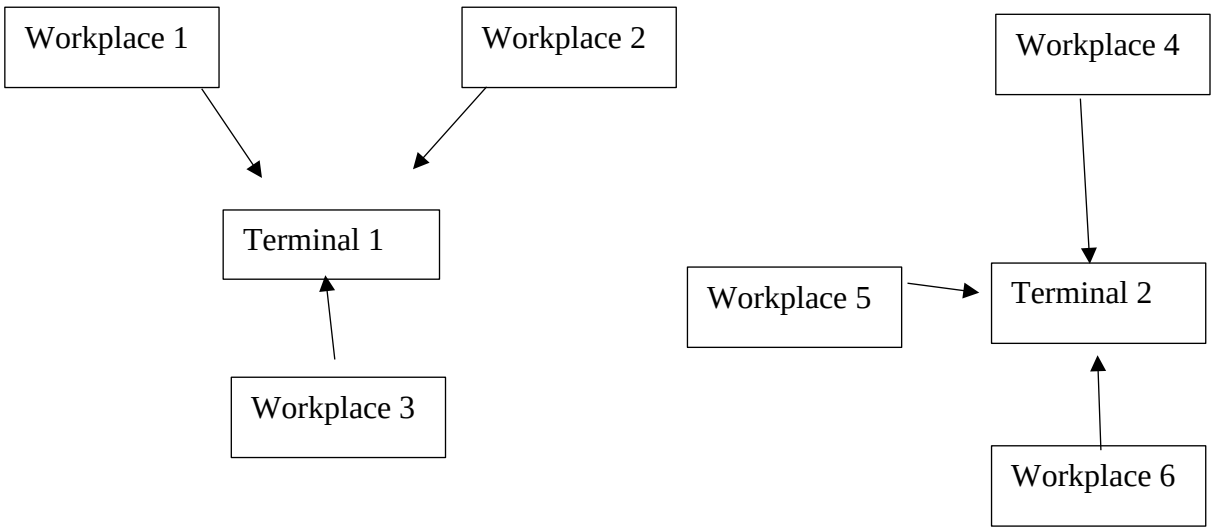
Table 2: Advantages and disadvantages of barcode technology in company B

Company B	
Advantages	Disadvantages
Sharp decline in entering incorrect data	Time required to implement
Reduction in the time required for data	Demanding for IT administration
Shortening the time for checking	Employee training
Enhancing traceability during production	Financial demands on acquisition
Information on the status of orders in manufacturing	
Easing of administrative work	
Finding out the repeatability of orders	
Supports optimal production plan	

Source: own processing

Table 2 shows the advantages and disadvantages of the introduction of barcode technology in company B. The company management stated that they see the benefits of the introduction of barcode technology for their company primarily in the possibility of optimizing the production plan and the almost immediate verifiability of the state of orders. In this company, it took a little longer to implement barcode technology, but only due to the poor selection of the supplier of this technology. Finally, the firm said that after replacing the contractor, the course of implementation was smooth.

Diagram 2: Illustration of the location of individual workplaces with the location of terminals in company B



Source: own processing

Diagram 2 shows the layout of workplaces and the location of two terminals that were built so that the personnel of each department have the best possible access to terminals. Company B has placed the terminals in cubicles to keep them in a clean environment and prevent them from being affected by dust. By building the cubicles, the management has achieved the reduction of the cleaning intervals of the terminals. Another benefit of these cubicles is seen by the company management in the reduction of entering incorrect data into the system caused by the pollution of the reading pen.

5. Conclusion

Entering data using barcode technology reduces the entering of erroneous data to 1 error per 1 million keystrokes according to Hayata (2012). The company, which is engaged in manufacturing switches, reported that these three experienced operators, who were responsible for manually entering data into the in-house information system, made on average one mistake for every twenty registered operations. Managers now

indicate that the error rate after the introduction of barcode technology decreased by more than 87%. The remaining percentage of the error rate is very hard to remove for this particular company. It is a problem with the purity of the reading pen, which gets dirty easily due to the environment in which it is used. Then there is a poor reading of codes.

Another advantage, which is indisputably being used by the employees in this company, is tracking the movement of the product. According to Musa (2014), tracking is a complementary activity aimed at enhancing product safety, streamlining and optimizing production planning and distribution systems and processes. It helps to locate the source of problems (defects, contamination) and effectively manage their removal. In the given company, this backtracking of individual work operations has already been utilized many times when searching for poorly manufactured parts. This backtracking has saved a lot of valuable time in the manufacturing of demanding constructions and saved a lot of money during the quick identification of the source of the problem.

The second company, which is engaged in laser burning, noted that after the introduction of barcode technology into the manufacturing process, the error rate when entering data into the system has been reduced compared to manual entry by almost 93%. In this company, the terminals are located in cubicles that prevent the soiling of the reading pen and thus help reduce the error rate when entering data into the system. The company has only two terminals that are close enough to all work sites. The introduction of barcode technology greatly helped this company with the optimization of the planning of production processes. According to Musa (2014), it is one of the complementary activities designed to facilitate production planning. This company has optimized production processes, thus ensuring their continuity using barcodes.

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Optimizing Tax Costs relating to a New Business

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Abstract*: A start-up has several options when it comes to the legal structure of the new business. The simplest business set up is as a sole trader/authorized natural person (ANP), but another popular option is a limited liability company (LLC). Each way of forming a new business has different tax consequences, as well as other implications, such as the extent of personal liability for business debts, perception to the outside world or the entrepreneur's training requirement. In this paper we will present the main differences between trading as a sole trader or a LLC in Romania, in terms of the tax consequences, administration and other non-fiscal aspects with regards to the 2017 tax year. This article contains a synthesis of the tax obligations of ANP and LLC and a few practical examples concerning the mechanism of tax optimization regarding the legal structure of the business.*

Keywords*: authorized natural person (ANP), limited liability company (LLC), tax optimization, corporate income tax (CIT), micro-companies income tax (MIT), personal income tax (PIT), social contributions, tax on dividends.*

1. Introduction

Tax optimization includes any decision which leads to tax cost reduction. Tax costs are related not just to the taxes due, but to the deadlines and recovery of claims or losses too. Tax optimization solutions aim at making taxable operations in areas where the level of taxation, tax risks and costs are lowest for the taxpayer.

Newly formed businesses have an important tax planning opportunity. A start-up has several options when it comes to the legal structure of the new business. For a small business there are usually two options in Romania: Authorized Natural Person (ANP) and Limited Liability Company (LLC).

The aim of this paper is to identify which of these options is the optimal solution from a fiscal point of view, in accordance with the conditions of the new Romanian Fiscal Code valid from 01.01.2017. For this purpose we identify which are the steps of tax optimization and when to apply it (section 2).

Section 3 compares companies'taxes (separately for micro-companies and ordinary companies) with freelancers'taxes. We analyze only those taxes that are different for each type of entities: micro-companies income tax / corporate income tax / personal income tax, tax on dividends and mandatory social contributions related to commercial incomes. We do not treat value added tax and social contributions related to wages, because their value is the same regardless of the type of entity (ANP or LLC).

Forecasting incomes and expenses is very important since the start-up. To make use of tax optimization strategies, it is essential that the entrepreneur estimates the revenues and the expenditures for the next few years. This forecast will help him to estimate the overall tax burden and to choose the most effective form of business organization (the one that involves the minimum overall tax burden). The practical examples from section 4 illustrate this process.

In the 5th section we highlight the advantages and disadvantages of each form of organization, taking into account not only the fiscal aspects, but also other specific issues such as: setting-up and split-up conditions, liability for business debts in the case of insolvency, legal status, accounting status etc.

2. What is tax optimization and what are the risks of applying it?

Tax optimization means any activity carried out in compliance with the legislation in order to reduce the tax obligations through:

- Relief, reducing or postponing tax liability;
- Possibility of recovering tax losses;
- Interpretation of the tax legislation in order to obtain the maximum tax deductions and minimize situations where tax deductions are not accepted;
- Carrying out taxable operations in areas where the level of taxation, tax risks and costs are the lowest.

There are five stages of the tax optimization:

1) If the ANP/LLC is already set-up we have to analyse the current tax position of the taxpayer. We are looking for:
   - Tax reserves that were not used and that can compensate for the obligations arising from future taxable transactions: tax losses, claims, tax deductions allowed by law;
   - Unreported tax obligations due to incorrect interpretation of the fiscal law or to the legislative changes.
2) The second stage is to understand the way in which the taxpayer carries on its operations: the specificity of the activity, the tax obligations, the strategy and the long-term intentions of the taxpayer etc.
3) Only after completion of the first two stages will can develop a tax diagnosis which involves the identification of the fiscal strengths and weaknesses related to the current position and the determination of the tax position for at least two years (given that the tax legislation will not be changed).
4) In the fourth stage will develop proposals for tax optimization, with an indication of relevant risks and their feasibility.
5) The final stage is implementation of the proposals of tax optimization.

Tax optimization involves certain risks. The main risk is related to the possible association of the tax optimization with tax evasion. However, when the basic principles of tax optimization (transparency, fair price of the transactions, the absence of any abuses of interpretation of tax laws and tax optimization solutions etc.) are respected, risks of assimilation with tax evasion are minimal.

Another risk is the one relating to the incomplete or wrong application of the proposed tax optimization solution, which of course can lead to an inappropriate result or even to the possibility of the association with tax evasion.

Tax optimization should be applied whenever possible, but especially in the following situations:

- At the beginning of the business;
- When major changes occur in the tax legislation with a negative effect (increased fiscal costs) or with a positive effect (the emergence of lower-tax areas);
- Before making a significant change in the activity of the taxpayers;
- Before the liquidation of any business;
- Before leaving the business.

Tax optimization involves looking for the answers to the following **questions:**

- What legal structure would be the most advantageous for a new business, from a fiscal point of view: ANP, LLC, LTD, group, holding?
- What are the main tax reductions, exemptions, facilities which can be applied?
- Which of the business costs cannot be deducted or presents a high tax risk?
- What are the due date of the tax and the possibility to postpone the payment or to compensate it?
- What are the commercial policies which determine the lowest fiscal costs?
- What are the accounting policies the most advantageous for tax purposes?
- What tax obligations arise from the liquidation of a business? What should be done to reduce tax liabilities?

In the following sections we will try to answer to the first question. For this purpose we will first analyse the taxes owed by entrepreneurs depending on the form of organization:

- the companies due: CIT (corporate income tax) or MIT (micro-companies income tax)**,** depending on several criteria as well as the level of turnover, nature of the revenue etc. The entrepreneur dues tax on dividends and in some conditions health insurance contribution for the dividends;

- the authorized natural persons due: PIT (personal income tax) and social contributions (health insurance contribution and social security contribution).

3 Tax obligations for companies

3.1. Micro-companies income tax (MIT)

The newly established legal entities are obliged to pay MIT with effect from the first fiscal year, except for the situation in which it intends to carry out activities in the areas of: banking, insurance and reinsurance, capital market, gambling games, exploitation of petroleum and natural gas.

As of 1 January 2017**,** according to the Fiscal Code, any newly established Romanian legal entity with a share capital of at least RON 45,000 may opt to become a CIT payer as of its date of incorporation. Previously, for this provision to be applicable, it was necessary to have a share capital of EUR 25,000 or more. [1]

Starting with the second year of operation a company is considered to be a micro-entity paying MIT if other two conditions relating to the level and structure of income are met:

- The first condition refers to the level of incomes obtained in the previous year. From 01.01.2017 the income threshold beneath which a company is required to remain in the micro-entities tax regime has been increased from EUR 100,000 to EUR 500,000 (the equivalent in RON).
- The second condition for application of micro-entities tax regime remains unchanged: the incomes from consulting and management must be less than 20% of total incomes. If during the year this limit is exceeded, the company owes CIT beginning with the quarter in which it has been exceeded.

The taxable base for MIT comprises the income from any source, with several exceptions like income related to the costs of inventories, income related to the capitalised costs of tangible and intangible non-current assets etc.

The 2% tax rate applicable for micro-companies with one employee has been eliminated. Instead, as from 06.01.2017, the new 1% tax rate will be applicable for micro-companies with at least one employee. The 3% tax rate remains applicable for micro-entities with no employees**.**

3.2. Corporate income tax (CIT)

The companies which do not meet the specific conditions of micro-entities, be it of specific thresholds or income nature, due CIT, calculated as follows:

CIT = 16% x Taxable income

The standard corporate income tax rate is 16% with two exceptions:

- The tax due for nightclubs and gambling activities is either 5% of the revenues or 16% of the taxable profit, whichever is higher.
- According to law No. 170/2016 [2], from 01.01.2017 companies with activity in the field of hotels, restaurants, bars and catering (HORECA) apply a specific tax. For hotels, this specific tax is determined in RON / accommodation /year. For restaurants and bars there is also a specific tax in RON / year, but this specific tax is multiplied with many coefficients depending on the rank of the town, the area where the restaurant is located, the restaurant surface, seasonality and the technical space.

According to the Fiscal Code [3], the taxable income is calculated as the difference between the revenue derived from any source and the expenses incurred in obtaining that taxable revenue, adjusted for fiscal purposes by deducting non-taxable revenues and adding non-deductible expenses. Other elements, similar to revenue and expenses, are also to be taken into account when calculating the taxable income.

Expenses fall into three categories: deductible expenses, limited deductibility expenses and non-deductible expenses.

As a general rule, expenses are deductible only if incurred for the purpose of the business.

Non-deductible expenses include, among other items:

- CIT expenses;
- Expenses related to non-taxable revenues;
- Interest, fines and penalties due to authorities;

- Expenses incurred for management, consultancy, assistance or other supply of services if this expenses are not based on a written contract or any other lawful agreement and the company cannot justify the supply of such services for the activities performed and their necessity;
- Sponsorship and patronage expenses and those related to private scholarships. Taxpayers are, however, granted a fiscal credit up to 0.5% of turnover or 20% of the CIT due, whichever is lower.

3.3. Tax on dividends and health insurance contribution (HIC) for net dividends

Every time a company will distribute dividends, it will have to withhold tax on dividends and pay it to the public budget:

Tax on dividends = 5% x Gross dividends

It should be noted that the shareholders are required to pay individual health insurance contributions (HIC) of 5.5% in respect of the net income from dividends, unless they already derive income that is subject to HIC (e.g. salary income, income from independent activities) or they receive pension or unemployment benefits.

HIC = 5,5% x Net dividends

The calculation base for HIC cannot be lower than the gross minimum monthly wage multiplied by 12 months. The health insurance contribution due is calculated by the tax authorities.

4. Sole Trader Taxes

4.1. Personal income tax (PIT)

Income from freelance activities is assessed on the basis of the entries in single entry bookkeeping ledgers, which providers of independent activities are obliged to keep. The taxable base is calculated as gross income minus deductible expenses and the standard personal income tax rate is 16%.

PIT = 16% x (Gross Revenues - Deductible Expenses)

As in the case of CIT, expenses incurred by Authorized Natural Persons fall into three categories: deductible expenses, limited deductibility expenses and non-deductible expenses. Rules of deductibility are very similar to those in the case of CIT. The following expenses are non-deductible: fines, late-payment penalties (other than contractual penalties), donations and other expenses exceeding limits provided by current fiscal law. [4]

Alternatively, specific categories of freelancers are taxed on the basis of a fixed income annual allowance, as communicated yearly by the local tax authorities. [5]

In this case PIT is determined as follows:

PIT = 16% x Fixed income

If ANPs obtain an annual gross income of more than EUR **100,000**, they have to apply the real tax system starting with the next fiscal year.

4.2. Contributions due on income derived from independent activities

The taxable income derived from self-employed activities is subject to social security (pension) contributions (SSC), as well as to individual health insurance contributions (HIC). These contributions should be settled by the freelancers themselves.

The individual can opt for one of these two tax rate of SSC: integral tax rate (26.3%) or individual tax rate (10.5%). The second rate provide only a third of the qualifying period of contribution. The monthly taxation base cannot be lower than 35% of the average gross salary (the one used in the public social insurance budget) or higher than five times the average gross salary. For 2017 these values are:

Minimum monthly taxation base = 35% x 3131 = 1.096 RON

Maximum monthly taxation base = 5 x 3131 = 15.655 RON

Social security (pension) contributions are not due on this type of income if the individuals concerned already derive other income (e.g. pensions or unemployment benefits) that is subject to social security contributions or they receive pensions or unemployment benefits.

The tax rate of of HIC is 5.5%. The monthly taxation base cannot be lower than the gross minimum monthly wage (1.450 RON in 2017) if the income derived from self-employed activities is the only income on which health insurance contributions apply.

5. Case Studies concerning tax optimization for a start-up

To illustrate how to choose the optimum legal structure from a fiscal point of view we will consider an entrepreneur who wants to start a business in January 2017, under the following conditions:

- Annual revenues are the 400,000 RON (this is the only income being earned by this person i.e. there is no other personal income to consider);
- For annual expenses we consider two hypotheses: 100,000 RON and 350,000 RON;
- The activity will take place without employees;
- Regarding the object of activity we will consider two hypotheses:
  - Repair of computers and peripheral equipment (cod Caen 9511)
  - Information technology consulting business (cod Caen 6202)

For this entrepreneur there are two legal structure options: Authorized Natural Person (ANP) and Limited Liability Company (LLC). As LLC, he will pay:

- MIT for cod Caen 9511 (Table No. 1 and 3);
- CIT for cod Caen 6202, because the incomes from consulting and management are more than 20% of total incomes, (Table No. 2 and 4).

As ANP, both activities can be taxed in the normal system or on the basis of a fixed income annual allowance. For 2017, in Bucharest these fixed incomes are: [5]

- 16,800 RON for cod Caen 9511
- 28,000 RON for cod Caen 6202.

If the entrepreneur chooses the fixed income system, this system will be applied also in 2018 because the revenues obtained in 2017 are smaller than 100,000 EUR.

In the tables below we outline the taxes owed and the gains of an ANP compared to a LLC for two levels of expenses and two types of activities. There are four combinations of hypotheses:

- Table No. 1 for expenses of 100,000 RON and cod Caen 9511 (repair of computers);
- Table No. 2 for expenses of 100,000 RON and cod Caen 6202 (consulting business);
- Table No. 3 for expenses of 350,000 RON and cod Caen 9511 (repair of computers);
- Table No. 4 for expenses of 350,000 RON and cod Caen 6202 (consulting business).

Table no. 1 (RON)

	Juridic form / **Indicators**	**ANP – PIT in normal system**	**ANP – PIT (fixed income = 16800 RON)**	**LLC – paying MIT**
1	**Gross Revenues**	400,000	400,000	400,000
2	**Expenses**, **excluding contributions**	100,000	100,000	100,000
3	**Net Revenues**, excluding contributions (1-2)	300,000	16,800	NA
4	SSC-Social security contributions (*10,5%**3)	31,500	1,764	NA
5	HIC-Individual health insurance contributions (*5,5%**3)	16,500	924	NA
6	**Net Revenues** (3-4-5) / 3 **Gross income** (1-2)	252,000	16,800	300,000
7	**PIT** (*16%**6) **MIT** (*3%**1)	40,320	2,688	12,000
8	**Net income** (6-7)	NA	NA	288,000
9	**Dividend tax** (*5%**8)	NA	NA	14,400
10	**Net Dividends** (8-9)	NA	NA	273,600
11	HIC for dividends (*5,5%**10)	NA	NA	15,048
12	**Total taxes** (4+5+7+9+10)	**88,320**	**5,376**	**41,448**
13	**Total gain** (1-2-12)	**211,680**	**294,624**	**258,552**

Table no. 2 (RON)

	Juridic form / Indicators	ANP – PIT in normal system	ANP – PIT (fixed income = 28000 RON)	LLC – paying CIT
1	**Gross Revenues**	400,000	400,000	400,000
2	**Expenses**, **excluding contributions**	100,000	100,000	100,000
3	**Net Revenues**, excluding contributions (1-2)	300,000	28,000	NA
4	SSC-Social security contributions (*10,5%**3)	31,500	2,940	NA
5	HIC-Individual health insurance contributions (*5,5%**3)	16,500	1,540	NA
6	**Net Revenues** (3-4-5) / 3 **Gross income** (1-2)	252,000	28,000	300,000
7	**PIT** (*16%**6) **CIT** (*16%**6)	40,320	4,480	48,000
8	**Net income** (6-7)	NA	NA	252,000
9	**Dividend tax** (*5%**8)	NA	NA	12,600
10	**Net Dividends** (8-9)	NA	NA	239,400
11	HIC for dividends (*5,5%**10)	NA	NA	13,167
12	**Total taxes** (4+5+7+9)	**88,320**	**8,960**	**73,767**
13	**Total gain** (6-12)	**211,680**	**291,040**	**226,233**

Table no. 3 (RON)

	Juridic form / Indicators	ANP – PIT in normal system	ANP – PIT(fixed income = 16800 RON)	LLC – paying MIT
1	**Gross Revenues**	400,000	400,000	400,000
2	**Expenses**, **excluding contributions**	350,000	350,000	350,000
3	**Net Revenues**, excluding contributions (1-2)	50,000	16,800	NA
4	SSC-Social security contributions (*10,5%**3)	5,250	1,764	NA
5	HIC-Individual health insurance contributions (*5,5%**3)	2,750	924	NA
6	**Net Revenues** (3-4-5) / 3 **Gross income** (1-2)	42,000	16,800	50,000
7	**PIT** (*16%**6) **MIT** (*3%**1)	6,720	2,688	12,000
8	**Net income** (6-7)	NA	NA	38,000
9	**Dividend tax** (*5%**8)	NA	NA	1,900
10	**Net Dividends** (8-9)	NA	NA	36,100
11	HIC for dividends (*5,5%**10)	NA	NA	1,986
12	**Total taxes** (4+5+7+9+10)	**14,720**	**5,376**	**15,886**
13	**Total gain** (1-2-12)	**35,280**	**44,624**	**34,115**

Table no. 4 (RON)

	Juridic form / Indicators	ANP – PIT in normal system	ANP – PIT (fixed income = 28000 RON)	LLC – paying CIT
1	**Gross Revenues**	400,000	400,000	400,000
2	**Expenses**, **excluding contributions**	350,000	350,000	350,000
3	**Net Revenues**, excluding contributions (1-2)	50,000	28,000	NA
4	SSC-Social security contributions (*10,5%**3)	5,250	2,940	NA
5	HIC-Individual health insurance contributions (*5,5%**3)	2,750	1,540	NA
6	**Net Revenues** (3-4-5) / 3 **Gross income** (1-2)	42,000	28,000	50,000
7	**PIT** (*16%**6) **CIT** (*16%**6)	6,720	4,480	8,000
8	**Net income** (6-7)	NA	NA	42,000
9	**Dividend tax** (*5%**8)	NA	NA	2,100
10	**Net Dividends** (8-9)	NA	NA	39,900
11	HIC for dividends (*5,5%**10)	NA	NA	2,195
12	**Total taxes** (4+5+7+9)	**14,720**	**8,960**	**12,295**
13	**Total gain** (6-12)	**35,280**	**41,040**	**37,706**

Analysing the results obtained in the four tables, we notice that the entrepreneur obtains the highest gain in the case of ANP paying PIT calculated on the basis of a fixed income. If the object of activity lies in the list provided by local authorities and if the estimated net revenues are greater than the fixed income stipulated in this list, this is the best option.

If the object of activity is not in the list, the entrepreneur must choose between ANP taxed in normal system and LLC. In three of the four cases analyzed (tables 1,2,4), LLC provide a higher gain than ANP.

6. Conclusions

A sole trader has to pay personal income tax and two social security contributions. A limited company, on the other hand, pays micro-companies income tax or corporate income tax, dividends tax and health insurance contribution for net dividends**.**

For an optimal decision the entrepreneur should consider both taxes (as we saw in section no. 5), as well as other non-fiscal issues, presented in table no. 5. For each of these aspects we have given a “plus” to the form of organization more advantageous and a “minus“ to the other form.

Table no. 5

	ANP	LLC
Setting-up conditions	The process of establishing is simple and the cost is less than in the case LLC. +	The process of establishing is longer, requires more documents and the cost is higher than at ANP. –
Specific legislation	Legislative restrictions: • A maximum of five classes of activities stipulated in CAEN; • A maximum of three employees;	Legislative restriction: A LLC has a minimum authorised capital stock of 200 RON. +

	• Mandatory professional training in the field of each activity. –	
Accounting methods	ANPs can use the cash basis accounting method, which is easiest and least expensive to employ then the accrual method. +	LLCs have to use the accrual method. The owners of the LLCs have to rely on expensive accounting professionals. –
Liability in the case of insolvency	The business owner is personally liable for any taxes and debts the business incurs. –	Liability is limited to the extent of capital stock is lodged. +
Split-up conditions	The process is easier and takes less than in LLC. +	The process is wide and can take a long time. –

Of the two business structures, operating as an ANP has the advantage of simplicity and the disadvantage of unlimited liability (there is no distinction between personal and business assets). In addition, for an ANP may be difficult to bid and accept larger contracts, not only because large corporations have many staff that can work on tenders and offers, but because most companies won't work with a business that has maximum five employees.

Trading as a LLC is generally more complicated, but generates a number of non-financial benefits, among which the most significant is that of limited liability status. A negative issue is the fact that the owner of a LLC can benefit from company's income only in the following year, when the company distributes dividends.

In conclusion, minimize tax costs should be the main criterion in choosing the optimal legal structure of a new business, but other specific issues are also important.

ANP is the right form of organization for those who intend to carry out a limited number of activities (maximum five), with few employees (maximum three) and with few trading partners. Usually the taxation on fixed income is more advantageous then the normal system of taxation.

If the business involves significant investments and the entrepreneur intends to engage in complex activities, with more trading partners, on longer terms and safer, it is preferable to set up a legal person, in the form of LLC or joint stock company, depending on the number of founders and their power of participation.

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Budget Sustainability of Municipalities and Local Government Units – The Czech Republic Study

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Abstract: *Public economics examines the influence of the state on economic equality and efficiency, and on conduction of business entities in connection with the various tax systems and individual behavior in private consumption. To manage the public economy is thorough knowledge of the real decision-making and allocation mechanisms. From a budgetary perspective, the public economy in the Czech Republic is characterized mainly by the state budget, 6,249 municipal budgets and 14 budgets of local government units. These all units are together subject to annual statutory audit, which mainly represents the analysis of the system of the Audit informative and monitoring indicators (ASIMI). The paper analyzes the outcome of the audit with the use of absolute and relative indicators and suggests possible changes and consolidation of municipal and local government budgets in the Czech Republic.*

Keywords: *municipality, local government unit, public budget, debt, GDP*

1. Introduction

The public sector is part of the national economy, whose main area of interest is to carry out a public service, who are funded from public funds as well as are managed and administered in public administration. Decisions within public sector are made on public option and are subject to public control[1]. From a material standpoint, the issue of control of public administration is more difficult than controlling the business sector of the national economy, and moreover, is subject to the principles of publicity, the principles associated with the obligation to give public entities the requesting information[2]. Public sector represents one of the hallmarks of public administration and its name is derived from the fact that it is implemented in the public interest[3].

By the end of 2016 there is a total of 6,249 municipalities and 14 Local Government Units (LGU) in the Czech Republic. The task of each municipality is to allocate sufficient funds to finance the activities that the municipality has in its scope and activities, as well as those which are transmitted by the state[4]. Municipalities and LGU seek comprehensive development of its territory and ensure the needs of its citizens through public goods and services.

On July 1st 2004 came into effect law No. 420/2004 Call., on the Act on the audit of municipalities and LGU, where articles 1-9 of § 4 oblige the rule to provide (till 30th June of current year) the audit management for the past year. The audit shall be conducted in accordance with law No. 93/2009 Coll., on Auditors and the International Auditing Standards and related application clauses of the Czech Chamber of Auditors.

2. Objectives and methods

For the preparation and fair presentation of financial statements in accordance with accounting standards of the entity, there are data sources obtained from the Czech Statistical Institute and the Czech Ministry of Finance. These data were analyzed using both the absolute and relative methods of managerial accounting. Based on these data and analysis the main objective of the paper is to evaluate the main results of audit of municipalities and LGU in the Czech Republic and determine possible directions of its future reform. Part of this responsibility is designing, implementing and maintaining internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due

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to fraud or error, selecting and applying appropriate accounting policies and making reasonable accounting estimates[5].

3. Principles of budget survey

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks that the financial statements contain material misstatements due to fraud or error[6] . When assessing these risks, the auditor considers internal control relevant to the preparation and fair presentation of the financial statements. The aim of the assessment of internal controls is to propose appropriate auditing procedures, not to comment on the effectiveness of internal controls. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management as well as evaluating the overall financial statement presentation.

The auditor shall, in accordance with these regulations, to comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement[7].

The role of the auditor is to issue the audit opinion on the financial statements.

Data review on the annual management of municipalities and LGU, which forms part of the final account are based on law No. 420/2004 Call, § 2, article 1-2:

a. the income and expenditure of the budget, including cash transactions relating to budget funds,
b. financial transactions related to the creation and use of monetary funds,
c. the costs and benefits of business,
d. cash transactions related to pooled funds expended under an agreement between two or more municipalities or LGU or under contract with other legal entities or individuals,
e. financial transactions related to foreign sources within the meaning of the legislation on accounting,
f. management and disposal of funds provided from the National Fund and other funds from abroad provided under international treaties,
g. the billing and settlement of financial transactions to the state budget, the municipality and LGU budgets other budgets, state funds and of other persons.

The further audit and examination include:

a. the trading and management of property owned by territorial unit,
b. the trading and management of state assets under the management of a territorial unit,
c. placing and execution of public contracts,
d. the status of obligations and claims and their trading,
e. liability for the obligations of individuals and legal entities,
f. pledging of movable and immovable assets in favor of third parties,
g. the establishment of easements on the property of a territorial unit,
h. accounting of municipalities and LGU.

Subject of the review referred to in § 2 are audited in terms of:

a) the compliance with obligations under special regulations, especially regulations on financial management of municipalities and LGU on the management of their assets, accounting and on remuneration,
b) the compliance of the management of funds in comparison with the budget,
c) the compliance with the purpose of a received grant or a refundable financial assistance and the conditions of their use,
d) substantive and formal correctness of documents examined transactions.

[5] POSPISIL, R. (2013) *Public economics – present and perspective*, p. 148.
[6] KRUGMAN, P., EGGERTSSON, G., B. (2012) *Debt, Deleveraging, and the Liquidity Trap: A Fisher-Minsky-Koo Approach*, p. 55.
[7] LUCAS, R. E., MOLL, B. (2014) *Knowledge Growth and the Allocation of Time*, p. 17.

Financial management in the context of this paper is characterized by basic financial indicators and the relationships between them as the following (including the types of financial documents where the indicators can be found). Table 1 shows the list of used and analyzed indicators of municipal and LGU budgets in the Czech Republic at present.

Table 1: Analyzed indicators of municipalities and LGU

Municipality profile	Balance sheet	Budget
Identification number	Fixed assets	Tax revenues
Number of inhabitants	Current assets	Non-tax revenues
Performs state administration or not	Total assets	Capital revenues
	Total current accounts	Accepted transfers
	Own sources	Total revenues
	External sources	Current expenditures
	Total liabilities	Capital expenditures
		Total expenditures
		Annual budget balance

Source: own processing

For analyzing the financial management of municipalities, auditors use basic financial analysis ratios, such as the following balance sheet indicators:

Fixed assets / Total assets;

Current assets / Total assets;

Own sources / Total liabilities;

External sources / Total liabilities;

Total current accounts / Total liabilities.

In additing to the indicators mentioned above, beginning from July 2004 Czech government approved municipal debt regulation through the debt service ratio (DSR). The actual formula for the calculation is:

$$DSR = \frac{\text{debt serice}}{\text{debt base}}\ x\ 100 = \frac{\text{interest + principal and bond instalment +leasing instalment}}{\text{tax revenues +nontax revenues +received transfers}} \qquad (1)$$

4. Results

The Ministry of Finance of the Czech Republic calculates the debt service ratio for each municipality and in case the ratio overruns 30 % than the minister of finance sends a letter to the municipality. The debt service ratio was first calculated in April 2004 from the 2003 data. Table 2 shows current indebtedness of municipalities in the Czech Republic in 2015 divided in different size group.

Table 2: Indebtedness of municipalities in 2015

Size group	Number of municipalities	Distribution of debt to assets ratio (%)			Distribution of debt to income ratio (%)		
		Median	75th percentile	95th percentile	Median	75th percentile	95th percentile
< 200	1456	1	4	19	7	22	110
201-500	1998	3	8	27	14	45	130

501-1000	1361	4	10	30	25	57	149
1001-5000	1161	6	10	24	32	61	134
5001-10000	141	6	11	21	35	52	104
>10000	132	7	11	17	41	57	96

Source: own processing

The municipality is required to explain within three months the reasons for this overrun and suggest measures to improve the situation[8]. At the same time the municipality submits the audit report and the multi-annual budget outlook. Then the ministry evaluates these documents together with the total debt, debt per capita, tax revenues per capita, debt in the past years, size of the municipality and its overall financial situation[9]. In case of overrun of the debt service ratio in the next year the Ministry of Finance will put the municipality on a list, which will be passed on to the grant providers (ministries or state funds). The grant providers should consider this list when providing new grants. There is no absolute prohibition of grant provision to these municipalities, but it may be a factor of grant rejection. The described procedure is effective only for a short time, however several problems arose[10]. The debt service ratio does not say much about the total indebtedness and about the ability to pay off the debt[11]. The ministry did not inform the municipalities sufficiently about the whole procedure and its goals. In our understanding the procedure should have alert both the Ministry of Finance and the particular municipality, that the debt is too high and that some measures should by applied. However many municipalities, which regularly pay off their debt, felt unfairly accused. At the same time the "debt service ratio" is not very concrete and is therefore often confused with "indebtedness".

Audit system of informative and monitoring indicators (ASIMI)

The Ministry of Finance of the Czech Republic, on the basis of Government Resolution dated November 12, 2008 no. 1395 on audit of the management of municipalities and repealing Government Resolution of 14 April 2004 no. 346 on the regulation of indebtedness of municipalities and counties through the debt service, annually performs Audit system of informative and monitoring indicators (ASIMI) for all municipalities and contributory organizations established by them and evaluate the results of the calculation, building always on data 31.12. relevant year (after final enrollment). ASIMI indicators are divided into two separated parts and are audited and evaluated all together:

Informative indicators:

a. population of the municipality,
b. total income (after consolidation),
c. interest,
d. payment of installments for bond and borrowed funds,
e. total debt service,
f. debt service indicator (%),
g. total assets,
h. liabilities,
i. balance at bank accounts in total,
j. loans and municipal bonds,
k. received repayable financial assistance and other debts,
l. total debt,
m. the debt to foreign sources (%),
n. 8-year balance,

[8] MAAYTOVA, A., PAVEL, J., OCHRANA, F. (2015) *Public finance in theory and practice*, p. 233.
[9] BARRO, R. J. (2013) *Inflation and Economic Growth*, p. 122.
[10] LUCAS, R., E., Jr. (2003) *Macroeconomic Priorities*, p. 7.
[11] LUCAS, R. E., MOLL, B. (2014) *Knowledge Growth and the Allocation of Time*, p. 18.

o. current assets,
p. current liabilities.

Monitoring indicators:

a. share of foreign sources to total assets (%),
b. total current liquidity,
c. 5-year development if indebtedness,
d. annual change of indebtedness.

The Ministry of Finance of the Czech Republic performs annually - from the submitted financial and accounting statements - calculation of ASIMI for all municipalities and evaluates the results of the calculation. Municipalities whose indicator of overall liquidity will be by 31.12. of the current year in interval <0; 1>, while the share of foreign sources to total assets will be greater than 25 %, will receive a letter from the Minister of Finance and asked for an explanation of this state and the opinion of the council of the municipality. The Ministry of Finance will, upon receipt of the municipalities concerned, inform the government of the Czech Republic on results of monitoring of municipal finances for the current year.

The Ministry of Finance also evaluates the operations of other municipalities (including their subordinate governmental organizations), with the indicator of the overall liquidity in the interval <0; 1> using the above indicators, paying attention especially to municipalities that are in this interval occurred repeatedly. Municipalities who were identified with serious problems with their solvency, will be offered assistance focused on analyzing problems arising with the draft recommendations on possible solutions. Auditing of municipal management does not require additional administrative or financial demands on budgets and run municipalities. Municipalities are required to currently send to the Ministry of Finance of the Czech Republic completed ASIMI table.

Timetable of ASIMI audit:

a. calculation of Audit system of informative and monitoring indicators (March),
b. distribution of letters of Ministry of Finance of the Czech Republic (April),
c. justification unsatisfactory status (June),
d. information for members of the government (3rd. Quarter).

In 2016 Audit of ASIMI included all 6,249 municipalities and 14 LGU. By the 31. 12. 2015 there were 176 municipalities with the indicator of the overall liquidity in the interval <0; 1> and also 226 municipalities with the share of foreign sources to total assets higher than 25 %. These two indicators all together exceeded the 28 municipalities. It is an annual fall of 2 municipalities, while 12 municipalities had exceeded those values in some previous years. The resulting values of the indicators are only indicative of the potential risk of economic problems, but it does not necessarily mean that the municipality is in a difficult financial situation. This can be assessed only after a thorough audit of the financial and accounting reports, and especially the additional documents provided by the municipalities themselves.

Based on the provided analysis, it is possible to state that:

- from the point of terms of solvency the most vulnerable municipalities are those, which were mandated contribution for breach of budgetary discipline and municipalities and those, that have made the wrong investment decisions[12],
- the greatest risks to the economic situation of municipalities is seen in non-compliance with the conditions of grant projects supported by EU funds and also from national programs. These risks arise both from errors in the preparatory and implementation phases,
- most municipalities with exceeding the given values of ASIMI, should not get into serious trouble with their solvency, because these identified risk proved only temporary,
- high insolvency risk was identified just in 2 municipalities of 6,249 total: Prameny and Turovice.

Municipalities (including their subordinate governmental organizations) reported at the end of 2015 the total debt of EUR 3,10 billion. Compared to the previous year with a decrease of 2.3 %, in absolute terms, the debt declined by EUR 71,4 million. The total volume of municipal debt includes bank loans from financial institutions, issued municipal bonds, repayable financial assistance received and other debts, incl. loans from

[12] ROGOFF, K., S., REINHART, C., M., REINHART, V., R. (2012) *Public Debt Overhangs: Advanced-Economy Episodes since 1800*, p. 29.

state funds. Table 3 shows summary data on indebtedness of municipalities in the Czech Republic in 2010-2015.

Table 3: Summary indebtedness of municipalities in the Czech Republic (billion EUR)

Variable/Year	2010	2011	2012	2013	2014	2015
Loans	2,14	2,18	2,44	2,46	2,42	2,36
Municipal bonds	0,56	0,50	0,49	0,54	0,42	0,38
Received repayable financial assistance and other debt	0,27	0,27	0,28	0,30	0,34	0,36
Total	2,97	2,95	3,21	3,30	3,18	3,10

Source: Czech Statistical Office; own processing

In the structure of the debt of municipalities have the greatest weight the long term loans, whose share during 2015 decreased by 0,1 percentage points to 76,1 %, the share of municipal bonds issued decreased by 1,0 percentage points to 12,3 % and the remaining part of the debt of municipalities (11,6 %) were consisted of repayable financial assistance and other debts. Total debt of municipalities in 2015 contributed 4 largest city of the Czech Republic by 50,4 %, the value of their debt amounted to EUR 1,55 billion.

Loans that municipalities have adopted from financial institutions, similarly to previous years, chiefly aimed at reconstruction and construction of technical infrastructure for pre-investment projects co-financed from EU funds and the regeneration and construction of housing[13]. Municipalities also used these funds for reconstruction, insulation and expansion of educational facilities, sports arenas and other public facilities[14]. These loans are characterized by relatively low interest rate and very long maturities. Debt itself cannot be evaluated negatively[15]. Without a loan or credit, many municipalities cannot fund its development (gasification, local roads, sewers, water mains, sewage, preschool and school facilities, etc.). So it depends on what municipalities can borrow, whether the loans are repaid seamlessly and how well the project is ready.

Indebtedness in 2015 was showed in 3,255 municipalities out of a total of 6,249 municipalities (52,1%). Number of municipalities that have shown indebtedness in recent years remains broadly stabilized, although in the last year there has been a slight increase (by 20 municipalities).

According to the applicable laws governing budgetary responsibility meets the 92 % of municipalities the rule on budgetary responsibility for municipalities and LGU (ie. debt to average income in last 4 years shall not exceed 60 %). According to the monitoring of municipal management for the year 2015 - which among other things monitors the level of debt and liquidity municipalities - operate with a higher degree of risk only 28 municipalities.

LGU (counties) including contributory organizations established by them, reported at the end of 2015 total debt EUR 0,943 billion. From 2014 to 2015 the value of debt fell by EUR 42 million (4,4 %). On the line of credit was recorded decrease debt by EUR 20 million. The share of loans in total debt reached up to 92,0 %. LGU did not issued any bonds in 2015. Table 4 shows summary data on indebtedness of LGU in the Czech Republic in 2010-2015.

Table 4: Summary indebtedness of LGU in the Czech Republic (million EUR)

Variable/Year	2010	2011	2012	2013	2014	2015
Loans	593	700	793	839	871	868
LGU bonds	9	14	7	26	24	5
Received repayable financial assistance and other debt	80	82	75	91	90	70
Total	682	796	875	956	985	943

Source: Czech Statistical Office; own processing

[13] REINHART, C., M., ROGOFF, K. (2010) *Growth in a Time of Debt*, p. 575.
[14] STIGLITZ, J., E. (2015) *Devolution, independence, and the optimal provision of public goods*, p. 90.
[15] STIGLITZ, J., E. (2016) *An agenda for sustainable and inclusive growth for emerging markets*, p. 707.

Some LGU continued drawdown of loans granted by the European Investment Bank, which pre-finance and co-finance massive investments in regional infrastructure. These loans are generally disbursed in several tranches with different maturities, typically in excess of 10 years. Other LGUs have taken loans mainly from the biggest Czech banks like Czech Savings Bank, Inc., which belongs to Erste Group, or Commercial Bank, Inc., which belongs to Societe Generale Group for the purpose of pre-investment of projects for the repair of roads or flood damage.

5. Conclusion

Municipal and LGU regional budgets in aggregate by the end of 2015 showed indebtedness of EUR 4,043 billion, which is by 3,0 % (EUR 122 million) more than in the previous year. The total volume of loans taken by the territorial budgets was increasing in 2015 as well (non governmental organizations) amounted to EUR 3,228 billion.(increase of 1,9 % over the previous year).

In the institutional area of public finance, the Czech Republic has been criticized for a weak budgetary framework for several years although it has always met its obligations in terms of general government sector performance over the last years. Since the termination of the excessive deficit procedure with the Czech Republic in June 2014, the medium-term budgetary objective has been met every year. A set of proposals for regulations on budgetary responsibility (a draft constitutional law on fiscal responsibility, a draft law on rules for fiscal responsibility and a draft law amending certain laws in connection with adoption of fiscal responsibility regulations) was approved by the Czech government already in February 2015, and after then it was under consideration in the Chamber of Deputies of the Parliament of the Czech Republic until October 2016.

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Accounting and Fiscal Aspects Concerning Value Added Tax Adjustment

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Abstract*: When considering value added tax, economic activities can be taxable or tax exempt from the payment of value added taxes, with or without a deduction right. Our research has shown that these last types of operations are prone to creating confusion, among economic entities and fiscal authorities, with regard to their VAT. The problem becomes even more acute when considering adjusting and recovering VAT. We believe that an analytical paper, dealing with adjustments of value added tax, is necessary in light of the fact that the legislation on this matter is very fluid, often being the subject of change. The largest of these took place at the end of last year and it was followed up by a seemingly never ending series of modifications. The purpose of this paper is to analyze different aspects of VAT, to present the manner in which one should act when a value added tax adjustment is required and to differentiate between the situations when a company may or may not have the obligation to perform and adjustment. Over the course of the paper we will present a few examples which require a VAT adjustment, as well as the resolution used for them. Legally obtaining fiscal advantages presupposes an excellent knowledge of fiscal legislation. For this reason, in the first part of the paper, we will identify the most important characteristics of VAT and we will present a series of special VAT schemes. This will be followed up by the solution for a few problems in the area of VAT adjustment. This paper will also encompass certain accounting aspects relating to VAT adjustment, as seen through the relationship between accounting and fiscality.*

Keywords: *deductible, deduction right, pro rata, VAT adjustment, capital goods, neutral relationships, integrated relationships.*

1. Introduction

TMF Group Romania, an outsourcing company present in the country for 17 years, has released a report identifying frequent changes in legislation as one of the major challenges faced by companies in Romania.

Starting from this observation, we can say that, for many economic entities, the relationship with the tax administration is difficult to handle and, from a value added tax, it can create a lot of confusion.

The fiscal objectives of any economic entity, regardless of financing source, are represented by ensuring fiscal security and efficiency.

Fiscal security is guaranteed by respecting rules and terms imposed by tax law, therefore avoiding tax penalties and sanctions, therefore leading to improved resource allocation.

Fiscal efficacy requires minimizing the tax burden of the company, while respecting tax law. This objective can be achieved directly or indirectly.

Value added tax, including VAT adjustments, are regulated by Law 227/2015 concerning the Fiscal Code.

The literature on value added tax adjustment is limited. Therefore, in order to present as many of the possible situations of interest for our study, we will refer to a series of normative acts, as follows:

- Law 227 / 2015 concerning the Fiscal Code with modifications and completions;

- HG 1/2016 – Governmental decision concerned with the methodological implementation of the New Fiscal Code;
- OPANAF 3840/2015 – concerned with establishing company registration criteria for VAT purposes;
- Law 207 / 2015 concerning the Procedural Fiscal Code with modifications and completions.

2. Theoretical background for value added tax

As mentioned in the introduction, the value added tax literature is very poor on the topic discussed by this paper in particular. We will identify, for starters, what is the area of interest for VAT and we will attempt to describe the necessary conditions for an operation to fall under VAT legislation in Romania.

Because economic activities performed by economic entities can be either taxable or tax exempt from value added taxes, with or without a deduction right, this can lead to questions, among economic entities and fiscal authorities, with regard to their VAT, especially when considering adjusting and recovering VAT.

Before going any further, one must be establish what the conditions for being considered a taxable person are.

From the point of view of VAT, **persons are classified** as follows:

<table>
<tr><td rowspan="4">Taxable persons</td><td colspan="2">Normal (mandated to record themselves, for VAT purposes, from the start of their activity.)</td><td>VAT payers</td></tr>
<tr><td rowspan="2">Tax exempt</td><td>Taxable, similar to small economic enterprises</td><td rowspan="3">The ones exempt from paying VAT: They are not mandated to register for VAT purposes, when they start their activities, but they have to register if their intra-community purchases are in excess of 10.000 euro/year or if their revenues are greater than 65.000 euro/year.</td></tr>
<tr><td>Companies performing activities which are VAT exempt and without a deduction right.</td></tr>
<tr><td rowspan="2">Non-taxable persons</td><td>Juridical non-taxable persons</td><td>Public institutions, NGOs</td></tr>
<tr><td>Natural non-taxable persons</td><td>Natural persons who are not involved in any independent economic activities</td><td>Do not pay VAT.
Do not have to register for VAT purposes.</td></tr>
</table>

Prerequisites for an economic operation to fall under Romanian VAT laws are:

- The operation must be for pay or equivalent;
- It must be performed by a taxable person, meaning any person, regardless of juridical nature, performing an independent economic activity;
- It must be the result of an economic activity;
- It must be performed in Romania.

Economic activities falling under the VAT laws can be classified in accordance with a multitude of criteria, in this manner:

<table>
<tr><th>Classification criteria</th><th colspan="3">Types of operations falling under VAT laws</th></tr>
<tr><td>Type of operation</td><td colspan="3">A) Delivery of goods;
B) Services;
C) Intra-community acquisitions (ICA);
D) Imports.</td></tr>
<tr><td>Taxation</td><td>A)</td><td>Tax</td><td>a) delivery of goods and services: give the company the</td></tr>
</table>

regime	**able** operations (VAT applicable);	**right to deduce VAT** for goods and services bought and used in order to accomplish the aforementioned taxable operations; b) Intra-community acquisitions and imports.
	B) **Tax exempt** operations (VAT is not applicable).	a) delivery of goods and services **with a VAT deduction allowance**: the VAT deduction is permitted for goods and services bought and used in order to accomplish the aforementioned taxable operations; b) delivery of goods and services **without a VAT deduction allowance**: the VAT deduction is <u>not</u> permitted for goods and services bought and used in order to accomplish the aforementioned taxable operations; c) Tax exempt intra-community acquisitions and imports.
VAT classes	A) Normal tax regime; B) Special tax regime with exemptions for small companies (with an annual revenue of less than 65.000 euro); C) Special tax regime for tourist agencies; D) Special tax regime for second-hand goods, art objects, collectors' items and antiques; E) Special tax regime for investments in gold; F) Special tax regime for taxable non-residents who offer electronic services to non-taxable persons.	

A VAT deduction is the subtraction of VAT paid to suppliers of goods and services (Output VAT) from the VAT received from clients in exchange for good and/or services (Input VAT).

The VAT owed to the state budget is determined on a monthly basis with the use of the VAT account, therefore:

- If Output VAT is greater than Input VAT, the difference is the VAT payable.
- If Output VAT is smaller than Input VAT, the difference is the VAT receivable.

VAT receivable and VAT payable can be compensated from one period to another or the value can be recovered.

VAT recoverable is to be reimbursed by the tax authority, in accordance with a procedure approved by the Ministry of Public Finance. The tax authority will decide, in accordance with the Order of the Minister, and based on a risk analysis, whether it will commence a fiscal inspection before or after the reimbursement is approved. For negative VAT accounts payable with an option to be paid and the amount smaller than 50.000 RON, the fiscal authority will reimburse the amount and will follow up with a fiscal inspection at a later date, except for the following situations:

a. If the tax payer has, on his fiscal record, acts which are sanctioned as infractions;
b. If the tax authority based on its own prior knowledge, has reason to believe that there is a risk for the reimbursement to be wrongly paid.

Any time the reimbursement is allowed with a fiscal inspection at a later date, it will be performed based on a risk analysis.

3. Practical aspects concerning VAT pro-rata

The fiscal code provides for a series of VAT operations which are classified into two categories, from the perspective of VAT deduction: tax exempt operations which allow for a deduction and tax exempt operations which do **not** allow for a deduction.

In certain situations, when an economic entity is partially tax exempt but cannot differentiate, in its records, between taxable and tax exempt operations, the person will be considered to be a mixed regime taxable person and, in order to determine the deduction value, it can apply a pro rata.

When is a pro rata used and how is it determined?

Pro rata taxation is applied for a tax deduction when a **person has a mixed regime or when a person is partially taxable**.

The deduction right, for a person with a mixed taxable regime, is determined as follows:

- If the VAT is for the acquisition of goods and services destined for operations which give an allowance for deduction, then the VAT is entirely deductible;
- If the VAT is for the acquisition of goods and services destined for operations which do not give an allowance for deduction, then the VAT is not deductible;
- If the destination of the goods and services is not known or impossible to determine, the VAT is deductible based on the pro rata.

Taxable persons with a mixed regime can opt-out from a deduction, in which case, the tax, for the acquisition of goods and services to be used in operations with or without an allowance for deduction, will not be reduced.

Rules for determining and applying pro rata

Pro rata is the result of the total sum, without VAT, but including subsidies which directly influence the price, for operations which permit a deduction (D), divided by the total sum, without VAT, of the aforementioned operations (D) and the operations which do not permit a deduction (ND)[1].

The pro rata does not include the following:

a. The value of any delivery of capital goods which have been used by the taxable person in its economic activity, with the exception of operations mentioned at c);
b. The value of any delivery of capital goods or of services done by the taxable person and mentioned under art. 270 p. (4) and art. 271 p. (4) of the Fiscal Code, as well as the transfer mentioned at art. 270 p (10);
c. The value of operations mentioned under art. 292 p. (2) letter a) of the Fiscal Code, as well as fixed assets operations[2], as long as they are accessories to the main activity.

Therefore, the pro rata is determined with the formula: D/ (D+ND) x 100

Example: If D is equal to 300.000 and ND is 50.000, the value will be:

300.000/ (300.000+50.000) x 100 = 86%

Pro rata particularities:

- The definitive pro rata value is determined annually as a percentage value and is rounded to the closest next whole value;
- The method for determining the pro rata value must be annexed to the tax discount form;
- The provisional pro rata value, to be applied, is the value for the previous year, or the pro rata value estimated for the current year, in the case of taxable persons with a deduction right for whom the weight of deductible operations changes, when compared to the previous year;

[1] Includes money received from the state or local budget, granted as financing for exempted operations without a deduction right or operations beyond the scope of the law.

[2] Fixed assets operations include delivery, rental, lease, land rental, operational leasing and other similar operations, done in relation to fixed assets.

An operations is accessory to the main activity if it cumulatively observes the following conditions:

- the realization of the operation requires only limited man and material resources;
- the operation is not directly related to the main activity of the taxable person;
- the expenses for the realization of the operation and the value of the tax deductible is not significant.

- Taxable persons must communicate to the tax authority, at the beginning of each year, on the 25th of January at the latest, the provisional pro rata value to be applied for that year, as well as the manner in which it was determined;
- The tax deductible for a year is determined, on a provisional basis, by multiplying the value of the tax deductible for each fiscal period of the calendar year with the provisional pro rata value of that year;
- The definitive value of the tax deductible, for a calendar year, is determined by multiplying the total deductible value for the calendar year with the definitive pro rata value.

4. Fiscal and accounting aspects concerning VAT adjustments

An important, but cumbersome, rule resulting from the pro rata particularities is given by the obligations for mixed regime persons to adjust their provisional tax deductment:

a. the deducted value, determined based on the provisional pro rata value, is subtracted from the definitive value of the tax deductible for the year;
b. the difference obtained at a), be it a plus or a minus, will be marked down in the corresponding row for regularizations in the tax adjustment form for the final fiscal period of the year, or the tax adjustment form for the final fiscal period of the person, assuming it is being annulled.

The tax adjustment represents the correction of the tax deduction right, either by the annulment of the right exercised at the moment of acquisition/construction/improvement of goods, or by exercising this right after the acquisition/construction/improvement of goods, if it was not exercised initially.

The adjustment is required for **capital goods as well**[3] because one must take into account that these goods are, by definition, used by the taxable person for a number of years and that the VAT tax deductment for these goods is allowed only on the condition that they are used for operations which give a deduction right.

To this effect, adjustment periods are differentiated depending on the type of capital goods, thus:

1) 5 years for capital goods, other than fixed assets;
2) 20 years for fixed assets, including transformation or improvement of fixed assets, should the costs exceed 20% of the value.

When to conduct a VAT adjustment?

a. **The deduction adjustment is performed for capital goods when they are used, by the taxable person, for:**
   - Either partially or entirely for purposes other than their economic activity;
   - Operations which do not give a tax deduction right;
   - Operations for which the tax deduction is different than the initial deduction.
b. In situations when elements included in the calculation for the tax deduction are changed;
c. In situations when the deduction right for a capital good was limited, partially or in totality, and is used in an operation which allows for a deduction. For deliveries of goods, the additional value of the tax deduction is limited to the value received for the delivery.

A tax adjustment is not required in the case of damaged, lost or stolen goods, assuming that this has been proven and confirmed in an appropriate manner, similarly, but not limited, to the following situations:

- Natural calamities and force majeure, proven and confirmed in an appropriate manner;
- Stolen goods, confirmed with the aid of papers issued by the appropriate authorities;
- Leasing contracts with a capital good as an object which is not returned within the stipulated terms, when the contract is cancelled. The financier does not have the obligation to adjust the tax deduction if it can prove that it has initiated and gone through the necessary steps to recover the good, regardless of whether they have or have not been recovered by the leasing company.

Recording VAT operations is considered a neutral relationship between the two domains because VAT is an indirect tax which does not influence the performance of the economic entity.

[3]**Capital goods** include all fixed capital goods, as well as transformation and improvements of fixed assets/ parts of fixed assets, should they exceed 20% of the value, excluding maintenance and repairs. Fixed assets are considered fixed assets regardless of whether they are recorded as inventory or fixed assets.

However, by exception, when an economic entity has other activities, which do not give a deduction right, and it has to apply a pro rata VAT deduction, the operations which are the result of the VAT deduction are fall under the integrated relationship between accounting and fiscality. The statement is also true for other situations concerning VAT adjustment because, as a result of adjustment operations, the economic entity will record increases or decreases in expenses which will affect performance, specifically profits or losses, for a given accounting period.

We can observe that VAT adjustments have an impact on the Financial Statements, the Profit and Loss account and the Cash Flow Statement, by increasing outward cash flows.

How is the VAT adjustment performed?

The adjustment is done only once, or once per time period:

1) The adjustment is performed **only once** for the entire remaining adjustment period, including the year during which the destination of the good is changed, when:
   a. The destination of the capital good is changed;
   b. A capital good, whose deduction right was limited, partially or in totality, is the object of a delivery which allows for a tax deduction;
   c. The capital good no longer exists, unless:
      - It can be proved that the capital good was the object of a delivery which allows for a tax deduction, or
      - The capital good has been destroyed.

Example: A taxable person (a pharmacy working alongside a medical practice) buys furniture at the end of December, year N, for the price of 10.021 RON, VAT included (19% = 1600 RON). Its activity allows for a full deduction of the VAT, specifically 1600 RON.

In March N+2, the furniture is moved in the medical practice, which does not have a deduction right.

The accounting record of the acquisition is:

%	=	404 Suppliers of non-current assets	11.621 RON
214 Fixtures and fittings			10.021 RON
4426 Input VAT			1.600 RON

The adjustment is performed as follows:

As previously mentioned, the adjustment period of capital goods, other than fixed assets, is 5 years. In our example:

- Year N is taken into consideration for the deduction right;
- Year N+1 is taken into consideration for the deduction right;
- The loss of the deduction right is in the year N+2 (the right is not taken into consideration).

The adjustment in the favor of the state (taking into consideration that, for the next 3 years, it will be used as furniture for the medical practice) is 1.600 RON x 3/5 = 960 RON.

From a fiscal perspective, the VAT adjustment will be declared by using the VAT expense account form, code 300, with a minus sign at row 31, called “Pro rata adjustments/Adjustments for capital goods”. Furthermore, it will be recorded in the capital goods register, which must be kept for a period starting from the moment when the tax, for the acquisition of the capital good, is eligible and ending 5 years after the end of the period during which a deduction adjustment right could be exercised. This is to permit the control of VAT deductible and adjustments. Any other records, documents and journals concerning the capital goods must be kept as well, for the same period.

The adjustment of the VAT is recorded in accounting using the following formula:

635 Other taxes, duties and similar expenses = 4426 Input VAT 960 RON

2) When the pro rata changes, the adjustment is performed **for more than one financial period**. The steps for this are the following:
   a. The initial tax deductible is divided by 5 or 20;
   b. The result from pt. 1 is multiplied with the definitive pro rata for each one of the subsequent 4 or 19 years;

c. The tax deducted initially, according to the definitive pro rata, is divided by 5 or 20.
d. The results from pts. 2 and 3 are compared. Any difference between them represents the adjustments which need to be made and which will be recorded in the regularization of the tax expense account of the last period of the fiscal year.

Example: A taxable person, with a mixed regime buys, on the 20th of October of year N, a piece of technological equipment, classified under fixed assets (with the purpose of using it for operations which give a deduction right as well as for operations which do not give a deduction right). The acquisition cost is 10.526,12 RON, VAT 19%, 2000 RON. In the year N – 1 they have determined a pro rata value of 40%. This has become the provisional pro rata for year N.

%	=	404 Suppliers of non-current assets	12.526 RON
213 Plant and machinery			10.526 RON
4426 Input VAT			2.000 RON

Therefore, the amount of 2000 RON is the input VAT for this acquisition. For year N the deductible will be 800 RON (2.000 RON x 40%).

The VAT without a deduction right will be recorded using the following accounting formula:

635 Other taxes, duties and similar expenses = 4426 Input VAT 1.200 RON

For five years, the VAT will be adjusted by taking into consideration the modifications of the pro rata value.

In year N:

At the end of year N, the calculated pro rata is 35%. The VAT deductible is adjusted to 700 RON (2.000 RON x 35%). The economic entity will owe to the state budget the sum of 100 RON (800 RON – 700 RON).

The following procedure will be applied for years N+1, N+2, N+3, and N+ 4:

a. The Input VAT is divided by 5: 2.000 RON/5=400 RON;
b. The result obtained at pt.1 is multiplied by the definitive pro rata value corresponding to each one of the subsequent 4 years;
c. The VAT that was initially deducted, according to the definitive pro rata, is divided by 5: 800RON/5=160 RON;
d. The result from a. (400 RON) is compared with the result from c. (160 RON). The difference between them, a plus or a minus, represents the adjustment that needs to be made.

At the end of year N+1 a definitive pro rata value is determined to be 32%.

The VAT will be:

- The VAT to be deducted is 400 RON x 32% = 128 RON
- The result is compared with the deducted VAT: 160 RON – 128 RON = 32 RON (to be paid to the state budget)

The pro rata for year N + 2 = 48 %:

- TVA to be deducted: 400 RON x 48 % = 192 RON
- The result is compared with the deducted VAT: 160 RON – 192 RON = 32 RON (to be paid from the state budget).

Depending on whether the VAT calculation, using the pro rata, shows that there is VAT to be recovered, the accounting formula to record this will be:

635 Other taxes, duties and similar expenses= 4426 Input VAT the value written in red

The person has to maintain a record of the capital goods which are the object of the VAT adjustment, which would allow for a control of the deductible value and any adjustments made. This record needs to be kept for a period starting from the moment when the tax on the acquisition of the capital good becomes demandable and it ends after 5, or respectively 20 years after the end of the period during which the deduction adjustment can be solicited.

5. Conclusions

We can conclude that careful attention needs to be given to the way in which the deduction is made, as well as to the adjustment of the VAT deduction for capital goods bought or manufactured by a company. This is especially significant for cases when there is a change in the destination of the goods during the adjustment period. This is especially important because events which can lead to an adjustment of the value of the tax will also substantially impact the cash flow of the company.

Another observation is related to the fact that operations, involving the adjustment of the value added tax, are cumbersome, and, sometimes, avoiding a deduction altogether being the preferred option. This is a problem for the business environment, in general, in the same way as the frequent changes in fiscal legislation can be significant time consumers among professional accountants.

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The Architecture of a Decision Support Software System for Sustainable Projects Selection

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Abstract: *Considering the contemporary economic environment, integrating sustainability in project management doesn't rely only on carrying out socially responsible investments, but to the integration of principles specific to sustainable development thorough projects' life cycle, and especially in the decision making process carried out with the aim of selecting the optimal variant. In today's economy the decision for investment must be taken following given criteria that will reflect project's sustainability, and to have a portfolio of sustainable projects it is necessary to carry out a selection under uncertainty and multi-criteria conditions.Recognizing the importance for integrating sustainability during the evaluation process and for selecting the investment projects, and the rising interest for understanding and integrating this approach within organizations, highlights the utility of a software application based on which management could handle the decision making processes in the most efficient way.*

Keywords*: decision-making, informatics, investment, model, project, software, sustainability.*

1. Introduction

Investment projects represent a unique ensemble of objectives, activities and resources interrelated to achieve a predetermined goal. Project Management Institute suggests the following definition for project: "A temporary endeavor undertaken to create a unique product or service" (PMI, 2008).

Most companies use as reference for substantiating their investment decision to engage in a project, the value of the business. The classic indicators used to make such an assessment are: recovery period, economic performance, internal rate of return, net present value. But, classic appraisal methods have a great inconvenience, which lowers their contemporary use, when faced with development based on the sustainability of the world around us: they include exclusively monetary factors. The evolution of decision making systems indicates today relating, when analyzing an investment proposal to all categories of benefits, opportunities, costs and risks (Liang & Li, 2008) starting with the financial ones using additionally also aspects specific to environment protection or community development.

Investors are encouraged to choose to invest sustainably, in organizations that respect the principles for sustainable development or in project is this nature carried out in the current organization. In order to choose an organization, most often de decision is based on ratings given by specialized agencies. Rating agencies evaluate mainly the organizations to establish the involvement degree of the social responsible principles in their activities, with the purpose to making useful assessments for investors in substantiating their decision to choose a company where to invest. One of the oldest and well-known indices is FTSE (Makepeace, 2011).

Thus, in terms of a project, sustainability can be considered as a consequence of a sustainable general management, or, if we consider that the project is a distinct unity with its own purpose and objectives, carrying it out following the ESG principles imparts and favors the entire organization's sustainability (Silvius & Schipper, 2010; Silvius & van den Brink, 2011).

Kerry Griffiths (2011), senior at URS New Zeeland in the Corporate Social Responsibility and Sustainable Management Division, studies for over 10 years the integration of environmental and social elements into project management, considering delivering projects that will contribute also to sustainable development. The results highlight the necessity of the contemporary world to pay special attention to the two dimensions of sustainability by improving the air and water quality, preventing pollution, biodiversity protection, of habitats and species, but also considering the impact on the current and future community by efficient use of resources, waste management and preventing climate change effects. It is commonly assumed that the definitive sustainable management of projects must focus in including the practices specific to

sustainability for all the phases of a project and to enable measuring, evaluating and rewarding based on a multidimensional performance template of the project.

However, the most important phase, that requires a special involvement for implementing the sustainability principles, recognized by all the aforementioned authors, is initiating the project. Planning the core criteria in assessment, substantiation and decision making is crucial for the success of a sustainable project. During the implementation or execution stage, the focus moves towards integration of this principles in current activities and thus the main focus is on monitoring, measuring and reporting the method for attaining the objectives pre-established during the defining phase of the project.

Thus, the investment decision should be taken based on criteria that will reflect sustainability of the assessed project, and in order to have a portfolio of sustainable projects, a selection is mandatory, taking into account the conditions of uncertainty and multi-criteria.

2. Complex models for evaluation and selection of sustainable projects

History of the relevant published literature regarding the assessment and selection of investment projects provides numerous procedures and methods (Deng & Li, 2012; Kremmela et al., 2011; Sadjadi et al., 2012). Classical instruments focus mainly on assessing financial criteria. Others like Balanced Scorecard, applies multidimensional layouts to draw up the strategic map of the projects' financial effects (Ioppolo et al., 2012) considering aspects concerning financial performance, clients, internal processes or learning and development (Eilat et al., 2008). A third generation of methods includes those that quantify the environmental, social and economic effects on short and long term, including thus new criteria, sustainability (Khalili-Damghani & Sadi-Nezhad, 2013).

Jennifer Russell pointed out at the 2008 PMI Conference that sustainability is a too big problem to let someone else manages it. Experts from both academia and practitioners take interest in the interdisciplinary vision of project management and sustainable development. Although published studies over the last few years differ in terms of approach and depth, a comparative analysis of these can be the base for developing clear and unitary methodologies for implementing a sustainable and efficient project management.

Silvius (2012) identifies over 85 publications related to this topic. The nature of research is however mostly interpretative and aims at understanding the possibilities to adopt the principles of sustainability in projects (Barnard et al., 2011; Gareis et al., 2011; Maltzman & Shirley, 2010; Oehlmann, 2011). Only several papers include also a normative aspect, suggesting methods that describe the approaches needed to include sustainability into project management (Labuschagne & Brent, 2006; Silvius et al., 2012).

2.1. Labuschagne and Brent model

In some of the first studies conducted with this purpose, Carin Labuschagne and Alan Brent (2004, 2005 and 2006) at the University of Pretoria, outline two indicators for including the sustainable development principles into the life cycle of industrial projects. The Resources Impact Indicator (RII) and the Social Impact Indicator (SII) are computed based on a methodology of Life Cycle Impact Assessment, which quantifies de degree of falling within the limits enforced for a series of specific criteria, presented in table 1. The method for computing uses a simple weighted means, with equal weights for the criteria considered.

Table 1. Indicators for assessing the environmental and social impact on industrial projects

Dimension	Criteria	Sub-criteria
Resources Impact Indicator	Air	Regional pollution Global pollution
	Water	Consumption Pollution
	Earth	Use Pollution
	Natural resources	Mineral resources, energy
Social Impact Indicator	Internal human resources	Stability Labor conditions

	External population	Health and safety Professional development
		Human capital Productive capital Community capital
	Macroeconomic social performance	socio-economic performance socio-environmental performance
	stakeholders participation	Information Influence

Source: Brent (2004), Labuschagne et al. (2005)

The deployment into practice of the proposed methodology, for several projects and technologies from the manufacturing industry highlights the impossibility of quantifying at that time of proposed indicators, due to lack of information.

2.2. IPMA model

At the IPMA Expert Seminar "Survival and sustainability, challenges for projects" in 2010, the talks of the invited authors focused mainly on "translating" the sustainability principles into practical tools that can be applied to project management. The result is a notable one, materialized into a "Sustainability Checklist" for the projects and their managers. The dimensions and specific indicators are presented in table 2.

Table 2. The IPMA model for integrating sustainability into project management

Dimensions	Criteria
Economic	Financial return on investment Flexibility
Environmental friendly/Ecologic	Transport Energy Water Waste Resources
Social	Work environment Human rights Society Ethics

Source: Knoepfel, (2010)

2.3. Griffiths model

Infrastructure projects benefit, according to Griffiths (2011) from a special model, suggested by the New Zeeland strategy in transportations for substantiating sustainable investment decisions. The assessment is based on a scoring model with grades from 1 to 5 and different weights of the categories examined in determining the total score: 40% safety; 5% access and mobility; 40% environment; 5% community; 10% life cycle.

Table 3. Sustainable decision-making criteria in infrastructure projects

Principles	Criteria
Safety and security	Safety
Access and Mobility	Accessibility Public Transportation Walking and cycling
Environment	Terrain Landscape Fauna Cultural patrimony Water quality Air pollution Noise pollution
Community	Relations Positive/Negative Impact
Life cycle	Consumption of materials Maintenance

Source: Griffiths (2011)

2.4. ARUP model

Another model, more complex, that benefits from software support, is called SPeAR (Sustainable Project Appraisal Routine). It was developed in 2000 by Arup, a British engineering consultancy company, concerned with assessing projects; sustainability, based on indicators defined by the Sustainable Development Indicators from 'Quality of Life Counts', EU, UN and Global Reporting Initiative. The model is structured in four quadrants that capture sustainability aspects centered on elements like environmental protection, social equity, economic viability and efficient use of resources, and the assessments made in relation to these promote the sustainability of projects and decision making processes (ARUP, 2013). More recent version includes sustainability specific indicators like those established by the Organization for Cooperation and Economic Development, and assessment tools taken from the LEED, BREEAM and CEEQUAL methodologies.

Table 4. SPeAR model for sustainable project analysis

Quadrant	Criteria	Quadrant	Criteria
Environment protection	Transport Constructions Ecology Water Soil and land Air quality	Economic	Viability Competitiveness employment Benefits/Costs Transport
Social	Inclusion Wellbeing Access Form and space	Natural resources	Re-use Use of soil Energy Water Minerals

Source: ARUP (2013)

Derives from the published literature, but enable the inclusion of indicators that reflect the specificity of each project, to make a personalized assessment, in relation to rating scale of the best and worse practices. The inclusion of the specific indicators to each quadrant in the decision making process uses an aggregation method based on equal weight scoring. Drawing up the SPeAR diagram doesn't require quantifying the component elements, but their qualitative assessment.

2.5. BASF models

Eco-efficiency is a term that quantifies the impact over the environment in relation to economic efficiency of the assessed project and supports the decreasing the quantity of used resources in order to achieve the objectives. BASF, one of the world leaders of the chemical industry, uses the term eco-efficiency to define a two-dimensional project evaluation tool. The purpose of the Eco-Efficiency analysis is to compare similar products, processes or projects based on total cost and on the environmental impact throughout their entire life span (BASF, 2013). The environmental impact is determined by quantifying the following elements: raw material consumption, energy consumption, land use, emissions and waste, toxicity, risks. The economic and environmental data are represented in an x/y graphic, which highlights the comparative eco-efficiency of the assessed projects. The method, although it implies detailed analysis that can take up more time for implementation, provides results easy to interpret and use in substantiating the investment decision (Piepenbrink, 2006).

Although it exceeds the limit of the SPeAR model by using less subjective data, based on estimations and concrete measurements of the indicators values, it cannot be considered a complete tool because it does not include within the analysis social aspects.

Almost 10 years after the EE development, the same American company BASF proposes a new evaluation model of the projects' SocioEcoEfficiency. The aim of this model is to integrate into a single assessment tool the three sustainability dimensions: economy, environment, society, adding to the eco-efficiency indicators a series of social aspects. The social impact is quantified based on indicators specific to the five categories of stakeholders considered: employees, international community, future generations, consumers and local and national community. The results are presented in the form of a three-dimensional graphic SEECube, which highlights the projects compared considering points in space correlated with the impact on environment, cost and social estimated/measured influences.

Table 5. The BASF model for assessing projects' SocioEcoEfficiency

Dimensions	Specific indicators
Environment	Exploitation of land
	Energy consumption
	Raw materials consumption
	Emissions
	Toxicity
	Risk
Social	Labor conditions
	International communities
	Future generations
	Consumers
	Local and national community

Source: BASF (2013)

SPeAR, eco-efficiency analysis and SEE are assessment tools proposed by the ARUP and BASF and presented by McCullins.

2.6. Khalili-Damghani and Sadi-Nezhad model

One of the most complex and complete paper in the field, reference for establishing the ODInvest methodology, is the one published in 2013 by Khalili-Damghani and Sadi-Nezhad from the Islamic Azad University in Tehran. The methodology suggested by the two authors for the selection of sustainable projects starts from the definition of a template that includes the criteria presented in table 6. The relative importance of

criteria is determined based on programming software with fuzzy variables that quantifies the conflicting preferences of the different categories of decision makers. The assessment uses the fuzzy TOPSIS, to classify the analyzed projects. The multi-criteria and group decision methodology with fuzzy variables is also validated for the uncertain decision making processes, for a Iranian financial and credit institute. The computerized database used consists of Lingo, MS-Excel and Visual Basic.

Table 6. Criteria for assessing and selecting sustainable projects

Criteria	
Economic	Risk
Social	Strategic alliance
Environmental	Organizational training

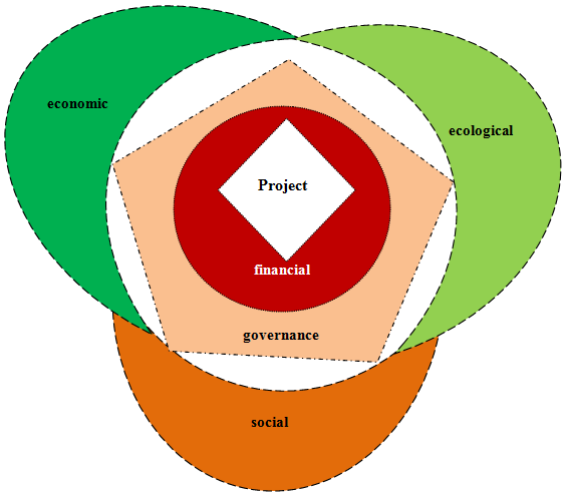
Source: Khalili-Damghani & Sadi-Nezhad (2013)

3. The proposed decision-making system

The investment decision is the decision-making group that requires managing a difficult and complex assessment. And if until now there has been a conflicting approach to substantiating the selection of investment projects based on economical-financial indicators, like the internal rate of return or the updated net income, under the current environmental conditions, there is a need to supplement the criteria, with the purpose to develop project characterized by cumulated performance of several decision making categories. With this purpose, many scholars present attempts to improve and adapt the assessment models, referring to tridimensional models such as: economic-social-environmental friendly (Khalili-Damghani & Sadi-Nezhad, 2013), triple P - people, planet, profit (Silvius et al., 2012), ESG – environmental, social, governance) (FTSE & EIRIS, 2011; PwC, 2012; SAM, 2012).

The detailed analysis of the proposals submitted by project management research and practice specialists resulted in a complex model, that takes into account the specific elements of the five dimensions: financial, economic, environmental friendly, social and governance (f2ESG). The five dimensions capture and classify all the support elements for an efficient investment decision in the sustainability context. The specifications and the characteristics of each one, the criteria, the indicators and corresponding relevance coefficients, as well as the calculation methodology are part of distinct papers.

Fig. 1. Dimensions of the sustainability of investment projects



Source: author

The complexity of an investment project is materialized in the multitude of decisional criteria used. Modeling the multi-criteria under sustainability involves numerous and diverse criteria. Therefore, they have been grouped according to their specificity into 5 dimensions/classes: financial, environmental, social and governance.

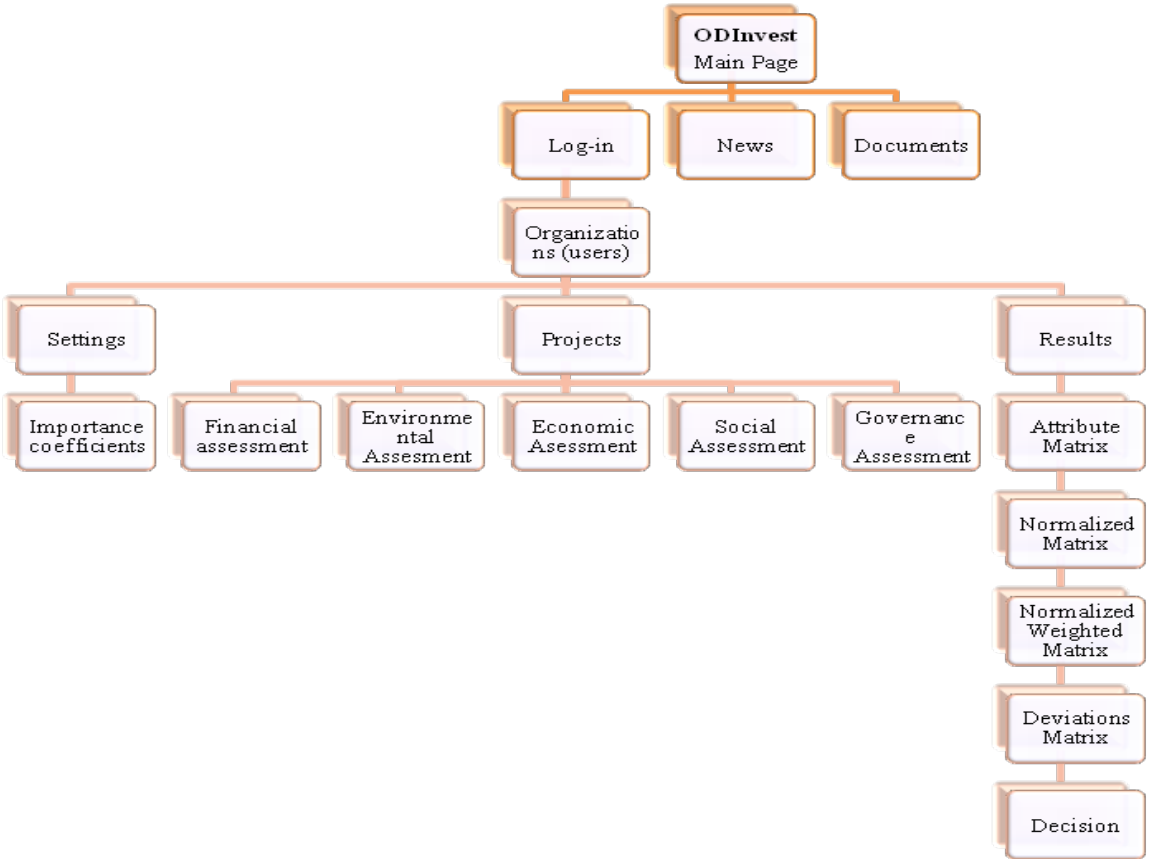
The classical financial dimension is the one underlying the model. Financial performance remains a class of particularly important indicators. Of major importance in terms of an outdated self-regeneration

capacity of ecosystems are the indicators that capture the environmental performance. The complexity and scale of environmental issues create a considerable pressure on organizations' entire activity, complying with the need to respect environmental principles. Economic dimension mainly consists of elements that need to be respected at the microeconomic level in order to achieve several objectives required by the European Union macroeconomic strategies. The social dimension has at the forefront the staff and everything representing wellbeing of the staff professionally and personally. Governance is the project' and entire business' method, aiming at enforcing ethical standard and holistic approach of the organization and of the investment projects in the portfolio.

To facilitate the methodology implementation within organizations, it has materialized in a computer-based support system of the sustainable investment decision (Decision Support System). Based on this software and its components, we can state that, by using it, even a management without comprehensive knowledge for modeling and assessing, confronted with the situation to select the investment optimum project or portfolio, can make a correct decision in relation to the type of organization, society and environment.

The architecture of the ODInvest is captured by the following chart:

Fig. 2. The structure of ODInvest



Source: author

This system accumulates the results of in-depth research in fields like project management, investment management and economic modeling, and present the hybrid model developed based on the interdependencies between elements specific to sustainability, investment projects, mathematical optimization and software development.

The approach suggested is based on a Fuzzy Multiple Criteria Group Decision Making with fuzzy variables. Thus, they are correlated methods that satisfy the necessity to include complexity and uncertainty in assessing and selecting the investment processes, with the aim to obtain a high level of performance, under the contemporary economic-social conditions. Specifically, it can be obtained based on the cumulated index, the indication regarding the optimum variant for an investment project development or classification of project from a portfolio.

4. Conclusions

The most important challenge of the contemporary business environment is integrating the sustainable development principles into business practice (Lacy et al., 2010). Its influences are also topical to projects. As core elements for an organization activity, the developed projects must adopt an integrative vision of the economic, social and environmental aspects (Keeys, 2012). Even if project management and sustainability are not "natural friends" (Eid, 2009) it is necessary to define such a holistic approach that will enable correlating the characteristics of the two concepts and overcoming the limits imposed by the existing differences between their specific working methods (listed in table 7).

Table 7. Elements to differentiate sustainable approach from the traditional approach of projects

Projects sustainable approach	Projects traditional approach
Consensus	Hierarchical decision making system
Uncertainty, environmental changes	Certainty
Systemic approach	Mathematical analysis
Ecology, social sciences	Engineering, technology
Managerial appreciation	Technical appreciation
Justification based on business benefits	Risk-based justification
Tridimensional performance assessment	VAN
Long term	Short term

Source: Garrett & Bradley (2006)

Research in the field focuses on implementing sustainability or of the elements specific to one of the dimensions, in different field of activity, such as industrial production (Labuschagne et al. 2005) or constructions (Edum-Fotoe & Price, 2008; Khalfan, 2006;), and within the project, throughout the life span (Labuschagne & Brent, 2004); or assessing the projects' contribution to the organization's sustainability (Presley et al., 2007). However, it is considered that special attention should be given to integrating the sustainability principles in defining, initiating the project (Keeys, 2012).

Therefore, the approach proposed in this paper is based on Fuzzy Multiple Criteria Group Decision Making. Thus, implementing the proposed model implies that each analyzed project should be assessed based on 20 criteria, specific to one of the five dimensions: financial, economic, ecologic/environmental social and governance. In order to determine the value of each criterion, characteristic indicators should be quantified (necessary input data are presented in the second part of this chapter). Criteria score are weighted with the corresponding importance. Establishing the importance coefficients is made using the fuzzy AHP method.

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BOOK REVIEW

Reflections on the Future of the European Union and the Euro Review of Joseph E. Stiglitz's Book "The Euro – How a Common Currency Threatens the Future of Europe"[1]

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Discussions regarding the fate of the European's Union common currency – the Euro - have existed since its inception but they became much more intense after the onset of the 2008 financial and economic crisis and particularly after 2010, converging more or less towards a reserved forecast at the best and an utterly terminal at the worst.

In this context, Joseph Stiglitz's book, **"The Euro – How a Common Currency Threatens the Future of Europe"**, published in August 2016, is of particular interest for at least two reasons. The first reason is represented by the fact that Joseph Stiglitz is one of the three laureates of the 2001 Nobel Memorial Prize in Economic Sciences[2] , a prize established in 1968 by the Sveringes Riksbank (the central bank of Sweden), fact that gives him a significant stature among his peers. The second reason is the fact that Joseph Stiglitz may be regarded as a supporter of the European integration process and therefore his analysis has been done from a friendly perspective. As a proof of this second reason, his book opens with the dedication: "To the future of Europe and the European project upon which so much depends, in the hope that this book may contribute to policies ensuring its prosperity and promoting its solidarity" (p.3) which is self-explanatory for his position.

A supplementary comment regarding the book has in view its moment of publishing (August 2016) which was right after the British referendum on EU membership (that took place on 23 June) and a little before the presidential elections in the United States (that took place on November 8). While the subject of the book is the Euro currency and the future of the European Union, by its content the author predicted implicitly the result of the US elections and explained to a certain extent some the immediate measures adopted by the new American Administration (with reference to the Transatlantic and Transpacific Partnerships).

The book is structured in four parts that deal in sequence with: a) the dimensions and forms of manifestation of the crisis in Europe and the role of Euro in this context; b) the critical analysis of the economic theories that promoted the single currency without taking into account the diverse nature of European economies, societies and cultures; c) the misconceived policies, with reference to the post-2008/2010 period, when the promotion and even imposition of austerity policies and structural reforms in both euro-zone and non-euro zone prolonged the crisis and worsened the situation of many countries, among which Greece, Spain, Portugal, Italy; d) the exploration of the way forward by means of a mixture of much debated solutions (such as a common banking system with deposit insurance, mutualization of debt and the issue and acceptance of euro-bonds, or a common fiscal framework) but also of more exotic (even if not entirely new) options such as the idea of an amicable divorce (for those countries that decide to exit the euro zone), the idea of a "flexible euro" that would allow each member country of the euro zone to use domestically a "national euro" and to create a number of areas (groups of similarly developed countries) that use Euro currencies with different values, all based on electronic currency, or even the idea of Germany exiting the euro zone in order to save the Euro.

From our perspective the four parts of the book can be divided into two categories: parts one and four are focused more on conceptual matters which deal with the relation between economic and socio-political dimensions while parts two and three are more related to analysis of economic doctrines and ideologies, institutions and mechanisms.

This review is focused more on the first category of topics as in our opinion the problems related to the future of the European Union and the common currency - the Euro - are more of a conceptual nature, even a philosophical one and not technical or administrative. And it is from this conceptual perspective that Stiglitz's ideas are important because they address the root causes, invite to debate and rethinking and, why not, convince

[1] Joseph E, Stiglitz, The Euro – How a Common Currency Threatens the Future of Europe, W.W.Norton & Company, 2016, 368p.
[2] Joseph E. Stiglitz received the Nobel Memorial Prize in Economic Sciences in 2001 together with George Akerlof and Michael Spence.

that the European project is important for Europe and Europeans, but also for the world and that it is worth the effort of reinventing the Euro based on past lessons and also on the avoidance of the past mistakes. In order to further justify this option for the review we can mention that Stiglitz himself explains at the very beginning that his book "is about the intertwining of politics and economics, and about the role of ideas and beliefs" (p.21).
Although Joseph Stiglitz analyzes and comments in the book the situation of Euro and the Eurozone, his global experience with World Bank, North American Free Trade Agreement (NAFTA) and World Trade Organization makes him comment also, in a more general framework, the limits and risks associated with economic integration processes of all sorts, even those much less ambitious than the European Union and the Euro. This is why in the preface of the book he mentions that there are risks associated with "international agreements made by leaders – as well intentioned as they might be – in the context of far from perfect democratic processes" (p.3).

The core approach of Joseph Stiglitz to the problems related to the use of Euro and its mechanisms is based on two hypotheses: that these problems have resulted from a) **flaws in economic understanding** of reality combined with b) **lack of political will and solidarity** (p.244). Above and beyond that observation is his conclusion that **economics and politics cannot be separated** and as result every time the economic globalization/integration outpaced political globalization/integration the result was divergence and inequality.
He also explains in his book that these two characteristics have manifested in the European Union not only when the Euro has been created and in its subsequent functioning but also after the onset of the 2008/2010 financial and economic crisis. According to his explanation the crisis could not be solved in an expedite and effective manner because the same mistakes that had been made at the creation of the Euro have been maintained when solutions for the 2008/2010 crisis were looked for.

With reference to the flaws in economic understanding Stiglitz points out especially to the failure of the neoliberal doctrines that resulted, among others, in the huge increase of inequality in the developed countries. And he is clear to say that the failure is not due to the economic science per se, but rather due to the rewriting of the rules of the market economy so that they benefit a few (p.253). It is in this context that Stiglitz takes a strong position against the advocates of status quo as regards the current policies of the euro zone (particularly Germany) – the so called "there is no alternative" (TINA) position (p.21).

Leaving aside the criticism of the neoliberal doctrines, Stiglitz points out that the flaws in economic understanding that affected the design and functioning of the common currency are multiple and they include aspects like the overlooking of diversity which is specific for Europe and should be a strength of Europe and not a weakness, the aging phenomenon, the Internet revolution and its impact on trade and payments, the climate change or the implications of urbanization and the list may continue. In his opinion in order to deal with all these issues the governments have to increase the public expenditures and not decrease them and the conceptual solution proposed is that of an inclusive capitalism which allows for shared and sustainable prosperity.

As regards the crisis of the Euro, Stiglitz points out that the characteristics of the mechanism (a fixed exchange rate and a single interest rate for all its members) have not been matched by corresponding institutions such as mutually issued bonds, mutual backing of bank deposits, a common fund for unemployment insurance. As a result, during the crisis the burden for adjustments fell on each affected country that had to apply austerity policies based on tax increases and wage reductions.

As Stiglitz has always paid a significant attention to the social dimension of economic activities he is stressing in his book that the current crisis of the Euro is affecting not only the present but also the future of the European Union project. He considers that the social implications of the crisis and of the austerity measures have serious implications also in the political area: people affected by unemployment, inequality and lack of perspective tend to orient themselves towards nationalist politicians and parties and also tend to lose their confidence in democracy.

From this perspective the crisis of the Euro failed the expectations of the people in the European Union member states in two ways: first of all the Euro was supposed to assist in providing the people a better life while they contemplate now lower wages, higher taxes and less social benefits; and second, there is the broader perspective of the future of European or Western style democracy that characterized the post World War II period; if the consequences of the crisis continue to be felt after a decade from the onset of the crisis, if the foreseeable future does not hold reasonably possible solutions, then people may contemplate the possibility of more authoritarian regimes, as happened after 1929-1933 Great Depression. And regarding this second aspect,

Stiglitz fears that the decisions makers (with reference to the Troika[3]) that deal with the financial and budget conditions imposed on the crisis affected countries (especially Greece) will maintain the "strategy of muddling through"[4], that is of continuing the policies of small steps and of trying to improve ineffective measures. In our opinion we may appreciate as profound his observation that if the founding fathers of the Euro project were only visionaries, the current decision makers should combine visionary with economic understanding of the present if effective solutions for the future are to be found.

One of the fundamental issues raised by Stiglitz in relation to the functioning of the Euro zone and also in relation to the seeking of solutions to its crisis is that "the euro zone…was never a very democratic project" (p. 249)[5] and therefore the consultation of population in the member countries has been avoided as much as possible, a fact which further complicates the situation. In this context Stiglitz firmly rejects the idea of implementation of non-democratic mechanisms for saving the Euro, such as the nomination of a European budget commissioner that would have the right to veto the decisions of the national parliaments regarding the budgets of their own countries.

On a personal note Stiglitz attempts in the final part of his book to explain why the European project is so important for the world of today, particularly as a balance factor in so many sensitive and dangerous issues that include environment protection, the migrant crisis, the fight against terrorism. But in his demonstration he makes (deliberate or not) a substitution: he speaks about the importance of the European Enlightment period and its values that really represent the foundation of modern Western civilization but then he refers to contemporary European Union. In our opinion the problem with this substitution is that European Union is not the same thing as Europe, as Europe as a historical, cultural and spiritual concept and reality cannot be limited to the European Union. According to his demonstration Stiglitz considers that European Union may act as a balance factor in the world only if it is able to develop common and consistent positions of its member states on key issues. Anyway, he mentions that the divergence in economic development and welfare that characterizes the Eurozone makes very difficult if not impossible the reach of consensus among member countries on sensitive issues.

Putting things into a global perspective Stiglitz draws a lesson which deserves in our opinion full consideration: "be careful not to let economic integration outpace political integration" (p.257). By this he rejects the hypothesis of the leaders of the European Union that economic integration will automatically lead to political integration and to an improvement of the living standards for the majority of population in the European Union member states. At the same time, Stiglitz states that a monetary union is not possible without political integration, an approach which is just the reverse of the course followed in reality from the adoption of the Euro to present.

Based on such analyses Stiglitz draws some lessons from the euro zone experience for the rest of the world that contemplated either monetary unions (like in Central and West Africa, Caribbean or South America) or just more economic integration. These lessons have in view that economic integration in general and the more so monetary unions (which are an advanced form of economic integration) need to be based on solid political grounds, which means a serious consideration of their implications and consequences for the vast majority of the population of the participating countries.

As the book has been published in August 2016, before the result of the elections in the United States one may say that Stiglitz was premonitory in advising that both Transatlantic Trade and Investment Partnership (TTIP) and Transpacific Partnership (TPP) might create more problems than solutions as the losses of the losers will be bigger than the gains of the winners. As of middle 2017 both projects are no longer of immediate actuality and have been at best only postponed.

The final statements of the book are to be found under an optimist title: "Saving the European Project" (p.259-260). But the content of these final statements is not that optimist as it requires a complete rethinking of the European project, a rethinking that puts back the human beings and the human society at the center of everything. Stiglitz states that the simple measure of any economic program should be the well being of a country's citizens, (that is a meaningful and decent life), while monetary systems as well as the Euro are just

[3] Meaning the coordinated decision making process involving the European Commission, European Central Bank and International Monetary Fund.

[4] Op.cit. p.245

[5] As proved by the fact that in Denmark (in 2000) and in Sweden (in 2003) when the people were asked in a referendum on the topic of joining the euro zone the majority rejected the proposal.

human constructions that may come and go. In this context, the fact that the Euro project proved to be an imperfect concept is not a sin in itself, but to overpass the lessons of the last 17 years would definitely be.

The three lesson that Joseph Stiglitz proposes by the end of his book are that: the Euro, as a concept and mechanism, generated divergence, inequality and insecurity; to continue with minor and non-essential improvements is not an option, rather it is an aggravation of the existing situation; Europe and the European project are much too important for the rest of the world to be sacrificed on the cross of the euro.

His proposal for a restart of the European project has in view the fact that a more politically integrated Europe will be also a stronger and a more prosperous Europe. In a way Stiglitz advocates the keeping of the European ideals of prosperity, freedom, peace, wellbeing while pursuing them in a different way. A return to politics means a return to the people and their interests, avoiding to transform any mechanism or institution into a purpose in itself.

And this creed is best represented by the following quote:" *Euro is a man-made construction. Its contours are not the result of inexorable laws of nature. Europe's monetary arrangements can be reconfigured; the euro can even be abandoned if necessary. In Europe as well as elsewhere, we can reset our compass, we can rewrite the rules of our economy and our polity, to achieve an economy with more and better-shared prosperity, with a strengthened democracy and stronger social cohesion*" (p.14).

Despite the fact that the book (The Euro – How a Common Currency Threatens the Future of Europe) identifies correctly a number of significant issues related to the Euro and the future of the European Union, it was not free of some criticism, especially related to the solutions proposed. Some of these critical opinions are presented below in view of securing a more balanced image of the book and its content.

A review published in The Economist points to the fact that the mistakes of the crisis countries (Greece, Spain, Portugal) are somehow downplayed while the criticism of the Troika and of the behavior and interests of transnational corporations may seem exaggerated[6].

Another reviewer, while appreciating a lot of Stiglitz's comments on the lack of institutions to provide for the functioning of the Euro mechanism, criticizes him for his blunt opposition to neoliberal capitalism, for his position against wealthy European states, especially against Germany as well as for the writing style which has "*the strident tone of a political pamphlet*"[7].

At the same time, reviewers belonging to the American right criticize Stiglitz for being too left biased in its analysis and therefore being too much against "market fundamentalism" even if the creation of the Euro may be considered an exercise in central planning. Anyway, even in a conservative review there is agreement with Stiglitz that "*one size does not fit all: a currency must reflect the realities of its home economy*"[8]. If the realities of the Eurozone member states are different then the Eurozone may be a single entity from a theoretical point of view while in reality the national interests will be different, divergent or, at worst, even antagonistic.

A more elaborate reviewer considers that Joseph Stiglitz should have allocated more of his analysis to the ideological aspects of Western societies as the problems that confront many European Union member states are more related to their "*welfare state ideology based on entitlements rather than productivity" and much less to the intrinsic limitations and flaws of the Euro mechanism*[9].

In synthesis, one can note that the above mentioned criticism is almost in its entirety related to the ideological position of Stiglitz (against neoliberalism, globalism or transnational corporations) or to the accents put on the sharing of the blame in the Euro crisis developments, while at the same time critics and supporters alike acknowledging that the Euro mechanism is not functioning as expected, is not delivering the promised shared prosperity and solidarity and especially, it does not provide a clear path towards an efficient and effective functioning in the near and medium term future.

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[6] The Economist, Europe's Single Currency – on Course to Fail, August 20, 2016, at page http://www.economist.com/news/books-and-arts/21705304-course-fail

[7] Lowenstein, Roger, Nobel Laureate Joseph Stiglitz Says the Euro Needs Big Reform, The New York Times, 16 August, 2016, at page https://www.nytimes.com/2016/08/21/books/review/euro-joseph-e-stiglitz.html?_r=1

[8] Stuttaford, Andrew, How Not to Fix the Euro: More Leftism, The National Review, October 10, 2016, at page https://www.nationalreview.com/magazine/2016-10-10-0100/joseph-e-stiglitz-the-euro
Read more at: https://www.nationalreview.com/magazine/2016-10-10-0100/joseph-e-stiglitz-the-euro

[9] Bakshian, Aram Jr., Book review: 'The Euro: How a Common Currency Threatens the Future of Europe', The Washington Times, October 2, 2016, at page http://www.washingtontimes.com/news/2016/oct/2/book-review-the-euro-how-a-common-currency-threate/

The single currency project of the European Union has generated at its inception a lot of expectations: that will help in the transformation the European Union into a more unite and coherent entity that will be more influential on the global arena; that will contribute to the preservation of peace in Europe by securing convergence and therefore a better standard of living for all; that will enhance the European identity.

16 years and a crisis later these expectations have not been met and numberless fears and tensions affect the Euro mechanism and the relations among Eurozone member countries. Complex but functional solutions have to be found as there are no simple “yes” or “no” answers. And in this quest for a feasible solution any contribution is important, any argument or point of view may be useful because we can only solve correctly what we fully understand. From this perspective Stiglitz’s book is timely and useful, opening a perspective that each reader can reflect upon in order to improve, expand or change his/her own understanding of the reality.