INFLATION UNCERTAINTY AND ECONOMIC GROWTH IN EUROZONE AND NON-EUROZONE COUNTRIES

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INFLATION UNCERTAINTY AND ECONOMIC GROWTH IN EURO AND NON EURO ZONE COUNTRIES

ABSTRACT

Friedman's hypothesis about the relationship of inflation uncertainty and economic growth states that full employment increases the inflation. This increase in the rate of inflation causes an increase in the future inflation uncertainty which decreases the economic growth. This paper examines the impact of inflation and its uncertainty on economic growth and makes the comparison between Eurozone and Non Eurozone countries. There are 38 countries which include eurozone and non eurozone countries during the period 1980 to 2017. Panel regression model is used to explore the causal relationship among these three variables. This study confirms that the uncertainty in inflation has a significant and positive impact on economic development. Inflation is an important variable and it is harmful to economic prospects in the Eurozone and non eurozone countries. It has a significant negative influence on economic efficiency.

Key words: inflation, uncertainty, ppi, cpi, unemployment, GDP, Euro zone countries.

PASIGURIA E INFLACIONIT DHE RRITJA EKONOMIKE NE SHTETET EURO DHE JO EURO

ABSTRAKT

Hipoteza e Friedman në lidhje me këtë relacion; inflacioni, pasiguria në inflacion dhe rritja ekonomike theksojnë se punësimi i plotë e bën normën e inflacionit të rritet. Kjo rritje në normën e inflacionit shkakton një rritje në pasigurinë e ardhshme të inflacionit e cila ndikon në zhvillimin ekonomik me një rënie. Ky studim tregon impaktin qe ka inflacioni dhe pasiguria e inflacionit ne rritjen ekonomike dhe ben krahasimin e shteteve Eurozone dhe Jo Eurozone. Jane 38 vende qe perfshihen vendet e eurozonës dhe jo eurozës gjatë periudhës 1980 deri 2017. Ne përdorim modelin e Panelit të Regresionit për të eksploruar marrëdhëniet që ekziston midis këtyre tre variablave. Në këtë material kemi konfirmuar se pasiguria në inflacion ka një ndikim të rëndësishëm dhe pozitiv në zhvillimin ekonomik. Inflacioni është një variabel e rëndësishme dhe është e dëmshme për perspektivat ekonomike në vendet e eurozonës / jo eurozonës. Ajo ka një efekt të rëndësishëm negativ në zhvillimin ekonomik.

Fjalëkyçe: inflacioni, pasiguria, ppi, cpi, papunesia, GDP, shtetet Euro

DEDICATION

My dedication of this thesis goes to my parents, who are the source of inspiration for me. They have encouraged me during the preparation of this thesis and have taught me to work hard to achieve my goals. Also I would like to thank my friends who have given me support and stimulation.

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DECLARATION

I hereby declare that this Master's Thesis titled "Inflation Uncertainty and Economic Growth in Euro zone and Non Euro zone countries" is based on my original work except quotations and citations which have been duly acknowledged. I also declare that this thesis has not been previously or concurrently submitted for the award of any degree, at Epoka University, any other University or Institution.

Brunilda Mana

June 22, 2018

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LIST OF ABBREVATIONS

ARCH Model	Autoregressive Conditionally Heteroscedastic Model
ASEAN	Association of Southeast Asian Nations
GDP	Gross Domestic Product
OECD	Organization for Economic Cooperation and Development
GARCH Model	Generalized Autoregressive Conditionally Heteroscedastic Model
WAEMU	West African Economic and Monetary Union
EU	European Union
BGARCH-M	BivariateGeneralized Autoregressive Conditionally Heteroscedastic
CPI	Consumer Price Index
PPI	Producer Price Index

CHAPTER 1
INTRODUCTION

1.1 Focus of the study

According to Friedman (1977)'s hypothesis about the correlation between inflation, its uncertainty and economic growth, the rate of inflation is increased under conditions of full employment. The inflation uncertainty increases also, which leads to a lower economic efficiency and output growth reduction. Many studies are conducted around developed countries. (Friedman, 1977) Only a few studies are done for developing and emerging countries. (Friedman, 1977)

The study of Thornton (2006) states that, the link among inflation and its uncertainty in emerging countries is univariate. In order to find out the relation among these three variables, a bivariate GARCH model must be used. (Thornton, 2006)

According to Karanasos, Kim &Fountas (2002), from the usage of bivariate GARCH model we take the assessment of the variances, means and inflation covariance and economic growth. To examine the relation among inflation uncertainty, uncertainty in economic growth, average inflation and output growth, the Granger causality test is used. The rise in average inflation causes an increase in inflation too. But yet it is no connection between inflation uncertainty and economic growth has been found which means that the stability of price must not be the main concentration of policy formula. Following the publication of Friedman's (1977) (The impact of inflation uncertainty on economic growth), a huge number of empirical studies have been examining about this relationship. The hypothesis of Friedman consists of two arguments. The first says that full employment increases the inflation and inflation uncertainty too. The second says that economic growth decreases from this increase in inflation uncertainty.

A factor in an economic decision is "expected inflation". Inflation uncertainty is considering being a factor that influences expected inflation. It is affecting both consumer savings and business investment decisions. (Laurence, 1992)

Inflation uncertainty consequences

There are two types of economic impacts about inflation uncertainty. The impact is that the uncertainty of inflation induces businesses and consumers making economic decisions which are different from that ones that they would do differently. These impacts are called as ex ante by the analysts, (Laurence, 1992) because they forecast the future of inflation. The second type of impacts is called ex post and these settle down after the determinations have been made. These impacts happen when inflation differs from expected inflation.

Ex ante effects. The economy ex ante is impacted from inflation uncertainty through three channels.

1. Financial markets are impacted by the uncertainty of inflation by increasing long term interest rates.
2. The uncertainty of inflation may bring uncertainty to other variables which are significant in economic determinations.
3. The businesses are stimulating from inflation uncertainty in spending resources and removing the related risks.

By increasing long term interest rates, the economy is influenced by inflation uncertainty. The necessary return from investors is an important determinant of long term rates. The return on nominal long term debt will be danger if inflation uncertainty is higher, which means that investors may demand higher rates of returns implying higher long term interest rates as well.

This will bring low investments in plant, equipment, housing and other durable goods. Many economists think that an important factor which better explains high long term interest rates during 1980 and 1990s is inflation uncertainty. The distribution of short term and long term rates, before the high inflation of 1970s, was much lower than in recent years. Inflation uncertainty impacts the economy in that way of inducing uncertainty in economic variables and interest rates. Inflation uncertainty causes the real value of future payments real value to be unsure when the payments are not indexed to inflation. This brings uncertainty to employers and employees about their future wages, and tenants and landlords about their future tax rates. Inflation uncertainty implies tax rates uncertainty which those taxes are not good indicators of inflation.

The uncertainty is seen also in the value of depreciation reductions which has an impact in the calculation of profits and how they are taxed. This makes consumers and businesses able to make aware decisions. Other economic variables and interest rates uncertainty can lower economic activity. Businesses prefer to postpone producing, investing and hiring when they have uncertainty in tax rates, profits and wages. They wait until this uncertainty is resolved. Investment is the most vulnerable because it is more expensive to reverse.

Interest rates uncertainty stimulates businesses and consumers in financing investments with long term fixed rate debt. This eliminates the danger that comes from the increase in the short term interest rates. The financing costs are increasing from long term debt, and the investments are decreasing. One example is the purchase of a home mortgage. When the consumer is unsure about future inflation, he or she will also be unsure about future interest rates. In order to reduce this, a fixed rate is chose from the consumer. So the mortgage is smaller because of the higher interest rate in the first years. So the uncertainty in inflation brings restriction in the size of mortgage and home.

While in the third channel, businesses spend resources removing the future inflation risks. Let's take the case when uncertainty in inflation is going up. In order to improve their forecast of inflation, the businesses use more resources. Using derivatives, which are specialized instruments, many businesses are trying to protect from unexpected inflation. Both hedging and forecasting activities involve that the resources are removed from the intention of businesses which are more efficient. These strategies do not remove the risk.

They only can lower the unexpected inflation risk. Small businesses and consumers do not practice the hedging and forecasting.

Ex post effects is the other effect of uncertainty in inflation. It happens when inflation changes from what had been assumed. Even the payments are described in nominal dollars; the unexpected inflation brings a move of wealth. The nominal payments real value is smaller than expected when inflation is higher than forecast. Unexpected inflation involves a move of wealth from lender to borrower. This example is a fixed rate mortgage. The real value of mortgage payments to the creditor is smaller than expected when the expected inflation is high. The same impacts happen in rent contracts and wage. The landlords and employees are hurt by unexpected increase in inflation when rents and wages are fixed in nominal dollars. In a wealth transfer is hard measuring aggregate ex post impacts because someone wins and someone loses. In case this unexpected inflation is high, it won't be felt. Another example of wealth transfer is the crisis in loan industry and savings. In order to make long term loans, the savings and loan industry are using short term deposits. The unexpected inflation decreased in the late 1970s. The fixed rate mortgage real value fell also. Savings and loan industry were obligatory paying depositors with higher rates since short term nominal interest rates increased with inflation. In this way many S&Ls went bankrupt because they were paying more than they were taking. They were paying higher rates on their deposits. So the unexpected inflation of 1970, led to a massive wealth transfer out of the S&L industry. (Golob, 1993)

In Chapter 1, I introduce the topic, the focus of this study and the co-operation of inflation with the economy. Also I state the objective and motivation of this thesis.
In Chapter 2 I provide an overview of literatures and investigations done about this topic from different authors.
Chapter 3 presents the methodology and the data collected. In this study I use the Unit root test and Panel regression and include a short explanation of these tests.
Chapter 4 presents the results of methods explained in chapter 3. Also it includes graphical analysis to see the trend of these variables over 38 years.
In the last chapter I have included the conclusion of the overall of the paper, implications, contribution and limitation of this thesis and give recommendations for further studies.

1.2 Objective of the Study

The main objective of this study is to analyze the impact of inflation and inflation uncertainty in economic efficiency of the euro and non euro zone countries and to show the difference between euro / non euro zone countries.

The importance of the study states in giving reliable and adequate information about the inflation and the impact it has in the economy of Euro and Non Euro zone countries. The focus of this study is explaining the concept of inflation itself and its uncertainty by taking examples and literatures from other studies done before and comparing them. Another important intention is giving understandable and obviously information for the audience about this topic. Also the objective of this study states in making comparison between Euro zone countries and Non Euro zone countries, what impact has inflation uncertainty on economic growth in each of them.

1.3 Motivation of the Study

I was motivated from the fact that from my research that I have done, there was not any similar study about Euro and Non Euro zone countries. So I was curious to learn more about this topic and to see the comparison that exists between those two groups of countries.

1.4 Significance of the Study

This topic is very important for me as a student of banking and finance because it deals with information that expands my knowledge. Since the inflation is one of the problems of macroeconomics, I saw it necessary to make a research study. Inflation has an important direct impact on consumers and businesses. So this study is significant because we see the influence that inflation has in economic growth of Euro and Non Euro area taking in consideration a period of 38 years.

1.5 Theoretical Framework of the Study

Theories/Theoretical Background	Authors
"The Monetarist Theory"	**(Milton Friedman)**
"The Neo-Classical Growth Theory"	**(Solow & Swan,1956)**
"Philips Curve"	**(Philips, 1958)**

The Monetarist Theory

It is a fundamental theory that is related to the economist Milton Friedman. According to this theory, the most important determinant of economic growth is a change in money supply. The behavior of business cycle is connected to money supply. The increase in money supply causes the inflation which the main focus of monetary authorities is maintaining price stability. Also employment, production and price levels are affected by money supply change.

The Neo-Classical Growth Theory

This theory has in focus explaining how a consistent economic growth rate will be reached with the convenient amount of the three factors which are: technology, capital and labor. The two economists who have developed growth model are: Solow and Swan (1956). The level of technological change is established exogenously which does not depend to inflation and other factors.

Philips Curve

It is an equation empirical model. The name of this theory is associated to William Philips. In this theory it is explained the connection between rates of wages and rate of unemployment. It is the first framework that forecast inflation used by Central Banks.

Without triggering inflation, the economy of a country can't be at full employment during a long period so in order to fight inflation, policy makers must accept unemployment. The Philip Curve is divided by monetarism as short and long run. In long run the Philip Curve is a vertical line.

The variables used in this thesis are: inflation, consumer price index, producer price index, uncertainty, unemployment, GDP.

Inflation

Inflation is a continuous raise in the price level of goods and services of the economy during a time period. Every unit of currency buys less goods and services when we have an increase in price level. A decrease happens in the purchasing power per unit of money. A decrease happens also in the wastage of real value in unit of account and in medium of exchange inside the economy.

Price inflation is measured by inflation rate, and consumer price index which is an annualized percentage change in a price index. The opposite is deflation. Inflation has negative and positive influences on economy. A raise in the opportunity cost of holding money is the negative one. It includes also inflation uncertainty, which may oppose savings and investments and it causes goods shortages if inflation were fast well. In positive impacts we can mention the reduction in real burden of private and public debt. Nominal interest rate is holding above zero. In this way interest rate is adapting from central banks to settle the economy and unemployment is decreasing due to wage stickiness. High rates of inflation and hyperinflation are induced by an redundant growth of the money stock, think economists.

Inflation may direct to an obscure tax where the currency value is decreased in comparison with its current reserve, making people to keep devalued legal tender. More preferable for economists is a steady and low inflation rate. It means 0 or negative. Low inflation decreases the roughness of economic recessions by making the labor market more facilitated to adapt in a downturn rapidly. And also it impacts by decreasing the hazard a liquidity trap prohibits monetary policy from settling the economy. The monetary authorities have the task to keep the rate of inflation low and stable. The central banks are the authorities which check monetary policy by the setting of interest rates, banking reserve requirements and open market operations.

Gross domestic product

The economy of a country is measuring by Gross Domestic Product. It is the full valueof everything that is manufactured by the number of people or companies in the country. Citizens or foreign-owned companies are also included. The companies that are positioned within the boundaries of a country, the production is charged as GDP by the government. The different ways of measuring the GDP of a country are as follows:

Nominal GDP: this involves price raises. It is measured quarterly by the Bureau of Economic Analysis.

Real GDP: The impact of inflation calculation is needed to compare the economic output in different years. In this case, real GDP is accounted by the BEA (Bureau of Economic Analysis). This is done by a price deflator usage. It shows you the change of prices over years since a base year. The Bureau of Economic Analysis multiplies the deflator by the nominal GDP.

Growth Rate: the percentage rise in GDP from quarter to quarter. Growth rate shows how fast is growing the economy of a country. In order of removing the impact of inflation, many countries are using the real GDP.

GDP per Capita: it is used for comparing GDP among countries. This happens because of large economic outputs and population that many countries have. In this case it is more easy the usage of GDP per Capita, dividing GDP by population. While the Real GDP per Capita, is used for comparing gross domestic product by year and between countries.

Producer Price Index (PPI)

Producer Price Index (PPI): the measurement of the goods average price change over time that are produced domestically. It is composed by weighted index of wholesale goods prices. PPI is composed of three levels:

PPI commodity Index: it tells the average price difference over a period of time for commodities like coal and crude oil.

PPI stage of processing (SOP): this stage lies on goods that are in a production between raw and finished stage. They will be sold to other producers to form the finished goods like gasoline, steel, cotton.

The finished goods level, Core PPI: it is a price indicator for finished goods excluding those that have high price volatility which are found in the food and energy sectors.

Producer Price Index of finished goods is a direct index of the Consumer Price Index near term level. The price changes at finished goods are directly shifted at point of sales of customers. The leading index of measuring the inflation of the economy is CPI, while PPI is a revision of changes in the rate of inflation.

Consumer Price Index

Consumer Price Index is the measurement of the weighted average prices of goods and services like food, transportation and medical care. The calculation of CPI is the assumption of price changes of each item and averaging them. The changes in Consumer Price Index are evaluating price changes in relation with the living cost and identifying inflation periods and deflation.

Consumer Price Index is an economic indicator, mostly a measurement of inflation. It also can be seen as a key to how efficiency of the economic policy of the government. It plays an important role as guide to inform the government, citizens and businesses decisions about the economy and the price changes. For other economic factors, the CPI and their components can be used as deflator, which are included weekly gains, retail sales and consumer's dollar value to get its purchasing power. The dollar's purchasing power falls when prices increase.

Unemployment

The Bureau of Labor Statistics defines unemployment as people who don't have a job, but they have looked before for work, and currently are disposable to work. They include also people that are fired from work and they are waiting to be hired back. They exclude that group of people that do not look for work who are removed also by the labor force. "Marginally attached to the labor force" are that people who have looked for work not within the past 4 weeks and within the past 12 months. The subset of this group is discouraged workers, people who have abandoned looking for work because they have no hope finding job. Anyone 16 or older can work self employed or paid employees.

Unemployment, as a main statistic is used for measuring the economy's health. The government will help economy by creating jobs if unemployment rate increases. The Federal Reserve operates with expanding monetary policy, which is done by decreasing the federal funds rate. In case this does not function, the federal government will use fiscal policy

expanding which they will create jobs by laying on employees for projects about public works. And in a indirect way, they create jobs by encouraging demand with expanded unemployment benefits which they will help the unemployed people until they will be employed.

When the economy decreases, unemployment increases. It causes a cut off in the costs of businesses by lowering payroll expenses. The worst unemployment was caused by the 2008 financial crisis. Unemployment is caused also by the competition in particular companies and industries. Advanced technology can increase unemployment because of replacing worker tasks with machines.

Uncertainty

Uncertainty is the situation of not knowing the future direction of inflation. Interest rates, business investment and consumer savings and spending can be negatively influenced by continuous inflation uncertainty which can lead to economic output decrease.

Uncertainty is the main costs of inflation that causes about future inflation. It effects the decision making of businesses and customers. It decreases also the well being of economy. Businesses and customers could better forecast their decision making if there is an absence of uncertainty. The analysts think that inflation uncertainty will increase as inflation rate increases. And the Federal Reserve may reduce this uncertainty by the reduction of inflation rate.

According to the other analysts, low inflation causes more uncertainty than high one.
So the high inflation decreases the well being of an economy. It does not intervene with the decision making of businesses and consumers. From the studies done before, the inflation and its uncertainty show a positive relationship.

Interest rate

Interest rate is the percentage of principal (the amount of money) that is charged by the creditor, for its money usage. An interest rate is paying from banks on the deposits which they are borrowing from you that amount of money. Banks can profit in charging borrowers higher interest rate than they pay depositors but they also can dispute with each other for both borrowers and depositors.

Interest rate is observed from the bank, to the total portion of loan that is unpaid. The way of knowing how much bank gathers to your outstanding debt, is to know the interest rate applying to your loan. The payment must do monthly. If you don't pay it, even you make payments; your debt will go up. The interest rates are two types: fixed and variable.
The type of loan varies if it is a mortgage, unpaid bill or credit card.

Fixed rates are unchangeable through all the loan life. Interest payments are your initial payments. You pay higher percentage of the debt principal as time goes on. The extra payment will go toward the principal. In that way you can pay the debt rapidly. An example of fixed rate loan is conventional mortgage.

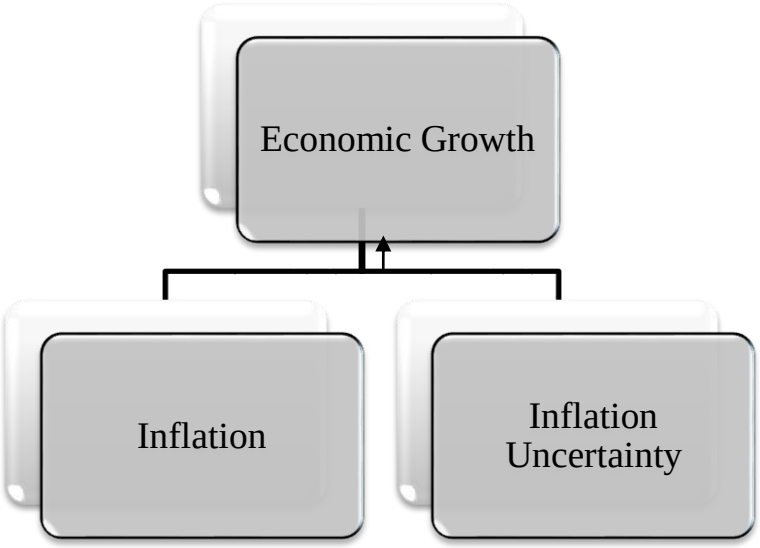
Variable rates distinguish with the primary rate, which the last is based on fed funds rate. The payment on your loan will increase when the interest rate increases. Making extra payments causes the principal paying off.

By interest rates, loans are making more costly. People and businesses cannot provide borrowing when interest rates are high which make decreasing the availability of credit amount funding purchases. It brings a decrease in consumer demand. People bring more on their savings rate.

The high interest rates cause a decrease to the capital which is available to extending businesses. The economy will sluggish from the decrease in liquidity.

While the low interest rates have the contrary impact on the economy. The low mortgage rates encourage demand for real estate. Savings rates decrease. Savers decide to spend more when they get less interest on their deposits. They might also put their money into investments. That drives up stock prices. Businesses can afford loans with low interest rates. That stimulates business expansion and new jobs.

1.5 Research Model



The aim of this thesis is to study the influence of inflation uncertainty on the Economic Growth in Euro and Non Euro Area. There are taken in consideration 28 countries for a period of 38 years.

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

Many studies are done about this topic from different authors, about different countries. Some of them show a negative relation between inflation uncertainty and economic growth and some of them show a positive one. For example Black (1987) shows that inflation uncertainty has a positive influence on GDP.

While the authors like: (Friedman, 1977)(Grier & Perry, 2000), (Wilson, 2006)(Fischer, 1933)(Barro, 1995)(Bruno & Easterly, 1996)(Bhar & Mallik, 2010)(Chang & He, 2010)(Fountas, 2010)(Fountas & Karanasos, 2007)(Fountas, Karanasos, & Kim, 2006)(Baharumshah, 2010)(Apergis, 2004)(Ndiaye, 2017) resulted that inflation uncertainty and GDP are negatively related.

Consumer price index, producer price index and interest rate have negative influence on GDP and this is supported also from:(Ghosh & Philips, 1998)(Gregorio, 1993)(Barro, 2001)(Khan & Senhadji, 2001)(Rousseau & Wachtel, 2001)(Ahmed & Mortaza, 2005)(Ayyoub, Chaudhry, & Farooq, 2011)(Salian & Gopakumar, 2010).

The authors that conducted a negative relation among unemployment and economic growth are: (Bankole & Fatai, 2013)case of Nigeria, and (Banda, 2016) case of South Africa economy. My conclusion is similar to (Okun, 1962) (Stephen, 2012) (Wang & Abrams, 2007) (Pierdzioch, 2009) (Shahid, 2014) (Rafindadi, 2012) (Irfan, 2010)(Ahmed, 2011).

Black (1987) forecasted that as more output growth uncertainty as higher output growth is. The output growth will increase from the investment in technology. The literature of inflation uncertainty has two methods: First is the cross section distribution of people predictions from researches and the second is the movement of standard deviation of variable under consideration. The research is concentrated more in the range of divergence between individual predictors at a point of time than giving information about uncertainty of every individual. And each predictor is uncertain about the future events. They may present the same assessment at a point of time. In this case we can say that the survey may not attract the amount of uncertainty existing (Zarnowitz & Lambros, 1987).The second method indicates the forecast able variation of a variable which differs from uncertainty. These two methods are also used by Mullineaux (1980), Gale (1981), Fischer (1981), Kastimbris& Miller (1982) (1984), Kastimbris (1985). The modern studies use conditional variance as the measure of uncertainty.

Grier & Perry (2000) have used the GARCH model in order to measuring uncertainty. This model measures also the possible impacts of uncertainty on output growth and inflation as a single equation. GARCH model evaluate a time changeable residual variance which answers to uncertainty. This model gives also a test about the significance of the variance of a variable over time. It permits simultaneous variance and mean equations evaluations of the variables. They took in consideration US economy for the period of 1948 to 1996 and they did not get any impact of output growth uncertainty and average inflation uncertainty. This study tells that inflation uncertainty decrease the growth rate as Friedman argument says.

Another study is done fromFountas (2001) which has taken the consumer price index annual data of UK from period 1885 to 1998 for analyzing the relation among inflation and inflation Uncertainty. It is used the GARCH model (1, 1) where AR(1) are followed by inflation series. The usage of dummy variables in the sample is for high inflation periods. So, the high inflation uncertainty is connected with inflationary periods.

While Hwang (2001) has used the US monthly inflation data in order to check the relation between inflation and inflation uncertainty. This study also has shown that if inflation is high,the inflation uncertainty is high also.

Karanasos, Kim &Fountas (2002) have used Bivariate GARCH model. This GARCH model about output growth and inflation evaluate the variances, covariances and means of them. It is using the Granger causality test, for checking the connection between inflation and output growth, and inflation uncertainty and output growth uncertainty. It is used the monthly data of proxy of price level and output from years 1961 to 1999. The results showed that if inflation and inflation uncertainty are higher, the output growth decrease in the case of Japanese economy.

Another investigation is done from Apergis (2004) which had in focus if there is any attendance of causality between inflation, output growth and inflation uncertainty. He evaluated GARCH (1,1) model and the tests of panel causality detected that inflation uncertainty is caused by inflation but the outcomes has shown that output growth is impacted by inflation.

In order to check the relationamong inflation and inflation uncertainty in India, Thornton (2006) has used the model of GARCH (1,1) from 1957 to 2005. And the result was a positive and significant relationship. As Friedman has said that inflation caused inflation uncertainty, Granger causation says also. And the inflation uncertainty and output growth relation was not checked yet.

Also Wilson (2006)used a model of bivariate EGARCH, to see the connectionamong these three variables in Japan. This model allows the uncertainty in inflation measure to answer to the orientation of change in inflation. By this model, Wilson saw that raised inflation uncertainty causes increase in average inflation, decrease in average growth. While raised growth uncertainty causes increase in average inflation.

As we can see from this literature, the methodologies used by the form of GARCH model are superlative compared with survey method and moving standard deviation. In the model of GARCH there are used both univariate and bivariate. Bivariate model is more superior since it assesses equations for the means of output growth and inflation. And also it includes both series variance as regressors together with time varying residual correlation matrix.

The studies done about the Friedman hypothesis include only developed countries. Only the case of India is taken for that few studies that are done for underdeveloped countries. The

case of India showed an average rate of inflation in comparison to the developing economies' hyperinflationary. A small increase in inflation rate impacts the living standards in India, since their population is living under the level of income. And this gives to economists more concern in connection with India' inflation rate. (Grier & Lodh, 1990), (Das, 1992), (Thacker, 1992).

Fischer (1933) has done a study about the relation between inflation and gdp and the result was negative. So the productivity growth and accumulation of capital are negatively impacted by budget scarcity. So inflation is negatively connected to productivity and investments. Furthermore, he found that even though a higher growth is not linked with a lower inflation, the opposite (a higher inflation) is not consequent with stable growth.

Barro (1995) took under study 100 countries during the period 1960 and 1990. He concluded that inflation has significant negative effect on GDP. He found that even in case there exist a small effect of inflation on GDP, this may happen in long run.

Bruno & Easterly (1996) have also studied this relationship and it exists only in case of high inflation. They put a threshold of 40% in order of determining inflation rate. The result was that below this groundsel there was no powerful connection and above this, there was a negative connection between inflation and growth. The fall of GDP is temporal because of the crisis of high inflation. Then the economy will go back to previous stage and during this regeneration, the growth may increase.

Another study is done from Ghosh & Philips (1998) which took in consideration IMF countries during 1960 to 1996. They examined that the linkage between inflation and growth was negative. They discovered two nonlinearities. They also established a negative convex connection between inflation and GDP. An increase of inflation from 10 to 20% related from a decrease in growth, is larger than the inflation that inflation that rise from 40 to 50%.

Bhar& Mallik (2010) have used GARCH model, a multivariate exponential. And they concluded a positive linkage among inflation and its uncertainty and a negative significant linkage between inflation and GDP.

Grier and Grier (2006) have taken the case of Mexico during 1972 and 2001.They have used GARCH model and from this study they showed that uncertainty in inflation has negative significant impact on GDP.

Chang & He (2010) have used a bivariate GARCH model. They said that inflation, its uncertainty and GDP relationships depends on the level of inflation. When we have low inflation periods, the impact of inflation on GDP is less detrimental than in high inflation periods.

Baharumshah (2010) examined a study of five emerging market economies. The aim of this study was to find the relation between uncertainty in inflation and GDP. The models used are ARCH and Panel data. He resulted that inflation uncertainty has negative and significant influence on GDP and inflation as a main variable is harmful to the economic future of ASEAN economies.

Nicholas (2005) has studied the relation among inflation uncertainty and GDP for the case of OECD economies during 30 years from 1969 to 1999. The methodologies used are GARCH and panel data analysis. He concluded that uncertainty in inflation has a contrary effect on GDP.

Ndiaye (2017) has taken in consideration the case of WAEMU countries. To study the relation among GDP and volatility of inflation he used the VAR GARCH model. The result showed that in Guinea-Bissau and Togo, the inflation uncertainty has a negative influence on gdp. And for the other countries this relationship is insignificant.

Heidari, Katircioglu & Bashiri (2013) studied the relation between inflation its uncertainty and GDP. They took the case of Iran during 1988 to 2008. The methodology used is BGARCH-M (Bivariate Generalized Autoregressive Conditional Heteroskedasticity-in-Mean) model using quarterly data. The results show: 1. sustainingthe Friedman-Ball hypothesis, inflation uncertainty is induced by inflation. 2. Sustaining the Friedman (1977) hypothesis, GDP is influenced by inflation uncertainty. 3. Sustaining the Friedman (1968) hypothesis, the uncertainty in growth doesn't influence the level of GDP. 4. Sustaining the Deveraux (1989) hypothesis, level of inflation is influenced by growth uncertainty.

Arthur Okun has studied the connection among unemployment and GDP. Okun (1962) examined that if GDP Is negative and decreasing, unemployment rate will increase. The unemployment will decrease if growth is higher and ifGDP is equals power the unemployment will be stable. This law of Okun is studied from many other authors.

Pierdzioch (2009) has taken in consideration the G7 countries among 1989 and 2007. He has approved the law of Okun about the connection among unemployment and GDP. He also pointed out a direct connection among unemployment significance and output gap measure.

Wang & Abrams (2007) were concentrated on the 20 OECD countries, among 1970 to 1999 and showed a negative linkage among unemployment and economic growth.

Also Stephen (2012) has examined this relationship taking the case of Nigerian economy. He took the investments and inflation rate as variables and the result provided a negative impact of unemployment on output growth.

The case of Nigeria about the unemployment and GDP connection during 2000 to 2008 is also studied by Ahmed (2011). The impact of unemployment in the economy of Nigeria is 65.5% and they have a negative relation.

In contrary with Okun's law, Bankole&Fatai (2013) found a positive relationship among unemployment and GDP, taking the case of Nigeria between 1980 and 2008. The coefficient in Regression is positive.

Another study is conducted by Banda (2016), for South Africa economy during the years 1994 to 2012. The method used is Johansen cointegration and the result shows a positive relation among unemployment and economic growth.

Li & Liu (2012)have examined the relation among GDP, unemployment and inflation. They took the case of China and used the two models: VAR for causality and VEC for co-integration. They concluded that inflation has positive influence in economy of China while unemployment has negative influence on its growth.

The other studies that show negative relation between unemployment and GDP are Shahid (2014), Rafindadi (2012) Irfan (2010).

No existence of cointegration relation between inflation and GDP is resulted from the test done by Omoke&Ugwuanyi(2010) who have used the Granger causality and co-integration tests for the Nigeria case.

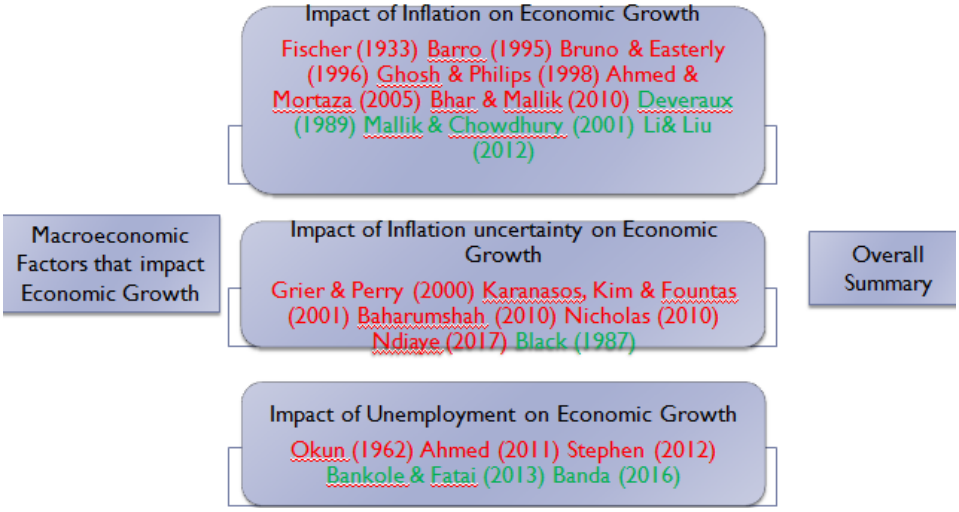
According to Ahmed &Mortaza (2005), the economic growth is supported from the stable and moderate inflation rates. It causes an increase in investments, and anticipates economic growth of a country. There is a change in the rate of money growth within money in utility function model.

According to Tobin (1965) money is a substitution for capital. The higher level of investments and output is caused by the higher inflation. From the theoretical literature of the link between inflation and growth, is negative. (Gregorio, 1993).
So employment and productivity is supported by low inflation. This brings higher growth and capacity utilization.

The real output is not affected from inflation in long run. While in short run the inflation has negative impact on output (Blanchard & Quah, 1989).

The correlation between inflation and growth is strongly significant and negative. They also found out a ‘’threshold’’ rate of inflation. (Khan & Senhadji, 2001)
In a research of 84 countries in the periods 1960-1995, it concluded a significant negative impact of inflation on economic growth. (Rousseau & Wachtel, 2001). Another study is done for Bangladesh, the link between inflation and growth is significant long run negative. (Ahmed & Mortaza, 2005). The usage of co-integration and Granger causality about the link of growth and inflation in Nigeria resulted in no co integrating relationship. (Omoke, 2010) Another case is taken four South Asian countries. The link between inflation and growth was positive. The four countries are Bangladesh, India, Sri Lanka and Pakistan.(Mallik & Chowdhury, 2001). In the economy of Pakistan, the connection of inflation and growth is shown as significant negative. (Ayyoub, Chaudhry, & Farooq, 2011). The case of India also, has shown a long run negative relation among inflation and GDP. (Salian & Gopakumar, 2010).

3.2 Overall Summary



*****Red color: The authors that have showed a negative connection between variables shown above.

*Green color: The authors that have showed a positive connection between the variables shown above.

CHAPTER 3
DATA AND METHODOLOGY

4.1 Data

This research is a quantitative study that studies the influence that inflation and uncertainty have on economic growth in Euro zone and non Euro zone countries. There are in total 28 countries. Euro zone countries are countries that use the euro as their currency, which are 19: Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Portugal, Slovakia, Slovenia, and Spain. While non Euro zone countries are not using euro even though, they are obliged to use it. Euro zone include Bulgaria, Croatia, Czech Republic, Denmark, Hungary, Poland, Romania, Sweden and UK.

In this study GDP is used as a proxy of economic growth which is the dependent variable, while for inflation we take consumer price index, interest rate, producer price index, and unemployment which are the independent variables of this research. Inflation is measured by consumer price index and producer price index which are expressed in percentage. Real interest rate is expressed in percentage also. Unemployment is expressed in percentage of total labor force. Uncertainty is measured as the volatility of inflation which is expressed also in percentage. The data are yearly corresponding to a period of 38 years from 1980 to 2017. They are secondary data taken from the sources: IMF Statistics and World Bank.

4.2 Methodology

In order to check this relationship we have conducted two methods which are: Unit Root Test and Panel Regression Method.

$$GDP = \alpha + \beta_1 cpi + \beta_2 interest\ rate + \beta_3 ppi + \beta_4 uncertainty + \beta_5 unemployment + \varepsilon$$

Where α is a constant

β is the coefficient on a time trend

Ɛ is an error term

4.2.1 Unit Root test-ADF[1]

The economic time series are trending but they differ from each other from this trending. There are two types; deterministic and stochastic. In the first they have transitory effects while in the second they have permanent effect.

The most important merit of using unit root tests is that their power is significantly greater in comparison with the low power of the standard time-series unit root tests in finite samples against alternative hypotheses with highly persistent deviations from equilibrium.
Unit roots are important in forecasting of the process if it has an attractor and knowing if the effect of shocks is transitory or permanent.

Unit roots are two types of time series processes:

1. Nonstationary autoregressive (AR)
2. Autoregressive moving average (ARMA).

These time series processes may be found in other scientific fields except economics and finance. The stimulation studies derive the Dickey Fuller unit root test (Dickey & Fuller, 1979)with a linear and constant trend. Spurious results are produced from that linear regression. The null hypothesis of a unit root which is presented in a time series sample is tested using the Augmented Dickey Fuller test. The alternative hypothesis may be stationary or trend stationary, varying from the test used.

[1] Essays, UK. (November 2013). Why to use panel unit root tests?. Retrieved from https://www.ukessays.com/essays/psychology/why-to-use-panel-unit-root-tests-psychology-essay.php?vref=1

4.2.2 Panel Regression with Fixed Effect Model[2]

A panel data is a set of data with a cross section and a time dimension. The data can be followed over time. The repeated observations of 2 one unit composes a "panel".

The panel regression model is based on panel data. These panel data are observed units on similar cross-sectional or individual over different periods of time. A balanced panel is a panel with similar number of observations for every cross sectional unit. Panel data have advantages over purely time series data which involve:

- ✓ Accurate inference of model parameters
- ✓ Sample size increasing
- ✓ Study of complicated models like time-invariant variables and
- ✓ Study of differences in cross-sectional units over time.
- ✓ Simplifying computation and statistical inference

Panel models face many problems and estimations like Heteroskedasticity, Autocorrelation and cross-correlation. These problems are solved from two methods:

1. The Fixed Effects Model
2. The Random Effects Model

Dummy variables are used in the fixed effect model. They are known as least-squares.
A fixed effect model is a statistical model. The parameters are fixed in contrary with random effect model in with parameters are random variables. In the regression model, a fixed effect model is compounded by a group mean which is a fixed quantity group. In our case, the fixed effect estimator is used as a coefficient estimator in the regression model.

[2] *Maddala, G. S. (2001). Introduction to Econometrics (Third ed.). New York: Wiley. ISBN 0-471-49728-2*

CHAPTER 4
EMPIRICAL ANALYSIS

4.1 Unit Root Test Result

Table 4.1
Panel unit root test
Newey-West bandwidth selection using Bartlett kernel
Null: Unit root (assumes individual unit root process)

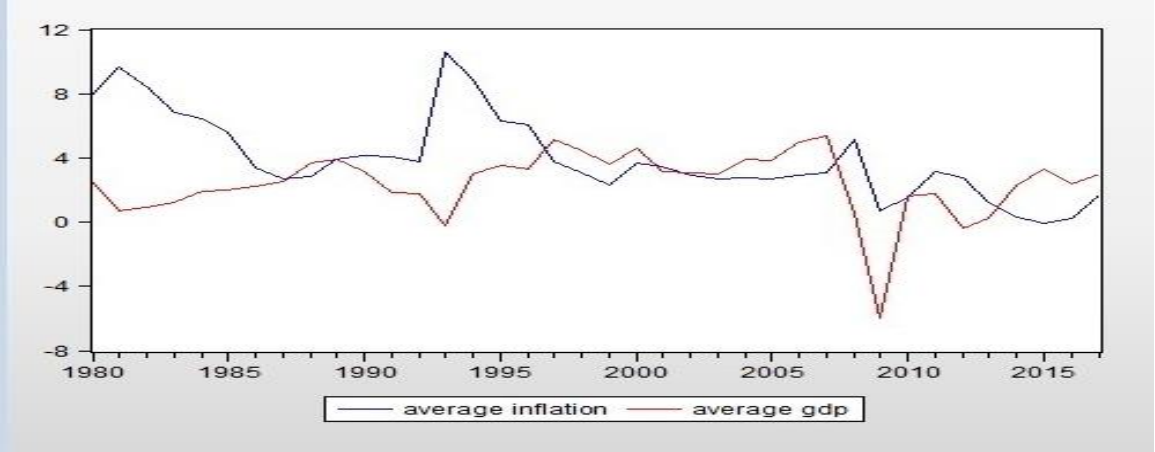
Variable	Statistic (ADF - Fisher Chi-square)	Prob.**	Cross sections	Obs
GDP	223.746	0	28	908
Inflation	266.26	0	28	908
CPI	266.26	0	28	908
PPI	89.371	0.003	28	850
Uncertainty	505.394	0	28	873
Unemployment	143.318	0	28	879

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

The probability of all the variables is less than 1% significance level which means that they are significant. They are stationary in level; do not have a unit root.

4.2 Graphical Analysis

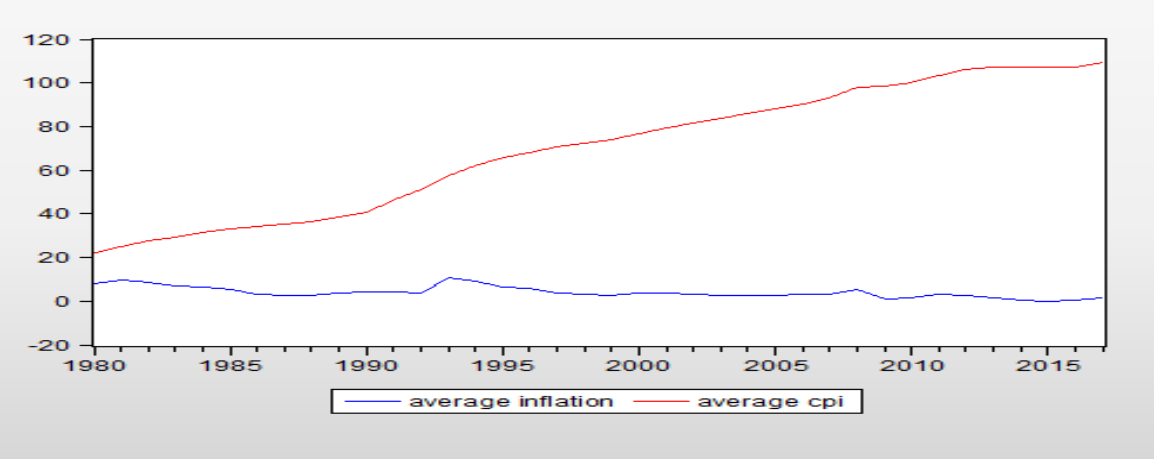
Eurozone countries



Source: IMF Statistics & World Bank

Graph 4.2.1: Average inflation and average gdp (1980-2017)

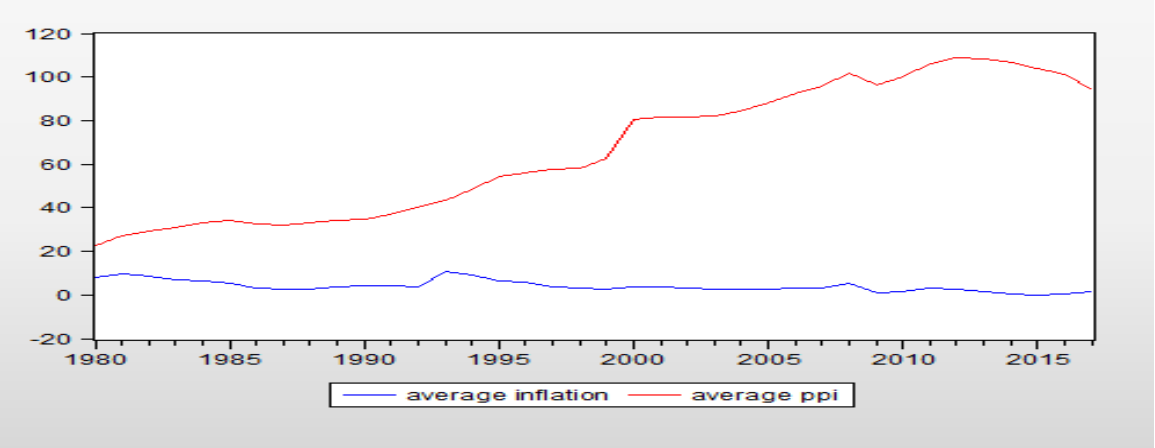
As we see from the graph 4.2.1, the average inflation does not correlate with average GDP during the years from 1980 to 2017. But in 2007-2008 they both show a decrease because of the financial crisis.



Source: IMF Statistics & World Bank

Graph4.2.2: Average inflation and average cpi (1980-2017)

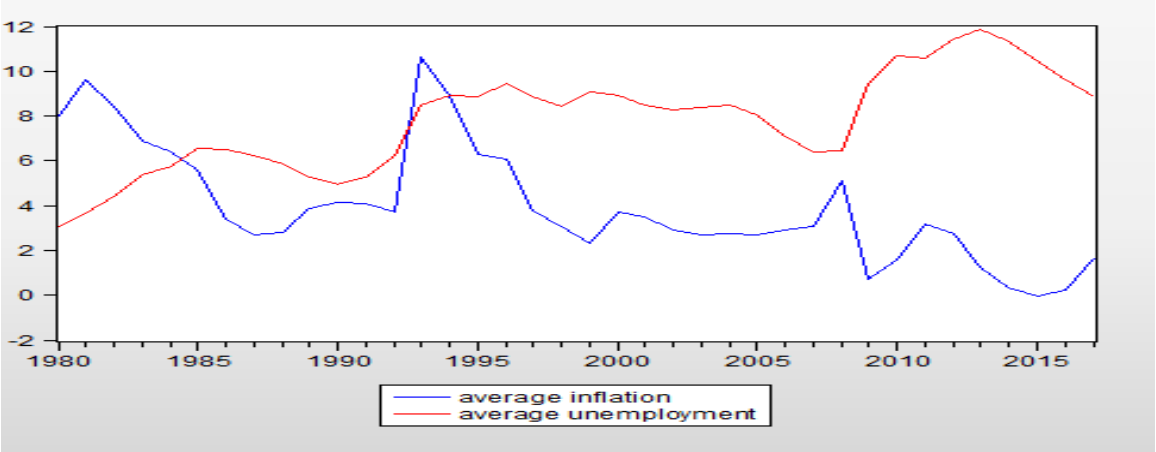
The average inflation and average CPI do not have any relation. Average cpi is increasing through years while average inflation is constant.



Source: IMF Statistics & World Bank

Graph4.2.3: Average inflation and average ppi(1980-2017)

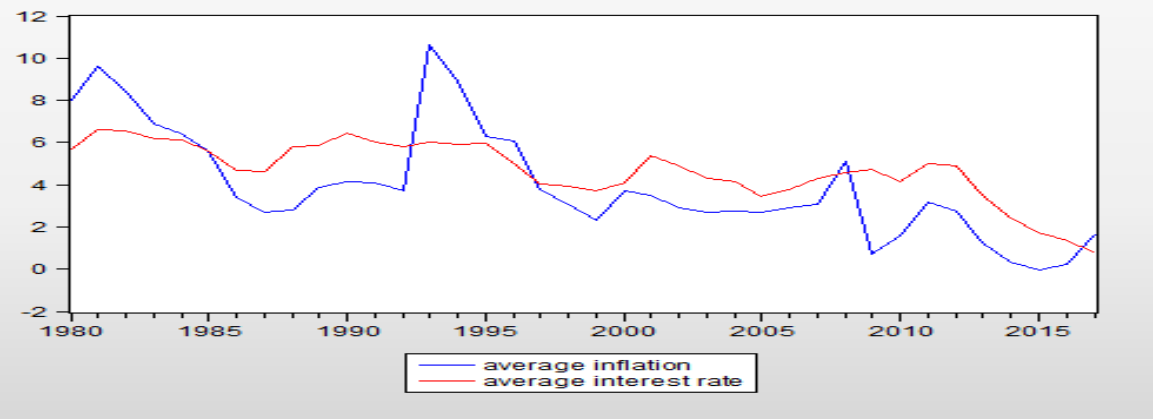
We can say the same thing for average inflation and average ppi. They do not correlate with each other, do not have any relationship. Average inflation is constant and average ppi is increasing through years.



Source: IMF Statistics & World Bank

Graph 4.2.4: Average inflation and average unemployment (1980-2017)

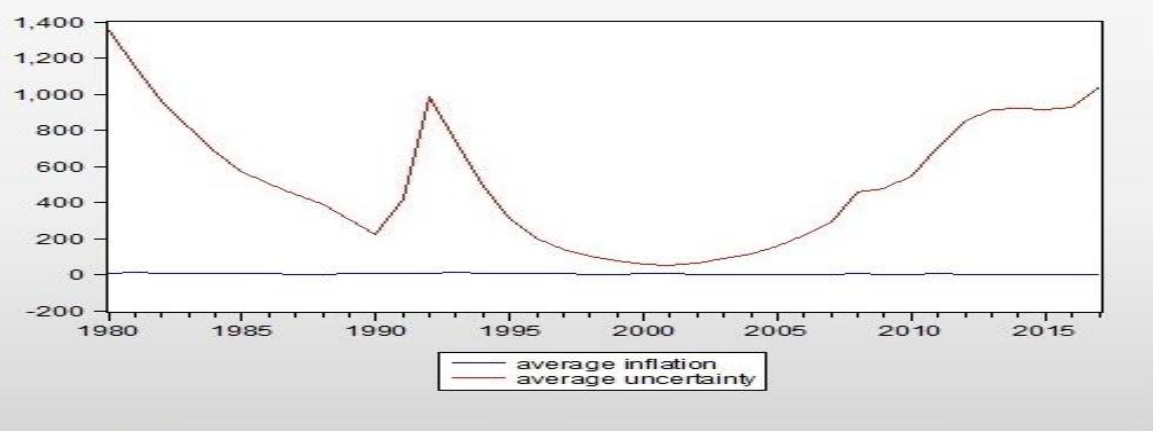
The average inflation and average unemployment have ups and downs through years. They both have an increase in 1993. We can say that after 2008 they do not correlate.



Source: IMF Statistics & World Bank

Graph 4.2.5: Average inflation and average interest rate (1980-2017)

In the graph 4.2.5, we see that average inflation and average interest rate are correlated with each other. The average inflation has the peak in 1994.

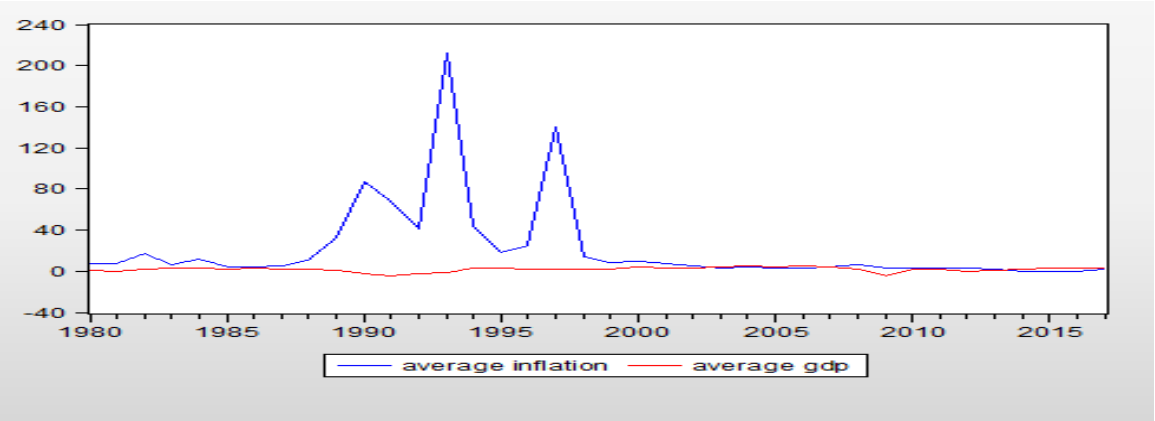


Source: IMF Statistics & World Bank

Graph 4.2.6: Average inflation and average uncertainty (1980-2017)

About average inflation and average uncertainty we can say that there is no correlation between them. Average inflation is a straight line while average uncertainty decreases and increases through years.

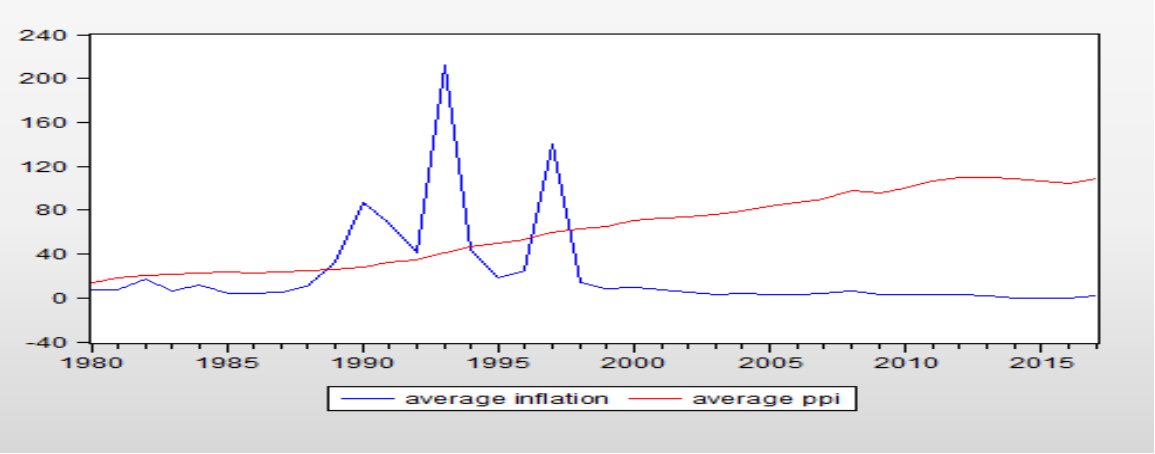
Non Eurozone Countries



Source: IMF Statistics & World Bank

Graph 4.2.7: Average inflation and average gdp (1980-2017)

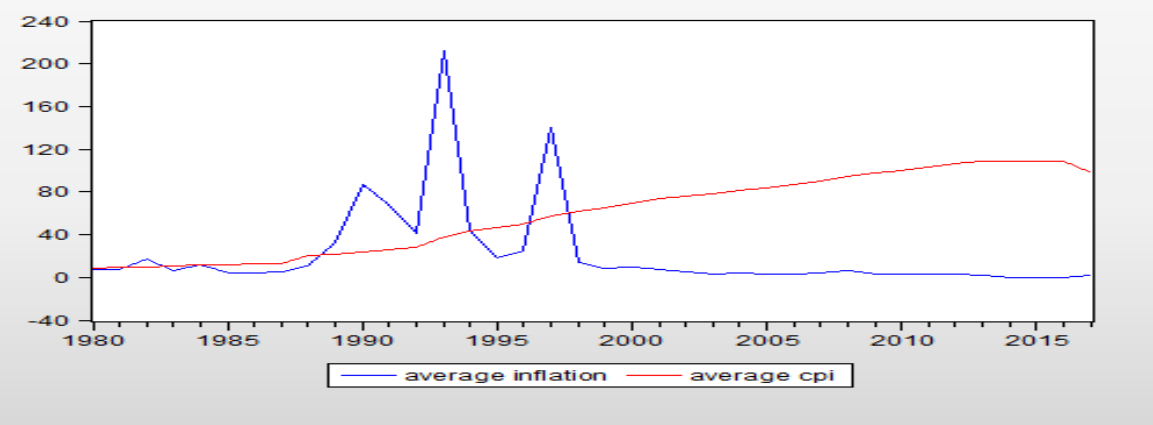
While in Non-Eurozone countries, average inflation and average GDP do not have any correlation. Average GDP is stable through years.



Source: IMF Statistics & World Bank

Graph 4.2.8: Average inflation and average ppi(1980-2017)

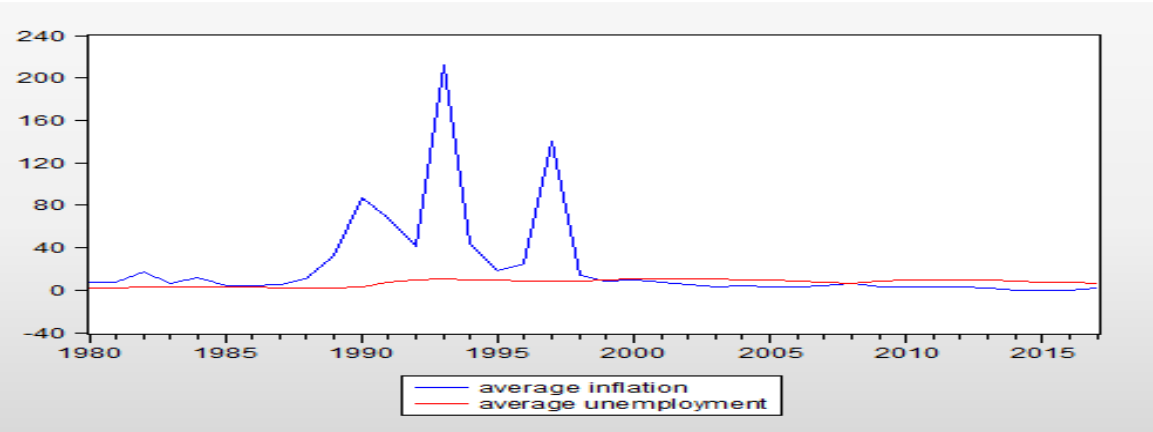
Also the average inflation and average ppi do not correlate with each other. Average ppi is increasing over years. The average inflation has some fluctuations from 1990 to 2000 and then is constant.



Source: IMF Statistics & World Bank

Graph 4.2.9: Average inflation and average cpi (1980-2017)

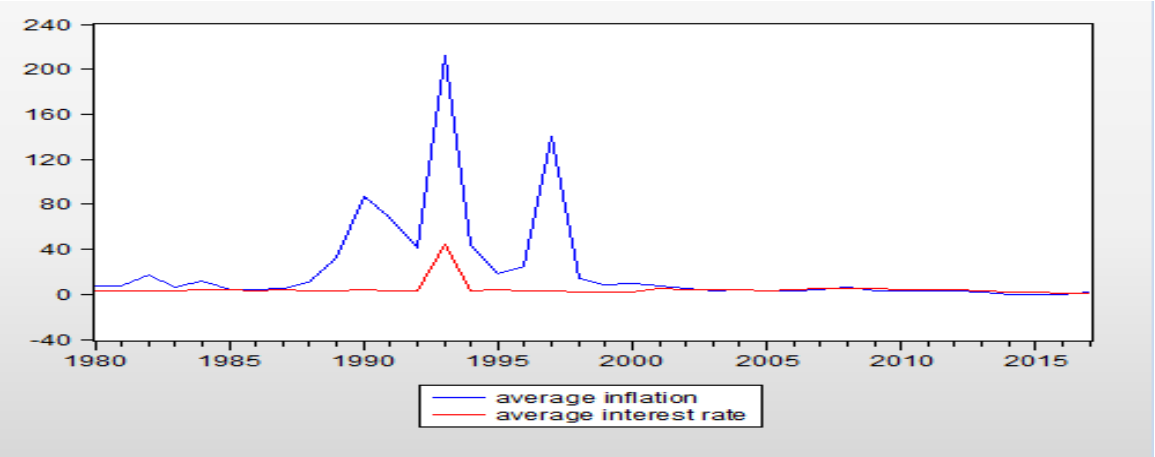
Average inflation and average cpi do not have any relationship with each other.



Source: IMF Statistics & World Bank

Graph 4.2.10: Average inflation and average unemployment (1980-2017)

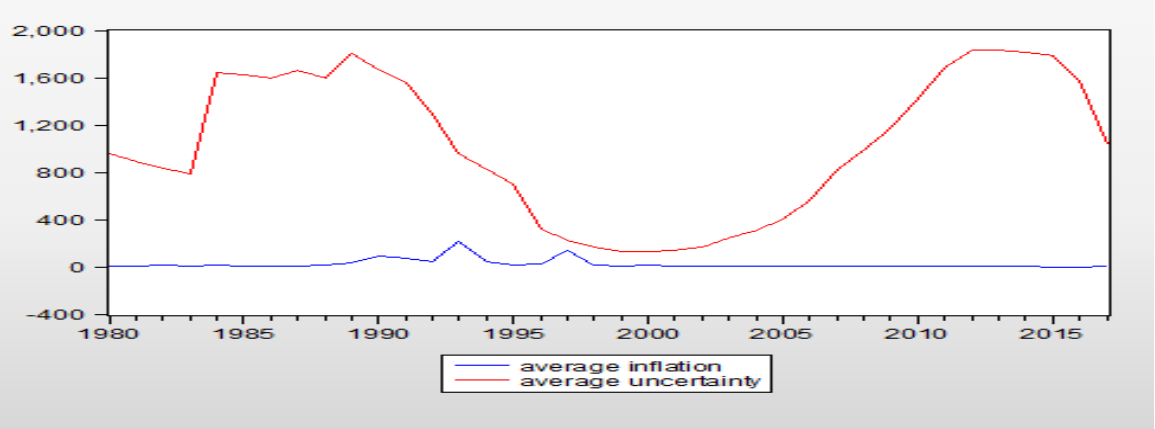
The same thing we can say for average inflation and average unemployment. Average unemployment is constant over years.



Source: IMF Statistics & World Bank

Graph 4.2.11: Average inflation and average interest rate (1980-2017)

For average inflation and average interest rate we say that they correlate with each other except years 1987-1992 and 1996-1998.



Source: IMF Statistics & World Bank

Graph 4.2.12: Average inflation and average uncertainty (1980-2017)

Like Eurozone countries, the average inflation does not correlate with average uncertainty in Non Eurozone countries too.

4.3Panel Regression Results

Table 4.3
Panel Regression result table for all EU members

Dependent Variable: GDP
Method: Panel Least Squares
Sample: 1980 2017
Periods included: 38
Cross-sections included: 28
Total panel (unbalanced) observations: 679

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	-0.084558	0.016814	-5.02902	0
INTEREST	-0.325008	0.061195	-5.311028	0
PPI	-0.051193	0.013332	-3.839931	0.0001
UNCERTAINTY	0.000112	1.61E-05	6.984615	0
UNEMPLOYMENT	-0.089319	0.032945	-2.71116	0.0069
C	9.76602	1.243417	7.854182	0

R-squared	0.619996	Mean dependent var	2.433579
Adjusted R-squared	0.576942	S.D. dependent var	3.374797
S.E. of regression	2.195067	Akaike info criterion	4.507685
Sum squared resid	2934.357	Schwarz criterion	4.973728
Log likelihood	-1460.359	Hannan-Quinn criter.	4.688091
F-statistic	14.40023	Durbin-Watson stat	1.265735
Prob(F-statistic)	0		

The panel regression model shows that a 1% increase in consumer price index reduces economic growth by 0.084 percent, other factors remaining constant. The probability of consumer price index is smaller than 1% significance level which means that consumer price index is significant and has impact on economic growth.

The interest rate is statistically significant at 1 percent significance level. The beta coefficient value indicates that if interest rate goes up by 1 percent, economic growth will decrease by 0.32 percent by holding other variables constant. This result means that interest rate is a variable that promote economic growth.

Production price index is also statistically significant at 1 percent significance level. One percent increase in production price index results in 0.051 percent decrease in economic growth, other variables remaining constant.

Uncertainty is statistically significant at 1 percent significance level. It has a positive relationship and means that uncertainty is one variable that support economic growth significantly. With 1% increase in uncertainty will cause 0.0001 percent increase in economic growth.

Unemployment is statistically significant at 1 percent significant level. One percent increase in unemployment results in 0.089 decreases in economic growth, other variables holding constant. The R-Squared value is 0.62. It implies that CPI, interest rate, PPI, uncertainty and unemployment have explained 62% systematic variation on economic growth over the observed years while the remaining variation is developed by other variables which are not included in this model.

Table 4.4
Panel Regression result table for non euro zone EU members

Dependent Variable: GDP
Method: Panel Least Squares
Sample: 1980 2017 IF DUMMY=0
Periods included: 38
Cross-sections included: 9
Total panel (unbalanced) observations: 198

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	0.009986	0.018565	0.53791	0.5915
INT	-0.920492	0.15765	-5.838838	0
PPI	-0.058428	0.028748	-2.03239	0.0439
UNCERTAINTY	0.000149	2.99E-05	4.981423	0
UNEMP	-0.077115	0.052613	-1.465689	0.1449
C	13.06025	2.608534	5.006739	0

R-squared	0.776427	Mean dependent var	2.409596
Adjusted R-squared	0.700381	S.D. dependent var	2.738976
S.E. of regression	1.499245	Akaike info criterion	3.865117
Sum squared resid	330.4171	Schwarz criterion	4.712095
Log likelihood	-331.6466	Hannan-Quinn criter.	4.207946
F-statistic	10.21005	Durbin-Watson stat	1.443049
Prob(F-statistic)	0		

Table 4.5

Panel Regression result table for euro zone EU members

Dependent Variable: GDP
Method: Panel Least Squares
Sample: 1980 2017 IF DUMMY=1
Periods included: 38
Cross-sections included: 19
Total panel (unbalanced) observations: 481

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPI	-0.130126	0.054967	-2.367348	0.0184
INT	-0.320975	0.071424	-4.493931	0
PPI	-0.057793	0.01565	-3.692834	0.0003
UNCERTAINTY	-0.000363	0.000621	-0.584746	0.559
UNEMP	-0.113259	0.042208	-2.683347	0.0076
C	10.74783	1.485954	7.232952	0

R-squared	0.639046	Mean dependent var	2.443451
Adjusted R-squared	0.587481	S.D. dependent var	3.606667
S.E. of regression	2.316478	Akaike info criterion	4.635999
Sum squared resid	2253.75	Schwarz criterion	5.165579
Log likelihood	-1053.958	Hannan-Quinn criter.	4.844147
F-statistic	12.39303	Durbin-Watson stat	1.291206
Prob(F-statistic)	0		

To compare the two above tables we need to see the probabilities of each of the variables.

In the Non Eurozone countries, the CPI has no impact on economic growth, while in Eurozone countries CPI has negative impact.

Interest rate is significant at both groups of countries.

PPI has negative impact on economic growth for the Non Eurozone Countries while in Eurozone countries, PPI is significant.

Uncertainty in Non Euro zone countries is significant while in Euro zone countries it has no impact.

Unemployment has no influence on economic growth for Non Euro zone countries while it has significant impact for Euro zone countries.

The coefficients of all variables in Euro zone countries show negative relationship while in non Euro zone countries only uncertainty and CPI show positive relationship.
Seventy seven percent of variation is explained from our model taking into consideration Non Euro zone countries, while 64% of variation is explained from our model for Euro zone countries.

Probability of F-statistic is significant at both cases.

CHAPTER 5
CONCLUSION

5.1 Overall conclusion

The paper presents an empirical analysis of the linkage between the inflation, uncertainty and economic growth in Euro and Non Euro zone countries. This study detects various important and significant factors that have impact on economic growth of euro and non euro zone countries. It uses a panel regression model to highlight the links between economic growth and inflation. The results indicate that producer price index, consumer price index, uncertainty, interest rate and unemployment are statistically significant which means that they have influence on economic growth.

Inflation is the root of all problems. By analyzing regression model we conclude that uncertainty in inflation has a direct and positive relationship with economic growth.
Panel least squares method shows the differences between euro and non euro zone countries. In non euro zone countries, consumer price index and unemployment do not show any impact on GDP while in euro zone countries only uncertainty does not have any influence on economic growth. The interest rate is significant at both euro and non euro zone countries. Producer price index and unemployment have impact on economic growth in euro zone countries while in non euro zone countries producer price index has a negative effect and uncertainty is significant. In the overall Panel Regression result is showing that consumer price index, producer price index, interest rate and unemployment have a negative impact on GDP. Uncertainty has a positive impact on GDP.

In Euro zone countries, inflation uncertainty has no impact on GDP. This means that they have price stability. While in Non Euro zone countries, inflation uncertainty has positive impact on GDP. Price uncertainty means fluctuations or shocks. But sometimes, these shocks are needed in the economy, so they have a positive impact.

If you fix your money to the Euro, you need to minimize these shocks. So the advice is not to use Euro, not joining Euro zone countries.

Comparing my results to the other studies done from different authors we can say that only Black (1987) can support my conclusion that inflation uncertainty has a positive influence on GDP. While the other authors like: (Fischer, 1933) (Friedman, 1977) (Barro, 1995) (Bruno & Easterly, 1996) (Grier & Perry, 2000), (Apergis, 2004) (Fountas, Karanasos, & Kim, 2006) (Fountas & Karanasos, 2007) (Baharumshah, 2010) (Fountas, 2010)(Bhar & Mallik, 2010)(Chang & He, 2010) (Ndiaye, 2017) resulted that inflation uncertainty and GDP are negatively related.

Consumer price index, producer price index and interest rate have negative influence on GDP and this is supported also from: (Gregorio, 1993(Ghosh & Philips, 1998)(Barro, 2001)(Khan & Senhadji, 2001)(Rousseau & Wachtel, 2001)(Ahmed & Mortaza, 2005) (Salian & Gopakumar, 2010) (Ayyoub, Chaudhry, & Farooq, 2011).

There are some studies done that have concluded the opposite like: (Deveraux, 1989)(Li & Liu, 2012)(Mallik & Chowdhury, 2001). No existence of co integration relation between inflation and GDP is resulted from the test done by Omoke&Ugwuanyi (2010) who have used the Granger causality and co-integration tests for the Nigeria case.

The results of this study are, however, inconsistent with those of (Bankole & Fatai, 2013)case of Nigeria, and (Banda, 2016) case of South Africa economy. While the results of (Okun, 1962) (Stephen, 2012) (Wang & Abrams, 2007) (Pierdzioch, 2009) (Shahid, 2014) (Rafindadi, 2012) (Irfan, 2010)(Ahmed, 2011) are consistent with my results that unemployment has a negative impact on economic growth.

6.2 Implications of the Study

In the long run, inflation uncertainty has negative impact on GDP. While in short run it has differential influence. Higher inflation uncertainty is harmful for the economy and the opposite. The crucial determinants of the economy of a country are inflation and its uncertainty. In order to increase the GDP of a country, the policymakers have to decrease

the inflation target and its uncertainty too. To do this implication is needed further studies in more detailed.

So by this implication, the government must take attention of inflation since it negatively impacts the economy. Price stability is the main objective of the government in this case.
It is empirically examined that higher inflation leads to exacerbate inflation uncertainty. (Friedman, 1977) A rational rate of economic growth will reach and support if state would take care about price stability.

6.3 Contributions of the study

This thesis has in focus the impact of inflation and its uncertainty on economic growth, taking into consideration 28 countries for a period of 38 years, from 1980 to 2017. The countries are divided in two groups; Euro and Non Euro zone countries. So, it is showing a comparison between these two groups of countries. The literature review for this study did not reveal any other paper that has studied both these groups. The similar papers about inflation, inflation uncertainty and economic growth, have studied only the Euro Area, developing countries and G7 countries.

So my contribution is studying inflation, uncertainty and economic growth relationship in non Euro Area and making the difference between Eurozone and Non Eurozone countries.

6.4 Limitations of the study

Finding the data was not easy since there are 38 years and not for all the periods data were available.

6.5 Further Studies

Further studies may consist in continuing this study about the countries that are in European Union but not in Euro Area. For example Monaco, Vatican City, Andorra and San Marino are agreed from EU for using euro but they use their own currency. Montenegro and Kosovo also are not part of Euro Area; they have accepted the Euro outside the Euro Area. Taking into consideration these groups of countries that are part of EU but not using Euro, and

making the comparison between two other groups, Euro and Non Euro Area, would make the topic more interesting and would increase our knowledge.

Also the further studies of this thesis consist on taking in consideration more years, before 1980 to see the evaluation of the economic performance during years.

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APPENDIX

Country	Year	inflation	gdp	ppi	cpi	unemployment	interest rate	uncertainty
Austria	1980	6.3	2.3	72.41	6.3	1.6	9.24	14.90366
Austria	1981	6.8	-0.1	78.22	6.8	2.2	10.61	19.01419
Austria	1982	5.4	1.9	80.73	5.4	3.1	9.92	8.764714
Austria	1983	3.3	2.8	81.22	3.3	3.7	8.17	0.740505
Austria	1984	5.7	0.3	84.25	5.7	3.8	8.02	10.63103
Austria	1985	3.2	2.2	86.45	3.2	3.6	7.77	0.5784
Austria	1986	1.7	2.3	81.9	1.7	3.1	7.44	0.546822
Austria	1987	1.4	1.7	80.27	1.4	3.8	7.01	1.080506
Austria	1988	1.9	1	80.07	1.9	2.7	6.86	0.291032
Austria	1989	2.2	3.9	81.49	2.2	2.3	7.15	0.057348
Austria	1990	2.8	4.3	83.83	2.8	2.7	8.77	0.129979
Austria	1991	3.1	3.4	84.55	3.1	3.2	8.56	0.436295
Austria	1992	3.4	2.1	84.35	3.4	3.3	8.18	0.92261
Austria	1993	3.2	0.5	84.01	3.2	4	6.71	0.5784
Austria	1994	2.7	2.4	85.13	2.7	3.9	7.03	0.067874
Austria	1995	1.6	2.7	85.4	1.6	4.2	7.13	0.704717
Austria	1996	1.8	2.4	85.4	1.8	4.7	6.32	0.408927
Austria	1997	1.2	2.2	85.72	1.2	4.8	5.68	1.536296
Austria	1998	0.8	3.6	85.27	0.8	4.7	4.71	2.687875
Austria	1999	0.5	3.6	84.55	0.5	4.1	4.68	3.761559
Austria	2000	2	3.4	87.97	2	3.9	5.56	0.193137
Austria	2001	2.3	1.4	88.16	2.3	4	5.08	0.019453
Austria	2002	1.7	1.7	87.18	1.7	4.4	4.96	0.546822
Austria	2003	1.3	0.8	87.12	1.3	4.8	4.14	1.298401
Austria	2004	2	2.7	88.63	2	5.5	4.13	0.193137
Austria	2005	2.1	2.1	91.37	2.1	5.7	3.39	0.115243
Austria	2006	1.7	3.4	92.92	1.7	5.2	3.8	0.546822
Austria	2007	2.2	3.6	95.5	2.2	4.9	4.3	0.057348
Austria	2008	3.2	1.5	98.84	3.2	4.1	4.36	0.5784

Austria	2009	0.4	-3.8	97.29	0.4	5.3	3.94	4.159454
Austria	2010	1.7	1.9	100	1.7	4.8	3.23	0.546822
Austria	2011	3.5	2.8	104.03	3.5	4.6	3.32	1.124715
Austria	2012	2.6	0.7	104.94	2.6	4.9	2.37	0.025769
Austria	2013	2.1	0.1	104.03	2.1	5.3	2.01	0.115243
Austria	2014	1.5	0.6	102.9	1.5	5.6	1.49	0.882611
Austria	2015	0.8	1	101.4	0.8	5.7	0.75	2.687875
Austria	2016	1	1.5	99.55	1	6	0.38	2.072085
Austria	2017	1.6	2.3	101.5	1.6	5.4		0.704717
Belgium	1980	6.7	4.4	50.62	6.7	8.3	11.9	15.4449
Belgium	1981	7.6	-0.3	57.75	7.6	10	13.44	23.3289
Belgium	1982	8.7	0.6	65.52	8.7	11.5	13.43	35.1649
Belgium	1983	7.7	0.3	69.92	7.7	10.7	11.94	24.3049
Belgium	1984	6.3	2.5	75.21	6.3	10.8	12.24	12.4609
Belgium	1985	4.9	1.7	77.17	4.9	10.1	10.97	4.5369
Belgium	1986	1.3	1.8	68.31	1.3	10.1	8.63	2.1609
Belgium	1987	1.6	2.3	64.92	1.6	9.8	8.18	1.3689
Belgium	1988	1.2	4.7	65.99	1.2	8.9	8.01	2.4649
Belgium	1989	3.1	3.5	70.32	3.1	7.4	8.54	0.1089
Belgium	1990	3.5	3.1	69.62	3.5	6.6	10.01	0.5329
Belgium	1991	3.2	1.8	68.89	3.2	6.5	9.29	0.1849
Belgium	1992	2.3	1.5	67.65	2.3	7.1	8.65	0.2209
Belgium	1993	2.5	-1	65.94	2.5	8.6	7.23	0.0729
Belgium	1994	2.4	3.2	66.99	2.4	9.8	7.75	0.1369
Belgium	1995	1.3	2.4	69.18	1.3	9.7	7.48	2.1609
Belgium	1996	1.8	1.6	70.68	1.8	9.6	6.49	0.9409
Belgium	1997	1.5	3.7	73.29	1.5	9.2	5.75	1.6129
Belgium	1998	0.9	2	71.9	0.9	9.3	4.75	3.4969
Belgium	1999	1.1	3.6	71.92	1.1	8.4	4.75	2.7889
Belgium	2000	2.7	3.6	79.52	2.7	6.9	5.59	0.0049
Belgium	2001	2.4	0.8	81.23	2.4	6.6	5.13	0.1369
Belgium	2002	1.5	1.8	80.48	1.5	7.5	4.99	1.6129
Belgium	2003	1.5	0.8	80.14	1.5	8.2	4.18	1.6129
Belgium	2004	1.9	3.6	83.16	1.9	8.4	4.15	0.7569
Belgium	2005	2.5	2.1	87.62	2.5	8.5	3.43	0.0729
Belgium	2006	2.3	2.5	92.88	2.3	8.3	3.82	0.2209
Belgium	2007	1.8	3.4	95.38	1.8	7.5	4.33	0.9409
Belgium	2008	4.5	0.7	101.37	4.5	7	4.42	2.9929
Belgium	2009	0	-2.3	92.68	0	7.9	3.9	7.6729
Belgium	2010	2.3	2.7	100	2.3	8.3	3.46	0.2209
Belgium	2011	3.4	1.8	108.93	3.4	7.1	4.23	0.3969
Belgium	2012	2.6	0.1	112.96	2.6	7.6	3	0.0289
Belgium	2013	1.2	-0.1	112.42	1.2	8.5	2.41	2.4649
Belgium	2014	0.5	1.6	108.53	0.5	8.6	1.71	5.1529
Belgium	2015	0.6	1.5	103.13	0.6	8.5	0.84	4.7089

Belgium	2016	1.8	1.2	101.66	1.8	7.9	0.48	0.9409
Belgium	2017	2.2	1.6	110.29	2.2	7.5		0.3249
Cyprus	1980	13.5	5.9		13.5			102.01
Cyprus	1981	10.7	3.1		10.7			53.29
Cyprus	1982	6.4	6.3		6.4	2.8		9
Cyprus	1983	5	5.3		5	3.3		2.56
Cyprus	1984	6	8.8		6	3.3		6.76
Cyprus	1985	5	4.7		5	3.3		2.56
Cyprus	1986	1.2	3.6		1.2	3.7		4.84
Cyprus	1987	2.7	7.1		2.7	3.4		0.49
Cyprus	1988	3.4	8.3		3.4	2.8		0
Cyprus	1989	3.8	8.1		3.8	2.3		0.16
Cyprus	1990	4.5	7.4		4.5	1.8		1.21
Cyprus	1991	5	0.7		5	3		2.56
Cyprus	1992	6.5	9.4		6.5	1.8		9.61
Cyprus	1993	4.9	0.7		4.9	2.7		2.25
Cyprus	1994	4.7	5.9		4.7	2.7		1.69
Cyprus	1995	2.6	9.9		2.6	2.6		0.64
Cyprus	1996	2.6	1.3		2.6	3.1		0.64
Cyprus	1997	3.3	2.6		3.3	3.4		0.01
Cyprus	1998	2.3	5.2		2.3	3.4		1.21
Cyprus	1999	1.1	4.8		1.1	3.6		5.29
Cyprus	2000	4.9	5.7	69.34	4.9	4.8		2.25
Cyprus	2001	2	3.6	70.16	2	3.9	7.63	1.96
Cyprus	2002	2.8	3.4	71.52	2.8	3.5	5.7	0.36
Cyprus	2003	4	2.5	73.54	4	4.1	4.74	0.36
Cyprus	2004	1.9	4.6	77.55	1.9	4.6	5.8	2.25
Cyprus	2005	2	3.7	81.33	2	5.3	5.16	1.96
Cyprus	2006	2.3	4.5	85.55	2.3	4.6	4.13	1.21
Cyprus	2007	2.2	4.8	88.44	2.2	3.9	4.48	1.44
Cyprus	2008	4.4	3.9	98.03	4.4	3.7	4.6	1
Cyprus	2009	0.2	-1.8	96.35	0.2	5.3	4.6	10.24
Cyprus	2010	2.6	1.3	100	2.6	6.3	4.6	0.64
Cyprus	2011	3.5	0.3	105.13	3.5	7.9	5.79	0.01
Cyprus	2012	3.1	-3.2	112.2	3.1	11.8	7	0.09
Cyprus	2013	0.4	-6	109.83	0.4	15.9	6.5	9
Cyprus	2014	-0.3	-1.5	106.7	-0.3	16.1	6	13.69
Cyprus	2015	-1.5	1.7	101.34	-1.5	14.9	4.54	24.01
Cyprus	2016	-1.2	2.8	97.59	-1.2	13	3.77	21.16
Cyprus	2017	0.8	3.4		0.8	11.8	2.62	6.76
Estonia	1980			...			...	
Estonia	1981			...			...	
Estonia	1982			...			...	
Estonia	1983			...			...	
Estonia	1984			...			...	

Estonia	1985			...			...	
Estonia	1986			...			...	
Estonia	1987			...			...	
Estonia	1988			...			...	
Estonia	1989			...			...	
Estonia	1990			...			...	
Estonia	1991			...			...	
Estonia	1992			...			...	
Estonia	1993			...		6.5	...	
Estonia	1994	47.7	-1.6	45.31699	47.7	7.5	...	1642.681
Estonia	1995	29	2.2	56.91165	29	9.6	...	476.5489
Estonia	1996	23.1	5.3	65.32966	23.1	9.9	...	253.7649
Estonia	1997	11.2	11.8	70.8029	11.2	9.6	...	16.2409
Estonia	1998	8.2	4.1	73.80109	8.2	9.8	13.1675	1.0609
Estonia	1999	3.3	-0.9	72.89475	3.3	12.2	11.39	14.9769
Estonia	2000	3.9	10.6	76.43771	3.9	14.6	10.48333	10.6929
Estonia	2001	5.6	6.3	79.12352	5.6	13	10.15333	2.4649
Estonia	2002	3.6	6.1	78.27489	3.6	11.2	8.418333	12.7449
Estonia	2003	1.4	7.4	78.09648	1.4	10.3	5.245833	33.2929
Estonia	2004	3	6.3	80.31291	3	10.1	4.388333	17.3889
Estonia	2005	4.1	9.4	82.3372	4.1	8	3.9825	9.4249
Estonia	2006	4.4	10.3	86.11816	4.4	5.9	4.303333	7.6729
Estonia	2007	6.7	7.7	93.30955	6.7	4.6	5.628333	0.2209
Estonia	2008	10.6	-5.4	98.79915	10.6	5.5	8.164167	11.7649
Estonia	2009	0.2	-14.7	96.47293	0.2	13.5	7.778333	48.5809
Estonia	2010	2.7	2.3	100	2.7	16.7	5.968333	19.9809
Estonia	2011	5.1	7.6	104.4483	5.1	12.3	...	4.2849
Estonia	2012	4.2	4.3	106.865	4.2	10	...	8.8209
Estonia	2013	3.2	1.9	111.2683	3.2	8.6	...	15.7609
Estonia	2014	0.5	2.9	109.5125	0.5	7.4	...	44.4889
Estonia	2015	0.1	1.7	107.2883	0.1	6.2	...	49.9849
Estonia	2016	0.8	2.1	106.5633	0.8	6.8	...	40.5769
Estonia	2017	3.8	4	110.3475	3.8	8.4	...	11.3569
Finland	1980	11.6	5.7	49.77493	11.6	5.3	...	68.3929
Finland	1981	12	1.3	56.14612	12	5.7	...	75.1689
Finland	1982	9.3	3.1	60.17789	9.3	6.1	...	35.6409
Finland	1983	8.4	3.1	63.5294	8.4	6.1	...	25.7049
Finland	1984	7	3.2	66.93484	7	5.9	...	13.4689
Finland	1985	5.8	3.5	69.92963	5.8	6	...	6.1009
Finland	1986	2.9	2.7	66.3085	2.9	6.7	...	0.1849
Finland	1987	4.1	3.6	66.89336	4.1	4.9	...	0.5929
Finland	1988	5.1	5.2	69.60609	5.1	4.2	10.5575	3.1329
Finland	1989	6.6	5.1	73.09034	6.6	3.1	12.08917	10.6929
Finland	1990	5	0.7	75.53671	5	3.2	13.29583	2.7889
Finland	1991	4.5	-5.9	75.7524	4.5	6.7	11.67667	1.3689

Finland	1992	3.3	-3.3	76.58678	3.3	11.8	11.97333	0.0009
Finland	1993	3.3	-0.7	78.85151	3.3	16.5	8.825	0.0009
Finland	1994	1.6	3.9	79.90487	1.6	16.7	9.036667	2.9929
Finland	1995	0.4	4.2	80.43155	0.4	15.5	8.7925	8.5849
Finland	1996	1.1	3.7	79.67374	1.1	14.6	7.076667	4.9729
Finland	1997	1.2	6.3	80.90979	1.2	12.7	5.9575	4.5369
Finland	1998	1.3	5.4	79.72524	1.3	11.5	4.7875	4.1209
Finland	1999	1.3	4.4	79.54866	1.3	10.3	4.724167	4.1209
Finland	2000	3	5.6	85.25068	3	9.9	5.483333	0.1089
Finland	2001	2.7	2.6	84.94167	2.7	9.2	5.043333	0.3969
Finland	2002	2	1.7	83.9	2	9.2	4.980833	1.7689
Finland	2003	1.3	2	83.79167	1.3	9.1	4.134167	4.1209
Finland	2004	0.1	3.9	85.10833	0.1	8.9	4.11	10.4329
Finland	2005	0.8	2.8	88.30833	0.8	8.5	3.351667	6.4009
Finland	2006	1.3	4.1	93.33333	1.3	7.8	3.783333	4.1209
Finland	2007	1.6	5.2	97.09167	1.6	7	4.292545	2.9929
Finland	2008	3.9	0.7	102.575	3.9	6.4	4.289732	0.3249
Finland	2009	1.6	-8.3	96	1.6	8.3	3.738845	2.9929
Finland	2010	1.7	3	100	1.7	8.5	3.01291	2.6569
Finland	2011	3.3	2.6	106.4083	3.3	7.8	3.005875	0.0009
Finland	2012	3.2	-1.4	109.6917	3.2	7.7	1.884191	0.0169
Finland	2013	2.2	-0.8	109.8583	2.2	8.2	1.860877	1.2769
Finland	2014	1.2	-0.6	108.4167	1.2	8.7	1.449274	4.5369
Finland	2015	-0.2	0	104.9417	-0.2	9.4	0.723133	12.4609
Finland	2016	0.4	1.9	103.2833	0.4	8.8	0.363164	8.5849
Finland	2017	0.8	2.8	108.6083	0.8	8.7	0.548127	6.4009
France	1980	13.1	1.8	...	13.1	6.3	13.1275	98.2081
France	1981	13.3	1.1	...	13.3	7.4	15.845	102.2121
France	1982	12	2.5	...	12	8.1	15.64917	77.6161
France	1983	9.5	1.3	...	9.5	7.4	13.58667	39.8161
France	1984	7.7	1.5	...	7.7	8.5	12.48917	20.3401
France	1985	5.8	1.6	...	5.8	8.7	11.12333	6.8121
France	1986	2.5	2.4	...	2.5	8.9	8.544167	0.4761
France	1987	3.3	2.6	...	3.3	9.2	9.478333	0.0121
France	1988	2.7	4.7	...	2.7	8.8	9.084167	0.2401
France	1989	6.6	4.4	...	6.6	8.7	8.796667	11.6281
France	1990	0.3	2.9	...	0.3	8.4	9.9325	8.3521
France	1991	3.4	1	...	3.4	8.6	9.036667	0.0441
France	1992	2.5	1.6	...	2.5	9.4	8.5875	0.4761
France	1993	2.2	-0.6	...	2.2	10.3	6.775	0.9801
France	1994	1.7	2.3	...	1.7	10.7	7.215833	2.2201
France	1995	1.8	2.1	...	1.8	10.5	7.535	1.9321
France	1996	2.1	1.4	...	2.1	10.8	6.310833	1.1881
France	1997	1.3	2.3	...	1.3	10.9	5.581667	3.5721
France	1998	0.7	3.6	...	0.7	10.7	4.64	6.2001

France	1999	0.6	3.4	83.03641	0.6	10.4	4.608333	6.7081
France	2000	1.8	3.9	86.65422	1.8	9.2	5.394167	1.9321
France	2001	1.8	2	87.69407	1.8	8.5	4.939167	1.9321
France	2002	1.9	1.1	87.52077	1.9	8.3	4.86	1.6641
France	2003	2.2	0.8	88.32954	2.2	8.5	4.13	0.9801
France	2004	2.3	2.8	90.12761	2.3	8.8	4.098333	0.7921
France	2005	1.9	1.6	92.85	1.9	8.9	3.41	1.6641
France	2006	1.9	2.4	95.8	1.9	8.8	3.796667	1.6641
France	2007	1.6	2.4	97.85	1.6	8	4.304167	2.5281
France	2008	3.2	0.2	102.3667	3.2	7.5	4.234167	0.0001
France	2009	0.1	-2.9	97.55	0.1	9.1	3.649192	9.5481
France	2010	1.7	2	100	1.7	9.3	3.1171	2.2201
France	2011	2.3	2.1	104.5572	2.3	9.2	3.321217	0.7921
France	2012	2.2	0.2	106.944	2.2	9.8	2.536183	0.9801
France	2013	1	0.6	106.944	1	10.3	2.204608	4.7961
France	2014	0.6	0.9	105.5604	0.6	10.3	1.6674	6.7081
France	2015	0.1	1.1	103.779	0.1	10.4	0.844408	9.5481
France	2016	0.3	1.2	101.4614	0.3	10	0.467067	8.3521
France	2017	1.2	1.6	103.8049	1.2	9.5	...	3.9601
Germany	1980	5.4	1.3	61.85217	5.4	3.4	8.485833	
Germany	1981	6.3	0.1	66.69715	6.3	4.8	10.10833	
Germany	1982	5.3	-0.8	70.61089	5.3	6.7	8.965	
Germany	1983	3.3	1.6	71.64281	3.3	8.1	8.018333	
Germany	1984	2.4	2.8	73.71294	2.4	8.1	7.949167	
Germany	1985	2.1	2.2	75.5125	2.1	8.1	6.9475	
Germany	1986	-0.1	2.4	73.60597	-0.1	7.8	5.894167	
Germany	1987	0.2	1.5	71.77495	0.2	7.8	6.140833	
Germany	1988	1.3	3.7	72.67473	1.3	7.7	6.489167	
Germany	1989	2.8	3.9	74.97138	2.8	6.8	6.898333	
Germany	1990	2.7	5.7	76.26127	2.7	6.2	8.704167	
Germany	1991	3.5	5	78.07342	3.5	5.5	8.458333	2.9584
Germany	1992	5	1.5	79.19917	5	6.6	7.8475	10.3684
Germany	1993	4.5	-1	79.32281	4.5	7.8	6.510833	7.3984
Germany	1994	2.7	2.5	79.79783	2.7	8.4	6.866667	0.8464
Germany	1995	1.7	1.8	81.18387	1.7	8.2	6.85	0.0064
Germany	1996	1.3	0.9	80.19605	1.3	8.9	6.215833	0.2304
Germany	1997	1.5	1.9	81.13651	1.5	9.7	5.640833	0.0784
Germany	1998	0.6	1.8	80.81174	0.6	9.4	4.571667	1.3924
Germany	1999	0.6	1.9	79.99307	0.6	8.6	4.490833	1.3924
Germany	2000	1.4	3.2	82.625	1.4	8	5.263333	0.1444
Germany	2001	1.9	1.8	85.09167	1.9	7.8	4.7975	0.0144
Germany	2002	1.3	0	84.6	1.3	8.6	4.7825	0.2304
Germany	2003	1	-0.7	86.03333	1	9.7	4.070833	0.6084
Germany	2004	1.8	0.7	87.44167	1.8	10.3	4.036667	0.0004
Germany	2005	1.9	0.9	91.24167	1.9	11	3.353333	0.0144

Germany	2006	1.8	3.9	96.18333	1.8	10	3.7625	0.0004
Germany	2007	2.3	3.4	97.45833	2.3	8.6	4.216667	0.2704
Germany	2008	2.8	0.8	102.7917	2.8	7.4	3.984167	1.0404
Germany	2009	0.2	-5.6	98.5	0.2	7.7	3.2225	2.4964
Germany	2010	1.1	3.9	100	1.1	6.9	2.743333	0.4624
Germany	2011	2.5	3.7	105.25	2.5	5.9	2.606667	0.5184
Germany	2012	2.1	0.7	106.95	2.1	5.4	1.495	0.1024
Germany	2013	1.6	0.6	106.8833	1.6	5.2	1.57	0.0324
Germany	2014	0.8	1.9	105.8417	0.8	5	1.163333	0.9604
Germany	2015	0.1	1.5	103.875	0.1	4.6	0.495833	2.8224
Germany	2016	0.4	1.9	102.0667	0.4	4.2	0.09	1.9044
Germany	2017	1.6	2	104.8417	1.6	3.8	...	0.0324
Greece	1980	24.7	0.7	...	24.7	2.7	...	245.2356
Greece	1981	24.4	-1.6	...	24.4	4	...	235.9296
Greece	1982	21.4	-1.1	...	21.4	5.8	...	152.7696
Greece	1983	19.9	-1.1	...	19.9	7.9	...	117.9396
Greece	1984	18.4	2	...	18.4	8.1	...	87.6096
Greece	1985	19.5	2.5	...	19.5	7.8	...	109.4116
Greece	1986	23.1	0.5	...	23.1	7.4	...	197.6836
Greece	1987	16.4	-2.3	...	16.4	7.4	...	54.1696
Greece	1988	13.5	4.3	...	13.5	7.7	16.56167	19.8916
Greece	1989	13.7	3.8	...	13.7	7.5	...	21.7156
Greece	1990	20.3	0	...	20.3	7	...	126.7876
Greece	1991	19.5	3.1	...	19.5	7.7	...	109.4116
Greece	1992	15.9	0.7	...	15.9	8.7	...	47.0596
Greece	1993	14.4	-1.6	...	14.4	9.7	23.2725	28.7296
Greece	1994	10.9	2	...	10.9	9.6	20.69917	3.4596
Greece	1995	8.8	2.1	56.41868	8.8	10	16.95917	0.0576
Greece	1996	7.9	2.9	59.66199	7.9	10.3	14.43333	1.2996
Greece	1997	5.4	4.5	61.71399	5.4	10.3	9.919167	13.2496
Greece	1998	4.5	3.9	63.4753	4.5	11.2	8.4825	20.6116
Greece	1999	2.1	3.1	65.0029	2.1	12.1	6.2975	48.1636
Greece	2000	2.9	3.9	68.4172	2.9	11.4	6.1	37.6996
Greece	2001	3.6	4.1	70.89743	3.6	10.8	5.303333	29.5936
Greece	2002	3.9	3.9	72.51613	3.9	10.4	5.1225	26.4196
Greece	2003	3.4	5.8	74.21342	3.4	9.8	4.2675	31.8096
Greece	2004	3	5.1	76.84583	3	10.6	4.255833	36.4816
Greece	2005	3.5	0.6	81.36281	3.5	10	3.585	30.6916
Greece	2006	3.3	5.7	87.32374	3.3	9	4.07	32.9476
Greece	2007	3	3.3	90.92165	3	8.4	4.5	36.4816
Greece	2008	4.2	-0.3	100.0492	4.2	7.8	4.8025	23.4256
Greece	2009	1.3	-4.3	94.25579	1.3	9.6	5.174167	59.9076
Greece	2010	4.7	-5.5	100	4.7	12.7	9.091667	18.8356
Greece	2011	3.1	-9.1	107.4365	3.1	17.9	15.74917	35.2836
Greece	2012	1	-7.3	112.7434	1	24.4	22.49833	64.6416

Greece	2013	-0.9	-3.2	111.9951	-0.9	27.5	10.05417	98.8036
Greece	2014	-1.4	0.4	111.0635	-1.4	26.5	6.929167	108.9936
Greece	2015	-1.1	-0.2	104.5831	-1.1	24.9	9.813333	102.8196
Greece	2016	0	0	98.91581	0	23.6	8.36	81.7216
Greece	2017	1.2	1.8	103.0848	1.2	22.3	5.978333	61.4656
Ireland	1980	18.3	2.9	56.79513	18.3		...	207.0721
Ireland	1981	20.2	2.5	66.25973	20.2		...	265.3641
Ireland	1982	17.2	1.5	74.10003	17.2		...	176.6241
Ireland	1983	10.4	-0.7	78.95535	10.4		...	42.1201
Ireland	1984	8.6	3.2	84.76214	8.6		...	21.9961
Ireland	1985	5.5	1.9	88.11618	5.5	17.7	...	2.5281
Ireland	1986	3	0.4	87.05878	3	18.1	...	0.8281
Ireland	1987	3.2	3.6	88.46864	3.2	18.8	...	0.5041
Ireland	1988	2.2	3	92.11077	2.2	18.4	...	2.9241
Ireland	1989	4	5.6	96.5019	4	17.9	8.935833	0.0081
Ireland	1990	3.4	7.7	94.95252	3.4	17.2	10.08333	0.2601
Ireland	1991	3.1	1.6	95.77494	3.1	19	9.210833	0.6561
Ireland	1992	3.1	3.6	97.339	3.1	16.3	9.07	0.6561
Ireland	1993	1.4	2.3	101.8256	1.4	16.7	7.700833	6.3001
Ireland	1994	2.4	5.9	102.9638	2.4	15.1	7.920833	2.2801
Ireland	1995	2.5	9.6	105.5925	2.5	14.1	8.255	1.9881
Ireland	1996	2.2	9.1	106.2608	2.2	11.8	7.289167	2.9241
Ireland	1997	1.3	10.7	105.6586	1.3	9.9	6.293333	6.8121
Ireland	1998	2.1	8.5	106.5692	2.1	7.6	4.796667	3.2761
Ireland	1999	2.4	10.6	107.5531	2.4	5.6	4.710833	2.2801
Ireland	2000	5.3	9.5	113.736	5.3	4.3	5.5125	1.9321
Ireland	2001	4	5.8	115.6409	4	3.9	5.011667	0.0081
Ireland	2002	4.7	6.3	114.3235	4.7	4.5	5.01	0.6241
Ireland	2003	4	3.1	105.0738	4	4.6	4.1325	0.0081
Ireland	2004	2.3	6.8	102.5434	2.3	4.5	4.076667	2.5921
Ireland	2005	2.2	6	102.4676	2.2	4.4	3.329167	2.9241
Ireland	2006	2.7	5.5	102.8518	2.7	4.5	3.765	1.4641
Ireland	2007	2.9	5.2	100.5038	2.9	4.7	4.305833	1.0201
Ireland	2008	3.1	-3.9	99.20594	3.1	6.4	4.525833	0.6561
Ireland	2009	-1.7	-4.7	99.889	-1.7	12.1	5.225	31.4721
Ireland	2010	-1.6	1.8	100	-1.6	13.9	5.739167	30.3601
Ireland	2011	1.2	2.9	100.4867	1.2	14.7	9.601667	7.3441
Ireland	2012	1.9	0	102.3024	1.9	14.7	6.171667	4.0401
Ireland	2013	0.5	1.6	101.9276	0.5	13.1	3.79	11.6281
Ireland	2014	0.3	8.3	100.595	0.3	11.3	2.3675	13.0321
Ireland	2015	0	25.5	106.0503	0	9.5	1.1825	15.2881
Ireland	2016	-0.2	5.1	105.2924	-0.2	7.9	0.735833	16.8921
Ireland	2017	0.4	4.1	104.6011	0.4	6.4	...	12.3201
Italy	1980	21.8	3.4	...	21.8	7.4	15.2525	282.9124
Italy	1981	19.5	0.8	34.33797	19.5	7.6	19.3575	210.8304

Italy	1982	16.5	0.4	38.84916	16.5	8.3	20.215	132.7104
Italy	1983	14.7	1.2	43.12067	14.7	7.4	18.29917	94.4784
Italy	1984	10.7	3.2	47.56426	10.7	7.8	15.59917	32.7184
Italy	1985	9	2.8	51.2273	9	8.2	13.7125	16.1604
Italy	1986	5.8	2.9	51.31949	5.8	8.9	11.46833	0.6724
Italy	1987	4.7	3.2	52.85601	4.7	9.6	10.64167	0.0784
Italy	1988	5.1	4.2	54.73055	5.1	9.7	10.89583	0.0144
Italy	1989	6.2	3.4	57.93879	6.2	9.7	12.78583	1.4884
Italy	1990	6.4	2.1	60.34189	6.4	8.9	13.53583	2.0164
Italy	1991	6.2	1.5	62.35779	6.2	8.5	13.2825	1.4884
Italy	1992	5	0.8	63.53784	5	8.8	13.2675	0.0004
Italy	1993	4.5	-0.9	65.92865	4.5	9.8	11.18667	0.2304
Italy	1994	4.2	2.2	68.37477	4.2	10.6	10.52	0.6084
Italy	1995	5.4	2.3	73.75257	5.4	11.2	12.205	0.1764
Italy	1996	4	1.3	75.14772	4	11.2	9.400833	0.9604
Italy	1997	1.8	1.8	76.11879	1.8	11.2	6.8625	10.1124
Italy	1998	2	1.6	76.19869	2	11.3	4.884167	8.8804
Italy	1999	1.7	1.6	76.00817	1.7	10.9	4.7275	10.7584
Italy	2000	2.6	3.7	80.58082	2.6	10.1	5.575833	5.6644
Italy	2001	2.3	1.8	82.14807	2.3	9.1	5.189167	7.1824
Italy	2002	2.6	0.2	81.99441	2.6	8.6	5.035833	5.6644
Italy	2003	2.8	0.2	83.30643	2.8	8.5	4.248333	4.7524
Italy	2004	2.3	1.6	85.5623	2.3	8	4.258333	7.1824
Italy	2005	2.2	0.9	88.98292	2.2	7.7	3.555833	7.7284
Italy	2006	2.2	2	93.96323	2.2	6.8	4.0475	7.7284
Italy	2007	2	1.5	97.22319	2	6.1	4.487316	8.8804
Italy	2008	3.5	-1.1	101.9233	3.5	6.7	4.681149	2.1904
Italy	2009	0.8	-5.5	97.13309	0.8	7.7	4.313333	17.4724
Italy	2010	1.6	1.7	100	1.6	8.3	4.035833	11.4244
Italy	2011	2.9	0.6	104.7504	2.9	8.4	5.424167	4.3264
Italy	2012	3.3	-2.8	108.509	3.3	10.7	5.4925	2.8224
Italy	2013	1.2	-1.7	107.3506	1.2	12.1	4.316667	14.2884
Italy	2014	0.2	0.1	105.7755	0.2	12.6	2.8925	22.8484
Italy	2015	0.1	0.8	102.9669	0.1	11.9	1.714167	23.8144
Italy	2016	-0.1	0.9	100.9667	-0.1	11.7	1.4875	25.8064
Italy	2017	1.4	1.5	103.3003	1.4	11.4	2.111667	12.8164
Latvia	1980	...		...	...	...	...	
Latvia	1981	...		...	...	...	3.005	
Latvia	1982	...		...	...	...	2.625833	
Latvia	1983	...		...	...	...	2.8475	
Latvia	1984	...		...	...	...	3.945	
Latvia	1985	...		...	...	...	4.965	
Latvia	1986	...		...	...	...	4.699167	
Latvia	1987	...		...	...	...	3.6525	
Latvia	1988	...		...	...	...	2.725833	

Latvia	1989	...		...	...	...	2.206667	
Latvia	1990	...		...	...	...	1.1025	
Latvia	1991	...		...	...	...	1.326667	
Latvia	1992	...		17.33908	...	3.2	1.39	
Latvia	1993	109.2	-11.4	37.641	109.2	7	1.32	9840.64
Latvia	1994	35.9	2.2	43.98065	35.9	7	1.27	670.81
Latvia	1995	25	-2.1	49.2118	25	7	1.153333	225
Latvia	1996	17.6	2.4	55.94147	17.6	20.7	1.2	57.76
Latvia	1997	8.1	9	58.24742	8.1	15.2	1.16	3.61
Latvia	1998	4.3	6.5	59.34223	4.3	14	1.1	32.49
Latvia	1999	2.1	2.6	56.96101	2.1	14.1	0.993333	62.41
Latvia	2000	2.6	5.4	57.31683	2.6	14.3	1.02	54.76
Latvia	2001	2.5	6.5	58.30076	2.5	13.5	0.99	56.25
Latvia	2002	2	7.1	58.8405	2	12.5	0.97	64
Latvia	2003	2.9	8.4	60.71762	2.9	11.6	0.936667	50.41
Latvia	2004	6.2	8.3	65.93345	6.2	11.8	0.96	14.44
Latvia	2005	6.9	10.7	71.0442	6.9	10.1	0.94	9.61
Latvia	2006	6.6	11.9	78.39986	6.6	7	0.91	11.56
Latvia	2007	10.1	9.9	91.04778	10.1	6.1	0.8575	0.01
Latvia	2008	15.3	-3.6	101.7443	15.3	7.7	0.876667	28.09
Latvia	2009	3.3	-14.3	96.97256	3.3	17.6	0.88	44.89
Latvia	2010	-1.2	-3.8	100	-1.2	19.5	0.88	125.44
Latvia	2011	4.2	6.4	107.675	4.2	16.2	0.87	33.64
Latvia	2012	2.3	4	111.6367	2.3	15	0.863333	59.29
Latvia	2013	0	2.6	113.3574	0	11.9	0.87	100
Latvia	2014	0.7	2.1	113.8363	0.7	10.8	0.86	86.49
Latvia	2015	0.2	2.7	112.7602	0.2	9.9	0.86	96.04
Latvia	2016	0.1	2	110.0828	0.1	9.6	0.846667	98.01
Latvia	2017	3	3.8	112.9979	3	9	0.85	49
Lithuania	1980			...			...	
Lithuania	1981			...			...	
Lithuania	1982			...			...	
Lithuania	1983			...			...	
Lithuania	1984			...			...	
Lithuania	1985			...			...	
Lithuania	1986			...			...	
Lithuania	1987			...			...	
Lithuania	1988			...			...	
Lithuania	1989			...			...	
Lithuania	1990			...			...	
Lithuania	1991			...			...	
Lithuania	1992			...			...	
Lithuania	1993			28.06445			...	
Lithuania	1994			40.62078			...	
Lithuania	1995			52.12441			...	

Lithuania	1996	23.1	5.2	61.12285	23.1		...	396.8064
Lithuania	1997	8.7	8.3	63.70014	8.7		...	30.4704
Lithuania	1998	5.4	7.5	58.95558	5.4		...	4.9284
Lithuania	1999	1.4	-1.1	59.82835	1.4	14.6	...	3.1684
Lithuania	2000	1.1	3.8	71.70236	1.1	16.4	...	4.3264
Lithuania	2001	1.5	6.5	69.10257	1.5	17.4	8.153333	2.8224
Lithuania	2002	0.3	6.8	66.44446	0.3	13.7	6.0625	8.2944
Lithuania	2003	-1.1	10.5	66.16949	-1.1	12.4	5.321667	18.3184
Lithuania	2004	1.2	6.6	71.1774	1.2	10.9	4.5025	3.9204
Lithuania	2005	2.7	7.7	80.55995	2.7	8.3	3.698333	0.2304
Lithuania	2006	3.8	7.4	86.25948	3.8	5.8	4.080833	0.3844
Lithuania	2007	5.8	11.1	91.39238	5.8	4.2	4.545833	6.8644
Lithuania	2008	11.2	2.6	107.3077	11.2	5.8	5.6075	64.3204
Lithuania	2009	4.2	-14.8	89.80085	4.2	13.8	14.00417	1.0404
Lithuania	2010	1.2	1.6	100	1.2	17.8	5.566667	3.9204
Lithuania	2011	4.1	6	114.7154	4.1	15.4	5.16	0.8464
Lithuania	2012	3.2	3.8	119.4567	3.2	13.4	4.830833	0.0004
Lithuania	2013	1.2	3.5	115.7904	1.2	11.8	3.831786	3.9204
Lithuania	2014	0.2	3.5	110.6991	0.2	10.7	2.7925	8.8804
Lithuania	2015	-0.7	1.8	100.8916	-0.7	9.1	1.380833	15.0544
Lithuania	2016	0.7	2.3	96.01588	0.7	7.9	0.898333	6.1504
Lithuania	2017	3.5	3.5	101.7837	3.5	7	...	0.1024
Luxembourg	1980	6.3	3.2	47.45902	6.3	0.7	7.501667	9.7344
Luxembourg	1981	8.1	0.8	52.52566	8.1	1	8.6775	24.2064
Luxembourg	1982	9.4	1	61.91779	9.4	1.3	10.50167	38.6884
Luxembourg	1983	8.7	1.9	64.98047	8.7	1.6	9.830833	30.4704
Luxembourg	1984	5.6	4.7	68.98363	5.6	1.7	10.22333	5.8564
Luxembourg	1985	14.8	5.6	71.05601	14.8	1.7	9.510833	135.0244
Luxembourg	1986	0.3	10	69.26127	0.3	1.5	8.605	8.2944
Luxembourg	1987	-0.1	4	64.74627	-0.1	1.7	7.9675	10.7584
Luxembourg	1988	1.4	8.5	66.45543	1.4	1.5	7.180833	3.1684
Luxembourg	1989	3.4	9.8	71.51333	3.4	1.4	7.699167	0.0484
Luxembourg	1990	3.7	5.3	70.06879	3.7	1.3	8.5225	0.2704
Luxembourg	1991	3.1	8.6	68.26622	3.1	1.4	8.155833	0.0064
Luxembourg	1992	3.2	1.8	66.42879	3.2	1.6	7.913333	0.0004
Luxembourg	1993	3.6	4.2	65.54966	3.6	2.1	6.838333	0.1764
Luxembourg	1994	2.2	3.8	66.51977	2.2	2.7	7.15	0.9604
Luxembourg	1995	1.9	1.4	69.13018	1.9	3	7.229167	1.6384
Luxembourg	1996	1.2	1.5	66.98088	1.2	3.2	6.321667	3.9204
Luxembourg	1997	1.4	5.9	67.97387	1.4	3.3	5.5975	3.1684
Luxembourg	1998	1	6.5	69.62373	1	3.1	4.726667	4.7524
Luxembourg	1999	1	8.4	66.9291	1	2.9	4.664167	4.7524
Luxembourg	2000	3.8	8.4	69.48153	3.8	2.4	5.518333	0.3844
Luxembourg	2001	2.4	2.5	69.37361	2.4	2.2	4.859167	0.6084
Luxembourg	2002	2.1	3.8	68.81434	2.1	2.5	4.7025	1.1664

Luxembourg	2003	2.5	1.6	69.64325	2.5	3.3	3.315833	0.4624
Luxembourg	2004	3.2	3.6	75.92503	3.2	3.7	2.844167	0.0004
Luxembourg	2005	3.8	3.2	82.07654	3.8	4.1	2.414167	0.3844
Luxembourg	2006	3	5.2	88.14275	3	4.2	3.303333	0.0324
Luxembourg	2007	2.7	8.4	96.46036	2.7	4.2	4.460833	0.2304
Luxembourg	2008	4.1	-1.3	105.1303	4.1	4.2	4.6075	0.8464
Luxembourg	2009	0	-4.4	96.44144	0	5.5	4.229167	10.1124
Luxembourg	2010	2.8	4.9	100	2.8	5.9	3.1675	0.1444
Luxembourg	2011	3.7	2.5	108.6424	3.7	5.7	2.923333	0.2704
Luxembourg	2012	2.9	-0.4	111.3483	2.9	6.1	1.753333	0.0784
Luxembourg	2013	1.7	4	108.4901	1.7	6.9	1.851667	2.1904
Luxembourg	2014	0.7	5.6	105.2727	0.7	7.1	1.336667	6.1504
Luxembourg	2015	0.1	4	104.1165	0.1	6.8	0.369167	9.4864
Luxembourg	2016	0	4.2	102.7602	0	6.4	0.255833	10.1124
Luxembourg	2017	1.2	3.9	105.552	1.2	5.9	...	3.9204
Malta	1980	2.7	7	...	2.7		...	0.0784
Malta	1981	11.6	2.7	...	11.6		...	84.2724
Malta	1982	5.8	0.1	...	5.8		...	11.4244
Malta	1983	-0.9	2.6	...	-0.9	12.5	...	11.0224
Malta	1984	-0.4	0.8	...	-0.4	12.5	...	7.9524
Malta	1985	-0.2	2.4	...	-0.2	12.2	...	6.8644
Malta	1986	2	3.8	...	2	11	...	0.1764
Malta	1987	0.4	5.7	...	0.4	8.2	...	4.0804
Malta	1988	0.9	6.8	...	0.9	6.2	...	2.3104
Malta	1989	0.9	7.1	...	0.9	4.6	...	2.3104
Malta	1990	3	4.7	...	3	4.8	...	0.3364
Malta	1991	2.6	5.9	...	2.6	4.4	...	0.0324
Malta	1992	1.8	8.1	...	1.8	4.9	...	0.3844
Malta	1993	4	3.9	...	4	5.4	...	2.4964
Malta	1994	4.1	4.6	...	4.1	5.4	...	2.8224
Malta	1995	4	6.9	...	4	4.9	...	2.4964
Malta	1996	2	4	...	2	5.2	...	0.1764
Malta	1997	3.9	4.8	...	3.9	6.2	...	2.1904
Malta	1998	3.7	3.4	...	3.7	6.6	...	1.6384
Malta	1999	2.3	3.8	...	2.3	7.1	...	0.0144
Malta	2000	3	-1	111.7483	3	6.8	...	0.3364
Malta	2001	2.5	0.6	112.9008	2.5	7.6	6.188333	0.0064
Malta	2002	2.6	2.9	110.3067	2.6	7	5.819167	0.0324
Malta	2003	1.9	2.5	104.4142	1.9	7.6	5.041667	0.2704
Malta	2004	2.7	0.5	100.9892	2.7	7.2	4.685	0.0784
Malta	2005	2.5	3.8	100.3767	2.5	6.9	4.555	0.0064
Malta	2006	2.6	1.9	106.2533	2.6	6.8	4.318333	0.0324
Malta	2007	0.7	4	101.1208	0.7	6.5	4.724167	2.9584
Malta	2008	4.7	3.3	99.88083	4.7	6	4.808333	5.1984
Malta	2009	1.8	-2.4	98.72	1.8	6.9	4.541667	0.3844

Malta	2010	2	3.5	100	2	6.9	4.1875	0.1764
Malta	2011	2.5	1.4	102.1442	2.5	6.4	4.489167	0.0064
Malta	2012	3.2	2.6	100.7208	3.2	6.3	4.125833	0.6084
Malta	2013	1	4.6	97.7075	1	6.4	3.3625	2.0164
Malta	2014	0.8	8.2	97.12583	0.8	5.8	2.611667	2.6244
Malta	2015	1.2	7.1	95.03583	1.2	5.4	1.4875	1.4884
Malta	2016	0.9	5.5	94.46083	0.9	4.7	0.885833	2.3104
Malta	2017	1.3	5.1	...	1.3	4.4	...	1.2544
Netherlands	1980			61.53837		3.4	10.20833	
Netherlands	1981	6.8	-0.5	66.9	6.8	4.6	11.5525	23.04
Netherlands	1982	5.9	-1.3	69.79167	5.9	6.5	10.0975	15.21
Netherlands	1983	2.9	1.8	70.3	2.9	8.3	8.610833	0.81
Netherlands	1984	3.4	3.1	73.1	3.4	8.1	8.328333	1.96
Netherlands	1985	2.3	2.7	75.425	2.3	7.3	7.344167	0.09
Netherlands	1986	0	3.1	67.75833	0	6.5	6.313333	4
Netherlands	1987	-1	1.9	66.01667	-1	6.3	6.4025	9
Netherlands	1988	0.5	4.6	66.7	0.5	6.2	6.415833	2.25
Netherlands	1989	1.1	4.4	69.85833	1.1	5.7	7.216667	0.81
Netherlands	1990	2.5	4.2	68.38333	2.5	5.1	8.920833	0.25
Netherlands	1991	3.2	2.4	68.675	3.2	4.8	8.739167	1.44
Netherlands	1992	2.8	1.7	67.825	2.8	4.9	8.100833	0.64
Netherlands	1993	1.6	1.3	66.55	1.6	5.5	6.36	0.16
Netherlands	1994	2.1	3	67.05	2.1	6.2	6.8625	0.01
Netherlands	1995	1.3	2.6	68.84167	1.3	7.1	6.899167	0.49
Netherlands	1996	1.4	3.6	69.86667	1.4	6.4	6.15	0.36
Netherlands	1997	1.9	4.3	72.075	1.9	5.5	5.575833	0.01
Netherlands	1998	1.8	4.5	70.23333	1.8	4.3	4.63	0.04
Netherlands	1999	2	5	70.49167	2	3.5	4.629167	0
Netherlands	2000	2.3	4.2	79.15	2.3	3.1	5.404167	0.09
Netherlands	2001	5.1	2.1	79.76667	5.1	3.1	4.9575	9.61
Netherlands	2002	3.9	0.1	78.7	3.9	3.7	4.889167	3.61
Netherlands	2003	2.2	0.3	79.26667	2.2	4.8	4.1225	0.04
Netherlands	2004	1.4	2	82.25	1.4	5.7	4.094167	0.36
Netherlands	2005	1.5	2.2	87.51667	1.5	5.9	3.374167	0.25
Netherlands	2006	1.7	3.5	92.03333	1.7	5	3.780833	0.09
Netherlands	2007	1.6	3.7	96.6	1.6	4.2	4.286667	0.16
Netherlands	2008	2.2	1.7	103.7667	2.2	3.7	4.2275	0.04
Netherlands	2009	1	-3.8	91.775	1	4.4	3.686667	1
Netherlands	2010	0.9	1.4	100	0.9	5	2.991667	1.21
Netherlands	2011	2.5	1.7	110.9005	2.5	5	2.989167	0.25
Netherlands	2012	2.8	-1.1	111.3636	2.8	5.8	1.93275	0.64
Netherlands	2013	2.6	-0.2	110.0772	2.6	7.3	1.961333	0.36
Netherlands	2014	0.3	1.4	108.2847	0.3	7.4	1.45425	2.89
Netherlands	2015	0.2	2.3	102.916	0.2	6.9	0.690167	3.24
Netherlands	2016	0.1	2.2	100.3602	0.1	5.9	0.292083	3.61

Netherlands	2017	1.3	3.1	105.1973	1.3	5.1	0.523	0.49
Portugal	1980	5.9	6.7	...	5.9	7.8	16.6825	0.9409
Portugal	1981	21.2	3.5	...	21.2	8.3	16.705	205.3489
Portugal	1982	22.7	2.2	...	22.7	7.5	16.79167	250.5889
Portugal	1983	25.1	1	...	25.1	7.9	19.2225	332.3329
Portugal	1984	29.3	-1	...	29.3	10.5	21.5025	503.1049
Portugal	1985	19.3	1.6	...	19.3	8.7	20.74833	154.5049
Portugal	1986	11.7	3.3	...	11.7	8.6	15.75583	23.3289
Portugal	1987	9.4	7.6	...	9.4	7.1	15.1175	6.4009
Portugal	1988	9.6	5.3	...	9.6	7.1	14.1475	7.4529
Portugal	1989	12.6	6.6	...	12.6	5.1	14.94333	32.8329
Portugal	1990	13.4	7.9	...	13.4	4.2	15.4025	42.6409
Portugal	1991	11.4	3.4	...	11.4	4.1	14.53667	20.5209
Portugal	1992	8.9	3.1	...	8.9	3.9	13.83167	4.1209
Portugal	1993	5.9	-0.7	...	5.9	5.1	11.18083	0.9409
Portugal	1994	5	1.5	...	5	6.3	10.47917	3.4969
Portugal	1995	4	2.3	...	4	7.2	11.465	8.2369
Portugal	1996	2.9	3.5	...	2.9	7.3	8.559167	15.7609
Portugal	1997	1.9	4.4	...	1.9	6.7	6.358333	24.7009
Portugal	1998	2.2	4.8	...	2.2	4.9	4.8775	21.8089
Portugal	1999	2.2	3.9	...	2.2	4.4	4.7775	21.8089
Portugal	2000	2.8	3.8	80.07499	2.8	3.9	5.595	16.5649
Portugal	2001	4.4	1.9	82.49545	4.4	4	5.1575	6.1009
Portugal	2002	3.7	0.8	82.92586	3.7	5	5.006667	10.0489
Portugal	2003	3.2	-0.9	83.71863	3.2	6.3	4.178333	13.4689
Portugal	2004	2.5	1.8	85.93128	2.5	6.6	4.143333	19.0969
Portugal	2005	2.1	0.8	88.74296	2.1	7.6	3.4375	22.7529
Portugal	2006	3	1.6	92.62324	3	7.6	3.915	14.9769
Portugal	2007	2.4	2.5	95.25151	2.4	8	4.424167	19.9809
Portugal	2008	2.7	0.2	100.1819	2.7	7.6	4.5225	17.3889
Portugal	2009	-0.9	-3	96.39556	-0.9	9.4	4.210833	60.3729
Portugal	2010	1.4	1.9	100	1.4	10.8	5.395833	29.9209
Portugal	2011	3.6	-1.8	106.2992	3.6	12.7	10.24083	10.6929
Portugal	2012	2.8	-4	110.21	2.8	15.5	10.5475	16.5649
Portugal	2013	0.4	-1.1	109.5801	0.4	16.2	6.294167	41.8609
Portugal	2014	-0.2	0.9	107.5328	-0.2	13.9	3.754167	49.9849
Portugal	2015	0.5	1.6	104.9869	0.5	12.4	2.423333	40.5769
Portugal	2016	0.6	1.4	102.021	0.6	11.1	3.1725	39.3129
Portugal	2017	1.6	2.5	105.4856	1.6	9.7	...	27.7729
Slovakia	1980			...			...	
Slovakia	1981			...			...	
Slovakia	1982			...			...	
Slovakia	1983			...			...	
Slovakia	1984			...			...	
Slovakia	1985			...			...	

Slovakia	1986			...			...	
Slovakia	1987			...			...	
Slovakia	1988			...			...	
Slovakia	1989			...			...	
Slovakia	1990			...			...	
Slovakia	1991			42.40309			...	
Slovakia	1992			44.6521			...	
Slovakia	1993			52.32975		12.7	...	
Slovakia	1994	13.5	6.2	57.55358	13.5	14.6	...	79.0321
Slovakia	1995	9.9	7.9	62.74162	9.9	13.7	...	27.9841
Slovakia	1996	5.8	6.9	65.32867	5.8	12.6	...	1.4161
Slovakia	1997	6	4.4	68.26354	6	11.9	...	1.9321
Slovakia	1998	6.7	4	70.48466	6.7	12.7	...	4.3681
Slovakia	1999	10.5	-0.2	73.16918	10.5	16.5	...	34.6921
Slovakia	2000	12.2	1.2	80.33856	12.2	18.9	...	57.6081
Slovakia	2001	7.1	3.3	85.64231	7.1	19.5	8.0425	6.2001
Slovakia	2002	3.5	4.5	87.41832	3.5	18.8	6.935	1.2321
Slovakia	2003	8.4	5.4	94.68259	8.4	17.7	4.985833	14.3641
Slovakia	2004	7.5	5.3	97.93415	7.5	18.4	5.025833	8.3521
Slovakia	2005	2.8	6.8	102.5678	2.8	16.4	3.521667	3.2761
Slovakia	2006	4.3	8.5	105.9153	4.3	13.4	4.411667	0.0961
Slovakia	2007	1.9	10.8	104.6864	1.9	11.2	4.490833	7.3441
Slovakia	2008	3.9	5.6	106.8729	3.9	9.6	4.723333	0.5041
Slovakia	2009	0.9	-5.4	99.86441	0.9	12.1	4.706667	13.7641
Slovakia	2010	0.7	5	100	0.7	14.5	3.871667	15.2881
Slovakia	2011	4.1	2.8	104.4237	4.1	13.7	4.415	0.2601
Slovakia	2012	3.7	1.7	106.5508	3.7	14	4.5525	0.8281
Slovakia	2013	1.5	1.5	105.5339	1.5	14.2	3.1875	9.6721
Slovakia	2014	-0.1	2.6	101.9153	-0.1	13.2	2.070833	22.1841
Slovakia	2015	-0.3	3.8	98.90678	-0.3	11.5	0.885	24.1081
Slovakia	2016	-0.5	3.3	94.92373	-0.5	9.6	0.543333	26.1121
Slovakia	2017	1.2	3.3	98.64407	1.2	8.1	...	11.6281
Slovenia	1980			...			...	
Slovenia	1981			...			...	
Slovenia	1982			...			...	
Slovenia	1983			...			...	
Slovenia	1984			...			...	
Slovenia	1985			...			...	
Slovenia	1986			...			...	
Slovenia	1987			...			...	
Slovenia	1988			...			...	
Slovenia	1989			...			...	
Slovenia	1990			...			...	
Slovenia	1991			...			...	
Slovenia	1992			32.17536		7.8	...	

Slovenia	1993	31.9	2.8	39.17298	31.9	8.6	...	669.2569
Slovenia	1994	20.7	5.3	46.10201	20.7	8.5	...	215.2089
Slovenia	1995	13.7	4.1	51.97338	13.7	7	...	58.8289
Slovenia	1996	9.9	3.6	55.5065	9.9	6.9	...	14.9769
Slovenia	1997	8.3	5.1	58.89097	8.3	6.9	...	5.1529
Slovenia	1998	7.9	3.3	62.41265	7.9	7.4	...	3.4969
Slovenia	1999	6.1	5.3	63.73328	6.1	7.4	...	0.0049
Slovenia	2000	8.9	4.2	68.63276	8.9	6.7	...	8.2369
Slovenia	2001	8.4	2.9	74.77021	8.4	6.2	...	5.6169
Slovenia	2002	7.5	3.8	78.44518	7.5	6.3	...	2.1609
Slovenia	2003	5.5	2.8	80.44266	5.5	6.7	6.401667	0.2809
Slovenia	2004	3.6	4.4	83.9668	3.6	6.3	4.683333	5.9049
Slovenia	2005	2.5	4	86.27761	2.5	6.5	3.806667	12.4609
Slovenia	2006	2.5	5.7	88.36343	2.5	6	3.853333	12.4609
Slovenia	2007	3.7	6.9	93.18006	3.7	4.9	4.529167	5.4289
Slovenia	2008	5.6	3.3	98.38918	5.6	4.4	4.606667	0.1849
Slovenia	2009	0.8	-7.8	97.99752	0.8	5.9	4.375	27.3529
Slovenia	2010	1.8	1.2	100	1.8	7.3	3.8325	17.8929
Slovenia	2011	1.8	0.6	103.7741	1.8	8.2	4.970833	17.8929
Slovenia	2012	2.6	-2.7	104.8258	2.6	8.9	5.808333	11.7649
Slovenia	2013	1.8	-1.1	105.1358	1.8	10.1	5.811667	17.8929
Slovenia	2014	0.2	3	104.0108	0.2	9.7	3.27	33.9889
Slovenia	2015	-0.5	2.3	103.47	-0.5	9	1.705	42.6409
Slovenia	2016	-0.1	3.1	101.9975	-0.1	8	1.149167	37.5769
Slovenia	2017	1.6	4	103.3691	1.6	6.8	...	19.6249
Spain	1980	15.6	1.2	30.07345	15.6	11	15.96083	114.7041
Spain	1981	14.5	-0.4	34.78489	14.5	13.8	15.81167	92.3521
Spain	1982	14.4	1.2	39.10246	14.4	15.8	15.9875	90.4401
Spain	1983	12.2	1.7	44.58668	12.2	17.2	16.90917	53.4361
Spain	1984	11.3	1.7	50.02602	11.3	19.9	16.5225	41.0881
Spain	1985	8.8	2.4	54.00457	8.8	21.3	13.3675	15.2881
Spain	1986	8.8	3.4	54.50812	8.8	20.9	11.35417	15.2881
Spain	1987	5.2	5.7	54.95683	5.2	20.2	12.81333	0.0961
Spain	1988	4.8	5.3	56.60708	4.8	19.2	11.74417	0.0081
Spain	1989	6.8	5	58.97526	6.8	17.2	13.7025	3.6481
Spain	1990	6.7	3.8	60.23663	6.7	16.2	14.6775	3.2761
Spain	1991	5.9	2.5	61.16396	5.9	16.3	12.36083	1.0201
Spain	1992	7.1	0.9	61.96665	7.1	18.4	11.69333	4.8841
Spain	1993	4.6	-1.3	63.53215	4.6	22.6	10.21167	0.0841
Spain	1994	4.7	2.3	66.24187	4.7	24.1	9.995833	0.0361
Spain	1995	4.7	4.1	70.45911	4.7	22.9	11.27	0.0361
Spain	1996	3.6	2.4	71.64223	3.6	22.1	8.736667	1.6641
Spain	1997	1.9	3.9	72.38009	1.9	20.6	6.401667	8.9401
Spain	1998	1.8	4.5	71.89666	1.8	18.6	4.833333	9.5481
Spain	1999	2.2	4.7	72.39281	2.2	15.6	4.7275	7.2361

Spain	2000	3.5	5.1	76.32381	3.5	13.9	5.525833	1.9321
Spain	2001	3.6	4	77.65406	3.6	10.5	5.116667	1.6641
Spain	2002	3.5	2.9	78.13357	3.5	11.5	4.959167	1.9321
Spain	2003	3	3.2	79.24232	3	11.5	4.124167	3.5721
Spain	2004	3	3.2	81.9534	3	11	4.103333	3.5721
Spain	2005	3.4	3.7	85.82299	3.4	9.2	3.3875	2.2201
Spain	2006	3.5	4.2	90.45124	3.5	8.5	3.785	1.9321
Spain	2007	2.8	3.8	93.70591	2.8	8.2	4.3075	4.3681
Spain	2008	4.1	1.1	99.84333	4.1	11.2	4.366667	0.6241
Spain	2009	-0.3	-3.6	96.44541	-0.3	17.9	3.979167	26.9361
Spain	2010	1.8	0	100	1.8	19.9	4.250833	9.5481
Spain	2011	3.2	-1	106.9406	3.2	21.4	5.44	2.8561
Spain	2012	2.4	-2.9	110.9789	2.4	24.8	5.845	6.2001
Spain	2013	1.4	-1.7	111.6552	1.4	26.1	4.561667	12.1801
Spain	2014	-0.1	1.4	110.1621	-0.1	24.4	2.723333	24.9001
Spain	2015	-0.5	3.2	107.8836	-0.5	22.1	1.735833	29.0521
Spain	2016	-0.2	3.2	104.5058	-0.2	19.6	1.393333	25.9081
Spain	2017	2	3.1	109.0601	2	17.1	1.555	8.3521
Bulgaria	1980	0	5.7	...	0		...	
Bulgaria	1981	0	5.3	...	0		...	
Bulgaria	1982	2.8	4.2	...	2.8		...	
Bulgaria	1983	2.8	3	...	2.8		...	
Bulgaria	1984	2.8	4.6	...	2.8		...	
Bulgaria	1985	2.8	1.8	0.278689	2.8		...	3225.104
Bulgaria	1986	2.7	5.3	0.281197	2.7		...	3236.472
Bulgaria	1987	2.7	4.7	0.280361	2.7		...	3236.472
Bulgaria	1988	2.5	2.4	0.285935	2.5		...	3259.268
Bulgaria	1989	6.4	-0.5	0.286493	6.4	0	...	2829.176
Bulgaria	1990	23.9	-9.1	0.319378	23.9	2.9	...	1273.776
Bulgaria	1991	333.5	-10.8	1.265807	333.5	6.8	...	75026.69
Bulgaria	1992	82	-8.4	0.497829	82	13.2	...	502.2081
Bulgaria	1993	72.8	-11.6	0.085388	72.8	15.8	...	174.5041
Bulgaria	1994	96	-3.7	1.064189	96	14.1	...	1325.688
Bulgaria	1995	62.1	-1.6	1.657119	62.1	11.4	...	6.3001
Bulgaria	1996	123	-8	3.855746	123	11	...	4020.828
Bulgaria	1997	1061.2	-1.6	41.30295	1061.2	14	...	1003223
Bulgaria	1998	18.7	4.9	48.32113	18.7	12.4	...	1671.992
Bulgaria	1999	2.6	-0.5	49.67514	2.6	13.8	...	3247.86
Bulgaria	2000	10.3	5	58.38402	10.3	18.1	...	2429.504
Bulgaria	2001	7.4	3.8	60.52816	7.4	17.5	...	2723.796
Bulgaria	2002	5.8	5.9	61.30806	5.8	17.4	...	2893.364
Bulgaria	2003	2.3	5.2	64.33476	2.3	13.9	6.446667	3282.144
Bulgaria	2004	6.1	6.4	68.17737	6.1	12.2	5.36	2861.18
Bulgaria	2005	6	7.1	73.56054	6	10.2	3.874167	2871.888
Bulgaria	2006	7.4	6.9	82.61812	7.4	9	4.183333	2723.796

Bulgaria	2007	7.6	7.3	88.95092	7.6	6.9	4.539167	2702.96
Bulgaria	2008	12	6	98.4418	12	5.7	5.376667	2264.808
Bulgaria	2009	2.5	-3.6	91.984	2.5	6.9	7.215	3259.268
Bulgaria	2010	3	1.3	100	3	10.3	6.004467	3202.428
Bulgaria	2011	3.4	1.9	109.4409	3.4	11.3	5.356842	3157.316
Bulgaria	2012	2.4	0	114.0905	2.4	12.4	4.497417	3270.696
Bulgaria	2013	0.4	0.9	112.2656	0.4	13	3.47295	3503.456
Bulgaria	2014	-1.6	1.3	110.9408	-1.6	11.5	3.3475	3744.216
Bulgaria	2015	-1.1	3.6	108.7826	-1.1	9.2	2.490608	3683.276
Bulgaria	2016	-1.3	3.4	105.4412	-1.3	7.7	2.270575	3707.592
Bulgaria	2017	1.1	3.6	110.5587	1.1	6.6	1.602733	3421.08
Croatia	1980			...			...	
Croatia	1981			...			...	
Croatia	1982			...			...	
Croatia	1983			...			...	
Croatia	1984			...			...	
Croatia	1985			...			...	
Croatia	1986			...			...	
Croatia	1987			...			...	
Croatia	1988			...			...	
Croatia	1989			...			...	
Croatia	1990			...			...	
Croatia	1991			0.24482		13.2	...	
Croatia	1992			2.244181		15.3	...	
Croatia	1993	1518.5	-8	36.18572	1518.5	14.8	379.3128	2133644
Croatia	1994	97.5	5.9	64.26519	97.5	14.5	6.519498	1576.09
Croatia	1995	2	6.6	64.74123	2	14.5	5.524685	3113.64
Croatia	1996	3.6	5.9	65.6253	3.6	10	5.585	2937.64
Croatia	1997	3.7	6.6	67.12142	3.7	9.9	4.296667	2926.81
Croatia	1998	6.7	1.9	66.30536	6.7	11.6	4.620833	2611.21
Croatia	1999	4	-0.9	68.02063	4	18.6	4.310833	2894.44
Croatia	2000	4.6	3.8	74.57722	4.6	20.6	3.741667	2830.24
Croatia	2001	3.8	3.4	77.25578	3.8	21.5	3.229167	2916
Croatia	2002	1.7	5.2	76.96369	1.7	21.8	1.889167	3147.21
Croatia	2003	1.8	5.6	78.47387	1.8	19.1	1.526667	3136
Croatia	2004	2.1	4.1	81.2208	2.1	17.8	1.873333	3102.49
Croatia	2005	3.3	4.2	83.66321	3.3	17.6	1.714167	2970.25
Croatia	2006	3.2	4.8	85.95716	3.2	16.5	1.715	2981.16
Croatia	2007	2.9	5.2	88.92408	2.9	14.7	2.335833	3014.01
Croatia	2008	6.1	2.1	96.30803	6.1	13	2.82	2672.89
Croatia	2009	2.4	-7.4	95.85799	2.4	14.5	3.203333	3069.16
Croatia	2010	1	-1.7	100	1	17.2	1.7575	3226.24
Croatia	2011	2.3	-0.3	106.3505	2.3	17.4	1.6975	3080.25
Croatia	2012	3.4	-2.2	113.8178	3.4	18.6	1.881667	2959.36
Croatia	2013	2.2	-1.1	114.3095	2.2	19.8	1.520833	3091.36

Croatia	2014	-0.2	-0.5	111.2009	-0.2	19.3	...	3364
Croatia	2015	-0.5	2.2	106.9256	-0.5	17.1	...	3398.89
Croatia	2016	-1.1	3	102.7086	-1.1	15	...	3469.21
Croatia	2017	1.1	2.9	104.8165	1.1	13.9	...	3214.89
Czech Republic	1980			...			...	
Czech Republic	1981			23.95228			...	
Czech Republic	1982			25.79699			...	
Czech Republic	1983			25.62404			...	
Czech Republic	1984			27.75698			...	
Czech Republic	1985			28.24698			...	
Czech Republic	1986			28.12031			...	
Czech Republic	1987			28.12031			...	
Czech Republic	1988			28.18364			...	
Czech Republic	1989			28.18364			...	
Czech Republic	1990			29.38699			...	
Czech Republic	1991			50.34736			...	
Czech Republic	1992			55.35063			...	
Czech Republic	1993			62.56129			...	
Czech Republic	1994			64.15069			...	
Czech Republic	1995			68.1052		4	...	
Czech Republic	1996	8.8	4.5	71.35106	8.8	3.9	...	36.1201
Czech Republic	1997	8.6	-0.6	74.87666	8.6	4.8	...	33.7561
Czech Republic	1998	10.7	-0.3	78.50253	10.7	6.5	...	62.5681
Czech Republic	1999	2.2	1.4	79.30476	2.2	8.8	...	0.3481
Czech Republic	2000	3.8	4.3	83.17992	3.8	8.8	...	1.0201

Czech Republic	2001	4.6	2.9	85.52277	4.6	8.2	6.314167	3.2761
Czech Republic	2002	1.9	1.7	85.06328	1.9	7.3	4.876667	0.7921
Czech Republic	2003	0.1	3.6	84.78531	0.1	7.8	4.115833	7.2361
Czech Republic	2004	2.7	4.9	89.59015	2.7	8.3	4.754167	0.0081
Czech Republic	2005	1.9	6.5	92.29039	1.9	7.9	3.514167	0.7921
Czech Republic	2006	2.5	6.9	93.73695	2.5	7.1	3.778333	0.0841
Czech Republic	2007	2.9	5.6	97.59916	2.9	5.3	4.28	0.0121
Czech Republic	2008	6.3	2.7	101.9833	6.3	4.4	4.633583	12.3201
Czech Republic	2009	1	-4.8	98.74739	1	6.7	4.8375	3.2041
Czech Republic	2010	1.5	2.3	100	1.5	7.3	3.884833	1.6641
Czech Republic	2011	1.9	1.8	105.5324	1.9	6.7	3.707417	0.7921
Czech Republic	2012	3.3	-0.8	107.8288	3.3	7	2.802101	0.2601
Czech Republic	2013	1.4	-0.5	108.6639	1.4	7	2.109523	1.9321
Czech Republic	2014	0.3	2.7	107.8288	0.3	6.1	1.575833	6.2001
Czech Republic	2015	0.3	5.3	104.358	0.3	5	0.573948	6.2001
Czech Republic	2016	0.7	2.6	100.9569	0.7	4	0.427469	4.3681
Czech Republic	2017	2.3	3.5	102.8097	2.3	2.8	0.980641	0.2401
Denmark	1980	11.3	-0.5	44.75979	11.3	5.3	...	65.9344
Denmark	1981	11.7	-0.7	51.76546	11.7	7.1	...	72.5904
Denmark	1982	10.1	3.7	57.29824	10.1	7.6	...	47.8864
Denmark	1983	6.8	2.6	60.15228	6.8	8.4	...	13.1044
Denmark	1984	6.3	4.2	64.67527	6.3	7.9	14.42667	9.7344
Denmark	1985	4.7	4	66.41434	4.7	6.6	11.58	2.3104
Denmark	1986	3.7	4.9	61.9194	3.7	5	10.05083	0.2704
Denmark	1987	4	0.3	61.8072	4	5	11.28417	0.6724
Denmark	1988	4.5	0	64.23349	4.5	5.7	9.884167	1.7424
Denmark	1989	4.8	0.6	67.92201	4.8	6.8	9.706667	2.6244
Denmark	1990	2.6	1.5	68.6513	2.6	7.2	10.62917	0.3364
Denmark	1991	2.4	1.4	69.28241	2.4	7.9	9.261667	0.6084

Denmark	1992	2.1	2	68.51105	2.1	8.6	8.986667	1.1664
Denmark	1993	1.2	0	68.15342	1.2	9.5	7.3025	3.9204
Denmark	1994	2	5.3	68.95984	2	7.7	7.825833	1.3924
Denmark	1995	2.1	3	70.93734	2.1	6.8	8.269167	1.1664
Denmark	1996	2.2	2.9	71.71571	2.2	6.3	7.194167	0.9604
Denmark	1997	2.2	3.3	73.05508	2.2	5.2	6.254167	0.9604
Denmark	1998	1.8	2.2	72.66238	1.8	4.9	4.9375	1.9044
Denmark	1999	2.5	2.9	73.02002	2.5	5.1	4.91	0.4624
Denmark	2000	2.9	3.7	77.35367	2.9	4.3	5.641667	0.0784
Denmark	2001	2.4	0.8	78.86835	2.4	4.5	5.079167	0.6084
Denmark	2002	2.4	0.5	78.96652	2.4	4.6	5.055833	0.6084
Denmark	2003	2.1	0.4	79.13482	2.1	5.4	4.308333	1.1664
Denmark	2004	1.2	2.7	80.83182	1.2	5.5	4.305	3.9204
Denmark	2005	1.8	2.3	84.14868	1.8	4.8	3.404167	1.9044
Denmark	2006	1.9	3.9	90.41587	1.9	3.9	3.811667	1.6384
Denmark	2007	1.7	0.9	92.17435	1.7	3.8	4.285833	2.1904
Denmark	2008	3.4	-0.5	103.9087	3.4	3.5	4.281667	0.0484
Denmark	2009	1.3	-4.9	93.1411	1.3	6	3.5875	3.5344
Denmark	2010	2.3	1.9	100	2.3	7.5	2.9275	0.7744
Denmark	2011	2.8	1.3	108.6007	2.8	7.6	2.730583	0.1444
Denmark	2012	2.4	0.2	111.1093	2.4	7.5	1.403333	0.6084
Denmark	2013	0.8	0.9	112.9094	0.8	7	1.745833	5.6644
Denmark	2014	0.6	1.7	111.7926	0.6	6.5	1.326667	6.6564
Denmark	2015	0.5	1.6	107.659	0.5	6.2	0.69	7.1824
Denmark	2016	0.3	1.7	106.1505	0.3	6.2	0.320833	8.2944
Denmark	2017	1	1.9	108.8174	1	5.8	0.515	4.7524
Hungary	1980	9.3	0.2	7.590335	9.3	0.6	...	1
Hungary	1981	4.5	2.9	8.068306	4.5	0.2	...	33.64
Hungary	1982	7	2.8	8.457836	7	0.2	...	10.89
Hungary	1983	6.4	0.7	8.847905	6.4	0.2	...	15.21
Hungary	1984	8.7	2.7	9.31728	8.7	0.1	...	2.56
Hungary	1985	7	-0.3	9.775269	7	0	...	10.89
Hungary	1986	5.3	1.5	9.985918	5.3	0.2	...	25
Hungary	1987	8.7	4.1	10.27062	8.7	0.3	...	2.56
Hungary	1988	15.8	-0.1	10.82777	15.8	0.5	...	30.25
Hungary	1989	16.9	0.7	12.44719	16.9	0.5	...	43.56
Hungary	1990	29	-3.5	15.1197	29	2.1	...	349.69
Hungary	1991	34.2	-11.9	20.3147	34.2	8.4	...	571.21
Hungary	1992	22.9	-3.1	22.34739	22.9	9.3	...	158.76
Hungary	1993	22.5	-0.6	25.46378	22.5	11.3	...	148.84
Hungary	1994	18.9	2.9	28.58324	18.9	10.1	...	73.96
Hungary	1995	28.3	2.5	36.73238	28.3	10.2	...	324
Hungary	1996	23.5	0	44.74989	23.5	9.9	...	174.24
Hungary	1997	18.3	3.3	53.83273	18.3	8.7	...	64
Hungary	1998	14.2	4.2	59.9798	14.2	7.8	...	15.21

Hungary	1999	10	3.2	63.00129	10	7	...	0.09
Hungary	2000	9.8	4.2	69.78816	9.8	6.4	...	0.25
Hungary	2001	9.2	3.8	73.35762	9.2	5.7	7.945	1.21
Hungary	2002	5.3	4.5	72.09025	5.3	5.8	7.085	25
Hungary	2003	4.7	3.8	73.76477	4.7	5.9	6.823333	31.36
Hungary	2004	6.7	5	76.32401	6.7	6.1	8.189167	12.96
Hungary	2005	3.6	4.4	79.92714	3.6	7.2	6.599167	44.89
Hungary	2006	3.9	3.9	85.11908	3.9	7.5	7.115833	40.96
Hungary	2007	8	0.4	87.08749	8	7.4	6.744167	5.29
Hungary	2008	6	0.9	92.03759	6	7.9	8.238333	18.49
Hungary	2009	4.2	-6.6	95.92543	4.2	10.1	9.123333	37.21
Hungary	2010	4.9	0.7	100	4.9	11.3	7.282125	29.16
Hungary	2011	3.9	1.7	105.394	3.9	11.1	7.635158	40.96
Hungary	2012	5.7	-1.6	109.7226	5.7	11.1	7.890833	21.16
Hungary	2013	1.6	2.1	110.5369	1.6	10.2	5.923333	75.69
Hungary	2014	-0.2	4	110.0992	-0.2	7.8	4.809167	110.25
Hungary	2015	-0.1	3.1	108.9971	-0.1	6.8	3.4325	108.16
Hungary	2016	0.4	2	107.1359	0.4	5.1	3.143333	98.01
Hungary	2017	2.5	3.2	110.6931	2.5	4.4	2.9625	60.84
Poland	1980	9.4	-6	0.061969	9.4		...	894.6081
Poland	1981	21.2	-10	0.06767	21.2		...	327.9721
Poland	1982	100.8	-4.8	0.142791	100.8		...	3781.02
Poland	1983	22.1	5.6	0.169221	22.1		...	296.1841
Poland	1984	75.6	-0.4	0.192583	75.6		...	1316.964
Poland	1985	15.1	3.9	0.226877	15.1		...	586.1241
Poland	1986	17.8	3.5	0.264694	17.8		...	462.6801
Poland	1987	25.2	2.3	0.334883	25.2		...	199.0921
Poland	1988	60.2	3.3	0.534438	60.2		...	436.3921
Poland	1989	251.1	3.8	1.700547	251.1		...	44855
Poland	1990	585.8	-7.2	12.076	585.8	6.3	...	298651.3
Poland	1991	70.3	-7	18.15554	70.3	11.8	...	960.3801
Poland	1992	43	2	23.18691	43	13.6	...	13.6161
Poland	1993	35.3	4.3	30.66415	35.3	16.4	...	16.0801
Poland	1994	32.2	5.2	39.88613	32.2	11.4	...	50.5521
Poland	1995	27.9	6.7	50.07524	27.9	13.3	...	130.1881
Poland	1996	19.9	6.2	56.6842	19.9	12.3	...	376.7481
Poland	1997	14.9	7.1	63.59066	14.9	11.2	...	595.8481
Poland	1998	11.8	5	68.19916	11.8	10.6	...	756.8001
Poland	1999	7.3	4.5	71.97587	7.3	13.1	...	1024.64
Poland	2000	10.1	4.3	77.5254	10.1	16.1	...	853.2241
Poland	2001	5.5	1.2	78.81511	5.5	18.2	10.68167	1143.116
Poland	2002	1.9	1.4	79.73093	1.9	19.9	7.355833	1399.508
Poland	2003	0.8	3.6	81.86504	0.8	19.6	5.7775	1483.02
Poland	2004	3.5	5.1	87.71285	3.5	19	6.896667	1282.356
Poland	2005	2.1	3.5	88.3472	2.1	17.7	5.218333	1384.584

Poland	2006	1	6.2	90.29647	1	13.8	5.231667	1467.656
Poland	2007	2.5	7.2	92.30035	2.5	9.6	5.484167	1354.976
Poland	2008	4.2	3.9	94.66131	4.2	7.1	6.071667	1232.712
Poland	2009	3.4	2.6	97.85858	3.4	8.2	6.12	1289.528
Poland	2010	2.6	3.7	100	2.6	9.6	5.781667	1347.624
Poland	2011	4.3	5	107.4917	4.3	9.6	5.955833	1225.7
Poland	2012	3.7	1.6	110.9583	3.7	10.1	5	1268.072
Poland	2013	0.9	1.4	109.5083	0.9	10.3	4.033611	1475.328
Poland	2014	0	3.3	107.9167	0	9	3.515833	1545.276
Poland	2015	-0.9	3.9	105.5667	-0.9	7.5	2.701604	1616.844
Poland	2016	-0.6	2.6	105.525	-0.6	6.2	3.035833	1592.808
Poland	2017	1.9	3.8	108.5917	1.9	4.8	3.42	1399.508
Romania	1980	1.5	3.3	...	1.5		...	
Romania	1981	2.2	0.1	...	2.2		...	
Romania	1982	16.9	3.9	...	16.9		...	
Romania	1983	4.7	6	...	4.7		...	
Romania	1984	-0.3	6	...	-0.3		...	
Romania	1985	-0.2	-0.1	...	-0.2	4	...	
Romania	1986	0.7	2.4	...	0.7	3.9	...	
Romania	1987	1.1	0.8	...	1.1	3.7	...	
Romania	1988	2.6	-0.5	...	2.6	3.7	...	
Romania	1989	0.9	-5.8	...	0.9	3.4	...	
Romania	1990	127.9	-5.6	0.027002	127.9	3.4	...	5757.774
Romania	1991	161.1	-12.9	0.091998	161.1	3.5	...	11898.45
Romania	1992	210.4	-8.8	0.279287	210.4	5.4	...	25084.22
Romania	1993	256.1	1.5	0.740064	256.1	9.2	...	41648.65
Romania	1994	136.7	3.9	1.77999	136.7	11	...	7170.702
Romania	1995	32.3	7.1	2.404919	32.3	9.9	...	388.8784
Romania	1996	38.8	3.9	3.604271	38.8	7.3	...	174.7684
Romania	1997	154.8	-6.1	9.259287	154.8	7.9	...	10563.73
Romania	1998	59.1	-4.8	12.33189	59.1	9.6	...	50.1264
Romania	1999	45.8	-1.2	17.82339	45.8	7.2	...	38.6884
Romania	2000	45.7	2.9	27.3432	45.7	7.6	...	39.9424
Romania	2001	34.5	5.6	37.75499	34.5	7.3	...	306.9504
Romania	2002	22.2	5.2	46.45768	22.2	8.3	...	889.2324
Romania	2003	15.3	5.5	55.52727	15.3	7.8	...	1348.358
Romania	2004	11.9	8.4	66.13503	11.9	8	...	1609.614
Romania	2005	9	4.2	73.07167	9	7.2	...	1850.72
Romania	2006	6.6	8.1	77.9675	6.6	7.1	7.23	2062.976
Romania	2007	4.8	6.9	82.93667	4.8	6.3	7.138333	2229.728
Romania	2008	7.8	8.5	93.46167	7.8	5.5	7.695833	1955.408
Romania	2009	5.6	-7.1	95.8175	5.6	6.3	9.694167	2154.816
Romania	2010	6.1	-0.8	100	6.1	6.9	7.336667	2108.646
Romania	2011	5.8	1.1	107.0975	5.8	7.2	6.650833	2136.288
Romania	2012	3.3	0.6	112.8967	3.3	6.8	5.685833	2373.638

Romania	2013	4	3.5	115.2583	4	7.1	4.248333	2305.92
Romania	2014	1.1	3.1	115.1208	1.1	6.8	...	2592.846
Romania	2015	-0.6	3.9	112.5575	-0.6	6.8	1.274167	2768.864
Romania	2016	-1.6	4.8	110.49	-1.6	5.9	0.645833	2875.104
Romania	2017	1.1	5.5	114.48	1.1	5.3	...	
Sweden	1980	17.5	4.6	33.88962	17.5	2.7	11.7425	192.6544
Sweden	1981	12.1	4.5	37.69206	12.1	3.4	13.4875	71.9104
Sweden	1982	8.6	1.4	42.53064	8.6	4.3	13.04167	24.8004
Sweden	1983	8.9	2.1	47.2617	8.9	4.8	12.30167	27.8784
Sweden	1984	8	4.3	50.90774	8	4.2	12.28083	19.1844
Sweden	1985	7.4	2.3	53.55674	7.4	3.9	13.09417	14.2884
Sweden	1986	4.2	2.9	52.07096	4.2	3.6	10.2625	0.3364
Sweden	1987	4.2	3.3	53.51764	4.2	2.9	11.68417	0.3364
Sweden	1988	5.8	2.5	56.36214	5.8	2.4	11.34833	4.7524
Sweden	1989	6.4	2.5	60.71198	6.4	2	11.18	7.7284
Sweden	1990	3.2	0.8	63.55648	3.2	2.2	13.15917	0.1764
Sweden	1991	8.8	-1	64.43031	8.8	4	10.6925	26.8324
Sweden	1992	1.4	-1	63.59885	1.4	7.1	10.01917	4.9284
Sweden	1993	4.7	-2	67.57609	4.7	11.2	8.569167	1.1664
Sweden	1994	2.9	4.1	70.79602	2.9	10.8	9.700833	0.5184
Sweden	1995	2.5	4	76.26142	2.5	10.4	10.2425	1.2544
Sweden	1996	1	1.5	74.92155	1	10.9	8.0275	6.8644
Sweden	1997	1.8	2.9	75.80067	1.8	10.9	6.6225	3.3124
Sweden	1998	1	4.2	75.36111	1	8.8	4.989167	6.8644
Sweden	1999	0.6	4.5	76.21905	0.6	7.6	4.98	9.1204
Sweden	2000	1.3	4.7	80.65175	1.3	6.3	5.3675	5.3824
Sweden	2001	2.7	1.6	82.2362	2.7	5.8	5.1075	0.8464
Sweden	2002	1.9	2.1	82.17903	1.9	6	5.303333	2.9584
Sweden	2003	2.3	2.4	82.17903	2.3	6.6	4.638333	1.7424
Sweden	2004	1	4.3	82.75074	1	7.4	4.425	6.8644
Sweden	2005	0.8	2.8	86.05031	0.8	7.6	3.383333	7.9524
Sweden	2006	1.5	4.7	90.4198	1.5	7	3.705	4.4944
Sweden	2007	1.7	3.4	93.75204	1.7	6.1	4.1675	3.6864
Sweden	2008	3.3	-0.6	97.83567	3.3	6.2	3.888333	0.1024
Sweden	2009	1.9	-5.2	98.94642	1.9	8.3	3.25	2.9584
Sweden	2010	1.9	6	100	1.9	8.6	2.893333	2.9584
Sweden	2011	1.4	2.7	100.3757	1.4	7.8	2.605833	4.9284
Sweden	2012	0.9	-0.3	99.40379	0.9	8	1.5925	7.3984
Sweden	2013	0.4	1.2	96.61875	0.4	8	2.120833	10.3684
Sweden	2014	0.2	2.6	97.99902	0.2	7.9	1.72	11.6964
Sweden	2015	0.7	4.1	98.00719	0.7	7.4	0.719167	8.5264
Sweden	2016	1.1	3.2	97.10062	1.1	7	0.54	6.3504
Sweden	2017	1.6	3.1	102.148	1.6	6.6	...	4.0804
UK	1980	16.8	-2	38.00197	16.8	7.1	13.785	
UK	1981	12.2	-0.8	42.07636	12.2	9.7	14.7425	

UK	1982	8.5	2	45.65987	8.5	10.7	12.88	
UK	1983	5.2	4.2	48.62625	5.2	11.5	10.805	
UK	1984	4.4	2.3	51.5155	4.4	11.8	11.1275	
UK	1985	5.2	4.2	54.72031	5.2	11.4	10.97	
UK	1986	3.6	3.2	55.44964	3.6	11.3	10.135	
UK	1987	4.1	5.4	57.35009	4.1	10.4	9.570833	
UK	1988	4.6	5.8	59.46092	4.6	8.6	9.675833	3.8025
UK	1989	5.2	2.6	62.30107	5.2	7.2	10.19083	6.5025
UK	1990	7	0.7	66.19313	7	7.1	11.8025	18.9225
UK	1991	7.5	-1.1	69.7556	7.5	8.9	10.105	23.5225
UK	1992	4.3	0.4	71.93181	4.3	10	9.063333	2.7225
UK	1993	2.5	2.5	74.77987	2.5	10.4	7.550442	0.0225
UK	1994	1.9	3.9	76.64937	1.9	9.5	8.1221	0.5625
UK	1995	2.7	2.5	79.73112	2.7	8.6	8.200283	0.0025
UK	1996	2.5	2.5	81.8197	2.5	8.1	7.810183	0.0225
UK	1997	1.8	3.1	82.61123	1.8	7	7.052592	0.7225
UK	1998	1.6	3.2	82.66956	1.6	6.3	5.550958	1.1025
UK	1999	1.3	3.3	83.11948	1.3	6	5.093525	1.8225
UK	2000	0.8	3.7	84.30262	0.8	5.5	5.328975	3.4225
UK	2001	1.2	2.7	84.05266	1.2	5.1	4.9295	2.1025
UK	2002	1.3	2.4	83.94434	1.3	5.2	4.894242	1.8225
UK	2003	1.4	3.5	84.50258	1.4	5	4.526592	1.5625
UK	2004	1.3	2.5	85.33578	1.3	4.8	4.882267	1.8225
UK	2005	2.1	3	86.99383	2.1	4.8	4.413892	0.3025
UK	2006	2.3	2.5	88.75187	2.3	5.4	4.501675	0.1225
UK	2007	2.3	2.6	90.7932	2.3	5.4	5.011275	0.1225
UK	2008	3.6	-0.6	96.92551	3.6	5.7	4.590725	0.9025
UK	2009	2.2	-4.3	97.38377	2.2	7.6	3.647517	0.2025
UK	2010	3.3	1.9	100	3.3	7.9	3.624425	0.4225
UK	2011	4.5	1.5	104.7492	4.5	8.1	3.135992	3.4225
UK	2012	2.8	1.3	106.9405	2.8	8	1.918042	0.0225
UK	2013	2.6	1.9	108.3569	2.6	7.6	2.389783	0.0025
UK	2014	1.5	3.1	108.3403	1.5	6.2	2.569083	1.3225
UK	2015	0	2.2	106.5406	0	5.4	1.901033	7.0225
UK	2016	0.7	1.8	107.0322	0.7	4.9	1.305208	3.8025
UK	2017	2.6	1.7	110.6649	2.6	4.4	1.2781	0.0025

CURRICULUM VITAE

Brunilda Mana was born on 3 September 1994, in Librazhd. She received her BS degree in Banking and Finance in 2013 and M.S. degree in 2016 in Banking and Finance too, both from Epoka University. During master degree, she worked in Municipality of Vora, at Business Taxes Sector. It was a good experience and helped me practicing my knowledge taken in university.