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The Main Determinants of European Trade Integration

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Declaration of Authorship

The author hereby declares that he compiled this thesis independently, using only the listed resources and literature.

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Prague, July 24, 2011   Signature

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Acknowledgements

Abstract

The importance of international trade cannot be neglected as it represents an important channel of wealth creation in the actual globalised world. Thus, the present writer aims to identify how the commercial flows have changed after the adoption of Euro and once the financial crisis has burst. Furthermore the main factors that influence trade are researched by using the gravitational econometric model and employing panel data for 14 EU member countries. The results show that the intensity of commercial exchanges are highly influenced by the level of development (GDP) of the country and the amount of FDI that are attracted, while the use of a common currency appears to be not too significant. At the same time, indicators are more sensible during the crisis period than the stable one, hence even small changes in independent variables can lead to higher decrease in trade.

Key words: European trade, liberalization, competitiveness, financial crisis, contagion, Euro, gravitational model.

Table of contents

List of Tables

List of Figures

Acronyms

CEEC – Central and Eastern European Countries

CEPII – Centre d'Etudes Prospectives et d'Informations Internationales

CIA – Central Intelligence Agency

CM – Common Market

CU – Custom Union

EBA- Everything But Arms

ECB – European Central Bank

EEC – European Economic Community

EMU – European Monetary Union

EU – European Union

FDI – Foreign Direct Investment

FTA – Free Trade Agreement

GATS – General Agreement on Trade and Tariffs

GATT – General Agreement for Trade and Tariffs

GDP – Gross Domestic Product

GSP – Generalised System of Preferences

LDC – Least Developed Countries

OECD – Organisation for Economic Cooperation and Development

OLS – Ordinary Least Squares

R&D – Research and Development

UK – United Kingdom

UNCTAD – United Nations Conference on Trade and Development

USA – United States of America

WTO – World Trade Organisation

Chapter I

Introduction

"I suspect that just about any plausible model of trade would yield something very like the gravity equation" (Deardoff 1998)

Over the past decade, European trade has been characterized by a continuous intensification of commercial flows that have been further accelerated by the adoption of the Euro as the common currency, hence contributing to the process of integration of European commercial markets. The importance of analysing the evolution of the process of economic integration comes from the positive effects that such integration may have on the actual and future evolution of international commercial flows.

The complexity and major importance of the subject for the international economy determined the present writer to take it as a starting point for her research.The aim of this paper is to analyse the changes in the volume of international commercial flows for European Union countries after the adoption of the Euro by using the gravitational model. Also the main factors and causes that led to these modifications in European trade are researched. This paper focuses on the evolution of intra − EU commercial flows. The emphasis of the study is to show if some significant changes were registered in trade after the common currency was introduced. In addition the main determinants that were behind trade evolution in Euro and non Euro countries are pointed out. My contribution to this area of research is an analysis of both the stable period and the crisis, as there are almost no papers that focus on trade, taking into account the last financial squeeze and its impact

on commercial flows. Some of the main factors that the present writer took into account while testing the hypotheses and which are considered as being on the basis of trade modifications are; Euro adoption, financial crisis, geographical position of the country, GDP, language and distance between countries.

This paper comprises eight chapters and it is based on the necessity of the present writer to reflect on the subject, taking into account the theoretical background, econometrics and the real-time events which shape the trends. Each chapter includes several subchapters that provide a more detailed analysis of the subject and contain the following information:

Chapter I: The introduction, where the main aim of the paper is pointed out and description of the paper's structure is presented.

Chapter II: Literature review is presented for the most significant papers that describe a similar subject as the one the present writer researches.

Chapter III: In this chapter the theoretical background is presented, the main concepts are defined, the basic principles and classification are pointed out. Later, the stages of the integration and the main theories of international trade and economic integration are explained. At the conclusion, European Union history is presented and the main events are highlighted as the institutional framework, enlargement, Euro adoption and their evolution in the context of the actual financial crisis.

Chapter IV: Testable hypotheses are formulated and described.

Chapter V: This chapter is dedicated to empirical research, thus initially the gravitational model is characterised and its evolution over time is presented. Then, data, used methodology and variables are described; also the regression equation is presented.

Chapter VI: The results are explained and compared across different models. Furthermore, the present writer concludes with an answer as to whether the initial hypotheses should be not rejected or rejected based on the results obtained running the models in this paper. For the results that differ from the expected ones, the logical explanations are provided.

Chapter VII: In this chapter, the actual trends of European trade both for Euro and non-Euro members of European Union are presented. A comparative analysis is made between the period before and after the financial crisis in order to point out how this turmoil influenced European commercial flows taking into account the contagion phenomenon. Also, the present writer tries to present the main actual and future challenges that international trade may encounter and some potential solutions and ideas for future development regarding the evolution of European commercial flows are proposed.

Chapter VIII: The main conclusions and findings of the paper are formulated and a criticism of the model is presented.

Chapter II

Literature Review

2.1 The main trade models in the context of liberalisation

The importance of international trade cannot be neglected, it had contributed substantially to the development of the countries' economies, as well as to the world one, because it constitutes a major part of their GDP. With increasing globalization process, more and more contemporary economists and researchers started to analyse the patterns and gains of liberalization using different models and theories. The most known and worth mentioning are the Gravitational Model, the Ricardian Model, Heskscher-Ohlin Model.

The Ricardian model of international trade is based on the theory of comparative advantages. According to it countries involved in trade, specialize in producing the goods and services in which they have comparative advantage.

The Heckscher-Ohlin model considers factors of production as basis for international trade. According to this theory countries will specialize in and export those products, which make use of the domestically abundant factors of production more intensively than those factors, which are less available in the home country.

The Gravity model of trade provides an empirical explanation of international trade. According to this model, the economic sizes and distance between countries are the primary factors that determine the gains in international trade.[1] The model has been developed lately so that it takes into consideration besides those two factors, some others too. This has helped economists to adjust the model to the different and specific patterns

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[1] http://www.economywatch.com/international-trade/theory.html

of trade that have to be researched and made it to be one of the most used to analyse the international commercial flows between countries or regions. It should be pointed out that gravitational model is not used only in international trade analysis, but also in researching the capital and labor flows between different regions, which proves that it is quite dynamic and can be easy adapted to any specific problem.

A wide literature review can be realized on this subject because it represents a high interest for many contemporary economists, who would like to find out the real and unbiased gains of the international trade. Furthermore, a large set of variables can be used in order to realise the analysis and it can be run using different econometric models as OLS, Fixed and Random Effects from Gretl or Stata programs. Another advantage of using the gravitational model is the easy access to data that you need in order to realize the research. All the above mentioned factors explain why the present writer has decided to use it as the main tool for performing this research.

2.2 Factors influencing trade evolution

In order to perceive the real importance of the subject for the actual and future development of the economy, the main papers reflecting the international trade in the context of Free Trade Agreements (FTA's), Euro adoption, the financial crisis or having as a research tool the gravitational model will be reviewed. As I have noticed above, both earlier and now many economists are interested by this subject and adding different variables or using different types of data (panel or cross sectional data) in order to improve the obtained results so that they can be used by policy makers for getting higher efficiency gains from commercial exchanges.

2.2.1   Common currency - Euro

Rose (2000) points out that membership in a currency union can have a significant positive impact on the volume of trade among the members of the union. The research

concludes that countries with the same currency appear to have three times higher commercial flows between them as countries with different currencies. At the same time, Micco *et al*. (2003) present that the adoption of the euro has increased trade flows significantly among European Union countries (and even between EU and non- EU countries). The impact is lower than the one Rose paper was showing, but anyway the effect for the first few years after the adoption of the Euro appeared to lead to the intensification of the volume of trade for the EU countries by 8% to 16%.

Klaassen and Bun (2002a) in the paper "*The importance of Dynamics in Panel Gravity models of trade*" try to stress out that in order to get correct results when estimating trade flows it should be taken into account the dynamics in time. Thus, authors use yearly data on 221 bilateral trade flows between OECD countries from 1950 till 1997 and they extend the static gravity model with dynamics using lagged trade and income. Klaassen and Bun (2002a) consider this as necessary as trade according to them is a dynamic process. Thus, in another paper *"Has the Euro increased trade?"* the same authors making use of the dynamic panel model for annual bilateral exports try to estimate the percentage of trade flows increase due to the adoption of Euro. Their findings show that the intra-EMU exports will increase by 3.9% in 1999, 6.9% in 2000, 9.6% in 2001 and 37.8% in the long run, while foreseeing that half of the long-run effect will be achieved in 2006. At the same time they agree that estimation may not be definitely precise due to short-time period observation and they suggest that for improving the accuracy of the estimated trade effect to update the results as soon as more EMU data become available in time (Klaassen and Bun 2002b).

Bun and Klaassen (2003) in the paper *"The importance of accounting for time trends when estimating the euro effect on trade"* stress out that when estimating the Euro effect on trade we have to include the time trend in the panel model in order to avoid the upward bias due to the presence of the Euro at the end of the sample. Data covers the period 1967-2002 and represent bilateral combinations of 19 countries, the majority of them being from EU. Their findings show that the estimates of Euro effect on trade decreased to 3% which is lower than the result obtained by other economists and it does not anymore depend on the length of the sample period. Authors don't want to claim that

there is no positive impact of using a common currency on commercial flows, but to stress that it is important to consider the country-pair specific time trends when estimating the effects.

Micco et al. (2003) in the paper *"The currency union effect on trade: Early evidence from EMU"* also highlight the positive effect of Euro on commercial flows. Their research is done using panel data for the period 1992-2002 and covers 22 developed countries, 12 of which adopted Euro. Authors find out that the impact of EMU on bilateral trade of member countries ranges between 5% - 10% and 9% - 20% for non-EMU partners. Thus, Euro increases commercial flows not only with Euro countries, but as well with non-EMU ones.

At the same time, Klaassen and Bun (2007) in the paper "*The Euro Effect on Trade is not as Large as Commonly Thought"* point out that the impact of Euro on the intensity of the European trade is not so significant as was considered to be and it is of only 3%, even if other economist have reported earlier higher percentages. Authors consider that those results are biased, because at the beginning they also got much higher percentages, but after the elimination of the bias, the impact showed to be not so significant. Anyway, the values are positive, so adoption of EURO has led to the increase of commercial flows between European countries. As an response to these findings, Gengenbach (2009) in the paper *"A panel cointegration study of the euro effect on trade"* uses the same data as Klaassen and Bun (2007), but different econometric methods in order to test and to be convinced that the Euro impact on trade is as low as they have pointed out in their research. Thus the author points out that, using diverse econometric tests, he gets similar results and has to agree with Klaassen and Bun (2007) of a lower Euro effect than earlier estimated by other economists.

The same problem is researched in the paper *"Should Central European Countries Join the Euro?"* by Frankel (2008). The analysis covers twelve countries that have acceded to the European Union (EU) since 2004, including five transition economies in Central Europe, the three Baltic republics and two more in Eastern Europe (along with Cyprus and Malta). The author considers that countries should join Euro as it will lead to the increase in trade flows as these states will be more interconnected due to using a common

currency, but in about five years. This is due to the fact that Euro adoption implies also the rise of cyclical correlations and the risk of contagion in case if a negative event occurs will increase too.

Salim & Kabir (2010) in their paper *"The immediate impact of euro on intra-regional trade"* analyse the immediate impact of the Euro on trade using both the event approach and for the econometric part the gravitational model. They compare the pre-Euro period with the post-Euro period and conclude that the that the trade enhancement at the immediate post-event period is 1.2 times of the immediate pre-event period for France, Germany, Italy and Spain, while immediate trade enhancement for all Euro-members is 1.14 times. In general, adoption of Euro increases intra-regional trade by 1.1 to 1.2 times among the members in five years. As we can point out, many economists reflect a positive effect of Euro adoption, but the percentage is different from the ones authors estimated earlier currency unions in large sample of countries, thus Frankel (2009) explains it as being influenced by the size of the countries being part of the currency union, the period of time since when Euro has been adopted, third, endogeneity of the decision to adopt an institutional currency link and the sample size.

2.2.2 Membership in FTA's

Baier and Begstrand (2005) in their paper *"Do free trade agreements actually increase members' international trade?"* also analyse if being within a trade agreement helps the country to intensify the commercial flows between the member states. They use the instrumental variable, control function and panel data techniques in order to get more precise results as they consider the gravity equation not being able to check for all biases and that until that date it was unable to give a certain "yes" answer to our question. Their findings using the above mentioned techniques show that FTA increases trade and even more than the OLS method was showing. Thus they consider as being advantageous for a country to sign trade agreements with the others.

The impact of regional agreements on trade is researched in the paper *"New measures of trade creation and trade diversion"* by Magee (2007), where the author uses panel data

and tries to control for country pair, importer-year, and exporter-year fixed effects, which usually reduces the estimated impact on trade. Their findings show that the regional agreement continues to influence trade for up to 11 years after the agreement was signed by member parties. Authors point out that trade is expected to rise by 26% in the first four years and by 86% in the long-run. At the same time, they specify that custom union have a longer impact on trade then free trade areas do. Preferential trading arrangements led to a much smaller increases in trade flows and the rise in trade can be noticed only after the preferential arrangement has been in place for five years. Furthermore, the results they get are country specific, thus the estimates differ across the analysed states. Thus if you sign an agreement with a partner that is both large and has a common border then the increase in trade is going to be higher than if u sign it if a smaller and more distant country.

Graham *et al.* (2006) in their paper *"The Euro and trade. Is there a positive effect?"* make a synthesis of more papers that analyse the euro effect using different methods and being based on different countries and conclude that there is a significant impact of the euro on intra-EMU trade and at the same time confirm their finding that being member in an FTA, the EU or continuing and deepening the EU integration had only a weak effect on intra-EMU trade. A different opinion is presented by Caporale et al. (2009) in the paper *"On the bilateral trade effects of free trade agreements between the EU-15 and the CEEC-4 countries"*, where the authors point out that there is a positive and even significant impact of FTAs on trade flows between the member countries. Furthermore in order to check the robustness of this effect, they use a control group of countries (Belarus, Russian Federation and Ukraine) that have undertaken some reforms but haven't yet signed an FTA with UE. The result shows that the trade increase for the countries within an FTA is higher that the trade increase that are not part of it. Additionally it was noticed that within few years after the CEEC-4 (Bulgaria, Hungary, Poland and Romania) signed the FTA, EU became their main trading partner. The research is based on gravity model and as an econometric method is used the fixed effects decomposition vector that helps to eliminate the endogeneity bias.

2.2.3 Contagion and Convergence

As the above papers prove, integration process has both advantages and disadvantages, as the countries become more linked among them and they are more exposed to being contamination in case a crisis occurs in one of the countries. Krugman (1991) pleads for deepening the integration process inside the European Union, as it will lead to the increase of the commercial flows between countries. His affirmation is based on the Core Periphery Theory, according to which the economic growth from richer core European countries it is spread to peripheries to less developed ones (Baldwin & Forslid 2000). Another similar phenomenon is contagion and it should not be omitted that both negative and positive effects can spread if it is present. Especially in the crisis period, we can notice that the European integration process was not so advantageous, because of the problems that Greece, Italy and Ireland encounter as well as the instability of the Euro. These are the weaknesses that can be observed at the moment, but earlier this was not the case and it may be explained by the fact that fewer countries were in the European Union and their level of development was similar.

Frankel and Cavallo (2007) in the paper *"Does openness to trade make countries more vulnerable to sudden stops, or less? Using gravity to establish causality"* investigate if trade openness of a country will increase the sensitivity of it related to the external situations of risk. Even it may seem unexpected, their findings show that economies that trade less with other countries are more exposed to sudden stops and to currency squeezes. Authors point out that all else being equal, increasing the trade to GDP ratio by 10 percentage points reduces the probability of a sudden stop by approximately 1 percentage point. As sudden stops are low probability events, this is equivalent to 40% of probability of a crisis.

Many economists explain the positive impact of Euro on trade based on the convergence process, thus using different econometric tools try to explain how the effect it is spread from some countries to the others. Thus, Frankel (2004) in the paper *"Real convergence and euro adoption in Central and Eastern Europe: trade and business cycle correlations as endogenous criteria for joining EMU"* considers that countries when adopting the common currency should take into account both negative and positive sides, as the

growing trade links may lead to higher cyclical correlation, so to cyclical convergence. That is why the author considers as being more advantageous for the CEEC countries to wait about five years after adopting the Euro. By that time, the convergence will have proceeded far enough that asymmetric shocks and contagion present less danger for them to contaminate. The author also specifies that those countries which are going to wait more before adopting the Euro will be able to gain more experience and not to repeat the mistakes of those that opted for joining EMU earlier.

2.2.4 Extensive VS Intensive margins of trade

Until now, the present writer has pointed out the impact of Euro adoption on the intensity of commercial flows, but we can ask also which the influence of a single currency was on the extensive development of the European trade. On this behalf, Grawe and Skudelny (2001) in the paper "*The impact of EMU on trade flows*" analyses the potential influence that the adoption of euro may have on the future evolution of trade flows in comparison with the flexible exchange rates, also using the gravitational model and running the models he finds out that that EMU can potentially generate substantial new trade flows (extension) within the European Union. The same conclusion was made by Vacarelli & Nardis (2007) in the paper "The Euro's Effects on Trade in a Dynamic Setting" who using a dynamic specification of the gravity equation find out the common currency will lead to a 4% increase in intra-Euro zone trade. The research was based on the aggregate bilateral exports of 23 OECD countries for the sample period 1988-2003. Authors explain the positive Euro effect on trade being based more on the introduction of new goods (extensive margin) rather than with the expansion, due to lower transaction costs, of trade volumes of incumbent products (intensive margin).

A similar finding was pointed out by Vicarelli et al. (2008) in the paper *"The Euro adoption's impact on extensive and intensive margins of trade"* that was performed for the period 1997-2001 and they found out that having a single currency decreased the costs for many companies so that they have became more competitive and could

penetrate more markets, in this way extending towards more countries. At least this was the effect they could observe having as a basis for research the Italian case.

Another paper that researches the problem of extensive and intensive margins as well as the way different trading frictions may influence the commercial flows is "*Estimating trade flows: trading partners and trading volumes*" by Helpman *et al.* (2007). Their findings show positive as well as zero trade flows across pairs of countries and that the number of exporting firms can vary depending on the destination country. As the present writer has mentioned earlier, the authors decompose the impact on trade volumes into intensive and extensive margin, where by the intensive margin they mean the impact of changes in exports of trading firms and by the extensive one they mean the impact of changes in the number of trading firms. Thus they stress out that you can get biased results if you don't take into account the extensive margin of trade that is different across countries pairs depending on their characteristics, as well as trade frictions, such as transport costs, which can be up to three times as large for the trade flow between depending on the pair of countries. Helpman *et al.* (2007) explain the variation across country pairs due to trade frictions as being caused by variation in the extensive margin.

A high importance to the extensive margin when estimating the trade flows is given in the paper "*Deconstructing gravity: Trade costs and extensive and intensive margins*" by Lawless (2008), where the author shows that the impact of distance and a set of other proxies for trade costs have different effects on the two margins. They find out that distance has a negative influence on both margins, but the intensity is much larger and more significant for the extensive margin (the number of firms exporting) than for the intensive one (average export sales per firm). The author specifies that the model predicts clearly that both fixed and variable costs have a negative impact on the extensive margin, while the sign for the intensive one is not clear. Thus, decreasing trade costs tends to increase the sales of existing exporters, but also leads to the introduction of new exporters. Furthermore, the majority of the variables as language, internal geography, infrastructure and import cost barriers are characterized mostly by the extensive margin. In addition, regressions for the extensive margin have a much better fit than those for the intensive margins

However, Baldwin et al. (2008) also estimated the Euro trade effects as having an aggregate impact of 5%, at the same time stressing that they have corrected for the bias that could come from the impact of other integrationist policies implemented in the same period as Euro adoption. The paper also reflects the intensive and extensive features of trade development. The authors explain that having a common currency affects trade through two channels: the relative price channel, as Euro increased trade due to a lower relative price of goods coming from Euro zone and newly-trade goods channel, which implies that trade raised not only due to the increase of flows of existing goods but also due to the appearance of new goods that were traded. A similar conclusion was reached by Baldwin & De Nino (2006) in the paper *"Euros and zeros: The common currency effect on trade in new goods"* that researches the Euro's impact on extensive trade margin, more specifically the range of products that one nation exports to another as they suppose that the usage of a common currency decreases both fixed and variable trade costs bilaterally and in the end increases the commercial flows between the Euro zone partners. The analysis is made using a very large data set (about 16 million observations) for twenty countries at the most disaggregated level possible due to data availability. Their findings show a "supportive, but not conclusive" evidence of this effect, because obtained results were different for different countries. But, they also conclude that Euro led to the increase of intra-EU trade and there was no trade diversion and that even one-side euro usage had a positive impact on commercial flows. Later, Baldwin et al. (2008) find out based on data for Sweden that the increase in trade was more due to intensive margins than extensive ones, thus there was no much evidence of trade diversion as the goods from the Euro zone were quite competitive for the outsiders and there was no necessity for looking for the new ones.

2.2.5 Rose effect VS Border effect

Another paper that estimates the Euro impact on trade using the gravitational model is *"The euro's influence upon trade. Rose effect versus Border effect"* by Cafiso (2008) and which the present writer considers worth mentioning because it treats the subject from a different point of view. The analysis is made for bilateral trade flows using a panel of

manufacture exports among twenty-four OECD countries. The emphasis of the paper is to present the "Rose effect"- how much a country within a currency union trades more with its partners than with non-member countries versus the "Border effect" - integration of a country with its trade partners. The author identifies that the Euro impact is less significant when considering the "Border effect" compared to making the research based only on "Rose effect", because there is no reduction in border-linked costs.

A similar problem is researched by Beltramo (2010) in his paper "*Changes in bilateral trade costs between European Union member states & major trading partners: An empirical analysis from 1989-2006*" is analyzing the costs of trade between members of European Union and their main trading partners for the period 1989-2006, identifying a higher decrease of costs for the states that adopted Euro in 2001 than for those that accepted it later. This could be understood as deeper integration leads to lower trading costs.

2.2.6 Integration process

Another question that we may want to find an answer can be what the impact of having a single currency on the integration process was. Thus, Engel and Rogers (2004) in the paper *"European product market integration after the euro"* conclude that there was no evidence that the introduction of the Euro has increased integration of markets in the Euro zone based on the dispersion of prices across cities estimation method. They recognize that it may be due to short period of time on which some variables are observed or because the market was sufficiently integrated at the moment when the analysis was started. As a result, it can be that the main factor that influences market integration is not adoption of Euro, but the harmonization of the monetary policy.

Chen and Novy (2010) in their paper "*Gravity, trade integration and heterogeneity across industries*" use also a gravity model for researching the barriers that the process of trade integration may encounter. Thus, the authors point out that trade integration appears particularly low for industries characterized by high transportation costs such as Bricks, Plaster and Cement and more significant for those industries where trade costs do not

appear to be an important element, mostly high-tech industries such as Aircraft and spacecraft, Engines and turbines or Computers. Furthermore they prove that cross-country trade integration is lower for countries that entered recently in EU and haven't yet implemented the Schengen Agreement that abolishes physical border controls. Their findings show that trade integration is also hampered by transportation costs, technical barriers to trade and non transparent public procurement procedures.

2.2.7 Enlargement and access to new markets

We cannot speak about integration without making reference to the Enlargement of the EU and without analyzing the impact Euro adoption had on the New Member States. Firstly we should point out that not all of them have opted for a common currency until now, as is the case of Czech Republic, even if a research made by the International Monetary Fund (2005) shows that Euro adoption is going to bring positive gains for the adopting countries especially in the long run. The same conclusion was formulated by Belke & Spies (2008) in their paper *"Enlarging the EMU to the East: What Effects on Trade?"*, where they research the effects of the Economic and Monetary Union (EMU) accession of eight Central and Eastern European Countries (CEECs) on their share in EMU-12 imports. Their results showed adoption of Euro has increased intra-EMU imports by 7%. Furthermore, their findings point out that except for the least integrated countries as Poland, Latvia and Lithuania, the other CEECs can expect increases in the EMU-12 import share. Thus, going back to the problem of integration, it can be said that the common currency leads at the beginning to the monetary and financial integration and later to the economic one, in this way having a positive impact on the development of the commercial flows too.

From the above literature review on the influence of Euro adoption on the European trade we can notice that more economist have received some positive results that show that it should lead to the increase of trade both intensive and extensive. Even if the percentage of increase varies greatly among these researches, in general there is certainly a positive impact. Thus, the present writer is interested in testing by herself the influence of Euro, as

well as of other determinants of trade usually used in gravitational model as GDP, population, FDI, language, distance and others.

As we can notice from the analysed above papers, the majority of them uses the gravity equation for the measuring the commercial flows under the influence of different factors such as Euro adoption, FTAs, integration process, contagion and convergence and other explanatory variables. This proves the efficiency and high predictability power of the model and thus its importance in estimating trade flows. In the paper *"The gravity model specification for modeling international trade flows and free trade agreement effects: a 10-year review of empirical studies"*, the authors reviewed and analysed the most important and recent empirical literature on gravity model and to provide a resume of the best studies concerning the effect of FTAs on trade flows. Thus they counted about 75 papers that have used in the last decade this model for estimation, in this way the paper stresses about the importance and precious quality the gravity model has gained through the last years. (Kepaptsoglou 2010)

Chapter III

Theoretical aspects of the international trade and integration

3.1 Presentation and explanation of the main theoretical concepts

The world economy has become more dynamic and multidimensional lately due to the intense globalization process. As international trade represents an import element of the global economy, it has transformed too in a worldwide phenomenon that is characterized by a continuous change in the commercial flows of goods and services. Thus, economic actors act as there is a single market for services and goods, capital and labor.

It is not only globalization, but also integration process that had a positive impact on the evolution of international trade. Creation of the GATT and then of the WTO, European Union enlargement and Euro adoption represent only a few integrationist steps that contributed to the improvement and regulation of the international commercial flows.

In order to be able to realize this research, the present writer considers necessary firstly to define the main concepts that will be used through the paper. Thus, international trade is one of a primary interest and the way you interpret it may influence the results you may obtain in the end. According to the QFinance online dictionary, it represents the sale and purchase of goods and services that takes place between trading partners in different

countries.[2] Britannica Encyclopedia explains it as the economic transactions that are made between countries,[3] while another online dictionary defines it as the act or process of buying, selling, or exchanging commodities, at either wholesale or retail between countries.[4] Concluding, it can be pointed out that the international trade is the process of selling and buying goods and services across the boundaries of different states.

Another concept that has to be explained is integration or more precisely economic integration. Thus, the Business Dictionary defines it as the elimination of tariff and non-tariff barriers to the flow of goods, services, and factors-of-production between a group of nations, or different parts of the same nation.[5] Investopedia presents economic integration as an economic arrangement between different regions marked by the reduction or elimination of trade barriers and the coordination of monetary and fiscal policies.[6] As a result, we can conclude that it is a process that implies the strengthening of relations between more countries through continuous liberalization of trade. The aim of integration process is to minimise costs for economic actors, as well as to intensify commercial flows between those states that sign the agreement.

3.2 The main stages of economic integration

In order to perceive better the process of economic integration, the present writer finds necessary to present the stages through which this process went through, starting from the decrease and removal of trade barriers and culminating with the creation of the monetary and economic union. A more detailed description of these stages is given below:

1. **Free Trade Agreement** (FTA) is considered to be the first level of integration which is characterized by the elimination of import tariffs and quotas between the

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[2] http://www.qfinance.com/dictionary/international-trade
[3] http://www.britannica.com/EBchecked/topic/291349/international-trade
[4] http://dictionary.reference.com/browse/trade
[5] http://www.businessdictionary.com/definition/economic-integration.html
[6] http://www.investopedia.com/terms/e/economic-integration.asp

participant countries. An important issue at this stage is that member states have to impose rules of origin for the goods entering the FTA from the third-party countries.

2. *Custom Union* (CU) – additional to FTA, this stage implies the harmonization of the external trade policy. The member countries establish a common external tariff and import quotas on products entering from the third- party countries. No rule of origin is required anymore, that is considered as being the main advantage of this stage if compared with the first one, because it leads to cost savings and efficiency gains.

3. *Common Market* (CM) is the third stage of economic integration that implies supplementary to the CU, it removes all barriers in order to assure free movement of labor, capital and other resources, as well as eliminating non-tariff barriers to trade. Economic efficiency is considered to be the main gain of this level of integration due to better allocation of resources across countries.

4. *Economic Union* (EU) is considered to be the deepest form of economic integration and it implies the harmonization of the key countries' policies as monetary, fiscal, industrial, economic, etc. Sometimes it may imply the use of a common currency, as in the case of European Union that is considered until now to have reached the deepest level of integration. (ECB 2011)

A reduced-form presentation of the basic elements of the economic integration process can be found in the below table.

Table 1: The main forms of economic integration

Basic stages of economic integration and their main characteristics	
Free Trade Agreement (FTA)	No tariffs between member countries and reduced non-tariff barriers
Custom Union (CU)	FTA + common external tariff
Common Market (CM)	CU + free movement of capital and labor
Economic Union (EU)	CM + common economic policies and institution

Source: http://dsp-psd.pwgsc.gc.ca/Collection-R/LoPBdP/EB-e/prb0249-e.pdf

Many times may happen that countries do not fit in any of these categories, but represent more a combination of several stages. This is due to the fact that every country negotiates individually the trade agreements to which it wants to be a member of.

We can notice that there is a reversible correlation between trade and integration, as the increase in international trade leads to higher level of integration and at the same time, integration and globalization favor the raise of commercial flows between countries.

3.3 Liberalisation VS Protectionism of the international trade

Liberalisation is the process of continuous removing of tariff and non-tariff barriers of the international trade in order to assure a free movement of production factors across the boundaries of different countries. Lately, this phenomenon has come together with economic integration, which the present writer has defined above and which is considered by many economists as the "key of success" for getting more intensive and extensive commercial flows between two regions. According International Monetary Fund, liberalization as well as technological developments had the main role in the development of international trade during the last decades and in the increase of world economic growth. Thus, it could have been noticed that more outward-oriented countries are expected to grow faster than ones that are inward-looking.[7] As a result, the more opened an economy is the more it can gain due to a better allocation of resources.

Adam Smith is one of the first economists that pleaded for free trade, as he considered that efficiency gain can be only when markets are left free to operate, only in such a case there is specialization and labour division. Later, this idea was extended by David Ricardo through the Law of Comparative Advantages, that states that every country member of a group of trading partners should specialize in producing that good or service for which it has a lower opportunity cost compared to the other partner and then exchange them between countries according to their necessities (Bhagwati 2002). Many

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[7] IMF, *World Economic Outlook, May 1997*; T.N. Srinivasan and Jagdish Bhagwati, "Outward Orientation and Development: Are the Revisionists Right?", Yale University Economic Growth Center

from the contemporary economists also plead for continuous trade liberation, as it leads to economic growth (Wacziarg & Horn Welch 2003), decreases poverty on average and in the long run (Winters et al. 2004), promotes productivity growth in the short run and makes consumers better off in the long run with the condition that intertemporal knowledge spillovers in research and development (R&D) are weak (Gustafsson & Segerstrom 2006) and of course stimulates further integration.

It should not be omitted that together with benefits, trade liberalization may bring also some disadvantages, because the economy it is more exposed. The new more competitive goods and services that penetrate the domestic market can cause significant damages to the national producers. This issue was recently analyzed by Bernard Hoekman and Guido Porto (2010) in their paper *"Trade adjustment costs in developing countries"* and pointed out that some economies, especially the developing ones can register high sunk cost in order to attain a competitive level that allows them to resist to new competitors from abroad. Thus, there can be winners and losers depending on the quality of the country's institutional framework and the investment climate. Gonda (2007) also stresses about the disadvantages of economic integration, pointing out that it does not permit to some countries with high potential to achieve a better economic performances, as these states have always to support the weaker ones. As a result, continuing further to integrate countries can even worsen the general economic performance, as the distortions are transferred from national to global level. The economist is "*convinced that there should be the alternatives aimed at getting as close as possible to the existence of such a European market which is based on the accessibility of free trade area within the community of autonomous European states."* The same view is supported by Michal Petrík (2007) that points out that there is no necessity to be a single currency in order countries to have an economic gain, as it can be achieved also due to exchange rate differences. The ex adviser to the president of the Czech Republic takes as an example for supporting his view the United Kingdom, considering it to be the "best pupil paradox", because it performs better than other member states which have adopted Euro. Especially during crisis period the non Euro countries are viewed as the "lucky players" of the economy, as they were less affected due to a less intensive contagion process. The

present writer finds necessary to point out that this issue will be tested during this paper and in the end we will be able to accept or reject this affirmation.

Pointing out why many economists are against liberalization explains us why others plead for protectionism. The main reasons being that from an opened economy beneficiate more the rich countries due to income inequality, while in a closed economy state can interfere and protect the domestic economic actors. Miller & Elwood (1988) point out that usually those who can win from protectionism are some specific interest-groups as the big corporations or farmers' unions that have sufficient power to influence the state to pass laws favorable for them. An example of evident protectionism undertaken by a country was the introduction of the Smoot-Hawley Tariff by USA in 1930, characterized by the highest tariffs in their history (60%). It resulted in a great decline in trade and was many times considered as one of the main causes of the Great Depression in 1930's (Eichengreen & Irwin 2009).

Baldwin and Evenett (2009) plead for protectionism in some specific situations, as for example during the 2007-2009 financial crisis, when they have considered as necessary for countries to protect themselves from this turmoil. In that period of time many opened economies started again to protect their producers and exporters by providing subsidies, measures that earlier would have been considered as violation of the WTO principles.

The present writer can conclude that analyzing the literature review and pointing out the advantages and disadvantages of both liberalism and protectionism, it can be noticed that there are more positive arguments for the first as being the right way how a country should develop its economy. At the same time, it should be stressed that in the era of technological developments and globalization, nations cannot anymore protect themselves through protectionism because this will result in losing of competitiveness on the global arena and in the end in economic isolation. Present and future of the world economies should be oriented to liberalisation and competition, because only in this way it will be achieved the economic evolution. Of course, there can be derogations from the general law, as they exist now for the agricultural products and textile or in case of some critical situations as the actual financial crisis. Furthermore, I would compare

liberalization process with a "business" that implies some costs and investments today in order to gain in the future.

3.4 The history and the regulatory framework in the context of the European trade integration

Analysing the enlargement process, the present writer does not intend to present all the history of the EU formation, but to point out the main pillars that were at the basis of trade integration in Europe. At the same time, it is necessary to point out that the starting point was the year 1949, when the Council of Europe was established, being the first European integrationist body. This was followed by the creation of the European Coal and Steel Community in 1952, European Economic Community (EEC) and European Atomic Energy Community in 1957 that merged in 1967 by giving birth to European Communities, which in 1993 changed its name into European Union. It is worth mentioning that if at the beginning only 5 countries were part of it, at the moment their number increased till 27 and some others are listed as candidate states and are in the process of negotiating their adherence. (ECB 2011)

The main institutional framework being presented, the present writer will focus later on those historical elements of integration process that are connected directly with the international trade. One of the most important catalysts in the liberalisation of the commercial flows that has to be mentioned was the General Agreement on Tariffs and Trade (GATT) created in 1949 and later replaced by World Trade Organisation (WTO). Even if WTO includes besides the European countries and others from all the rest of the world, the present writer considered it necessary to be described in this chapter with the European enlargement because it stipulates the main rules that regulate the trade on the European market, so both intra and extra communitarian commercial flows.

This organisation can be described as implying 9 negotiating rounds that included significant and continuous tariff concessions and reductions, allocation of agricultural subsidies, extension of intellectual property rights and permission for access of textiles

from developing countries on the European Union market. All these actions have had an important impact on the consolidation of commercial relations between member states. The main principles it is pleading for are:

a) *Non-discrimination* – implies two aspects, goods arriving from one country cannot be treated different from the same goods coming from other countries (Most Favored Nation) and second, once goods are on the market, they cannot be treated different from the domestic goods (National Treatment).

b) *Transparency* – member countries have to publish all laws, regulations or other legislative acts that can have an impact on the trade.

c) *Continuous trade liberalization* – a process that can be characterized by tariff reductions and concession that were obtained as a result of the negotiation rounds which took part from the creation of GATT till nowadays.

d) *Special and different treatment* – developing countries beneficiate of a different treatment in comparison with the developed ones in order to allow their products that are less competitive to penetrate the developed countries' market that is considered to be more competitive (WTO 2011).

Analysing the trade legislative framework of the European Union, we have to point out that all 27 actual members apply a common trade policy, furthermore 13 states use the same currency (Euro) for their commercial transactions. The main aim of EU's Common Commercial Policy is to assure the continuous and even, progressive trade liberalization. Another important issue that has to be mentioned is that the EU is a custom union, which implies that the same import duties are applied on imports from third countries regardless of the country of entry.

When presenting the trade regulation on the European market, we cannot not to explain the mechanism of the Generalised System of Preferences, that is a preferential agreement between EU and developing countries according to which the last beneficiate of reduced tariffs for the goods when entering the European market. This arrangement implies 3 types of preferences regimes:

1. *Standard GSP* – provided to 163 developing countries and includes 6200 tariff lines

2. *GSP* **+** – offered to vulnerable developing countries to support sustainable development and good governance and implies some additional reductions

3. **Everything But Arms (EBA)** – provided to 49 Least Developed Countries (LDC) that beneficiate of Duty-Free and Quota- Free for entrance of their goods on the EU market.

The main aim of this arrangement is to fight against poverty and to assure a sustainable development of the beneficiary countries, thus for the period 2009- 2011, 16 states have qualified to receive GSP+. If the exports of any of these countries increase significantly and they are already competitive on the market then the preference stops being offered. (European Commission 2011)

Once the economic integration had begun, more and more states are working closely in order to assure a free movement of goods and later of services across countries. Thus only following this integrating process, countries can gain from spillover effect that can spread both intensively (economic to monetary integration) and extensively (in the process of integration are involved more and more partners).

Chapter IV

Researched and analysed hypotheses

In this paper the present writer has the aim to research the following hypotheses as many of them are still an open question for the economists and as result are of a high interest for the scientists.

1. ***Euro has a significant effect on the evolution of the EU Trade -*** based on the literature review, the present writer can notice that the majority of the researchers and economists stress out how important the adoption of Euro for the increase of trade was. Besides this, recently, more and more researchers are arguing if for real the impact of common currency is so visible for the increase of the commercial flows. Thus, Havranek (2010) in the paper "*Rose effect and the euro: is the magic gone?"* analyzing the works of many economists, points out that it depends on a lot of factors and it is not so high in all the cases. Also he stresses out about the publication bias, as many economists can prefer the more positive models besides those that show are lower effect of Euro. Due to all this "conflicting" results, the present writer considered it worth research and being able to make some personal conclusions based on the results that I have got.

2. ***GDP influences in a higher extent than FDI the bilateral trade*** – as we know a high GDP means a developed economy and usually it has a positive impact on the other economic indicators. So, we expect a positive sign for this parameter and it should be directly correlated with trade as more wealth being created means the higher the exports of that country will be. Additionally, more

competitive products are produced in that state and they can easier penetrate the external markets. At the same time a higher value of GDP may induce us to the idea that the citizens of this country are richer, so the purchasing power of them is higher, the consumption is bigger too, so it may mean that less is left for being exported outside the country. Regarding the second indicator FDI, we can make the same assumptions as in the case of GDP. Regardless of the stated above, based on the intuition of the present writer it may be admitted that the Gross Domestic Product should be more essential than the inflow of Foreign Direct Investments in achieving a more intense trade between two countries (has to be proved).

3. ***The increase in Population is negatively correlated with the export potential of the country*** – based on the literature review the present writer can notice that this is another variable about which economist are still arguing on behalf of the impact it has on trade. According to the first group, population is negatively correlated with trade, as more citizens mean a larger domestic market and respectively less exports. The second group has a different opinion and it is based on the idea that higher population may lead to a better specialisation and more wealth creation and this will intensify the commercial flows between trading partners.

4. ***Common border and smaller distance have a higher impact than common language on the increase of the commercial flows between pairs of countries*** – the effect of common border, language and distance on trade are already known and it does not constitute a matter of debate for the economists. Thus the lower the distance the more intense the commercial flows are, respectively if there is a common language or common border the countries are going to trade more between them. That is why the present writer made a comparison between them in order to create a relationship that is not known yet. According to the intuition of the present writer, distance and common border should be more important than language as the first two imply a higher decrease

of costs than speaking the same language, especially now when English is worldwide known and having different languages is not anymore a barrier for trade integration**.**

5. ***The determinants of trade have a higher influence on commercial flows during crisis than in the calm period*** – the intuition of the present writer behind this hypothesis is that in the unstable period the indicators are more sensible to the changes in other factors, so that the extent to which they influence each other is higher. Especially in the Euro countries where the contagion process was proved to be more spread and intense, due to common currency used by them. At the same time, this can become a matter for debate as usually in the crisis period institutional framework and the channels are weaker so that the processes develop slower.

The present writer considered the above hypotheses as being worth testing in this paper and bringing some additional value to the already existing literature that uses the gravitational model as a tool for researching the evolution of trade. Furthermore, it should be pointed out that there is no paper that analyses the crisis period with respect to trade integration.

Chapter V

Data and Methodology

The quality of data and the methodology are an important attribute because they influence the quality of the obtained results. That is why the present writer considers this part of the paper being primordial and constituting the basis of this research.

5.1 Description of data and presentation of used sources

For realizing this research, the present writer used panel data of the EU14 countries – Austria, Belgium, Greece, Germany, Denmark, Spain, Finland, France, United Kingdom, Ireland, Italy, Netherlands, Portugal and Sweden during the period 1999 till 2009. The time period was selected based on the following logic: starting with the first year when Euro was introduced till the last year when data are available. By using the above countries, the present writer formed 91 pairs, among which the trade will be researched, obtaining in total 1001 observations. It has to be pointed out that in the sample, 3 countries (United Kingdom, Denmark and Sweden) do not use EURO as their currency, while the others do. Additionally, the time period was divided in two parts, before the crisis 1999 – 2007 and during the crisis 2008-2009, as all the countries had an obvious slowdown in trade in that year and in order this not to affect the quality of the research. The sources of the data are from UNCTAD statistics for GDP and FDI, French CEPII for distance and ComTrade for export of the countries.

5.2 Gravitational model as a tool for analyzing commercial flows

For performing this research the gravitational model was used, that is considered one of the main instruments used to analyse flows not only of goods, but as well of labour and capital. Thus, Deardorff (1998) presents this model as being a "fact of life" and this may be the explanation why it is so used nowadays by economists. Another advantage of it is that it is not only a good theoretical model, but as well an econometric one which permits to apply it successfully in practice.

For the first time the notion of gravity model was explained by Newton in 1687 but it was referring to the attraction force between two objects not between geographical territories. Thus, having two objects i and j, the formula is:

$$F_{ij} = G \, * \frac{M_i * M_j}{Dij^2} \qquad\qquad 1$$

where :

- F_{ij} – the attractive force between the two objects
- M_i and M_j – masses of the first and respectively second object
- D_{ij} – distance between the objects
- G – gravitational constant

Based on this formula, economists substituted the attractive force by the bilateral flow and the masses by the GDP or population of the two regions. The first who did this transformation was Tinbergen in 1962 (Lewer & Van den Berg, 2008). Furthermore, it is already proved that there is a direct relationship between the size of the economy and the trade and an indirect one between the distance and commercial flows (Head 2003). As a result, the above equation can be written in the following way:

$$\ln GF_{ij} = \ln M_i + \ln M_j - \ln D_{ij}, \ i \neq j \qquad\qquad 2$$

Additionally to the standard variables, other variables may be added as well, in order to widen the model and to be able to take into account more factors that may influence trade.

5.3. *Variables and equation description*

In the gravity model used in this paper, the present writer used the following variables:

GDP_{1t} – GDP of the first country of the pair in the year t

GDP_{2t} – GDP of the second country of the pair in the year t

Pop_{1t} – population of the 1st country in the year t

Pop_{2t} – population of the 2nd country in the year t

FDI_{1t} – Foreign Direct Investments in the 1st country at time t

FDI_{2t} – Foreign Direct Investments in the 2st country at time t

$Euro_t$ – dummy variable that takes the value 1 if both countries of the pair have Euro in the year t and has the value 0 otherwise. All countries of the group used in the research by the present writer introduced Euro in 1999, except for Greece that adopted it in 2002.

Lang – dummy variable that takes the value 1 if the countries of the pair have a common language and 0 otherwise

Border – dummy variable that takes the value 1 if the countries of the pair have a common border and 0 otherwise

Dist – distance between the two countries among which the trade is made, calculated following the great circle formula, which uses latitudes and longitudes of the most important city (in terms of population) or of its official capital.

$Trade_t$ – implies the sum between the export of the 1st country to the 2nd and the export of the 2nd country to the 1st at time t. This is the dependent variable of the equation.

In order to avoid the problem of collinearity some ratios were used as well – **GDP/Pop** and **FDI/GDP**. A logical explanation for this could serve the fact that higher income countries trade more in general, possibly due to a more developed infrastructure, as well as lower tariffs. On the other part, richer countries focus mostly on the service sector that may cause lower trade in goods for a given level of GDP. Additionally, all the variables are in log, as it describes better the trend of data in case they are not linearly related. Due to its log-linear structure, the coefficients obtained after running the model are in terms of percentage changes.

The general equation used by the present writter in this research takes the following form:

LnTijt = α + β₁lnDist + β₂lnGDP$_{it}$ + β₃lnGDP$_{jt}$ + β₄lnFDI$_{it}$ + β₅lnFDI$_{jt}$ + β₆lnPop$_{it}$ + β₇lnPop$_{jt}$ + β₈Euro$_t$ + β₉Lang + β₁₀Border + ε$_{ijt}$

α – value of trade (**lnT$_{ijt}$**) when the value of the independent variables is 0.

β₁, β₂, β₃, β₄, β₅, β₆, β₇, β₈, β₉, β₁₀ – parameters of the respective variables.

We expect a positive sign for GDP, FDI, Lang, Border, Euro and negative for Dist and Pop. This equation may suffer some changes in different models as we may try to use fewer variables or introduce the ratios. Thus, before each model, the characteristic equation will be presented.

The program used for running the models is Gretl and the model is OLS. Additionally, random and fixed effects will be used to check for the biasedness of the results. The heteroskedasticity problem in those model where it persists, it is adjusted using the option Robust Standard Errors. As it is known, heteroskedasticity does not affect the coefficients, but only the standard errors and this option helps to correct the level of significance of coefficients as well.

Chapter VI

Results of the econometric research

6.1 Analysis of the results before crisis (stable period)

In order to prove our hypotheses, the present writes will run the following models and based on the obtained results will be able to conclude whether to reject or not the initial hypotheses.

The following models use the data from the period 1999 – 2007, the stable one during which the trend of the majority of the coefficients was mostly constant or slightly increasing. The model is based on 819 observations for 91 cross – sectional units. As P-value(F) is less than 5%, robust standard errors option is used to correct for heteroskedasticity and adjustment of level of significance of coefficients. The used model is OLS. The equation has the following form:

$$\ln T_{ijt} = \alpha + \beta_1 \ln FDI_{it} + \beta_2 \ln FDI_{jt} + \beta_3 \ln Pop_{it} + \beta_4 \ln Pop_{jt} + \beta_5 \ln Dist + \beta_6 Euro_t + \beta_7 Lang + \beta_8 Border + \varepsilon_{ijt}$$

Model 1: Pooled OLS, using 819 observations

Included 91 cross-sectional units

Time-series length = 9

Dependent variable: l_Trade

Robust (HAC) standard errors

Variables	*Coefficient*	*Std. Error*	*t-ratio*	*p-value*	
const	11.0016	1.44906	7.5923	<0.00001	***
l_FDI1	0.356003	0.0459247	7.7519	<0.00001	***
l_FDI2	0.228591	0.0637207	3.5874	0.00035	***
l_Pop1	0.540081	0.0688483	7.8445	<0.00001	***
l_Pop2	0.534033	0.0573349	9.3143	<0.00001	***
l_Dist	-0.823729	0.108221	-7.6116	<0.00001	***
Euro	0.0191235	0.0950765	0.2011	0.84064	
Lang	0.374018	0.338961	1.1034	0.27017	
Border	0.335159	0.177276	1.8906	0.05903	*
R-squared		0.895085	Adjusted R-squared		0.894049
P-value(F) = 0.000000					

*   Significant at 90% confidence level
** Significant at 95% confidence level
*** Significant at 99% confidence level

The present writer can point out that l_FDI1, l_FDI2, l_Pop1, l_Pop2 and l_Dist are significant at 99% confidence level, while parameter $\beta8$ for Border is different from zero with more than 90% confidence. The other variables are not significant at any important confidence level. The sign of the variables corresponds to the initial intuition the present writer was describing in the hypotheses, except for the population that seems to be positively correlated with trade. An explanation for this can be that, the more citizens a country has, the more goods and services are produced due to better specialization and respectively more is exported, especially in our case where all the countries are developed ones.

Further, we omit the non significant variables leaving only Euro, as in this paper, the present writer is mostly interested by the effect of the common currency on trade than by the impact of the other determinants.

Model 2: Pooled OLS, using 819 observations

Included 91 cross-sectional units

Time-series length = 9

Dependent variable: l_Trade

Robust (HAC) standard errors

Variables	*Coefficient*	*Std. Error*	*t-ratio*	*p-value*	
const	11.1275	1.40346	7.9286	<0.00001	***
l_Dist	-0.834601	0.106798	-7.8148	<0.00001	***
Euro	0.0367193	0.0949352	0.3868	0.69902	
Border	0.438058	0.196382	2.2306	0.02598	**
l_FDI1	0.359865	0.0456036	7.8911	<0.00001	***
l_FDI2	0.236575	0.0632934	3.7377	0.00020	***
l_Pop1	0.527295	0.0684016	7.7088	<0.00001	***
l_Pop2	0.526169	0.0554538	9.4884	<0.00001	***
R-squared		0.893470	Adjusted R-squared		0.892551
P-value(F) = 0.000000					

*   Significant at 90% confidence level
** Significant at 95% confidence level
*** Significant at 99% confidence level

From the results of the above model, we can point out that the value added to the model by the omitted variable was not important, as both R-squared and Adjusted R-squared remained nearly unchanged. The only change that can be mentioned is that Border became significant at 95% confidence level gaining one more star, while Euro remains still insignificant at any important confidence levels.

In order to check the correctness of the results obtained by running OLS, the present writer finds necessary to use some other models for checking them. Thus, random effects will be employed in this respect, as they are the ones mostly used in the case of panel data. Fixed effects has a limited capacity of analysis in our case, as it does not allow us to use our dummy variables, as they do not change during time, so they are omitted due to perfect collinearity. It is known, that the fixed effect cannot be estimated by means of fixed effects model. Only Euro is an exception due to the fact that one country (Greece) didn't have the common currency from 1999. In order to be able to compare the results, it would be logical to have the same explanatory variables that influence trade. So, we will use the random effects (GLS) on the same equation as we had in the above models (1, 2).

Model 3: Random-effects (GLS), using 819 observations

Included 91 cross-sectional units

Time-series length = 9

Dependent variable: l_Trade

Variables	*Coefficient*	*Std. Error*	*t-ratio*	*p-value*	
const	11.6537	1.16771	9.9800	<0.00001	***
Euro	0.0685426	0.0354769	1.9320	0.05370	*
l_FDI1	0.315436	0.0224724	14.0366	<0.00001	***
l_FDI2	0.182531	0.0244538	7.4643	<0.00001	***
l_Dist	-0.876212	0.105157	-8.3324	<0.00001	***
Lang	0.397069	0.317149	1.2520	0.21093	
Border	0.261776	0.215612	1.2141	0.22506	
l_Pop1	0.571633	0.0573807	9.9621	<0.00001	***
l_Pop2	0.578123	0.0569117	10.1582	<0.00001	***

*   **Significant at 90% confidence level**
**   **Significant at 95% confidence level**
*** **Significant at 99% confidence level**

Hausman test:

H_0: GLS estimates are consistent

H_1: GLS estimates are not consistent

Asymptotic test statistic: Chi-square(5) = 8.91577 with p-value = 0.112471

Analysing the results of the 3rd model, the present writer can point out that p-value = 0.112471 is higher than 5%, so the H_0 that the GLS estimates are consistent cannot be rejected. As a result, this model is appropriate for calculating the coefficients for the variables from our equation. It can be observed that it is maintained the same sign of the variables and nearly the same significance of the variables. So, l_FDI1, l_FDI2, l_Dist, l_Pop1, l_Pop2 are significant at 95% confidence level, while Lang and Border are not significant at any important confidence level. The present writer can notice that using this model Euro is significantly different from zero at 90% level. If we compare the coefficients from the OLS model and the GLS one, we can point out that they also did not change significantly which confirms that OLS is providing also unbiased estimates. In the next model, we will omit again the insignificant variables, to check how Euro behaves, the other conditions being unchanged.

<div align="center">

Model 4: Random-effects (GLS), using 819 observations

Included 91 cross-sectional units

Time-series length = 9

Dependent variable: l_Trade

</div>

Variables	Coefficient	Std. Error	t-ratio	p-value	
const	12.5494	1.12224	11.1824	<0.00001	***
l_FDI1	0.315279	0.0225674	13.9705	<0.00001	***
l_FDI2	0.181598	0.0245491	7.3973	<0.00001	***
l_Pop1	0.570759	0.058012	9.8386	<0.00001	***
l_Pop2	0.587644	0.0578119	10.1648	<0.00001	***
l_Dist	-1.00573	0.0873734	-11.5107	<0.00001	***
Euro	0.0745463	0.0354317	2.1039	0.03569	**

*   Significant at 90% confidence level

**   Significant at 95% confidence level

*** Significant at 99% confidence level

Hausman test:

H_0: GLS estimates are consistent

H_1: GLS estimates are not consistent

Asymptotic test statistic: Chi-square(5) = 7.44806 with p-value = 0.189392

Analysing the results of the model, the present writer can point out that p-value = 0.189392 is higher than 5%, so the H_0 that the GLS estimates are consistent cannot be rejected. As a result, this model is appropriate for calculating the coefficients for the variables from our equation. Using the GLS in the above model, the present writer can notice, that after the omission of the insignificant variables, Euro gains one more star and becomes significant at 95% confidence level. So, it can be pointed out that Euro had a certain positive impact on trade, even if not too high.

As it was mentioned before, the fixed effects model can be used only for the Euro variable, so the present writer would like to test it one more time to notice if the results will change for the better.

Model 5: Fixed-effects, using 819 observations

Included 91 cross-sectional units

Time-series length = 9

Dependent variable: l_Trade

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	-4.66986	4.74686	-0.9838	0.32555	
l_FDI1	0.282137	0.0282277	9.9950	<0.00001	***
l_FDI2	0.178964	0.0285573	6.2668	<0.00001	***
l_Pop1	0.807417	0.40361	2.0005	0.04582	**
l_Pop2	1.43394	0.356954	4.0172	0.00007	***
Euro	0.0679811	0.0375245	1.8116	0.07046	*
R-squared	0.993515		Adjusted R-squared		0.992662

*   **Significant at 90% confidence level**
**   **Significant at 95% confidence level**
*** **Significant at 99% confidence level**

Test for differing group intercepts:

H_0: The groups have a common intercept

H_1: The groups do not have a common intercept

Test statistic: $F(90, 723) = 130.648$ with p-value = $P(F(90, 723) > 130.648) = 0$

The p-value is less than 5%, thus we reject the null hypothesis and our pairs of countries do not have a common intercept, not the same effect for all of them. Comparing with the above model, we can point out that the signs of variables do not change and the level of significance is different for l_pop2 that is significant at 95% confidence level. Euro appears here again significant just that at 90% confidence level.

In order to deal with the problem of collinearity, when adding to our previous equation GDP, ratios l_GDP/Pop, l_FDI_GDP are used instead of simple l_GDP and l_FDI. The used model is OLS. As P-value(F) is less than 5%, robust standard errors option is used to correct for heteroskedasticity and adjustment of level of significance of coefficients. Thus, the following regression equation is estimated:

$$\ln T_{ijt} = \alpha + \beta_1 \ln GDP_{it}/Pop_{it} + \beta_2 \ln GDP_{jt}/Pop_{jt} + \beta_3 \ln FDI_{it}/GDP_{it} + \beta_4 \ln FDI_{jt}/GDP_{jt} + \beta_5 \ln Dist + \beta_6 Lang + \beta_7 Border + \beta_8 Euro_t + \beta_9 \ln Pop_{it} + \beta_{10} \ln Pop_{jt} + \varepsilon_{ijt}$$

Model 6: Pooled OLS, using 819 observations

Included 91 cross-sectional units

Time-series length = 9

Dependent variable: l_Trade

Robust (HAC) standard errors

Variables	*Coefficient*	*Std. Error*	*t-ratio*	*p-value*	
const	10.1513	1.35229	7.5068	<0.00001	***
l_gdp_pop1	0.428074	0.130296	3.2854	0.00106	***
l_gdp_pop2	0.629446	0.135479	4.6461	<0.00001	***
l_fdi_gdp1	0.285776	0.0799483	3.5745	0.00037	***
l_fdi_gdp2	-0.0229536	0.120016	-0.1913	0.84837	
l_Dist	-0.858531	0.10784	-7.9611	<0.00001	***
Lang	0.426734	0.297017	1.4367	0.15118	
Border	0.254102	0.180515	1.4076	0.15962	
Euro	0.0938419	0.0975741	0.9618	0.33646	
l_Pop1	0.882552	0.0570927	15.4582	<0.00001	***
l_Pop2	0.689694	0.0735831	9.3730	<0.00001	***
R-squared	0.905261		Adjusted R-squared		0.904088
P-value(F) = 0.000000					

*   Significant at 90% confidence level
**   Significant at 95% confidence level
*** Significant at 99% confidence level

From the results of the above model, the present writer can point out that l_GDP/Pop, Pop of both countries, FDI/GDP of the first country and distance are all significant at 99% confidence level. The other variables appear to be insignificant for the meaningful significance levels. The majority of the explanatory variables are positively correlated with trade, except the l_Dist and l_FDI/GDP_2, the last one being insignificant. Additionally, in our model the coefficients should be interpreted as elasticity, thus 1% increase in l_GDP/Pop1 leads to 0.42% increase in trade. For the dummies the coefficient should be calculated using the following formula $e^{\beta}-1=x$[8]. So, for example for the Euro, we get $e^{0.0938419}-1= 0,098$. The R-squared in the first model explains 90% of the variation in dependent variable Trade, leaving approximately 20% to the error. The Adjusted R-squared is also high, which permits us to conclude that the explained variation is a real one, as it is calculated taking into account the degrees of freedom.

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[8] X – value of the coefficient

The present writer would like to stress that based on the results of the above model, the common currency does not seem to be so important for the intensification of the commercial flows between our pairs of countries. Thus, there will be run another model, in which the insignificant variables will be omitted, except the Euro in order to see if it gains any star in this situation.

Model 7: Pooled OLS, using 819 observations
Included 91 cross-sectional units
Time-series length = 9
Dependent variable: l_Trade
Robust (HAC) standard errors

Variables	Coefficient	Std. Error	t-ratio	p-value	Significance
const	11.2756	1.21115	9.3098	<0.00001	***
l_gdp_pop1	0.376058	0.125897	2.9870	0.00290	***
l_gdp_pop2	0.630952	0.126272	4.9968	<0.00001	***
l_fdi_gdp1	0.285639	0.0758988	3.7634	0.00018	***
l_Dist	-0.992417	0.082281	-12.0613	<0.00001	***
Euro	0.158143	0.101409	1.5595	0.11928	
l_Pop1	0.871708	0.0592311	14.7171	<0.00001	***
l_Pop2	0.703317	0.0522541	13.4596	<0.00001	***
R-squared		0.899142	Adjusted R-squared		0.898272
P-value(F) = 0.000000					

* Significant at 90% confidence level
** Significant at 95% confidence level
*** Significant at 99% confidence level

From the results of this model we can notice that P-value(F) is equal to 0, thus there is heteroskedasticity, that is why we use robust standard error option to correct for it, the same as in the previous cases. The R- squared decreased insignificantly, thus the omitted variables were not bringing too much value added to the model. At the same time, the present writer can point out that Euro remains insignificant at all important confidence levels.

Using the same variables we run the equation using fixed effects model to check for the significance of Euro. After eliminating the insignificant variables we get the following results:

Model 8: Fixed-effects, using 819 observations

Included 91 cross-sectional units

Time-series length = 9

Dependent variable: l_Trade

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	38.457	3.78939	10.1486	<0.00001	***
Euro	0.0640993	0.0321903	1.9913	0.04683	**
l_gdp_pop1	0.174153	0.0782918	2.2244	0.02643	**
l_gdp_pop2	0.89604	0.0975156	9.1887	<0.00001	***
l_fdi_gdp1	0.125674	0.0225704	5.5681	<0.00001	***
l_Pop2	1.97422	0.398451	-4.9547	<0.00001	***
R-squared		0.995291	Adjusted R-squared		0.994672
P-value(F) = 0.000000					

*   Significant at 90% confidence level
**   Significant at 95% confidence level
*** Significant at 99% confidence level

Test for differing group intercepts:

H$_0$: The groups have a common intercept

H$_1$: The groups do not have a common intercept

Test statistic: $F(90, 723) = 1103.14$ with p-value = $P(F(90, 723) > 1103.14) = 0$

The p-value is less than 5%, thus we reject the null hypothesis and our pairs of countries do not have a common intercept, not the same effect for all of them. Comparing with the above model, we can point out that Euro is significant at 95% confidence level when using the fixed effects model, l_gdp_pop1 lost one star. Both R-squared and Adjusted R-squared are high, which proves that the level of predictability of the model is high.

6.2 Analysis of the results during the crisis period

Using the same equations as above, we are going to run the models based on the period 2008-2009 or the crisis one. Here are 182 observations over the same 91 pairs of

countries. The used model is OLS and robust standard errors are used to correct for heteroskedasticity.

Model 9: Pooled OLS, using 182 observations

Included 91 cross-sectional units

Time-series length = 2

Dependent variable: l_Trade

Robust (HAC) standard errors

Variables	Coefficient	Std. Error	t-ratio	p-value	
const	2.90549	2.76038	1.0526	0.29402	
l_Dist	-0.707618	0.139312	-5.0794	<0.00001	***
l_Pop1	0.96359	0.0713979	13.4961	<0.00001	***
l_Pop2	0.774693	0.072769	10.6459	<0.00001	***
l_gdp_pop1	1.19624	0.277729	4.3072	0.00003	***
l_gdp_pop2	1.03461	0.198822	5.2037	<0.00001	***
l_fdi_gdp1	0.299273	0.0878982	3.4048	0.00083	***
l_fdi_gdp2	0.0960718	0.130635	0.7354	0.46309	
Lang	0.344489	0.303728	1.1342	0.25830	
Border	0.444955	0.207255	2.1469	0.03321	**
Euro	0.172465	0.113994	1.5129	0.13214	
R-squared	0.900052		Adjusted R-squared		0.894207
P-value(F) = 4.98e-80					

* Significant at 90% confidence level
** Significant at 95% confidence level
 *** Significant at 99% confidence level

Analysing the above results from the 2 year period, the present writer can point out that the same variables (l_Dist, l_Pop1, l_Pop2, l_gdp_pop1, l_gdp_pop2, l_fdi_gdp1) are significant at 99% confidence level as in the case of 9 year period, Border is different from zero at 95% significance level, while the others are not significant at any confidence level. Regarding the value of coefficients, we can notice that they are higher in the crisis period compared to the calm one which leads us to the idea that in instability phase the indicators have higher impact on each other, as they are more sensible to changes. The sign of the coefficients is the same as in the 9 year time interval. We omit the insignificant variables, except for the Euro one and check for the new coefficients and significance.

Included 91 cross-sectional units

Time-series length = 2

Dependent variable: l_Trade

Robust (HAC) standard errors

Variables	Coefficient	Std. Error	t-ratio	p-value	
const	3.74744	2.55893	1.4645	0.14488	
l_Dist	-0.750514	0.126733	-5.9220	<0.00001	***
l_Pop1	0.950805	0.0704977	13.4870	<0.00001	***
l_Pop2	0.746393	0.0567733	13.1469	<0.00001	***
l_gdp_pop1	1.11849	0.270962	4.1278	0.00006	***
l_gdp_pop2	1.0587	0.198139	5.3432	<0.00001	***
l_fdi_gdp1	0.306508	0.0822038	3.7286	0.00026	***
Euro	0.170823	0.114404	1.4932	0.13722	
Border	0.502706	0.198662	2.5305	0.01228	**
R-squared	0.897980		**Adjusted R-squared**		0.893262
P-value(F) = 1.50e-81					

*   **Significant at 90% confidence level**
**   **Significant at 95% confidence level**
*** **Significant at 99% confidence level**

Analysing the results, it can be pointed out that they did not change too much from the previous model, neither coefficients nor level of significance. Euro still remains with no star. If compared to the 9 year period, we can make the same conclusions as in the model nr. 9, that coefficients are higher for this time interval. A reason for this may be no only the crisis that the present writer gave in the previous model, but as well the fact that the analysed period is shorter. As it is known different results can be obtained from running models on different time intervals. Running the GLS in this case led to the same coefficients, that is why the present writer did not consider as important to present it in the paper, as it is was already proved for the pre crisis interval that OLS has consistent estimates.

Further we will employ again Random Effects model in order to check how the significance of variables changes when using more sophisticated instruments of analysis.

Model 11: Random-effects (GLS), using 182 observations

Included 91 cross-sectional units

Time-series length = 2

Dependent variable: l_Trade

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	3.86027	1.43188	2.6960	0.00771	***
l_Pop1	0.893557	0.0618402	14.4495	<0.00001	***
l_Pop2	0.732807	0.0615395	11.9079	<0.00001	***
l_Dist	-0.87165	0.115783	-7.5283	<0.00001	***
Euro	0.216678	0.129048	1.6790	0.09494	*
l_gdp_pop1	1.37574	0.154648	8.8959	<0.00001	***
l_gdp_pop2	1.10081	0.120598	9.1280	<0.00001	***
Border	0.450176	0.218383	2.0614	0.04075	**

*   Significant at 90% confidence level
**   Significant at 95% confidence level
*** Significant at 99% confidence level

Hausman test shows a p-value = 0.331851 higher than 5% which means that GLS estimates are consistent. The same as in other GLS models can be noticed, Euro becomes significant at 90% confidence level, while coefficients do not differ significantly. The difference in estimates can be due to the fact that fewer variables were used in the last model, as the insignificant ones were omitted.

Analysing the results of the above run models, the present writer can decide on her formulated hypotheses at the beginning of the paper and conclude weather we have to reject or not them. So, the first hypothesis that *Euro influences in a high extent trade* should be rejected based on the results we have got in this paper and the present writer has already pointed out the reasons why we got such a weak impact of common currency.

 The second hypothesis implying that *GDP has a higher influence on trade than FDI* cannot be rejected, as in all the models we can notice that it holds, so metaphorically we can say that the internal wealth is more important than the attracted one. But, anyway both of them have a positive and quite high impact in trade. This can be explained by the fact that being a rich country you can produce more sophisticated and innovation - driven products that are in the result more competitive and more demanded by the other nations, thus higher the export potential of the state and more intense trade flows.

The third hypothesis that the increase in ***population is negatively correlated with trade*** is rejected based on our sample of data. The explanation is that analysed countries are developed ones and labor force is very qualified, as result it is viewed as capital too and is correlated directly with trade. Furthermore, in all our models both in calm and crisis period it was shown to lead to increase in trade.

The forth hypothesis that ***common border and smaller distance have a higher impact than common language on the increase of the commercial flows between pairs of countries*** cannot be rejected as the first two factors showed to be significant in more models compared to language that was not significant at any important confidence model. Distance between the trading partners appears to be more important even than having a common border, which can lead us to the idea that decreasing transportation costs can lead to the increase of trade.

The last hypothesis connected to the two periods the data have been separated due to the financial crisis that started in 2007 is that ***the determinants of trade have a higher influence on commercial flows during crisis than in the stable period cannot be reject as well.*** The present writer is not affirming that during crisis there is higher possibility for growth of commercial trade, just that indicators are more sensible to any influence. It would be expected it to decrease more in such conditions than in the stable period.

Chapter VII

The European trade in the context of a continuous integrating process

7.1 Euro adoption and its impact on the European trade before and during the financial crisis

Euro adoption was an important event in the development of the "economic life" of the European countries. As we could notice from the literature review, all the economists established a positive relationship between having a common currency and the evolution of trade. Analysing the commercial flows of the selected countries we can point out that they increased after the adoption of Euro till the moment the financial crisis has started. After which for about one year (in our sample), an evident slowdown was noticed and only in the end of 2009 countries started to recover after this financial turmoil, considered the biggest after the Great Depression. Developed countries were those mostly affected by the financial crisis as they had the most developed banking and financial sectors and were more exposed to "toxic" financial derivatives. Thus, even if their governments piped a lot of money in their economies, both domestic and external product demand was still weak and respectively the commercial flows were not so high.

In this chapter, the present writer intends to present the real situation of trade for each separate country in the period 1999-2009 and to point out the main factors that led to slowdowns of the commercial flows. Merchandise as well as services import and export

will be characterised, furthermore its correlation with GDP will be presented. Thus, analysing the general trends of growth rates of imports and exports of merchandise and services, we can point out that they are similar as the rates follow the same slowdowns and increases during time. So, we can say that both imports and exports have certain economic shocks that may affect both of them. On the diagrams from the appendix B we can notice that the first decrease takes place in 2001, the year when the dot com crisis took place. The second one is in 2005 and the third one was in 2008 because of the financial crisis in the banking system. Regarding the GDP growth rate trend for our sample of countries we can notice nearly the same slope of the curve, just that the slowdown period lasts longer. So, based on this we can conclude that commercial flows rehabilitate quicker than the GDP. Also, the GDP trend is smoother while the trade one has a higher variation across the analysed time period. Furthermore, if the world economy is considered to overcome the crisis easier, the European one shows to be slower and here one of the main reasons can be the problems some member countries (ex: Greece) had with solvency and that needed the support of the whole European Union in order to survive. Additionally, according to Izurieta & Maystre (2010) crisis affected trade by leading to the decrease of the aggregate demand and disturbances on the financial market causing shortages of credit flows. Other factors that led to the decrease of trade were: adoption of more protectionist commercial policy by states, uncertainty and speculation on the market. Even if we could notice that all our countries were affected by the financial crisis, the extent of this slowdown was different for every country. This can be explained by some specific factors that influence separate every state as the degree of specialisation of imports and exports, the commercial policy implemented by the government, trade openness, geographical position and many other factors. Further, the present writer will focus on each country in order to characterise their commercial flows more specifically.

Diagram 1: *The commercial flows of Austria for the period 1999-2009, million Euros*
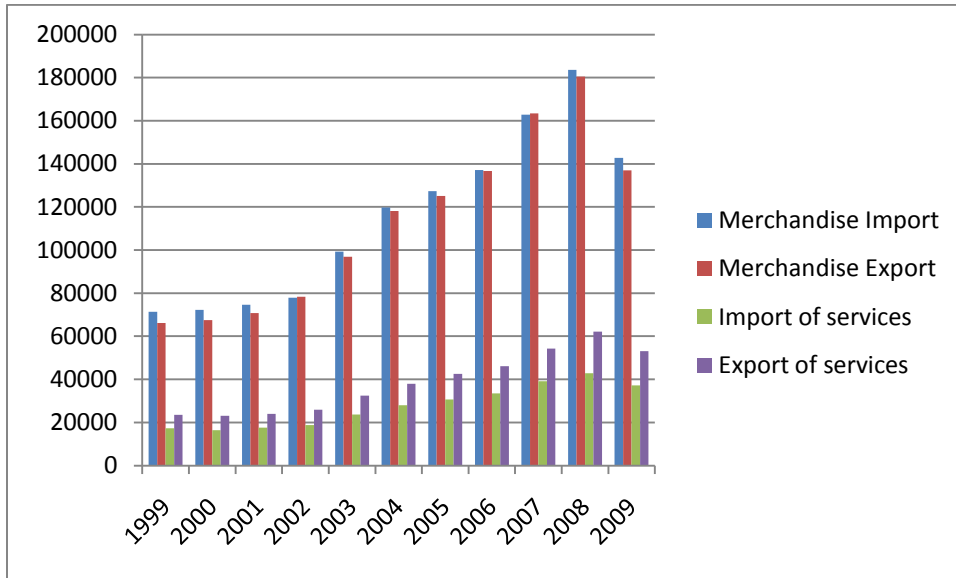
Source: Made by author based on data from www.unctad.com

Analysing the above graph that presents the commercial flows of Austria, we can point out that import and export of goods and services follow the same trend during time and it corresponds to the one we have described at the beginning of this chapter. In general, it can be observed that the balance of trade for goods was negative during the analysed period. The highest deficit for merchandise (5,759 millions) trade was registered in 2009, while the greatest surplus of the balance of trade can be noticed in 2007 for goods (582 millions) and in 2008 for services (19,245 millions). Additionally, we can mention that even if Austria is a developed country, the commercial flows with merchandise are much higher than the ones with services. Analysing the growth rates, we can point out that the highest decrease was in 2009 both for imports and exports of goods and services.

Diagram 2: *The commercial flows of Belgium for the period 1999-2009, million Euros*
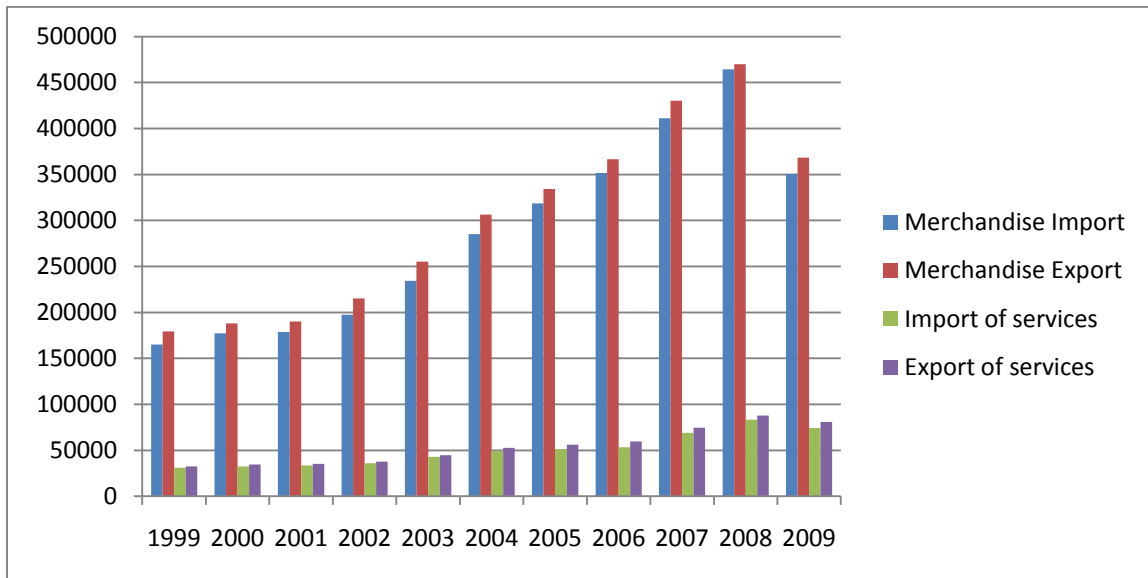
Source: Made by author based on data from www.unctad.com

Analysing the above diagram that describes the commercial flows of Belgium, the present writer can point out that opposite to Austria this country has a positive balance of trade both for goods and services, except for the last year. Exports of merchandise registered the highest growth rate (20.11%) in 2004 and the lowest one even negative in 2009 (-21.69%). At the same time, the export of services had the highest growth rate in 2007 (25.38%) and the lowest in 2009 (-7.76%). The same trend the growth rates for imports were following. As in the case of Austria, merchandise trade is dominant if compared to the services one.

Diagram 3: *The commercial flows of Denmark for the period 1999-2009, million Euros*

Source: Made by author based on data from www.unctad.com

The above graph presents the commercial flows of Denmark for the period 1999-2009 and it can be pointed out that always the exports of goods and services are above imports which assure a positive balance of trade. The pick of commercial flows is registered in 2008, while the lowest point is in 2001 in case of merchandise and 1999 for services. The biggest growth rate of goods exports can be noticed in 2003 (15.97%) and the lowest in 2009 (-19.92%), while for merchandise imports the pick is in 2004 (18.74%) and the lowest in 2009 (-24.69%). Regarding the commercial flows with services, highest growth rate of imports and exports is in 2006 (25.97% and respectively 23.44%) and the lowest is in 2009 (-18.26% and respectively -24.05%). An increasing trend of both imports and exports can be notices during the analysed period, which can signify that the country was becoming more integrated in terms of trade over time. Besides the fact that hasn't introduced Euro yet even if is member of European Union, its commercial flows were increasing during time, meaning that other factors besides the common currency led to the increase of trade. As well, it is worth mentioning that in 2009 the trade of this country

was also affected by crisis which means that the contagion process was not only due to Euro.

Diagram 4: *The commercial flows of Finland for the period 1999-2009, million Euros*
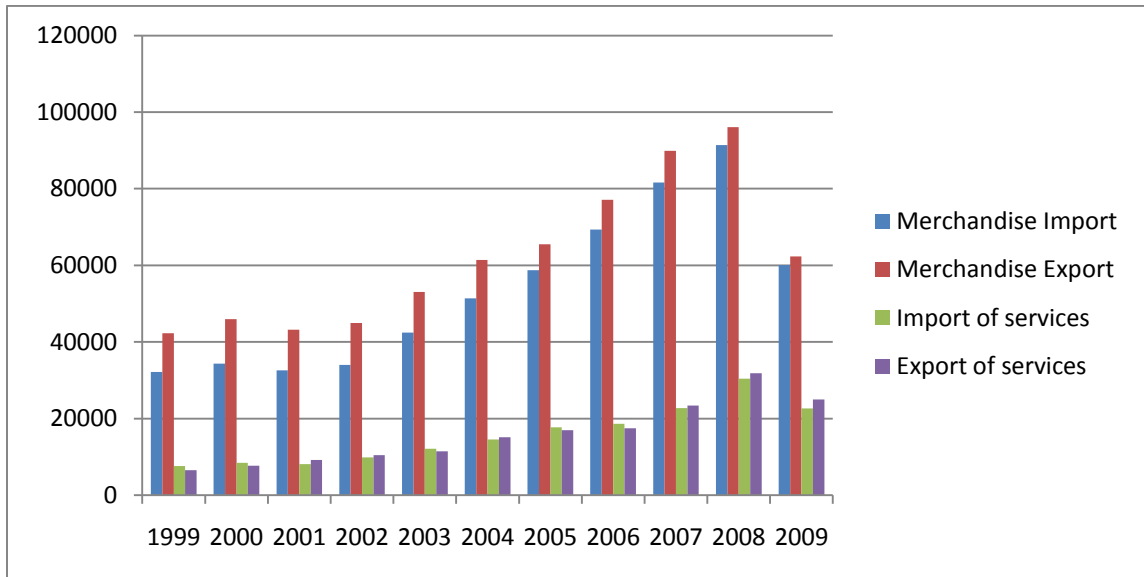
Source: Made by author based on data from www.unctad.com

Analysing the above diagram, we can point out that in comparison with the countries presented before, Finland shows to have always a positive balance of trade for goods, while in some years negative in the case of services. Even after the drastic crisis from 2007-2009, the level of imports and exports for both merchandise and services had a higher level than in 1999, which points out that the commercial flows of this country with the rest of the world became more intense along time.

The highest growth rate registered by exports was in 2003 (24.55%) for goods and 2006 (23.44%) for services and the lowest point was in 2009 (19,92% and respectively 24,05%). In the case of import growth rates, the highest was in 2004 for goods (18.74) and 2006 (25.97%) for services and the lowest in 2009 for both goods and services (24,69% and respectively 18,26%).

Diagram 5: *The commercial flows of France for the period 1999-2009, million Euros*
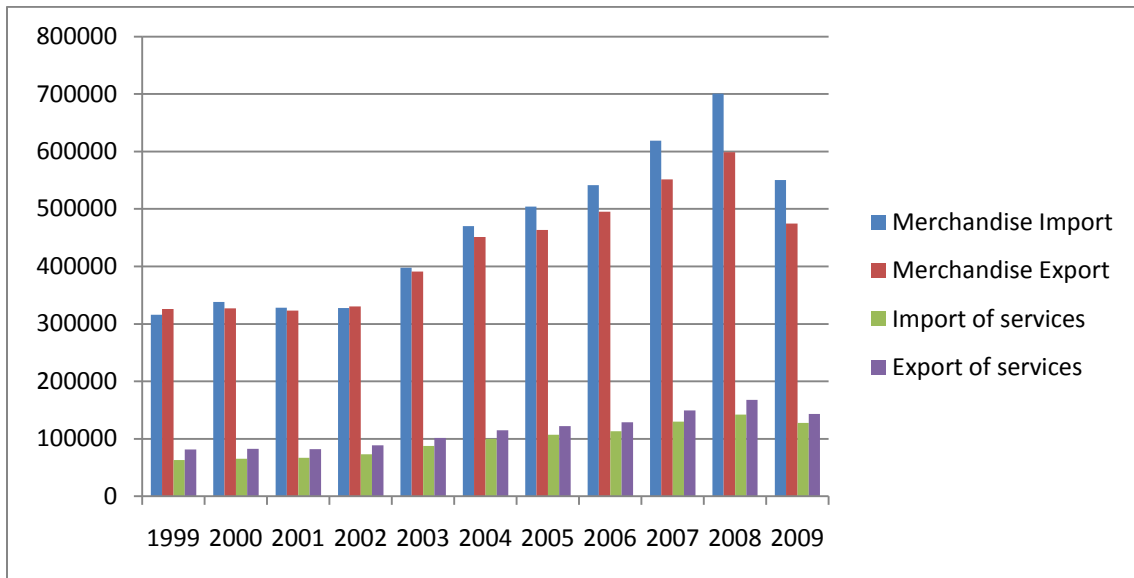
Source: Made by author based on data from www.unctad.com

The above diagram describes the situation in terms of trade for France and we can point out that the balance of trade for merchandise is a negative one in the majority of years, which means that this country imports more than exports. At the same time, the balance of trade for services is always positive, which shows that France being a developed country is oriented more to services and know how production than goods one.

The pick of imports and exports for both merchandise and services was registered in 2008, while the lowest point was in 2001. The highest growth rate of imports was in 2003 for both merchandise and services (21.43% and respectively 19,61%) and the lowest in 2009 (21,46% and respectively 10,28%). Analysing the growth rate of exports, the present writer can point out that it was the highest in 2003 for goods (18,47%) and in 2007 for services (16,02%) and the lowest in 2009 for both merchandise and services (-20,76% and respectively -14,41%).
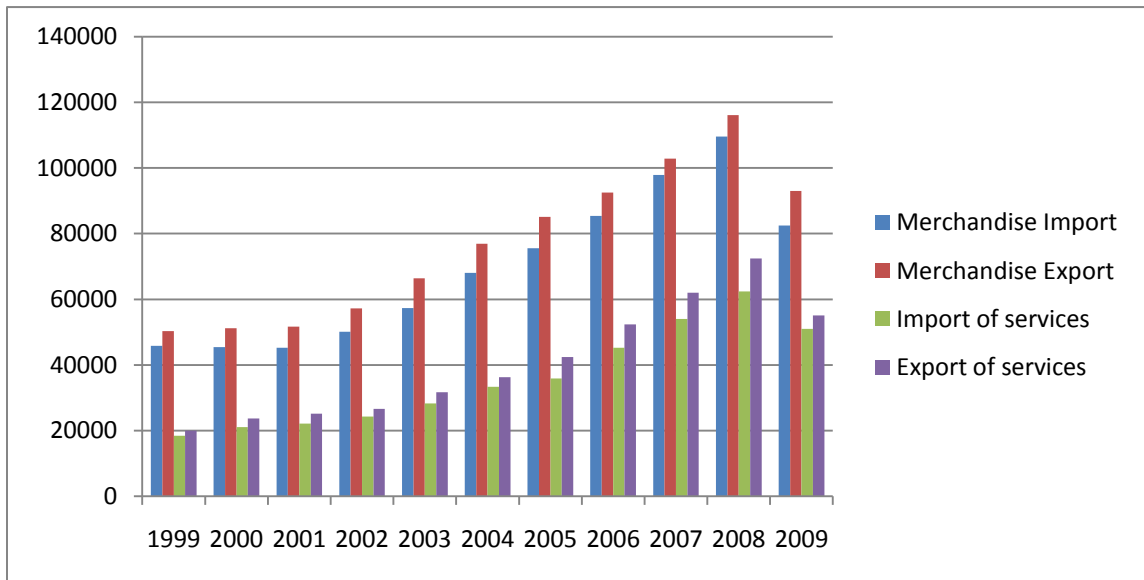
Diagram 6: *The commercial flows of Germany for the period 1999-2009, millions Euro*
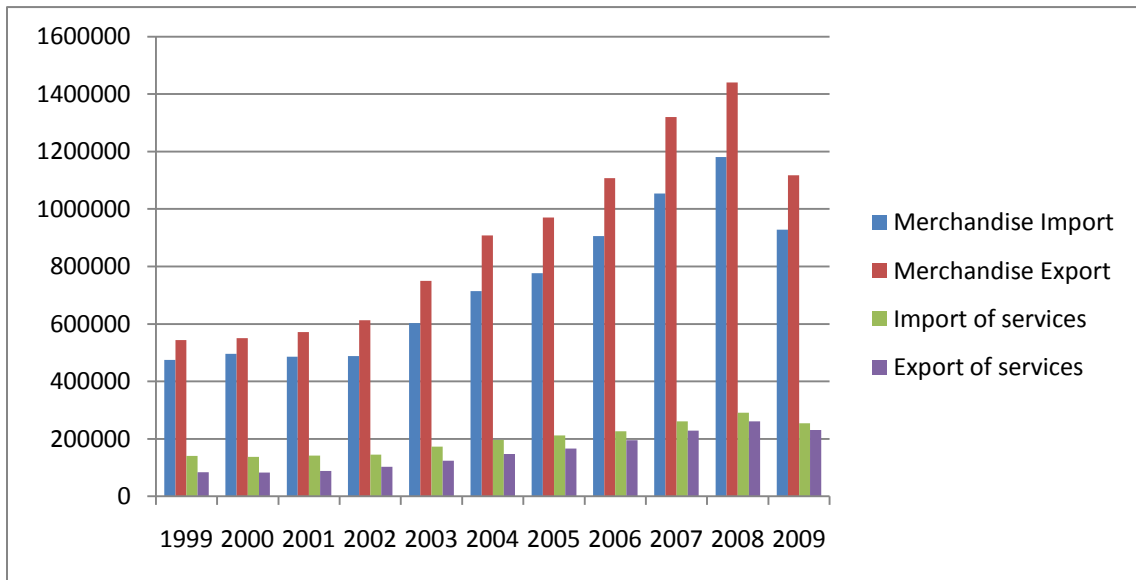
Source: Made by author based on data from www.unctad.com

The above graph describes the commercial flows of Germany, the biggest exporter and importer of the European Union, but as well one of the most world traders after USA and China. From the diagram we can point out that the merchandise commercial flows are much more significant than the services one. Additionally, the balance of trade is always positive for goods and negative for services across the analysed period of time.

The pick of imports and exports for both goods and services was in 2008, while the lowest was in 2000 and 2001. The highest growth rate in terms of import was registered in 2003 for both goods and services (23.62% and respectively 19.62%) and the lowest in 2009 (-21.36% and respectively -12.64%). At the same time exports had the highest growth rate in 2009 for both goods and services (22.34% and respectively 20.10%) and the lowest in 2009 (-22.46% and respectively 11.52%). In general there can be observed an increasing trend of trade during the analysed period of time.

Diagram 7: *The commercial flows of Greece for the period 1999-2009, millions Euro*
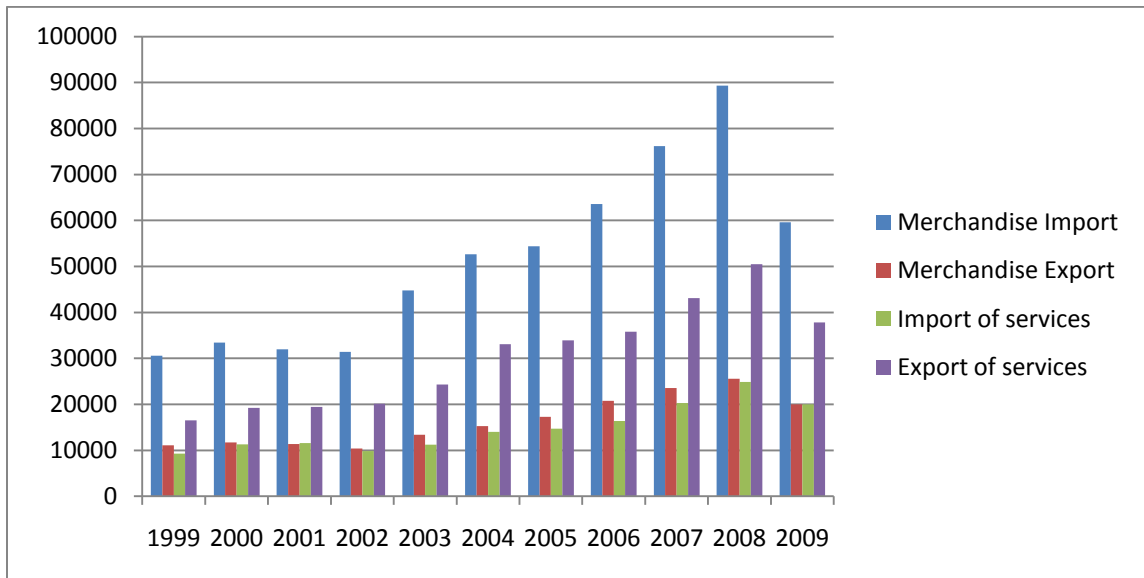
Source: Made by author based on data from www.unctad.com

The Diagram number 7 presents the commercial flows of Greece, a country that has a dramatic and uncertain financial situation at the moment and risks to be excluded from the European Union. This of course has its roots back in the past and even analysing the trade of this country, we can notice the negative balance of trade for goods, where imports are twice up to three times higher than exports. The growth rate of imports was increasing quicker than the one for exports. This shows the high dependence of Greece on the external goods and, in a certain extent, the incapability of the country to satisfy its domestic market.

At the same time, we cannot mention that the balance of trade for services is positive across all these years. The highest pick of exports and imports for both merchandise and services is in 2008 and the lowest during the period 1999-2002, when the indicators are nearly constant. The highest increase of imports growth rate was in 2003 for goods (42,42%) and in 2004 for services (24, 62%) and the lowest in 2009 for both merchandise and services (-33,30% and respectively -19,66%). Regarding the export growth rate, the highest was in 2003 for merchandise (28, 81%) and 2004 for services (36.25%) and the lowest in 2009 (-21,82% and respectively -25, 13%).

Diagram 8: *The commercial flows of Ireland for the period 1999-2009, millions Euro*
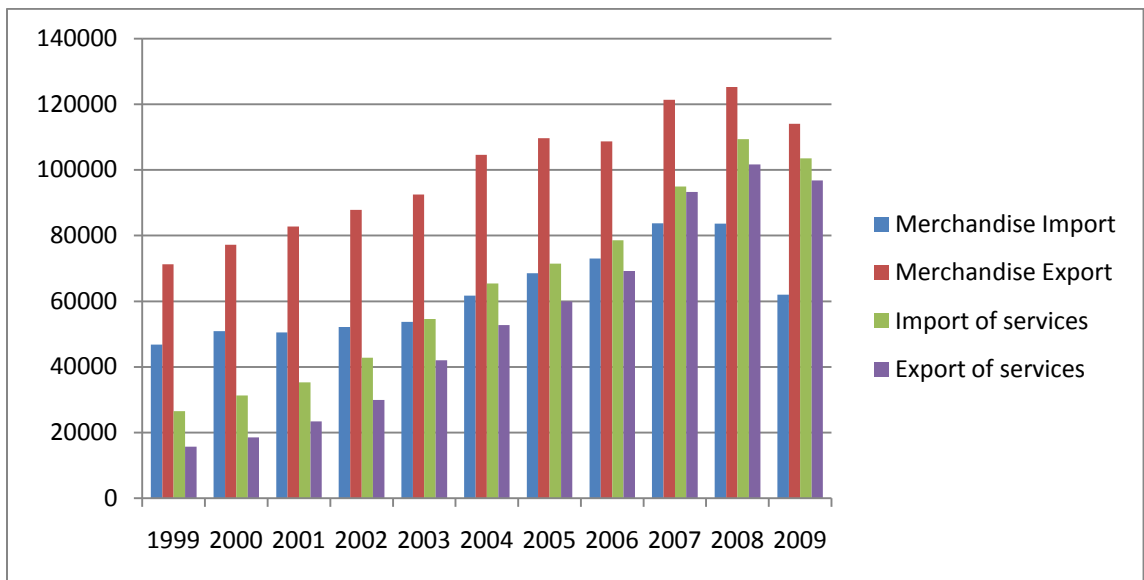
Source: Made by author based on data from www.unctad.com

The above diagram describes the commercial flows of Ireland and we can notice that opposite to the other countries where merchandise trade was the important part of their exports and imports, this country relies a lot on the service sector too. Also, analysing the graph it can be pointed out that this country had the lowest decrease in 2009 compared to 2008, which proves the correct policies Ireland implemented during the financial squeeze.

In general, an upward trend can be noticed for both inflows and outflows of services and merchandise, the pick being registered in 2008. The highest growth rate of import was in 2004 for goods (14.77%) and 2003 for services (27.48%) and the lowest in 2009 for both merchandise and services (-25.85% and respectively – 5.34%). On the other side, exports growth rate registered the highest value in 2003 for both goods and services (13.03% and respectively 40.67%) and the lowest also in 2009 as in the case of imports (-8.93% and respectively -4.76). According to Central Intelligence Agency, Ireland is a trade dependent economy, especially after the burst of the financial crisis, when the domestic consumption and business investment worsened. Thus, the export sector, dominated by foreign multinationals, has become a key instrument that could stabilize the economic situation in the country.

Diagram 9: *The commercial flows of Italy for the period 1999-2009, million Euro*

Source: Made by author based on data from www.unctad.com

The above diagram describes the commercial flows of Italy during the period 1999 till 2009 and we can point out that merchandise trade is dominant if compared to the service one. In general, Italy is performing well in terms of trade as it is among the best 10 world exporters and importers based on the data from the World Trade Report 2010. This can serve as a proof that the Italian goods are quite competitive, can easily penetrate and are in demand on the external markets. As in the above analysed countries, the pick of trade was in 2008, which proves that that year can be considered the best for the all European states.

Analysing the growth rate of import for Italy, the present write can notice that it was the highest in 2003 for goods (20,74%) and 2007 for services (21,25%), while the lowest was in 2009 for both merchandise and services (-26,97% and respectively -10,63%). At the same time, the growth rate of exports was the highest in 2007 for goods (19.86%) and in 2003 (18.74%) for services, while the lowest in 2009 for both merchandise and services (-25,44% and respectively -14,60%). Also, it should be mentioned that the balance of trade for goods was always negative starting with 2004, while for services starting with 2001(except for 2004). The biggest trade deficit was registered in 2008 for goods (19 093

million Euro) and 2009 for services (14 026 million Euro). It can be pointed out that even in years of economic stability the imports of Italy were higher than exports.

**Diagram 10:** *The commercial flows of Netherlands for the period 1999-2009, million Euro*
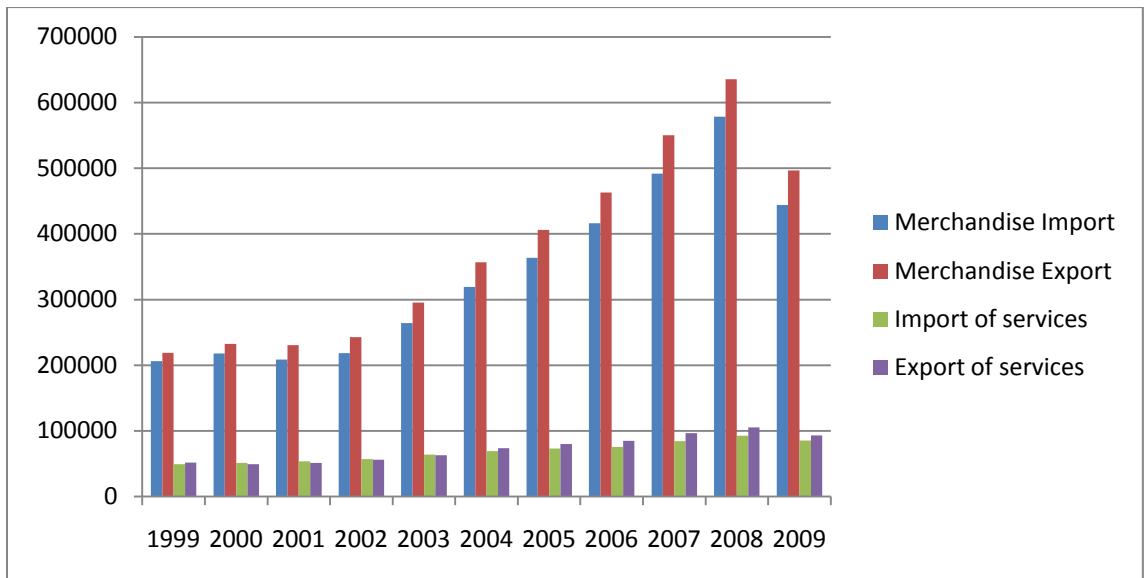
Source: Made by author based on data from www.unctad.com

The above diagram describes the commercial flows of the Netherlands and can be noticed that the trend for services is nearly constant, just a slight increase can be observed across the period, while the one for goods rose significantly being in 2008 three times as high as in 1999. The significant decrease in 2009 can be explained due to high exposure of Dutch banks to U.S. mortgage-backed securities and due to the fact that the economy is highly dependent on financial services. As in the case of Ireland, the Netherland's economy is an open one and based on foreign trade.

The balance of trade is always positive for goods during the analysed 11 years and the same is for services except for the period 2000- 2002 when it was negative. Merchandise commercial flows are dominant if compared with the service ones. The growth rate of exports was the highest in 2003 for goods (21.59%) and in 2004 for services (16.68%), but the lowest in 2009 for both merchandise and services (-21,86% and respectively -11,59%). At the same time the growth rate of import had the pick in 2003 for goods

(21.02%) and in 2007 for services (11.98%) and the lowest again in 2009 (-23,30% and respectively -7,67%).

Diagram 11*: The commercial flows of Portugal for the period 1999-2009, millions Euro*

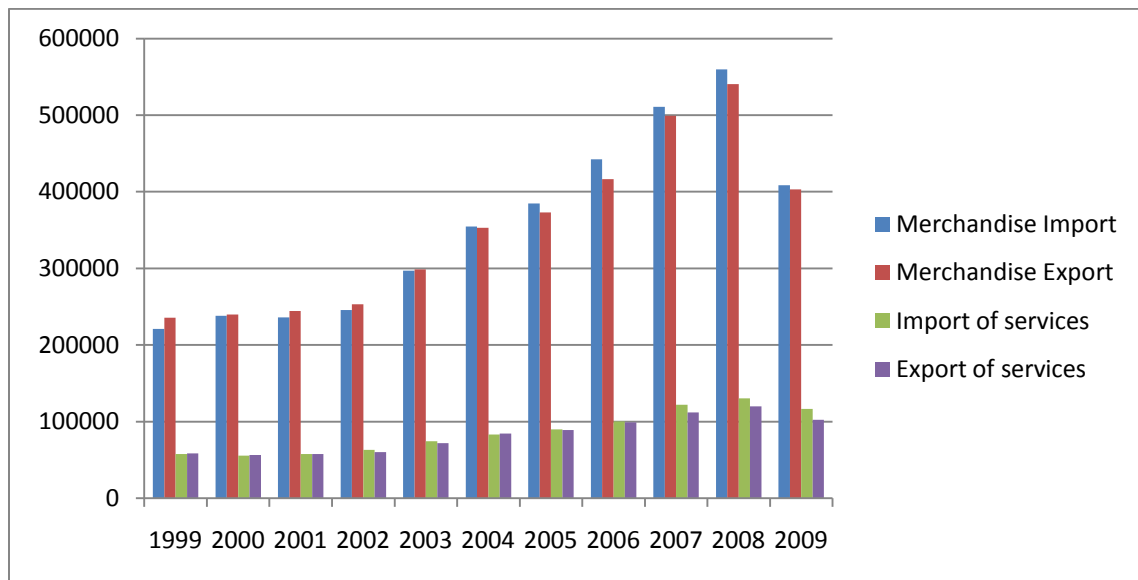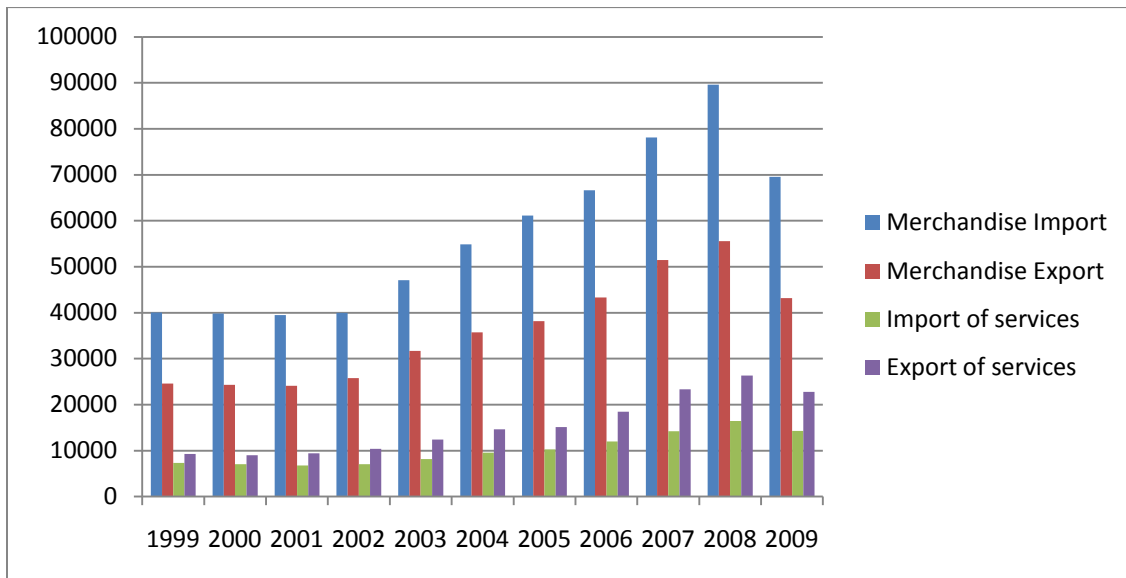
Source: Made by author based on data from www.unctad.com

The above diagram describes the commercial flows of Portugal during the period 1999-2009 and we can notice the same trend of ups and downs of imports and exports. We can point out that the balance of trade for merchandise is highly negative during all these years. This can be explained due to the low competitiveness of merchandise in this country, as a result the demand for the Portuguese goods is not so high on the external markets (CIA 2011). At the same time, the balance for services is positive and it can be explained by the fact that the country is characterised by diversified and increasingly service-based economy.

From the above diagram, we can point out that import was the highest in 2008 for both merchandise (89609.95 million Euros) and services (16468.20 million Euros) and the lowest in 2001 for both goods and services (39457.25 million Euros and respectively 6754.47 million Euros). At the same exports also were the highest in 2008 (55589.27

million Euro and respectively 26298.80 million Euro) and the lowest in 2001 for goods (24087.76 million Euro) and 2000 for services (9016.39 million Euro).

Diagram 12: *The commercial flows of Spain for the period 1999-2009, millions Euro*
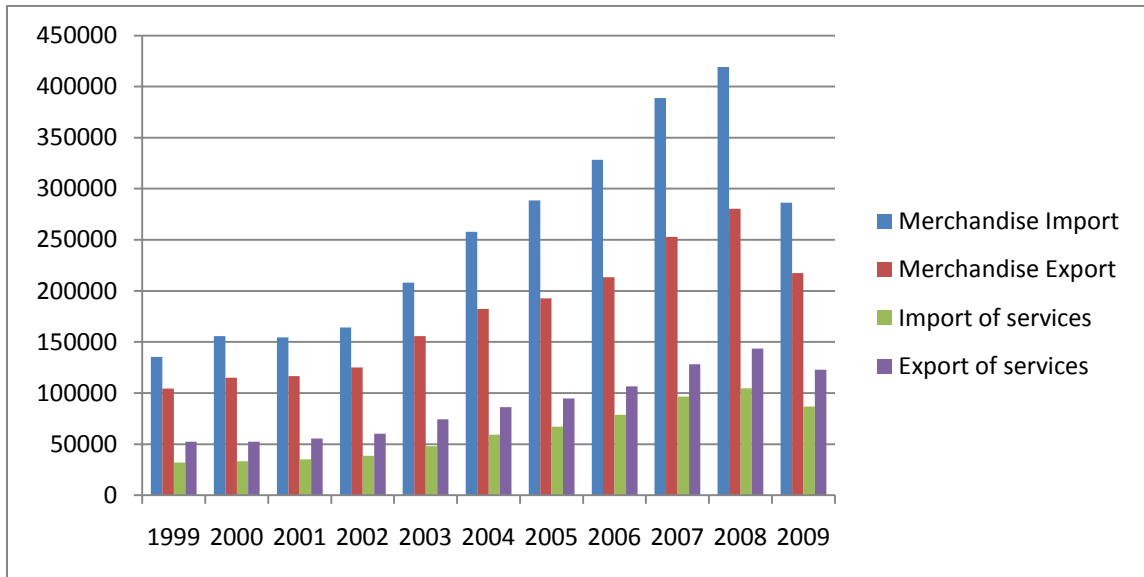
Source: Made by author based on data from www.unctad.com

The Diagram 12 describes the commercial flows of Spain for the period 1999- 2009 and we can notice the increasing trade of imports and exports across the period except for the last year, when the financial crisis has started. Additionally, the present writer can point out that the commercial flows of merchandise registered a higher increase than the ones of services. The balance of trade for goods is negative for whole the period, furthermore the imports were rising quicker than exports, while the balance of trade is positive for services. As in the case of other countries, the most intense commercial flows were in 2008 and the lowest in 1999. Thus, we can notice that even if the financial crisis was one of the biggest in the history the decrease of trade was not so big. This leads us to the idea that the bailout policy used by the governments of many states, inclusively Spain proved to be adequate and stabilising the economic situation in the country.

The highest growth rate of imports was registered in 2003 for both goods and services (26.66% and respectively 23.86%) and the lowest in 2009 (-31.66% and respectively -17.03%). At the same time, the growth rate of exports had the pick also in 2003 for goods

(24.54% and respectively 23.34%) and the lowest point in 2009 (-22.38% and respectively -14.33%).

Diagram 13: *The commercial flows of Sweden for the period 1999-2009, million Euros*
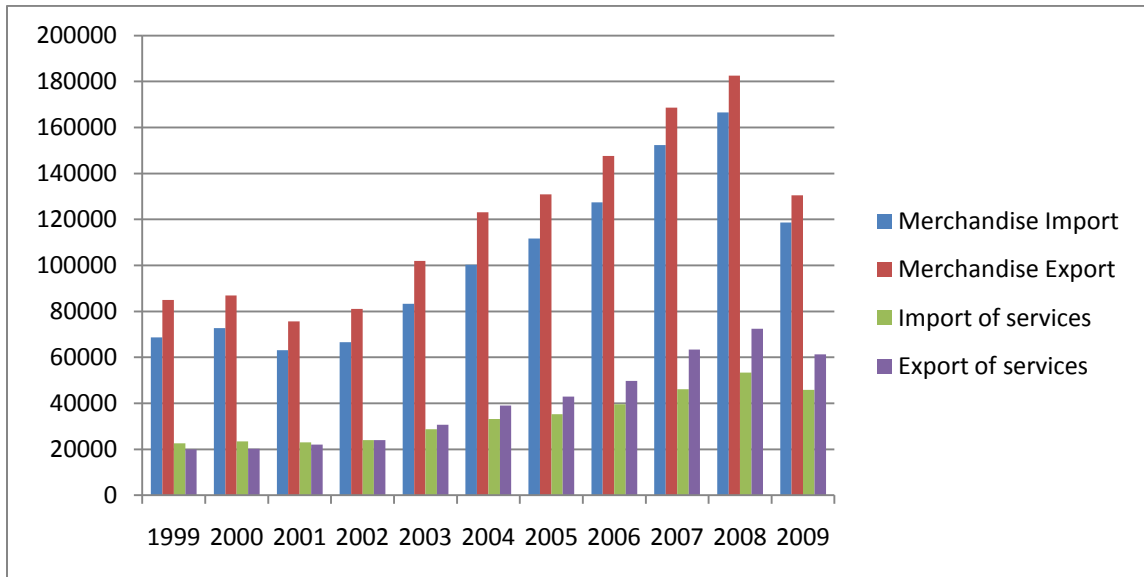
Source: Made by author based on data from www.unctad.com

The diagram describing the commercial flows of Sweden shows an evident increase of the merchandise trade during the analysed period, as the country is trade oriented with a strong export potential. Furthermore, the present writer would like to stress about the positive balance of trade both for merchandise and services that the country has between 1999 and 2009. At the same time we can notice the quite high slowdown in 2009. Thus, even if the country was not sharing the common currency, had healthy finances and it was an industrialised one, Sweden could not remain unaffected by the financial crisis (CIA 2011). This proves one more time the contagion phenomena that was present and contaminated the whole world in a lower or higher extent. Another explanation may be the decrease of internal demand and production that logically led to lower imports and exports.

As in the majority of the countries analysed by us the merchandise trade is dominant above the services one. The growth rates of import was the highest in 2003 for both goods and services (25.08% and respectively 20.09%) and the lowest in 2009 (-28.77%

and respectively -14.03%). Regarding the export side, the highest growth rate was also in 2003 for both merchandise and services (25.59% and respectively 27.68%) and the lowest in 2009 (-28.52 and respectively -15.35%).

Diagram 14: *The commercial flows of United Kingdom for the period 1999-2009, million Euros*
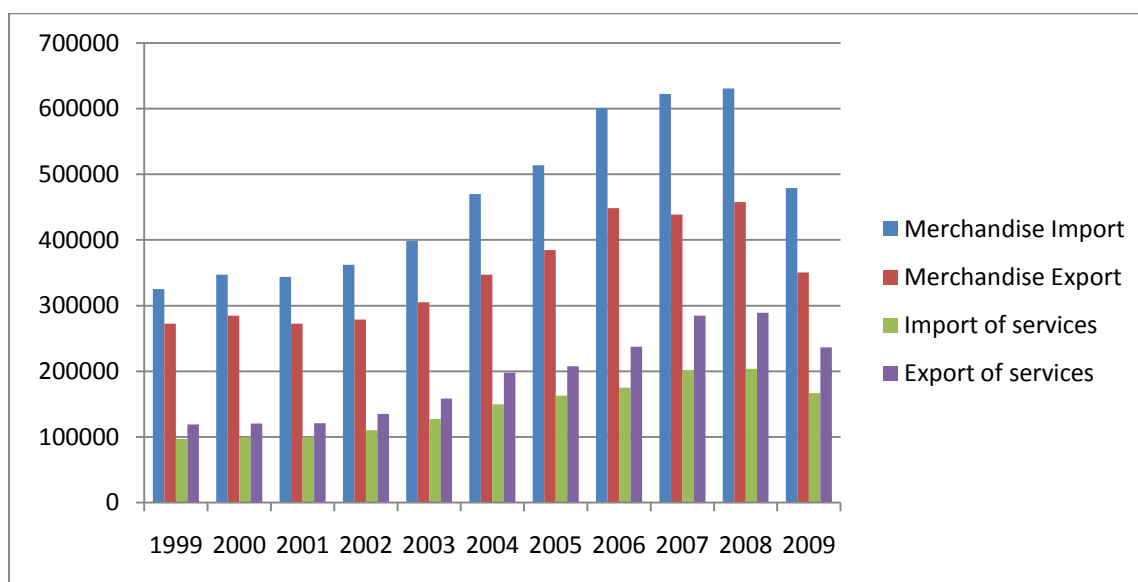
Source: Made by author based on data from www.unctad.com

The above diagram presents the commercial flows of the United Kingdom for the analysed period 1999-2009 that is an important trading and financial player, as well the third largest economy in European Union after Germany and France. The service sectors accounts more and more from GDP, while the industry percentage is decreasing, so even from the graph we can notice that the merchandise trade was not raising as much as in the case of the other countries. We can observe that even in 2008 when the other partners of the EU14 were performing the best ever in terms of trade, United Kingdom was not so successful. The country was seriously affected by the financial crisis due to the high interconnection with USA banking system, but as well due to the internal disequilibrium on the financial market. The slowdown in exports of goods can be noticed from 2007, at the same time the balance of trade for merchandise is always negative. At the same time the service sector, especially banking, insurance and business consultancy of high quality assured to England a positive balance of trade for services (CIA 2011).

Concluding, the present writer can point out that the economic performance (GDP) matters for the development of trade. The same could have been pointed out and from the econometrical part of the paper, where this indicator had the highest value and was always significant. Not only GDP influences trade, but also a vice versa relationship can be pointed out, as commercial flows have lasting effects on economic performance. At the same time, trade shows to be more volatile than GDP, which can be as well explained that trade is more sensible to the shocks that happen in the economy. Additionally, a constant domestic demand and trade diversification can be considered as some of the basis factors that ensure the economic stability during the crisis (Izurieta & Maystre 2010).

Other issues that can be highlighted from the above analysis is that the Nordic countries perform better in terms of trade, as well of GDP and those states that focus more on trade with services are showed to be less affected by the crisis. Also, the financial squeeze from 2007-2009 had the biggest negative impact on the evolution of commercial flows, as the majority of countries registered in that period the highest decreases in trade, having negative growth rates. Regardless of this issue, the level of imports and exports of both exports and imports was higher than in 1999 and furthermore along the whole analysed period, could have been noticed an increasing trend of commercial flows. This may lead us to the idea that Euro had a positive impact on trade or at least that it didn't influence commercial flows negatively.

At the same time, from the above analysis, the present writer could notice that all the countries had the pick of trade in 2008 and all registered negative growth rates for both imports and exports in 2009. So, the situation can be described as a contagious one, where all the member countries of the European Union had to suffer after this financial turmoil. This is the explanation why the present writer decided to present the process of trade contagion for our sample of countries in the next chapter.

7.2 Contagion phenomena and its impact on trade

Trade liberalisation is one the main goals to which aim every country that wants to intensify its commercial flows with the external partners and to benefit from an easier penetration of the domestic goods and services on the foreign markets. An open economy is perceived as a competitive one that can "survive the battle of nations".

It is assumed that liberalisation is a primary step for integration, as well as the last being a necessary condition for reaching the first. At the same time these two phenomena are leading to globalisation and more important to development. Regardless of these issues, more and more economists are concerned lately that besides the positive results the countries achieve while liberalising their trade and becoming more integrated, they are as well exposed to some "toxic" phenomena such as contagion. This implies that negative processes, as crises of any nature, are also spreading quicker in the case when countries are more integrated. A good example for proving this can be the lately financial crisis that shook the country's economies from around the world and caused a significant decrease not only of GDP but as well of the commercial flows. This slowdown has been noticed as well when analysing the diagrams from the previous chapter.

The same situation was registered in 2001 when the Dot-com crisis burst and also had a negative influence on the trade of our sample of countries. Thus, the present writer would like to stress that integration and liberalisation are going to offer benefits to countries only in case of stable economic situation, while in case of crisis the opposite should be expected. That is why many countries for the period of the financial instability pleaded for a more protectionist policy in order to be able to protect and even support their domestic producers from foreign competitors.

Analysing which are the factors that may stand behind the contagion process and that can intensify the transmission mechanism, the present writer had the intuition that the common currency may be one of them. Actually after performing the econometric research we could have noticed that Euro doesn't have such a big influence on trade as it was expected, as well in the period of crisis countries outside of the Euro zone were affected as well. This leads as to the idea that there were other factors besides common

currency that could spread the crisis among our sample of countries or influence the decrease in trade during the period 2006-2008. One of them could have been the degree to which the domestic banking system was interconnected among countries and primordially with the United States. If the state was involved in schemes with the toxic derivates on the financial market, then the economy is going to be quicker and at a higher extent contaminated than in the case when the financial system is a healthy and more independent one. Surprisingly, Rose and Spiegel (2009) in their paper "*Searching for international contagion in the 2008 financial crisis*" found out that countries that were more exposed to toxic US assets do not register more intense crises, even if they analysed different financial and real transmission mechanisms that might make these states sensible to an US slowdown. The same opinion was shared by Morales L. & Andreosso-O'Callaghan B. (2010) who did not find strong evidence supporting contagion effects coming from the US stock markets, neither at global nor at the regional level, explaining this as depending on how you define contagion, and on how you measure it.

A different conclusion regarding the problem of contagion in the context of the actual financial crisis was reached in the paper "*Contagion among Interbank Money Markets during the Subprime Crisis*" by Abbassi & Schnabbel (2009). The authors analysed the intensity of correlations of Repo spreads between USA, UK, and Euro area and found out that since the second half of 2007 these regions have become highly correlated, fact which can be explained by the contagion effect. Interestingly, Abbassi & Schnabbel (2009) pointed out that shocks are not only transmitted from the US to the UK and to the Euro area, but also in the opposite direction. Additionally, in the paper "*Contagion Effects of the US Subprime Crisis on Developed Countries*" Horta P. *et al.* (2008) are analyzing if there is any contagion from the USA market towards the developed countries (our sample of countries are developed ones), as these economies are stronger and could be more resistant to the international shocks. The result was also positive, showing the presence of contagion even for developed countries, but having different intensities. The same conclusion was reached by Horta P. *et al.* (2009) in the paper "*Contagion Effects of the Subprime Crisis in the European NYSE-Euronext Markets*", where they point out that those countries which appear to be connected with stronger links to the US market, in both pre crisis and crisis period, are exhibiting the strongest signs of contagion.

As we know, countries that are part of European Union and especially those that share the common currency, their financial policy is coordinated by the European Central Bank, which means that in a higher or less extent the countries are dependent on each other. A proof in this respect can serve the case of Greece, when all the member states contribute financially in order to save it from default and this is mainly not only because they are concerned about the situation in Greece, but because they know that this is going to have a negative impact on the all member countries. Thus, the interconnection and contagion among these countries cannot be neglected.

Another factor that can stand behind contagion is, as we mentioned and above, the level of integration. As our countries are quite advanced in this process because they are part of the European Union that is considered one of the most integrated areas due to the use of the common currency. No other Union has achieved this level of integration until now. As we have mentioned before, a liberalised and integrated country is considered to be a more developed one, with a higher level of GDP. From this statement can be concluded that not only GDP influences trade, but at the same time intense commercial flows lead to higher economic wealth. Thus, intense trade between countries may also mean higher level of interdependence and contagion, as the decrease in commercial flows would automatically lead to the slowdown of GDP.

Thus, intense commercial flows can be viewed as spreading contagion, as they represent a transmission mechanism that interconnects the economies around the world. A simple example may help us to perceive this better, so if country A imports a lot from country B, it means that the first has not so developed comparative advantages for that good/service as the second one and as result it depends on the inflow from the B market. In case they the second country is not able anymore to produce it, this leads not only to the decrease of export of B country, but as well to the decrease of import of the A country. As we know, our sample of countries has quite intense commercial flows between each other so they are highly integrated. This could be the reason why Euro for these states was not as significant as it could have been for the other countries that were trading among them not so much before.

The same idea as was presented by the present writer that trade by itself can be considered a channel for the spread of contagion is shared in the paper "*The Impact of the Global Recession in Europe -The Role of International Trade*" by Keppel & Worz (2010). The authors point out that trade can be considered an important transmission mechanism especially in the case when countries are highly exposed to those exports that register significant declines. Furthermore, they describe the process by analyzing both sides, supply and demand, these actually being the main factors that led to decrease of trade. By supply, they mean the trade financing that worsened, thus those companies that were dependent on external credits are in the situations when they don't have sufficient capital in order to maintain the previous production capacity. By demand, they mean the global consumption that decreased once the crisis has burst. These two factors led to the downturn of the commercial flows and spread of contagion around the world.

Analysing also the supply side, the present writer can identify one more cause that could have affected the decrease of trade. This is related to the vertical specialisation of supply chains that causes countries to be dependent on each other. Thus, if one part of the puzzle is registering problems, the others will not be able to produce the final good. In this way, the contagion phenomenon is spread across the region and the world, respectively. As a result, the present writer can conclude that as in the case of liberalization, specialization is good, but in times of crisis it may have negative effects on trade.

Another not less important factor for spreading the contagion is if the countries are interconnected by means of Free Trade Agreements (FTA), there are many papers that discuss this issue and as presents in the literature review it shows to have a significant impact too. Thus, Baldwin & Jaimovich (2010) in the Paper "*Are Free Trade Agreements Contagious?*" find a positive correlation as well. Authors link the intensity of contagion to the importance of partners' markets, so if the external trader account for a higher share in your commercial flows, you are expected to be more influenced in case of the partner's crisis.

Analysing the above potential factors of contagion among the European countries (EU14), but as well based on the results other economists obtained by using different econometric models, it can be pointed out that there is evidence of presence of this

phenomenon. At the same time, the present writer would like to stress that this is not the main hypothesis of this is paper, but it comes only to complete the subject that is researched here. Thus, the analysis was made mostly based on economic intuition of the present writer and the results of other scientists. Regardless of this issue, the present writer considers contagion very import under the actual development of the world economy and in conditions of strong globalisation process and an interesting theme for further research in terms of trade.

7.3 Actual and future challenges of the European Trade and potential solutions for its further development

In previous chapters the present writer has tried to identify and present the main determinants of trade both in stable economic situations, as well as during crisis. Performing the econometric analysis, it was pointed out which are the main factors that influence commercial flows and in which extent each of them contributes to the increase or decrease of trade. At the same time, the main conditions for commercial flows integrations were highlighted, as liberalization and globalization. Taking all these into account, the present writer would like to come with some proposals, directions and strategies that can help trade to revive after the financial crisis as well as to assure a successful future development. Thus, the present writer would try to answer the following question: what should be done with respect to trade in order to overcome the actual protectionist measures imposed by trading partners, as well as to increase the global demand. These being just some problems with which the actual players of the commercial market are trying to find a solution to.

 The recovery of the economies and at the same time the improvement of commercial flows among states depends on the geographical orientation of their exports. In the case of our sample of countries that are mostly trading with developed countries or other European Union countries, it will not be too easy as it demands for a high level of competitiveness. Not a lower influence is going to have the way companies are going to reorganize their production capacities in order to be able to resist in a globalised and

developing world economy. At the same time, governmental policies regarding commercial policy are quite important as well as the competition policy on the domestic market as it can lead to qualitative and competitive goods and services that an e exported in the end. Furthermore the ECB pleads for a further integration of countries within the European Union, as this being considered the best way to achieve high levels of trade integration too. Thus the actual protectionist measures adopted by some countries in order to protect the domestic market in times of crisis should be abolished as soon as possible (Forster et al. 2010).

Another important issue that has to be pointed out about the European trade is that it was quite significantly affected by the financial crisis, especially the intra European one. And, this happened at the moment when the producers were struggling to reorganize their production in order to be more competitive and to adjust to the world globalization process. When speaking about Europe, we have to point out that mostly the export potential of countries than the import was affected. Furthermore, the influence of the financial squeeze on commercial flows is different for each country, mostly were affected those exporting capital and manufacturing products, as Germany, Finland and Austria. This trend could have been noticed even from the previous chapter analysis. As a solution for this problem, the present writer would propose countries to maintain their specialization, but at the same time to have some back up plans for such special situations that can be used in order to prevent the shortages in production.

According to ECB, another factor that worsened the situation of the European trade is the specialization in capital-intensive, labour-intensive and research-intensive goods in comparison to other developed countries from whole over the world that are focused more on high-tech industries. Nevertheless, this cannot be assumed by all European countries, as it depends from state to state. Ireland, for example, has been mostly specialising in exports of high-tech goods, while Greece and Portugal have oriented to exports of low-technology industries. This has to be taken into account when we speak about improving the specialization of countries, in order they to be able to rehabilitate easier and quicker after the crisis. Actually for the squeeze period those countries focused more on low-technology goods seemed to perform better than those in more sophisticated

once. This could be because the consumption decreased, so people were spending less on expensive goods and serviced and purchasing the most necessary ones. Anyway, the present writer would not recommend to maintain the low-technology specialization that's seems to be better in instable periods, but to advance it as only in this way is possible to improve your competitiveness on external markets. Only introducing technologies and innovation in production, companies can achieve a higher level of development. Innovation and technologies are the main instruments that can help states to escape from protectionism and be open to further liberalization and deeper trade integration.

As we have mentioned above, the problem of external financing was very important in propagation of contagion and worsening of commercial flows of countries around the world and inclusively in Europe. Thus, the present writer would recommend that companies control more closely the indebtedness ratio so that the entity does not depend significantly on the external finances. As, it s known moderate borrowing is bringing advantages for the firms as they pay less taxes, while big debts can lead to its insolvency.

Analysing how the production process should be organized in order to improve the efficiency of the company and in the end the quality of the goods and services, firms should organize well not only finances, but as well other production factors. Due to the fact that lately the vertical specialization was becoming more and more used, there is a certain and even increasing dependency between companies whole over the world. That is why the relationship with suppliers is very important and it should be coordinated in such a way that no shortages occur. Additionally, the cost of productions is very important, so companies should struggle to minimize their expenditures in order to be able to compete with goods that come from such countries as China and India. This leads to uncompetitive prices for the European goods if compared to Japan and United States (US). From European Union, only United Kingdom (UK) has a better situation in this area. On the opposite side are countries that registered worsening of their competitiveness as Belgium, Spain, and Italy, the last two having as well lower labour productivity than in the other European Union states (Forster et al. 2010).

Additionally to all these competitiveness and production costs, the European countries had worse comparative advantages when the crisis burst due to the appreciation of Euro

69

with respect to Dollar. In this situation, the price of goods and services that were to be exported increased even more and made them even less competitive on the external market compared to those coming from low-cost countries (India, China). The positive issue was that once the contagion spread in Europe too, the value of the Euro started to decrease too, so this was not anymore such an important problem for trade development.

All the causes that we pointed out above as having impact on trade and its development are somehow interrelated, that is why the present write will try to identify this connection among them. The following diagram describes and at the same time answers to our questions formulated at the beginning of this chapter, what should be done that the protectionism is abolished and the demand increases.

Diagram 15: *A potential economic and commercial mechanism to achieve trade integration*
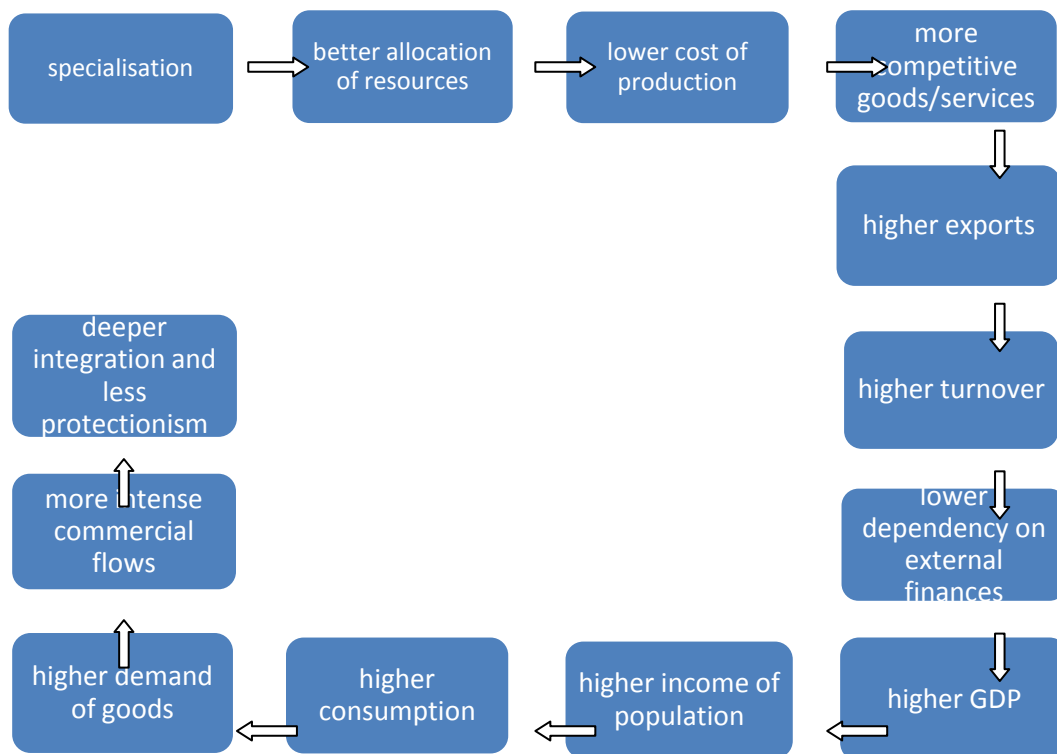
Source: Made by author

Even if the present writer did not link the last piece of the cycle with the first one it should be pointed one that it is not excluded that higher integration may lead to deeper specialisation. Countries will tend to highlight more their competitive advantages and try to differentiate their products and services, as the competition on the market will be higher. As we can notice even in this scheme, liberalization is the key of progress. But, even the president of World Trade Organisation (WTO), Mr. Lamy recognizes that this phenomenon had as well some negative impact on the economy that is why he pleads for adequate domestic policies, otherwise there is no reason for further liberalization. This can affect mainly the developing countries, as their producers will not be able to survive the competition coming from rich countries that are innovation oriented. In the same way, small companies will have fewer chances to entry on the market with their products/services and from this will have to win only the big, multinational companies. In reality no new working places will be created and the unemployment will remain the same level if not worse. As a result, we cannot speak about laissez-faire and free markets that are able to regulate by themselves, now is a period when there is necessary regulation. Thus, taking into account all these issues no equal treatment and conditions will be assured for all participants of the trade market. (Stichele 2008)

When we speak about liberalization, we do not mean only in terms of trade with goods, but as well with services, especially the financial ones. As we know, a poor regulation of the financial markets was one of the main causes of the 2007-2009 squeeze. That is why it is considered that GATS and FTA's if in such conditions promoted will lead to a situation that will make impossible anymore to coordinate and supervise the markets. Besides this, the present writer believes that further liberalization would be possible in conditions when new and small enterprises will be supported by government for some period of time until they are able to survive the completion. In this way, we can register a development of both large and small companies and an improvement of the economy. The same scheme should be applied in case of less developed countries that should beneficiate from more privileged trade agreements until they reach a certain level of commercial flows.

This being mentioned, the present writer will try to summarise the above proposal in a diagram with directions that have to be taken at different levels.

Diagram 16: *The main future directions for the increase of European commercial flows*

Micro level ⟺	Macro level ⟺	Global level
efficient allocation of resources	adequate public, commercial, competition policies	coperation between countries by signing agreemenst
lower cost of production	good infrostrocture and legislation	elimination of the differences among rich and poor countries
no production shotages	assuring regulation of the markets when necessary	supporting less developed economies
back-up plans for uncepected shocks	supporting innovation and high-tech companies	elimination of barries in terms of trade
profits based on healthy competition		further liberalisation and integration in a globalised world

Source: Made by author

In the actual conditions when the future is very uncertain the European Union Economy is shaking, companies should more attentively analyse their capacities and be prepared for any unexpected shocks that may occur. At the same time, government has to know when to interfere in order to have efficient markets and durable development. Only in such a case, there is place for further liberalization that will lead to a constructive integration of the European commercial flows.

Chapter VIII

Conclusions

The importance of the international trade is continuously increasing due to the acceleration of the globalization process. As a result, every country tends and it is in a certain way imposed by the actual situation to liberalise more and more in order to be able to achieve deeper economic integration. At the same time, this implies a higher level of competition that demands from nations to improve their competitiveness so that they can access the external markets. This leads to specialisation of the countries and use of their comparative advantages for being able to come with specific and even unique goods and services. Hence, trade becomes an important tool for wealth creation and contributing to the durable development of the economy.

Thus, economists have a special interest in researching the commercial flows among countries and regions and estimating the benefits and gains of intense trade. From the literature review we could notice the multitude of papers that debate the importance of Euro introduction, signing of FTA's, speaking the same language or sharing the same border for the increase of the commercial flows. Now, once the financial crisis has burst and when scientists doubt the value and the future existence of the common currency for the EU member countries, the present writer was interested in researching the subject as well and concluding based on her own results. Furthermore, there are nearly no papers that analyse the crisis period as well and this can help to widen the available literature in this area.

A sample of 14 European Union countries, both Euro zone members as well as non Euro ones were selected for making possible this analysis. The research was based on a period of 11 years (1999-2009) and implied the pre-crisis and crisis period. The used tool was gravitational model that is considered one of the best estimation instruments when analysing flows .This is due to its wide and clear econometric application, but as well due to the availability of data necessary to perform the research. The OLS model was used as the basis econometric tool and Gretl was the software program applied for running the gravitational equation and getting the results. As control models were used Fixed and Random Effects models that are by nature specific for the panel data analysis.

Analysing the results, the present writer could notice that GDP, FDI and population have a higher impact on trade than the dummy variables, as they were in all the models significant at the highest confidence levels. If referring to the coefficients, they did not change too much across models, only the presence or absence of stars could signal that the model is performing worse or better. As we could notice, Euro was never significant at any important confidence levels in OLS model, while when applying Random or Fixed effects some significance was present. As the last two models are more adequate for panel data, we can conclude that the OLS models were presenting a bit biased results in terms of significance of variables. Additionally, Robust Standard Errors option was used to correct for heteroskedasticity and several ratios were made to avoid collinearity. At the same time, the present writer would like to point out that gravitational model is quite limited because it does not allow us to conclude about the specific factors that influence each pair of countries, as we get the result for the whole sample. That is why when selecting the countries, the similar ones were chosen in order the group to be more homogeneous.

Although the gravitational model may be not so diverse in its results, it helped us to prove our hypothesis and this was the main aim of this research. Hence, the level of development of the country (GDP) proved to have a high influence on trade, as well as the amount of FDI that are attracted in the country and the number of population. Distance is more important that common border and language, while Euro being significant for trade only in more advanced models. In the crisis period the indicators

showed to be more sensible, so that any percentage (1%) increases/decrease in the independent variables will lead to higher percentage increase/decrease in the crisis period than in the stable one. Concluding, the present writer would like to point out that the subject still can be widen and there is high potential for further research as well as improvements.

Chapter IX

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APPENDIX A

Table 1: *Imports and Exports of merchandise and services of Austria, 1999-2009, million Euro and %*

Nr	Year	Merchandise Import	Merchandise Export	Balance of trade (goods)	% change in Imports	% change in Export	Import of services	Export of services	Balance of trade (services)	% change in Import	% change in Export
1	1999	71387.69994	66122.85692	(5,265)			17260	23479.3	6,219		
2	2000	72215.38916	67543.27595	(4,672)	1.16	2.15	16462.4	23092.5	6,630	(4.62)	(1.65)
3	2001	74569.94692	70691.57374	(3,878)	3.26	4.66	17554.6	23978.3	6,424	6.63	3.84
4	2002	77929.14406	78301.23985	372	4.50	10.76	18727.2	25861.2	7,134	6.68	7.85
5	2003	99304.93185	96924.95487	(2,380)	27.43	23.78	23737.6	32454.9	8,717	26.75	25.50
6	2004	119690.656	118163.6282	(1,527)	20.53	21.91	27985.8	37945.1	9,959	17.90	16.92
7	2005	127275.4905	125131.3791	(2,144)	6.34	5.90	30730.2	42589.2	11,859	9.81	12.24
8	2006	137089.8926	136629.6952	(460)	7.71	9.19	33514.2	46112.4	12,598	9.06	8.27
9	2007	162819.2325	163401.5648	582	18.77	19.59	39131.1	54307.9	15,177	16.76	17.77
10	2008	183544.6986	180552.6311	(2,992)	12.73	10.50	42865.9	62110.4	19,245	9.54	14.37
11	2009	142802.5712	137043.4177	(5,759)	(22.20)	(24.10)	37141.3	53146.2	16,005	(13.35)	(14.43)

Source: Calculations made by author based on the data from www.unctad.com

Table 2: *Imports and Exports of merchandise and services of Belgium, 1999-2009, million Euro and %*

Nr	Year	Merchandise Import	Merchandise Export	Balance of trade (goods)	% change in Imports	% change in Export	Import of services	Export of services	Balance of trade (services)	% change in Import	% change in Export
1	1999	164964.679	179319.7817	14,355			31230.6	32619.6	1,389		
2	2000	177072.9126	187906.0884	10,833	7.34	4.79	32350	34429	2,079	3.58	5.55
3	2001	178513.7053	190188.5513	11,675	0.81	1.21	33604.3	35397.3	1,793	3.88	2.81
4	2002	197374.0833	215106.2299	17,732	10.57	13.10	35862.7	37822	1,959	6.72	6.85
5	2003	234409.9539	255034.877	20,625	18.76	18.56	42862.3	44707.9	1,846	19.52	18.21
6	2004	285109.2426	306317.0611	21,208	21.63	20.11	49023.4	52708.2	3,685	14.37	17.89
7	2005	318570.6478	334264.5267	15,694	11.74	9.12	51172.1	56144.1	4,972	4.38	6.52
8	2006	351665.7619	366608.4446	14,943	10.39	9.68	53249.7	59515.8	6,266	4.06	6.01
9	2007	411007.4729	430375.4841	19,368	16.87	17.39	68942.3	74621.1	5,679	29.47	25.38
10	2008	464413.331	469923.7205	5,510	12.99	9.19	83225.7	87788.6	4,563	20.72	17.65
11	2009	350529.2812	368357.3907	17,828	(24.52)	(21.61)	74395.3	80979.4	6,584	(10.61)	(7.76)

Source: Calculations made by author based on the data from www.unctad.com

Table 3: *Imports and Exports of merchandise and services of Denmark, 1999-2009, million Euro and %*

Nr	Year	Merchandise Import	Merchandise Export	Balance of trade (goods)	% change in Imports	% change in Export	Import of services	Export of services	Balance of trade (services)	% change in Import	% change in Export
1	1999	45796.32704	50343.09255	4,547			18401.5	19981.5	1,580		
2	2000	45444.64972	51165.79455	5,721	(0.77)	1.63	21062.7	23721.3	2,659	14.46	18.72
3	2001	45283.65717	51661.36341	6,378	(0.35)	0.97	22120.9	25134.4	3,014	5.02	5.96
4	2002	50082.48133	57223.16655	7,141	10.60	10.77	24305.1	26666.6	2,362	9.87	6.10
5	2003	57297.82969	66360.99023	9,063	14.41	15.97	28254.2	31672.4	3,418	16.25	18.77
6	2004	68034.79993	76941.45608	8,907	18.74	15.94	33401	36304.3	2,903	18.22	14.62
7	2005	75550.50484	85086.33096	9,536	11.05	10.59	35905.7	42376.55	6,471	7.50	16.73
8	2006	85430.80277	92475.61687	7,045	13.08	8.68	45231.6	52307.6	7,076	25.97	23.44
9	2007	97895.65125	102873.5213	4,978	14.59	11.24	53997.6	61965.4	7,968	19.38	18.46
10	2008	109534.3703	116093.8108	6,559	11.89	12.85	62431.8	72467.7	10,036	15.62	16.95
11	2009	82494.1257	92968.11407	10,474	(24.69)	(19.92)	51031.2	55040.2	4,009	(18.26)	(24.05)

Source: Calculations made by author based on the data from www.unctad.com

Table 4: *Imports and Exports of merchandise and services of Finland, 1999-2009, million Euro and %*

Nr	Year	Merchandise Import	Merchandise Export	Balance of trade (goods)	% change in Imports	% change in Export	Import of services	Export of services	Balance of trade (services)	% change in Import	% change in Export
1	1999	32144.26302	42283.11556	10,139			7614.71	6521.53	(1,093)		
2	2000	34357.85552	45988.65208	11,631	6.89	8.76	8439.66	7727.99	(712)	10.83	18.50
3	2001	32611.42887	43200.66431	10,589	(5.08)	(6.06)	8104.55	9205.29	1,101	(3.97)	19.12
4	2002	34056.31456	44931.84726	10,876	4.43	4.01	9870.12	10440.8	571	21.78	13.42
5	2003	42416.43737	53050.04796	10,634	24.55	18.07	12148.8	11469.7	(679)	23.09	9.85
6	2004	51350.78151	61410.16321	10,059	21.06	15.76	14562.8	15167.9	605	19.87	32.24
7	2005	58741.94177	65471.05539	6,729	14.39	6.61	17732.1	17009.5	(723)	21.76	12.14
8	2006	69313.50992	77137.20913	7,824	18.00	17.82	18641.3	17520.4	(1,121)	5.13	3.00
9	2007	81594.49606	89904.46142	8,310	17.72	16.55	22715.1	23394.4	679	21.85	33.53
10	2008	91408.60261	96063.60104	4,655	12.03	6.85	30388	31879	1,491	33.78	36.27
11	2009	60082.80443	62369.98509	2,287	(34.27)	(35.07)	22700.6	24983.7	2,283	(25.30)	(21.63)

Source: Calculations made by author based on the data from www.unctad.com

Table 5: *Imports and Exports of merchandise and services of France, 1999-2009, million Euro and %*

Nr	Year	Merchandise Import	Merchandise Export	Balance of trade (goods)	% change in Imports	% change in Export	Import of services	Export of services	Balance of trade (services)	% change in Import	% change in Export
1	1999	316045	325831.5695	9,787			63158.3	81635.3	18,477		
2	2000	338102.6688	326801.9543	(11,301)	6.98	0.30	65509.4	82702.8	17,193	3.72	1.31
3	2001	328331.6671	323107.0481	(5,225)	(2.89)	(1.13)	67053.4	82227.1	15,174	2.36	(0.58)
4	2002	327706.5021	330151.8529	2,445	(0.19)	2.18	73210.8	88733.8	15,523	9.18	7.91
5	2003	397932.2546	391146.7654	(6,785)	21.43	18.47	87564.7	101585	14,020	19.61	14.48
6	2004	470101.4695	451296.4391	(18,805)	18.14	15.38	99686.8	114629	14,942	13.84	12.84
7	2005	503919.9897	463240.0249	(40,680)	7.19	2.65	106962	122221	15,259	7.30	6.62
8	2006	541437.3099	495426.7911	(46,011)	7.45	6.95	113410	128943	15,533	6.03	5.50
9	2007	618645.913	551143.3824	(67,503)	14.26	11.25	129872	149595	19,723	14.52	16.02
10	2008	700618.0032	598785.4442	(101,833)	13.25	8.64	142013	167639	25,626	9.35	12.06
11	2009	550271.5147	474500.366	(75,771)	(21.46)	(20.76)	127416	143474	16,058	(10.28)	(14.41)

Source: Calculations made by author based on the data from www.unctad.com

Table 6: *Imports and Exports of merchandise and services of Germany, 1999-2009, million Euro and %*

Nr	Year	Merchandise Import	Merchandise Export	Balance of trade (goods)	% change in Imports	% change in Export	Import of services	Export of services	Balance of trade (services)	% change in Import	% change in Export
1	1999	474491.6348	544049.0341	69,557			141004	83923.5	(57,081)		
2	2000	495969.6707	550447.2185	54,478	4.53	1.18	137256	83150.3	(54,106)	(2.66)	(0.92)
3	2001	485710.5189	571164.1798	85,454	(2.07)	3.76	141916	88714.3	(53,202)	3.40	6.69
4	2002	487965.941	612921.0101	124,955	0.46	7.31	145154	103144	(42,010)	2.28	16.27
5	2003	603235.7248	749849.213	146,613	23.62	22.34	173059	123873	(49,186)	19.22	20.10
6	2004	714460.1954	908257.918	193,798	18.44	21.13	196756	147498	(49,258)	13.69	19.07
7	2005	776757.6418	970520.7628	193,763	8.72	6.86	211563	166593	(44,970)	7.53	12.95
8	2006	905877.4359	1107121.042	201,244	16.62	14.07	226253	194788	(31,465)	6.94	16.92
9	2007	1053571.607	1319446.792	265,875	16.30	19.18	261298	229156	(32,142)	15.49	17.64
10	2008	1180253.453	1440297.352	260,044	12.02	9.16	291342	261374	(29,968)	11.50	14.06
11	2009	928124.2266	1116769.512	188,645	(21.36)	(22.46)	254524	231262	(23,262)	(12.64)	(11.52)

Source: Calculations made by author based on the data from www.unctad.com

Table 7: *Imports and Exports of merchandise and services of Greece, 1999-2009, million Euro and %*

Nr	Year	Merchandise Import	Merchandise Export	Balance of trade (goods)	% change in Imports	% change in Export	Import of services	Export of services	Balance of trade (services)	% change in Import	% change in Export
1	1999	30557.65783	11079.9042	(19,478)			9250.7	16505.8	7,255		
2	2000	33397.20176	11721.55639	(21,676)	9.29	5.79	11286.4	19238.9	7,953	22.01	16.56
3	2001	31983.66309	11342.32675	(20,641)	(4.23)	(3.24)	11588.6	19455.7	7,867	2.68	1.13
4	2002	31421.12233	10364.92734	(21,056)	(1.76)	(8.62)	9819.22	20142.3	10,323	(15.27)	3.53
5	2003	44749.91418	13351.45492	(31,398)	42.42	28.81	11249.8	24282.9	13,033	14.57	20.56
6	2004	52665.1609	15280.46643	(37,385)	17.69	14.45	14019.9	33085.1	19,065	24.62	36.25
7	2005	54413.91469	17271.40244	(37,143)	3.32	13.03	14742	33914.3	19,172	5.15	2.51
8	2006	63562.27829	20730.70989	(42,832)	16.81	20.03	16366.6	35762.4	19,396	11.02	5.45
9	2007	76144.72216	23548.46941	(52,596)	19.80	13.59	20269.7	43079.7	22,810	23.85	20.46
10	2008	89317.25276	25546.38532	(63,771)	17.30	8.48	24903.3	50472.6	25,569	22.86	17.16
11	2009	59570.32495	19972.89637	(39,597)	(33.30)	(21.82)	20006.9	37788.6	17,782	(19.66)	(25.13)

Source: Calculations made by author based on the data from www.unctad.com

Table 8: *Imports and Exports of merchandise and services of Ireland, 1999-2009, million Euro and %*

Nr	Year	Merchandise Import	Merchandise Export	Balance of trade (goods)	% change in Imports	% change in Export	Import of services	Export of services	Balance of trade (services)	% change in Import	% change in Export
1	1999	46813.14774	71306.19964	24,493			26534.2	15688	(10,846)		
2	2000	50915.21562	77222.02762	26,307	**8.76**	**8.30**	31272.3	18538	(12,734)	**17.86**	**18.17**
3	2001	50513.93723	82765.35401	32,251	**(0.79)**	**7.18**	35338.7	23465.2	(11,874)	**13.00**	**26.58**
4	2002	52151.18829	87848.3869	35,697	**3.24**	**6.14**	42828.7	29900.5	(12,928)	**21.19**	**27.42**
5	2003	53763.38764	92544.20449	38,781	**3.09**	**5.35**	54596.5	42061.1	(12,535)	**27.48**	**40.67**
6	2004	61703.43477	104600.4957	42,897	**14.77**	**13.03**	65384.4	52718	(12,666)	**19.76**	**25.34**
7	2005	68537.27069	109612.9823	41,076	**11.08**	**4.79**	71436.6	59920.2	(11,516)	**9.26**	**13.66**
8	2006	73052.68802	108628.9576	35,576	**6.59**	**(0.90)**	78528.2	69190.5	(9,338)	**9.93**	**15.47**
9	2007	83709.85356	121380.908	37,671	**14.59**	**11.74**	94911.8	93288.6	(1,623)	**20.86**	**34.83**
10	2008	83623.80042	125208.6915	41,585	**(0.10)**	**3.15**	109328	101636	(7,692)	**15.19**	**8.95**
11	2009	62007.40526	114030.3354	52,023	**(25.85)**	**(8.93)**	103485	96795.6	(6,689)	**(5.34)**	**(4.76)**

Source: Calculations made by author based on the data from www.unctad.com

Table 9: *Imports and Exports of merchandise and services of Italy, 1999-2009, million Euro and %*

Nr	Year	Merchandise Import	Merchandise Export	Balance of trade (goods)	% change in Imports	% change in Export	Import of services	Export of services	Balance of trade (services)	% change in Import	% change in Export
1	1999	220843.7804	235784.7249	14,941			57707.4	58787.9	1,081		
2	2000	238167.1316	239923.7618	1,757	**7.84**	**1.76**	55600.8	56556.1	955	**(3.65)**	**(3.80)**
3	2001	236021.6617	244283.8247	8,262	**(0.90)**	**1.82**	57752.5	57676.3	(76)	**3.87**	**1.98**
4	2002	245848.0733	253224.3381	7,376	**4.16**	**3.66**	63166.4	60439.2	(2,727)	**9.37**	**4.79**
5	2003	296841.8102	298651.7519	1,810	**20.74**	**17.94**	74332.2	71766.8	(2,565)	**17.68**	**18.74**
6	2004	354664.5826	353148.3998	(1,516)	**19.48**	**18.25**	83245.9	84524.2	1,278	**11.99**	**17.78**
7	2005	384634.1952	372983.4056	(11,651)	**8.45**	**5.62**	90081.3	89216.2	(865)	**8.21**	**5.55**
8	2006	442161.0262	416504.5895	(25,656)	**14.96**	**11.67**	100511	98983.5	(1,528)	**11.58**	**10.95**
9	2007	510977.8222	499212.906	(11,765)	**15.56**	**19.86**	121874	112213	(9,661)	**21.25**	**13.37**
10	2008	559636.9697	540543.5326	(19,093)	**9.52**	**8.28**	130539	120183	(10,356)	**7.11**	**7.10**
11	2009	408718.0138	403022.0718	(5,696)	**(26.97)**	**(25.44)**	116663	102637	(14,026)	**(10.63)**	**(14.60)**

Source: Calculations made by author based on the data from www.unctad.com

Table 10: *Imports and Exports of merchandise and services of Netherlands, 1999-2009, million Euro and %*

Nr	Year	Merchandise Import	Merchandise Export	Balance of trade (goods)	% change in Imports	% change in Export	Import of services	Export of services	Balance of trade (services)	% change in Import	% change in Export
1	1999	206354.9758	218784.5597	12,430			49458.4	52022.9	2,565		
2	2000	217727.9884	232554.0782	14,826	**5.51**	**6.29**	51339.3	49318.8	(2,021)	**3.80**	**(5.20)**
3	2001	208462.0373	230660.64	22,199	**(4.26)**	**(0.81)**	53713	51248.3	(2,465)	**4.62**	**3.91**
4	2002	218228.5386	242905.3006	24,677	**4.69**	**5.31**	57204	56137.9	(1,066)	**6.50**	**9.54**
5	2003	264101.8121	295338.4127	31,237	**21.02**	**21.59**	63896.6	63226.9	(670)	**11.70**	**12.63**
6	2004	319096.5516	356777.215	37,681	**20.82**	**20.80**	69444.1	73771.9	4,328	**8.68**	**16.68**
7	2005	363674.8675	406207.6536	42,533	**13.97**	**13.85**	73306.8	80085.5	6,779	**5.56**	**8.56**
8	2006	416461.748	463217.0775	46,755	**14.51**	**14.03**	75483.5	84810.2	9,327	**2.97**	**5.90**
9	2007	491956.7695	550018.2089	58,061	**18.13**	**18.74**	84529.8	96732.1	12,202	**11.98**	**14.06**
10	2008	578577.2303	635326.8049	56,750	**17.61**	**15.51**	92658.4	105567	12,909	**9.62**	**9.13**
11	2009	443778.0165	496416.4688	52,638	**(23.30)**	**(21.86)**	85547.4	93336.2	7,789	**(7.67)**	**(11.59)**

Source: Calculations made by author based on the data from www.unctad.com

Table 11: *Imports and Exports of merchandise and services of Portugal, 1999-2009, million Euro and %*

Nr	Year	Merchandise Import	Merchandise Export	Balance of trade (goods)	% change in Imports	% change in Export	Import of services	Export of services	Balance of trade (services)	% change in Import	% change in Export
1	1999	40011.034	24564.04055	(15,447)			7322.92	9259.43	1,937		
2	2000	39853.67655	24303.26404	(15,550)	(0.39)	(1.06)	7053.4	9016.39	1,963	(3.68)	(2.62)
3	2001	39457.25864	24087.76636	(15,369)	(0.99)	(0.89)	6754.47	9384.66	2,630	(4.24)	4.08
4	2002	39966.36295	25785.40691	(14,181)	1.29	7.05	7060.91	10363.8	3,303	4.54	10.43
5	2003	47092.48339	31685.05079	(15,407)	17.83	22.88	8196.38	12382.2	4,186	16.08	19.48
6	2004	54849.81087	35722.73335	(19,127)	16.47	12.74	9545.33	14654.6	5,109	16.46	18.35
7	2005	61158.9195	38134.47965	(23,024)	11.50	6.75	10253.5	15157.6	4,904	7.42	3.43
8	2006	66613.4502	43293.53821	(23,320)	8.92	13.53	12003.3	18459.3	6,456	17.07	21.78
9	2007	78090.14142	51446.48622	(26,644)	17.23	18.83	14223.5	23307.9	9,084	18.50	26.27
10	2008	89609.95826	55589.27066	(34,021)	14.75	8.05	16468.2	26298.8	9,831	15.78	12.83
11	2009	69562.83762	43183.66972	(26,379)	(22.37)	(22.32)	14263.6	22774	8,510	(13.39)	(13.40)

Source: Calculations made by author based on the data from www.unctad.com

Table 12: *Imports and Exports of merchandise and services of Spain, 1999-2009, million Euro and %*

Nr	Year	Merchandise Import	Merchandise Export	Balance of trade (goods)	% change in Imports	% change in Export	Import of services	Export of services	Balance of trade (services)	% change in Import	% change in Export
1	1999	135472.7549	104530.8992	(30,942)			31974.9	52330.9	20,356		
2	2000	155757.0195	114966.2531	(40,791)	**14.97**	**9.98**	33170.6	52452.6	19,282	**3.74**	**0.23**
3	2001	154519.4706	116561.3607	(37,958)	**(0.79)**	**1.39**	35181.9	55650.6	20,469	**6.06**	**6.10**
4	2002	164324.7784	125093.3412	(39,231)	**6.35**	**7.32**	38712.2	60247.2	21,535	**10.03**	**8.26**
5	2003	208127.5052	155791.0595	(52,336)	**26.66**	**24.54**	47950.6	74308.2	26,358	**23.86**	**23.34**
6	2004	257868.3891	182295.8908	(75,572)	**23.90**	**17.01**	59188.2	86077.8	26,890	**23.44**	**15.84**
7	2005	288668.6492	192566.317	(96,102)	**11.94**	**5.63**	67128.5	94662.6	27,534	**13.42**	**9.97**
8	2006	328403.9409	213526.7609	(114,877)	**13.77**	**10.88**	78588.2	106665	28,077	**17.07**	**12.68**
9	2007	388780.5496	252958.5245	(135,822)	**18.38**	**18.47**	96491.7	128148	31,656	**22.78**	**20.14**
10	2008	419093.8764	280349.8228	(138,744)	**7.80**	**10.83**	104763	143497	38,734	**8.57**	**11.98**
11	2009	286409.9416	217609.48	(68,800)	**(31.66)**	**(22.38)**	86925.1	122937	36,012	**(17.03)**	**(14.33)**

Source: Calculations made by author based on the data from www.unctad.com

Table 13: *Imports and Exports of merchandise and services of Sweden, 1999-2009, million Euro and %*

Nr	Year	Merchandise Import	Merchandise Export	Balance of trade (goods)	% change in Imports	% change in Export	Import of services	Export of services	Balance of trade (services)	% change in Import	% change in Export
1	1999	68644.61893	84968.86454	16,324			22616.7	19904.2	(2,713)		
2	2000	72699.81264	86917.30634	14,217	**5.91**	**2.29**	23440.2	20252.2	(3,188)	**3.64**	**1.75**
3	2001	63146.3399	75581.24293	12,435	**(13.14)**	**(13.04)**	23019.8	21997.1	(1,023)	**(1.79)**	**8.62**
4	2002	66638.59232	81113.99726	14,475	**5.53**	**7.32**	23957.8	24008.8	51	**4.07**	**9.15**
5	2003	83350.23996	101871.7263	18,521	**25.08**	**25.59**	28770.6	30653.5	1,883	**20.09**	**27.68**
6	2004	100253.1952	123046.1697	22,793	**20.28**	**20.79**	33137.8	39022.7	5,885	**15.18**	**27.30**
7	2005	111651.5437	130908.8317	19,257	**11.37**	**6.39**	35272.9	42887.1	7,614	**6.44**	**9.90**
8	2006	127433.6179	147661.3676	20,228	**14.14**	**12.80**	39570.7	49796.7	10,226	**12.18**	**16.11**
9	2007	152378.8604	168643.7794	16,265	**19.58**	**14.21**	46175.3	63404.5	17,229	**16.69**	**27.33**
10	2008	166460.4653	182594.5972	16,134	**9.24**	**8.27**	53317.6	72441.8	19,124	**15.47**	**14.25**
11	2009	118575.2891	130519.454	11,944	**(28.77)**	**(28.52)**	45835.1	61322.3	15,487	**(14.03)**	**(15.35)**

Source: Calculations made by author based on the data from www.unctad.com

Table 14: *Imports and Exports of merchandise and services of United Kingdom, 1999-2009, million Euro and %*

Nr	Year	Merchandise Import	Merchandise Export	Balance of trade (goods)	% change in Imports	% change in Export	Import of services	Export of services	Balance of trade (services)	% change in Import	% change in Export
1	1999	325204.2444	272421.9213	(52,782)			97054.1	119068	22,014		
2	2000	347198.0888	284720.4571	(62,478)	6.76	4.51	99747.3	120397	20,650	2.77	1.12
3	2001	343496.2976	272485.7684	(71,011)	(1.07)	(4.30)	100193	120978	20,785	0.45	0.48
4	2002	362354.5568	278871.2674	(83,483)	5.49	2.34	110023	135308	25,285	9.81	11.85
5	2003	398492.2035	304931.3007	(93,561)	9.97	9.34	127250	158615	31,365	15.66	17.23
6	2004	469790.5396	346871.7904	(122,919)	17.89	13.75	149901	197730	47,829	17.80	24.66
7	2005	513464.3554	384321.1517	(129,143)	9.30	10.80	162830	207674	44,844	8.63	5.03
8	2006	600888.8883	448253.9994	(152,635)	17.03	16.64	175211	237399	62,188	7.60	14.31
9	2007	622063.5668	438503.9588	(183,560)	3.52	(2.18)	201612	284804	83,192	15.07	19.97
10	2008	630403.7469	457799.3114	(172,604)	1.34	4.40	204041	289143	85,102	1.20	1.52
11	2009	479096.5084	350432.6078	(128,664)	(24.00)	(23.45)	166760	236615	69,855	(18.27)	(18.17)

Source: Calculations made by author based on the data from www.unctad.com
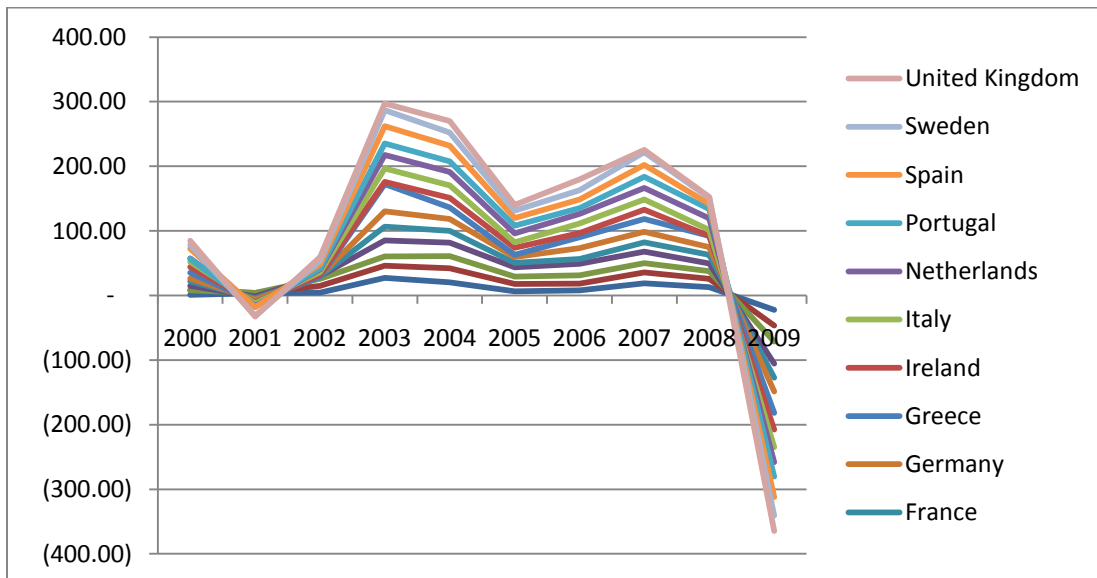
APPENDIX B

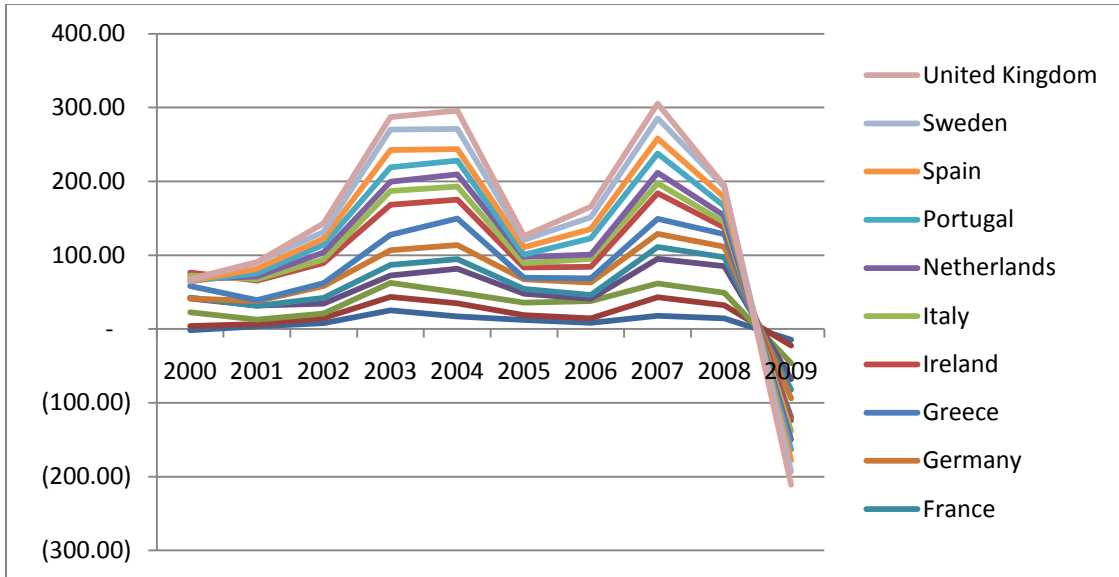**Diagram 1:** *General trend of export growth rate for merchandises, 2000-2009*
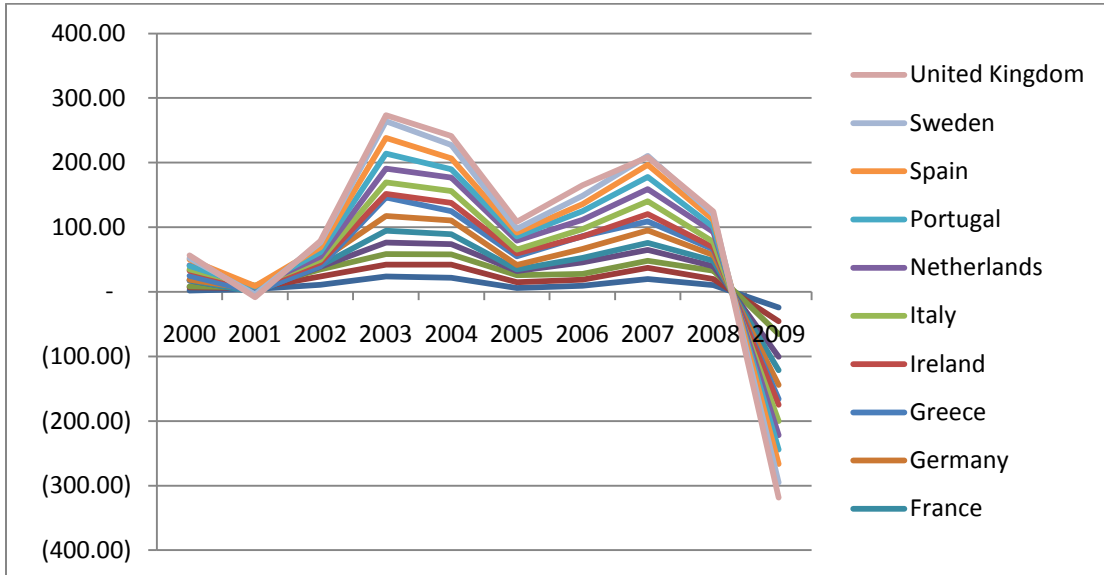
Source: Made by author based on the data from www.unctad.com

Diagram 2: *General trend of import growth rate for merchandises, 2000-2009*
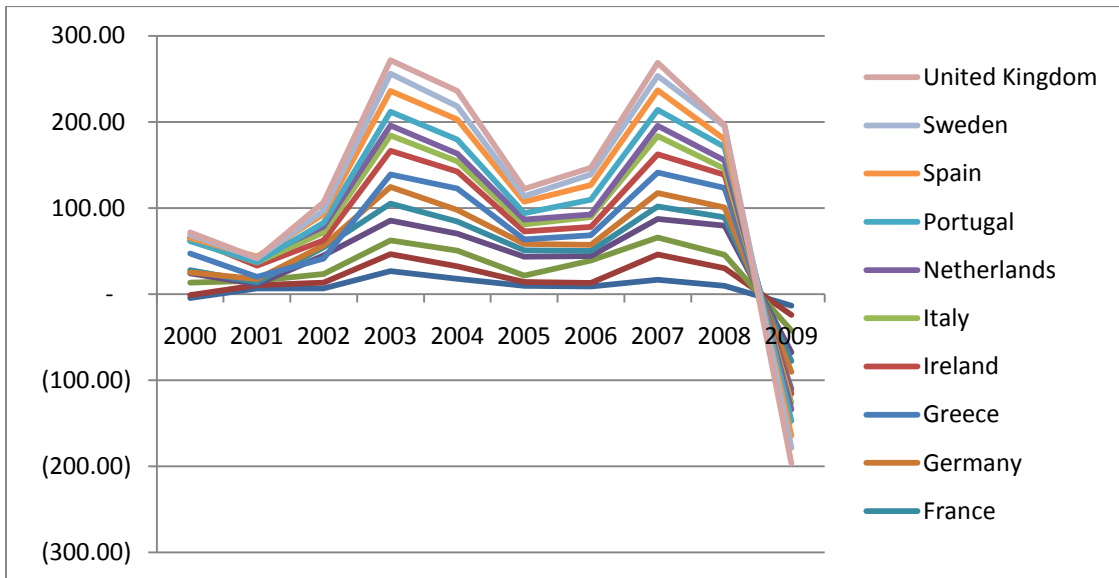

Source: Made by author based on the data from www.unctad.com

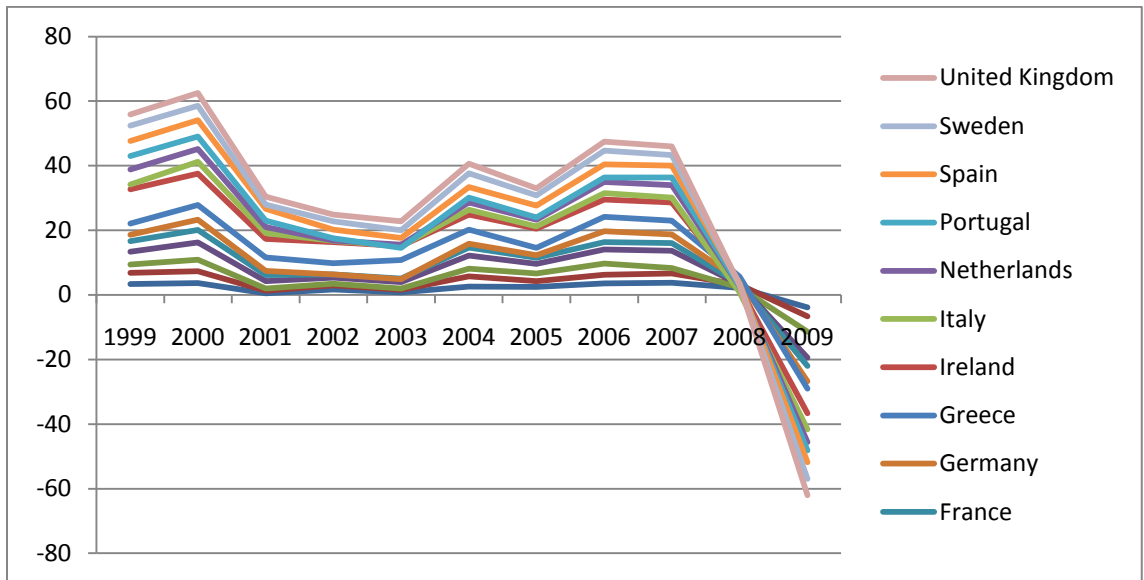**Diagram 3:** *General trend of export growth rate for services, 2000-2009*

Source: Made by author based on the data from www.unctad.com

Diagram 4: *General trend of import growth rate for services, 2000-2009*

Source: Made by author based on the data from www.unctad.com

Diagram 5: *General trend of GDP growth rate for EU14, 1999-2009*

Source: Made by author based on the data from www.unctad.com

APPENDIX C

Table 1: *Geodesic distances between countries in matrix form used in the gravitational model*

	AUT	BEL	GRC	DEU	DNK	ESP	FIN	FRA	GBR	IRL	ITA	NLD	PRT	SWE
AUT	108.9	914.5	1283.6	763.73	868.53	1812	1437.8	1035.1	1238.2	1682	767.41	934.78	2299.3	1242.3
BEL		68.44	2089.2	196.88	767.16	1316.6	1651.6	262.38	323.78	775.63	1174.9	173.03	1711.4	1283.7
GRC			136.46	1990.6	2135.5	2372.9	2465	2098.7	2394.9	2855.2	1050.4	2162.9	2853.8	2408.4
DEU				224.84	595.85	1479.3	1475	439.9	495.36	920.87	1146	173.52	1892	1118.9
DNK					78.08	2075	884.64	1027.6	959.59	1240.5	1534.1	622.97	2478.5	523.79
ESP						267.54	2952.2	1054.7	1263.4	1450.2	1366.8	1481.4	500.92	2596.9
FIN							218.22	1911.1	1826.9	2028.7	2203.2	1505.5	3363	397.89
FRA								278.19	342.95	778.2	1109.9	427.92	1452.9	1545.8
GBR									185.83	460.41	1438.4	360.32	1583.1	1437.6
IRL										99.716	1887.7	756.73	1639.8	1631.1
ITA											206.47	1297.7	1864	1980.1
NLD												76.957	1862	1128.9
PRT													114.33	2991
SWE														252.3

Source: Made by author based on data from http://www.cepii.fr/anglaisgraph/bdd/distances.htm