Is austerity an effective recovery measure for the Eurozone?

A study based on fiscal stance in relation to financial recovery

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Abstract

In 2008 occurred the beginning of what was to become the most comprehensive, global, financial crisis in modern time. The recent crisis has been substantial for most developed countries, where almost all Eurozone members have showed negative economic results. Our goal is to determine, with as much accuracy as possible, if austerity contributes to the Eurozone-countries' recovery process from the Euro crisis. We are measuring austerity by examining the changes in the CAPB (Cyclically-adjusted primary balance)-variable, also known as the fiscal stance.

An increase in fiscal stance would mean that the country is heading towards a further contractionary fiscal policy. We are studying fiscal stance in correlation to our dependent variables GDP, unemployment and bank solvency. Our results show that in general an implantation of contractionary fiscal policy decreases GDP but increases unemployment and bank solvency. We are comparing two groups of countries, the GIPSI countries and the Baltic States, where we can see significant differences how our dependent variables are affected by CAPB.

Austerity is an effective method for tightening country's economy deficits and debts during normal conditions. But the measure might become ineffective and counterproductive when the normal economic conditions past and financial turmoil emerges. The general conclusion would be that fiscal stance is not contributing to a country's recovery process, but with exceptions such as the Baltic States.

Keywords: *Fiscal stance, Austerity, Cyclically Adjusted Primary Balance, the Eurozone, Fiscal recovery*

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1. Introduction

In 2008 occurred the beginning of what was to become the most comprehensive, global, financial crisis in modern time. The recent crisis has been a substantial fiscal burden for most developed countries. Along with the financial crisis, members of the Eurozone have suffered deteriorate bank solvency and increasing debts, where Greece, Ireland, Portugal, Italy and Spain (also known as the GIPSI countries) suffered the biggest output declines. It started a downward spiral throughout Europe, where the Eurozone countries' governmental debts increased, along with the liability and credibility within the financial sectors in the countries. Cleaning up the governmental debts and organizing the fiscal policy were of highest priority for every country. This strict fiscal action can be described as 'austerity'.

Austerity measures are policies to reduce government budget deficits. This is achieved by bringing revenues closer to expenditure by either cut government spending or increase taxes. Implementation of austerity measures are an alternative for countries to express their fiscal discipline towards creditors and other parties involved, such as foreign banks and credit rating agencies. When government's debt liabilities are questioned, austerity measures are often used to regain the trust for the country's ability to pay *(Alesina et. al, 2015)*.

We will be examining the effects of austerity by studying the changes in the cyclically adjusted primary balance, also called the fiscal stance. By examining how the effects of fiscal stance contribute to the Eurozone's recovery process we will determine whether that austerity measure is the most appropriate measure to get the Eurozone back to its economic standards. Will the outcome result in positive or negative effects for the general member state? However, it is important to mention that one answer does not exclude another.

By studying the effects of fiscal stance we hope to conclude whether to concur or not with the German Finance minister Wolfgang Schäuble, who stated in 2011 that "austerity is the only cure for the Eurozone" *(Schäuble, 5th of September, Financial Times, 2011)*.

1.2 Purpose

The literature about austerity as a tool to reduce budget deficits and economic recovery remains divided. One standard economic model, *The Keynesian model*, argues that cuts in government spending and/or raising of taxes, will have a contractionary effects on aggregate demand and therefore GDP-growth. This theory is the most common perception of austerity. But recent literature by Alesina and Ardagna (2009), among others, argues that some austerity measures can have positive effects on both GDP and aggregated demand in a country.

These contradictions on the subject made us curious about how austerity measures have affected the Eurozone's recovery from the financial crisis. In our thesis we will examine the austerity measures by studying the changes in CAPB *(Cyclically-Adjusted Primary Balance)*, also known as fiscal stance. The purpose of this thesis is also to examine whether the countries in the Eurozone have applied these measures of austerity and to what extent. We will analyze how this has affected their recovery, by looking at the GDP-growth, unemployment rate and bank general solvency together with a few control variables.

The Euro area that we are examining includes: Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia and Spain. We also included Latvia, Lithuania and Estonia, since their currencies were *pegged* against the Euro and their actions during the crisis followed the policies that were implemented in the Euro area. These decisions were made because of their ambition to enter the Eurozone in the near future.

In our thesis we will include the following questions:

   I.   Have the austerity measures contributed to the financial recovery or not?
  II.   Have they aggravated the situation?
 III.   Have these measures been effective for some and, not for others?

We will include a comparison between the GIPSI (Greece, Ireland, Portugal, Spain and Italy) countries and the Baltic States (Estonia, Latvia and Lithuania) based on our results, to clarify our assumptions further. These groups of countries have been affected the most of the financial crisis and of the austerity measures, which we found was interesting.

1.3 Disposition

Section 2 will briefly explain the background of what caused the Eurozone crisis in general, which will give the reader a better understanding of the situation and therefore our thoughts on the issues. We will identify how austerity can be detected and what kind of model we use for measuring austerity in our thesis. We also provide some general information and thoughts about how austerity measures have been implemented in the Euro area. Also, we will present an explanation of the term 'austerity'. Moreover we will explain what the effects are (both positive and negative effects) of austerity and fiscal stance. Thereafter we will review the measurements in context to the financial situation that has been created in the Eurozone. We will identify how austerity can be detected and what kind of model we use for measuring austerity in our thesis.

The last part in this section will describe the Non-Keynesian theory concerning fiscal policy. Further on, Section 3 will contain empirical data and previous studies. We will analyze them in a way where we can present them, both critically and also highlight their relevant studies.

In section 4 we will present our econometric analysis along with data. We will begin to define our variables and explain them. Then we will explain our methods and theories that we have used. Further on, we will explain our equation specifications, where all different variables in our regressions and equations will be described. We will finally present our results and analyze them by give our reflections about them. In this section we will also present graphs and tables of relevant data that can strengthen our point of view when analyzing the results.

Section 5 presents our main findings and conclusion of our thesis. This section will also include suggestions for further studies within the subject. The latter sections 6 and 7 will contain bibliography/references, data appendix and finally all our tables of regressions.

2. Background

2.1 The fiscal policy in aftermath of the financial crisis

When the financial crisis hit in 2008 the European countries did not enter it with good economic conditions. Many of the countries had before the crisis high deficits and debt. The main reasons for this were the low interest rates that the Eurozone countries had had during the first decade of the Euro. This created a large build-up of debt across Europe, especially in the periphery countries such as Italy and Greece. But, worries about the financial stability in the Eurozone were not just restricted to the peripheral countries. An ageing population in the entire Eurozone with higher social expenditure as a consequence, combined with the financial crisis, worsened governments already structurally weak budgets. Many countries also had to save their financial sector by issuing extensive rescue packages. The deficit in the Eurozone reached 6.4 percent of GDP in 2009 and debt to GDP ratio from 66.2 percent in 2008 to 91 percent, in 2010. Automatic stabilizers and fiscal actions were made by the governments to reduce the massive impact that the financial crisis had on unemployment and the protection of financial institutions *(Alesina et. al. 2015)*.

These large budget deficits started a widespread anxiety about the unsustainability of public debt in many Euro area countries and the demand for higher interest rates on government bonds increased. The Maastricht Treaty and the Stability and Growth Pact (SGP) that all the Eurozone countries have signed, combined with the demand for higher interest rates forced the EMU members to begin fiscal consolidation and austerity measures. Multi-year programs where implemented, with the goal to reduce deficits and debt *(Busch et. al, 2013)*.

2.2 The austerity measures

Austerity measures are policies set in action to reduce government budget deficits and government debt. This is achieved by increasing revenues and reducing expenditures. There are two ways to do this, either in the form of spending cuts, tax increases or both. Implementation of austerity measures is a good method to express their fiscal discipline towards creditors and other parties involved, such as foreign banks and credit rating agencies. When a government's liability of debt is questioned, it usually reflects in that interest rates on sovereign bonds rise because of an increased demand of higher risk premiums.

Austerity measures can be used to regain the trust for a country's ability to pay these interests and loans. As a country it is important to show the rest of the world that you are a nation with financial stability *(Alesina et. al. 2015).'*

The Maastricht Treaty was founded in 1997 and is the foundation to what we call the European Union. The treaty's objective is to create a common market with integration of key areas, for example strengthen democratic legitimacy, establish an economic and monetary union and maintain a common foreign and security policy *(europa.eu, 2010).*
Ever since the crisis has the austerity policy of the Maastricht Treaty been strengthened, because of the general political and economic view that debt is the main cause of the Eurozone crisis. The indebted periphery countries had great possibilities to reduce their public debt during the time of economic growth before 2007, instead when the crisis hit, they already had high public debt and deficits. Through expensive public debt bailouts of banks and extensive expansion policies the debt grew out of control for many countries to handle. Economists have since the beginning of the financial crisis argued that it is not the crisis itself that have caused this downward spiraling effect on the economy, but the non-existing austerity measures and lack of preparation during the time of economic growth *(Busch et. al, 2013).*

Austerity programs are often controversial and opponents often argue that austerity measures depress the economy and economic growth. It reduces government tax income which often outweighs the implemented spending cuts. When an economy is forced to implement austerity measurements this can also cause deflation, which will boost current debt and aggravate the crisis further. But still, austerity policy is considered to be the most favorable policy within the Eurozone, compared to the growth policy. This has according to many been the main reason for the continued stagnation of the European economy. Countries such as Greece, Spain and Portugal implemented heavy austerity measures and the result of weak growth compared to the U.S, where more expensive measures have been implemented. However, without the debt reduction in 2011, the public debt ratio in Greece would have been much severe, around 200 percent of GDP *(Busch et. al, 2013).*

Another issue that the Eurozone has to deal with is that the share of export towards non-European countries is much smaller than the intra-euro trade. The big non-European trading partners such as China and East Asia, whom rely on price competitiveness, makes it even less likely that austerity will help the GIPSI countries to improve their net export and growth, because of a their high *Relative Unit Labor Cost*.

An additional factor is that if all the Eurozone countries simultaneously implement austerity measures, the intra-euro exports and import will fall and cause major problem for individual countries and the Eurozone *(Zezza, 2012)*. Paul Krugman has explained that "since a government is not like a household, reductions in government spending during economic downturns will worsen crises. Across an economy, one person's spending is another person's income. If everyone is trying to reduce their spending, the economy can be trapped /.../, and worsening the recession as GDP falls. If the private sector is unable or unwilling to consume at a level that increases GDP and employment sufficiently /.../ the government should be spending more in order to offset the decline in private spending" *(Krugman, 2012)*.

2.3 Identify fiscal austerity

Fiscal austerity can be estimated and measured in different ways. The analytic framework that we use to approximate the effects of fiscal austerity on economic activity is called *cyclically-adjusted primary balance* (CAPB). This is the most popular method and the changes in it are used as the indicator of fiscal policy stance by international institutions, such as The European Commission and OECD *(Borys et.al, 2011)*.

"The cyclically-adjusted primary balance (CAPB) is calculated by taking the actual primary balance—non-interest revenue minus non-interest spending—and subtracting the estimated effect of business cycle fluctuations on the fiscal accounts"*(Guajardo et al., 2011)*.

CAPB is a useful tool to analyze changes in fiscal stance, since it only reflects on intentional policy decisions that the governmental authority have put into action. Automatic effect on receipts and expenditures, which is caused by fluctuations in the business cycle, is *not* reflected in CAPB. An increase in the CAPB would therefore be evidence of intentional fiscal policy tightening (0 > CAPB: expansionary fiscal policy) and (0 < CAPB: contractionary fiscal policy). The use of CAPB in our thesis is of outmost importance since we are analyzing a period of great declines in GDP and economic activity *(Ghosh and Misra, 2014)*.

Also, the variable is our tool to evaluate and compare fiscal policies that the governments in the Euro area are implementing. The change in CAPB, that we are interested in to examining, can also be called *fiscal stance.*

2.4 Non-Keynesian Theory

In contrast to the Keynesian theory, there also exists a Non-Keynesian theory concerning fiscal policy. The explanations of the non-Keynesian effects can be divided into two categories:

The first category explains that non-Keynesian effects only occur when a government facing a financial crisis and reduces the budget deficit at instant. To do so, the government introduces a fiscal consolidation strong enough to stop the growth of public debt. According to this explanation, businesses and households become more confident about the future, and start to spend more. As a result, the increase in the private consumption compensates for the previous reduction in the "government-led demand" *(Ciżkowicz and Rzonca, 2005).*

The second category, however, explains how the non-Keynesian effects depends on the structure of fiscal contraction rather than "the *scale* of the initial fiscal imbalance" *(Ciżkowicz and Rzonca, 2005).*

The non-Keynesian effects are based on positive supply shocks, whose nature is determined by how much the current fiscal policy is tightened. Important to highlight is that it is not determined by how the fiscal policy was conducted in the past. The key point of the Non-Keynesian effects is the reduction in enterprises' costs brought on by reducing government expenditures. If a government is decreasing their deficit by cutting expenditures on wages and salaries, the business profitability increases. Because the wage expenditure is one of the main costs for an enterprise, this cost-cutting softens up the pressure of wages throughout the entire economy (*Ciżkowicz and Rzonca, 2005).*

3. Previous studies / Literature reviews

In our thesis we are focusing on the austerity measures, regarding fiscal stance, in the Eurozone. We are examining if it is a proper tool to be able to recover from the Euro crisis. Of course, there are several articles, previous studies and books about the Euro crisis, its appearance and outcome. The same goes for the austerity measurements. In this section we will try to put out a few similarities as well as differences between our thesis and previous studies. Below, we have summarized a few authors worth mentioned, which have all played a part in our research and discussions.

3.1 Giavazzi and Pagano

We have been using two articles written by Francesco Giavazz and Marco Paganoi. The first article that we used is called *"Can Severe Fiscal Contractions be Expansionary? Tales of Two Small European Countries"*, where they discuss the terms of fiscal contractions, also called expansionary austerity *(Giavazzi and Pagano, 2000)*.

The main hypothesis that they introduces predicts that a large reduction in government spending would change the future expectations about taxes and government spending that will result in an overall fiscal expansion by increasing the private consumption. They are examining the effects of fiscal contractions with both the Keynesian view and the expectation view; that "stresses the role of current changes in taxes or in government spending as signals of possible future changes" *(Giavazzi and Pagano, 2000)*.

There is however some differences between our methods. First of all, Giavazzi and Pagano only focus on comparing two European countries: Denmark and Ireland. In contrast to our thesis that is observing the entire Eurozone, which make our study a lot more comprehensive. Secondly, the authors are not discussing fiscal stance when measuring austerity. Instead, they are focusing to fiscal contractions, by only looking at the terms of private- and government consumptions *(Giavazzi and Pagano, 2000)*.

The other article written by Giavazzi and Pagano, that we thought was valuable to our study was their earlier work called *"Non-Keynesian Effects of Fiscal Policy Changes"*.

In this paper, they verify that fiscal policy changes, both contractionary and expansionary, can have non-Keynesian effects if they are sufficiently large and determined.

Also they investigate if "the sign of the response of private demand to fiscal policy actions depends on their size and persistence" (Giavazzi and Pagano, 1995).

Just as the previous article they are focusing in particular to the private consumption, however this study is more complete because they are examining all the OECD countries. They begin with measuring the change in the cyclically-adjusted budget balance explained as a percent of potential GDP. We especially found their econometric specifications to be useful to our study, because they also lag all their variables and uses fixed effects in both time period and countries *(Giavazzi and Pagano, 1995)*.

The most notable difference between our study and theirs is that they do not use CAPB as a measurement for austerity. Also, in the latter mentioned article they examine if the responses in fiscal policy changes depend on size rather than austerity. But, as mentioned earlier, these two articles were a great source of inspiration to our study.

3.2 Alesina and Ardagna

Alberto Alesina and Silvia Ardagna have also inspired us. In their article '*Large changes in fiscal policy: Taxes versus spending*' from 2010 they discuss that fiscal austerity measures did not hurt economies, instead, it actually helped the country's recovery from the Euro crisis. They examine episodes of large stances in the fiscal policy, both concerning fiscal stimuli and fiscal adjustments in the OECD countries. When mentioning fiscal stimuli the article state that tax cuts are more likely to increase economic growth than fiscal stimuli based upon spending increases. When it comes to fiscal adjustments it is the opposite, where adjustments based upon spending cuts are more likely to reduce deficits and debt over GDP instead of those based upon tax increases. "In addition to this, fiscal adjustments on the spending side are more likely to create recessions rather than on the tax side *(Alesina and Ardagna, 2010)*.

Alesina and Ardagna are trying to identify key changes in fiscal policy either expansionary (where deficit increases or by surplus reduction) or contractionary that are the opposite. On fiscal adjustments (deficit reductions) we consider their effect on a medium term stabilization/reduction of the debt over GDP level and their cost in terms of a downturn in the economy. We focus only on large fiscal changes because we try to isolate fiscal policy changes that are induced as opposed to cyclical fluctuations of the deficits, which in any event we try to cyclically adjust. Moreover, their study is based on a significantly larger research, based on larger samples of countries and years (1970-2007). They mainly tries to explain that fiscal consolidations are sometimes correlated with rapid output growth, particularly if implemented by cutting government spending rather than by increasing taxes.

Once again, we are examining CAPB, where government expenditures minus tax revenues, is being revised. To clarify, they are studying the OECD-countries. But, just as Guajardo et al. are mentioning in their article, they are using variables that are remarked of the cyclically adjusted balance.

3.3 Guajardo, Leigh and Pescatori

One of the most noteworthy previous studies that we have been using is the work of Jaime Guajardo, Daniel Leigh and Andrea Prescatori (2011). The authors discuss and compare the differences of effects between CAPB and fiscal consolidation (also called action-based activity in the article). By identifying fiscal consolidation they are examining the analysis towards finding support for the expansionary austerity hypothesis *(Guajardo et al., 2011)*.

The standard method for measuring discretionary fiscal policy is called fiscal stance, a method that we are using as well (the change in our CAPB variable). However, the authors are critical of this measurement because they suspect that fiscal stance contains automated elements. They are therefore trying to construct their own measurements to find genuinely active measures from the document, a method that Romer and Romer first constructed. They "examine the behavior of economic activity following discretionary changes in fiscal policy that historical sources suggest are not correlated with the short-term domestic economic outlook" *(Guajardo et al., 2011)*.

Discretionary changes in fiscal policy are in other terms how a government's' determination of the budget can increase the governmental finances by automatic. Guajardo et al. base their thesis on previous work from Alesina and Ardagna and are also examining the OECD-countries over a much longer period than we do.

They are using relevant equations (with fixed effects of countries and time) to indicate how big the effect of debt-to-GDP is. Additionally they estimate their assumptions through a baseline equation that reminds a lot like ours. But they develop their baseline equation further than we do, which excludes us from using any written articles from Romer and Romer.

3.4. Blanchard and Perotti (2002)

The cyclical adjustment is based on the method proposed by Blanchard (1993). It is a simple method and rather transparent, which corrects various component of the government budget for year to year changes in the unemployment rate, which we mentioned above (see Alesina and Ardagna, 2010).

The article that we have read characterizes the dynamic effects of fiscal shocks in government spending and taxes on economic activity in the United States in the post-war period. Turning to the effects of taxes and spending on the components of GDP, one of the results has a distinctly non-standard flavor: Both increases in taxes and increases in government spending have a strong negative effect on investment spending.

Besides that their mainly subject is about America during post-war, the variables were rather interesting when Olivier Blanchard and Roberto Perotti discussed the fiscal outcome of shocks in government spending. This is something we also have used in our thesis, because the austerity measurements are, among other reasons, to cut back in government spending and see what the outcome gives (*Blanchard and Perotti, 2002)*. Another similarity is that the authors are focusing on the effects of the GDP in correlation to government spending as well as studying CAPB as a measure on austerity.

4. Econometric Analysis

4.1 Data

Our goal is to determine, with as much accuracy as possible, if austerity contributes to the Eurozone-countries' recovery process from the Euro crisis. Austerity is in our case measured by examining the CAPB variable. The data we have collected is for all the countries in the Eurozone and the annual changes in our dependent variables, which were calculated in Excel.

Our dependent variables are: the difference (Δ) in real GDP (logarithm), the difference (Δ) in unemployment rate, which is measured in percent of total workforce. Our third and last dependent variable is the difference (Δ) in bank solvency. CAPB is our only explanatory variable in our regressions, and by using it as an independent variable we can examine how large of an impact it has on our dependent variables. To extend our analysis we also use two control variables, debt-to-GDP and relative unit labor cost (RULC).

All our presented data has been collected from several international databases, such as the IMF World Economic Outlook (WEO), The European Central Bank Database (ECB), The Annual Macro-economic database (AMECO) and the World Databank. The data in each variable is coming from the same database, so that our data for our variables is as accurate as possible. For instance, ECB has gathered the overall *solvency ratio* from all financial institutions in each country and added them together into one value for each year. Almost all our data are based in percent so we translate our estimates into ratios, i.e. debt-to-GDP and unemployment rate.

We accessed specific databases, when gathering our data, where we were able to choose countries, requested time series as well as the appropriate indicator. Then we translated our data into Excel to create our panel data. See our 'data appendix' for further information about our variables.

The model can allow the parameters to change for both individuals (in our case the countries) as well as for time period. To prevent this, we add fixed effects. The fixed effect treats the observed quantities as they were non-random, regarding the explanatory- and controlling variables.

The fixed effect is an effect of non-random quantities. "Use fixed effects whenever you are only interested in analyzing the impact of variables that vary over time. Fixed effects explore the relationship between predictor and outcome variables within an entity (country, person, company, etc.). Each entity has its own individual characteristics that may or may not influence the predictor variables"*(Torres-Reyna, 2007, Powerpoint)*.

The main idea of the fixed effects model is that those time-invariant characteristics are unique to the individual and should not be correlated with other individual characteristics *(Dougherty, 2011, p. 518-522).*

4.2 Methods/Theory

Our thesis is inspired by *"Expansionary Austerity: New International Evidence"* written by Jaime Guajardo, Daniel Leigh and Andrea Pescatori. We have chosen to examine our data and regressions through a panel data. To be able to use our panel regression we need at least 30 observations. However our panel data consists of 72 observations. The reason for the quite low amount of observation is because we lag our variables and use fixed effects.

Since we have 19 countries to base our assumptions on within a period of five years (2009-2013), panel data is the preferable way to calculate and analyze our data. It combines cross-sectional dimensions and times series dimensions, which gives us the ability to observe the effect on specific actions or policies, i.e. CAPB give us a year-to-year perspective on the impact of the independent variable.

The main reason that we do not base our regressions on quarterly data is that quarterly estimates of CAPB are not available for the Eurozone. We have gathered and analyzed three variables that reflects how austerity measures affects the country's recovery process, namely, changes in GDP, unemployment rate and bank solvency.

When taking our variables into consideration we wanted to examine if they all were stationary or not. There are several different methods to do this. "A time series process is said to be stationary if its ensemble distribution satisfies three conditions: (i) The mean of the distribution is independent of time. (ii) The variance of the distribution is independent of time. (iii) The covariance between its values at any two time points depends only on the distance between those points and not on time" *(Dougherty, pp .465, 2011).*

However, if none of the above terms are sufficient to decide whether our variables are stationary or non-stationary, there are certain methods to use. In fact, there are several tests to choose from, which can help us determine the correct answers. By doing so, we used a so-called 'test of stationary', test type: *Levin, Lin and Chu* in Eviews. In addition, we included individual intercept and trend to the test equation. We selected the *Schwartz Info* criterion (automatic) to include all of our lagged variables. We examined all of our variables and performed this type of *Panel unit-root test*. If the probability was below five percent ($<5\%$) we could draw the conclusion that the variable is stationary *(Dougherty, pp.463-469, 2011)*.

In mathematics and statistics, a stationary process is a stochastic process whose joint probability distribution does not change when shifted in time. Consequently, parameters such as the mean and variance do not change over time and do not follow any trends, if they are present. None of our considered variables are of spurious regressions-variety. In addition, stationary is used as a tool in time series analysis. The unit-root tests indicated that *all variables* in our estimated regressions were stationary. Our variables are stationary because all values within the various variables are circling around the zero-value. In other words, this is a positive effect that we want for all our variables. Also, in Eviews, you can confirm the test performed on the variables by studying the specific variable in "graph", where an illustration can help to determine whether the variable is stationary or not.

We will use tables and graphs to show our results and visualize information such as, ΔGDP and ΔGDP/ΔCAPB, further on in our study, to give a greater understanding of the effects that is occurred by CAPB. Also, we will display our results in a table *(Dougherty, p. 463-469, 2011)*.

4.3 Specification of Equations

As we mention in our first section we want to examine whether the austerity measure contributes to the Eurozone-countries' recovery process from the Euro crisis or not, by studying CAPB. We start our specifications by testing how changes in the fiscal balance affect output growth, which gives us the following econometric specification, also known as our *standard equation*:

$$\Delta Y_t = \alpha + \beta \Delta F_t + \varepsilon_t$$

Where $\Delta Y(t)$ is the logarithm of real GDP, ΔFt is the chance in the fiscal stance in percent of GDP, and (t) is a vector of other developments that affect output. However, the equation above is ignoring country-specific effects as well as time-fixed effects, which gives us non-lagged variables, and therefore an incorrect adjusted result.

Because of the rather simplicity in the equation, there is problematic to give a detailed analysis. The first challenge would be to measure changes within the fiscal balance that reflect deliberate policy decisions executed by the government and not merely the automatic effect of the business cycle fluctuations. If there are no result changes in policy, an example of these types of business cycle fluctuations could be upswings in economic activity, which improve the budget balance automatically. In our standard equation, such mentioned developments affect both the regressor ΔFt and the error term, *t* in the same direction. "Therefore, using the change in the overall fiscal balance to measure changes in fiscal stance would bias estimates toward finding expansionary effects of fiscal consolidation on economic activity" *(Guajardo et al., 2011).*

Cyclical adjustments offer an intuitive way of dealing with the fact that tax revenue and government spending move automatically with the business cycle. The assumption is that, once they are cyclically adjusted, changes in fiscal variables reflect policymakers' decisions to adjust taxes and government expenditures. An increase in the CAPB would therefore provide evidence of deliberate fiscal policy tightening.

4.3.1 Baseline equation

But, it is important to put emphasize on the knowledge that the above equation explaining cyclically-adjusted fiscal data is far from perfect and is likely to bias the analysis toward finding evidence that supports the expansionary austerity hypothesis.

In our second econometric specification we can examine the results for a longer period, by including lagged variables. The following equation is our *baseline equation* which was our base when we built our regressions:

$$\Delta Y_{i,t} = \mu_i + \delta_t + \sum_{j=1}^{2} \beta_j \Delta Y_{i,t-j} + \sum_{s=0}^{2} \gamma \Delta CAPB_{i,t-s} + v_{i,t}$$

Where subscript *i* indexes countries, subscript *t* indexes years, and ΔY is the logarithm of real GDP. Besides our focus on real GDP, we also consider the unemployment rate and the bank solvency as ΔY. The latter variables do not need to be in logarithmic formula. To give a further explanation of the equation; the term μ denotes country-fixed effects, δ denotes year-fixed effects, and $v_{i,t}$ is a mean-zero error term. The βs are the autoregressive coefficients focusing the normal dynamics of economic activity, while the γs are the direct effects (contemporaneous and lagged). The $\Delta CAPB$ - *the austerity measure variable* - is measured in percent of GDP, which in other words describes the change in fiscal stance, in year *t* motivated by a desire to reduce the budget deficit *(Guajardo et al., 2011)*.

Our econometric specifications, the baseline equation, consists both *autoregressive lagged variables* (AR), which is our dependent variable, Y, and *distributed lagged variables* (DL), which is our explaining variable(s), X. "A distributed-lag model is a dynamic model in which the effect of a regressor *x* on *y* occurs over time rather than all at once" *(Baltagi, 2008, p. 129-145)*. This means that our baseline model is an *ARDL model*, because it consists both of the above variables mentioned. The model is autoregressive since our dependent variable Y, is partly explained by lagged variables by itself. The model also has a distributed lag component, in the form of lags in our independent variable, CAPB.

The specification is based on historical data, where we use two lagged-variables within the change of GDP (logarithm) and one-lagged variable in the CAPB-variable. The reason for this is that implementation of fiscal policies often has a delayed effect on macroeconomic variables.

Our regressions calculate how much 1 percent fiscal consolidation, in the form of CAPB, is affecting our dependent variables. These results are focusing to the short-term effects on GDP.

4.3.2 Long-run Multiplier

It is not enough to only focus on the short-term effects of GDP. From our regression we can implement the Beta coefficients and calculate the *Long-run multiplier effects (LRM)* with the following method:

$$LRM = \frac{\beta_t + \beta_{t-1}}{(1 - (\alpha_{t-1} + \alpha_{t-2}))}$$

The LRM value is our result of how much our independent variable (CAPB) is actually affecting GDP in long-term period (*Verbeek, 2012*).

The actual difference between short-run and long-run effects is that a short-term effect consists of the coefficient on the contemporary variable and therefore gives effect within the year. Long-term effects are infinite in time. However, in reality, most of the effects are already seen in a five-year period.

4.3.3 Equation including control variable

Our third and final econometric specification that we have been using to estimate our results is the following equation below:

$$\Delta Y_{i,t} = \mu_i + \delta_t + \sum_{j=1}^{2} \beta_j \Delta Y_{i,t-j} + \sum_{s=0}^{2} \gamma \Delta CAPB_{i,t-s} + \sum_{s=0}^{2} \beta_s \Delta F_{i,t-s} + v_{i,t}$$

Where subscript *i* indexes countries, subscript *t* indexes years, still identified as fixed effects. The ΔY variable is still representing the same variables as in the previous equation. The main difference from the other equation is that we are including additional control variables, to get more accurate results. The latter part of the equation is describing the formula for the control variables. We have chosen government debt-to-GDP and relative unit labor cost (RULC) as controlling variables. Relative unit labor cost is a measure of unit labor cost, but the difference between the two terms is that the relative term is considered into a ratio, for example a ratio of country *x* and unit labor cost of country *y* (*Felipe and Kumar, 2011*).

"A rise in RULC indicates increased reward for labor's contribution to output. However if the rise in labor cost (wages) is greater than the rise in labor productivity, this may affect the economy's cost competitiveness negatively" *(Burda and Wyplosz, 2010, p. 292).*

These types of variables are independent and can "plausibly bias the analysis towards overstating the negative effects" *(Guajardo et al., 2011).* It is not necessary that the control variable(s) are being significant in the regression. We use them as a complement to see if our CAPB is affected by the other variables. For example government could increase their austerity measures more if other variables where not reducing the GDP as well. These variables may affect how much our explanatory variable (CAPB) is actually affecting GDP.

RESULT TABLE

X/Y	GDP	GDP	GDP	Unemployment	Unemployment	Unemployment	Solvency	Solvency	Solvency
C	0.0053***	0.0079***	0.0058***	0.0004	-0.0034	0.0008	0.0160***	0.0278***	0.0165***
	(-0.0008)	(0.0013)	(0.0006)	(0.0017)	(0.0026)	(0.0017)	(0.0021)	(0.0047)	(0.0021)
DY(-1)	0.2030***	0.1803***	0.1649***	0.2954***	0.2977***	0.3246***	-0.5944***	-0.7186***	-0.6127***
	(-0.0595)	(0.0596)	(-0.0476)	(0.0729)	(0.0721)	(0.0946)	(0.1052)	(0.1078)	(0.1020)
DY(-2)	-0.2809***	-0.2474***	-0.2495***	-0.2040***	-0.1856***	-0.2223***	-0.9137***	-1.0919***	-0.9205***
	(-0.0502)	(0.0500)	(0.0392)	(0.0686)	(0.0678)	(0.0762)	(0.1324)	(0.1399)	(0.1276)
DCAPB	-0.2032***	-0.1769***	-0.1983***	0.3425***	0.2911**	0.3121***	0.2226***	0.2698***	0.3177***
	(0.0594)	(0.0578)	(0.0485)	(0.1116)	(0.1122)	(0.1143)	(0.0825)	(0.0793)	(0.0890)
DCAPB(-1)	-0.0821**	-0.0728**	-0.0783**	0.1560**	0.1296**	0.1337**	0.3616***	0.3577***	0.3578***
	(0.0356)	(0.0351)	(0.0294)	(0.0607)	(0.0618)	(0.0633)	(0.0853)	(0.0863)	(0.0829)
DEBT		-0.0209*			0.0233			-0.0586	
		(0.0119)			(0.0221)			(0.0397)	
DEBT(-1)		-0.0284**			0.0463*			-0.1152***	
		(0.0130)			(0.0238)			(0.0408)	
RULC			0.2666***			0.2443			-0.3052
			(0,0673)			(0.1588)			(0.2517)
RULC(-1)			-0.0965**			-0.0130			-0.2992**
			(0.0371)			(0.1121)			(0.1296)
LRM	-0.26	-0.23	-0.26	0.55	0.47	0.50	0.23	0.22	0.27
N	72	72	72	72	72	72	72	72	72
R2	0.905	0.917	0.946	0.836	0.851	0.846	0.713	0.758	0.746

For Solvency: ΔCAPB = ΔCAPB(-1) and ΔCAPB(-1) = ΔCAPB(-2 Significance levels (*): p<0,1;*, p<0,05**, p<0,01;***. (parenteses = Std error). All specifications contain full set country and time fixed effects. ΔY(-1) = ΔGDP(-1), DEBT = debt-to-GDP ratio, RULC = Relative unit labor cost. ΔCAPB = fiscal stance. LRM = Long-run multiplier

4.4 Analysis of our estimations / results

In this following section, we will present and discuss the results from our equations. These results will also be compared and analyzed with similar data from Guajardo et al.'s article. We will determine how much the austerity measures, identified as the CAPB variable, have affected the financial recovery of the countries within the Eurozone. Guajardo et al. are looking at GDP as a dependent variable, together with real private investment. We are as mentioned focusing on GBP, unemployment and bank solvency. Among their results they estimate a regression with the control variable debt-to-GDP ratio, which we are interested in as well. We will analyze each of our dependent variables one by one; where we will examine to what level CAPB has affected them. In opposite to Guajardo et al. article, we are not comparing the results of CAPB variable with another measure (action-based fiscal consolidation). Despite the many differences between our thesis and Guajardo et al.'s article, it is the closest to our study.
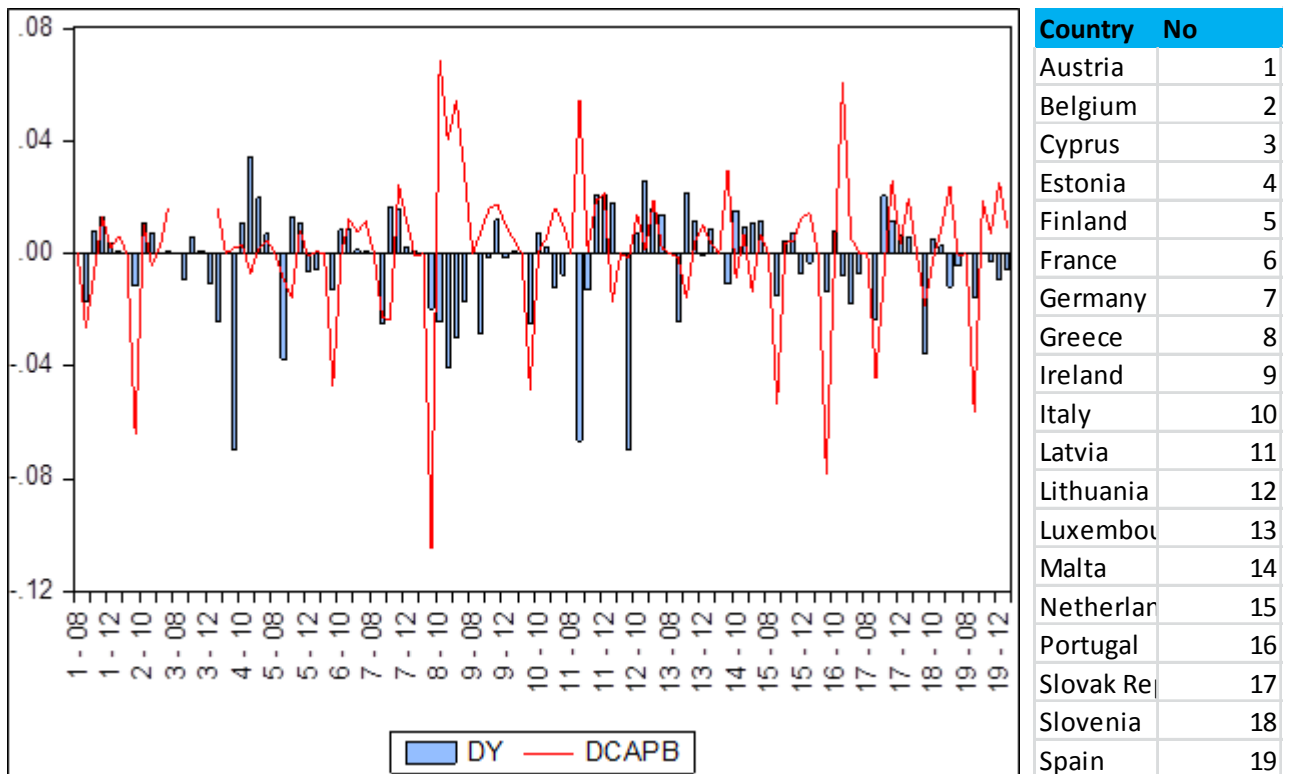
4.4.1 Fiscal stance and GDP

The first dependent variable that we are examining is the change in (log) Real GDP. When using our equations we conclude an estimated effect of a 1 percent GDP fiscal consolidation, that results in a general negative effect of -0.20 percent of GDP (t-stat = -3.42).

By studying the result of our lagged variable of the change in GDP, we can conclude an additional effect in the fiscal consolidation the previous year. The estimate have a general negative effect on the current year GDP of -0.08 percent (t-stat = -2.31).

The long-run multiplier is -0.26 percent.

Graph 1. Correlation between change in GDP and Fiscal Stance

Country	No
Austria	1
Belgium	2
Cyprus	3
Estonia	4
Finland	5
France	6
Germany	7
Greece	8
Ireland	9
Italy	10
Latvia	11
Lithuania	12
Luxembou	13
Malta	14
Netherlan	15
Portugal	16
Slovak Re|	17
Slovenia	18
Spain	19

We can clearly see that a rise in CAPB has in general contractionary effect on GDP and therefore negative impact on economic recovery in the Eurozone. This is in line with the Keynesian theory that, contractionary fiscal policies will slow down the economic growth. With these results it is impossible for us to say whether implementation of contractionary fiscal policies might help a country to recover from a crisis or not. The long-run multiplier also gives us negative values, which strengthens the Keynesian theory about austerity measures.

But, if we look more closely on specific countries we might see different trends in the correlation between the change in CAPB and GDP. By looking at the results in the Baltic States; Estonia, Latvia and Lithuania, in Graph 2, we can see that they have many observations that show an increasing change, both in CAPB and GDP. Although they have positive CAPB values, which indicate contraction of fiscal stance, they have in many cases a positive GDP growth. This might be a non-Keynesian effect that we described earlier, where fiscal contraction improves the GDP.

Graph 2. Suggestion of correlation between Fiscal Stance and change in GDP (Baltics)
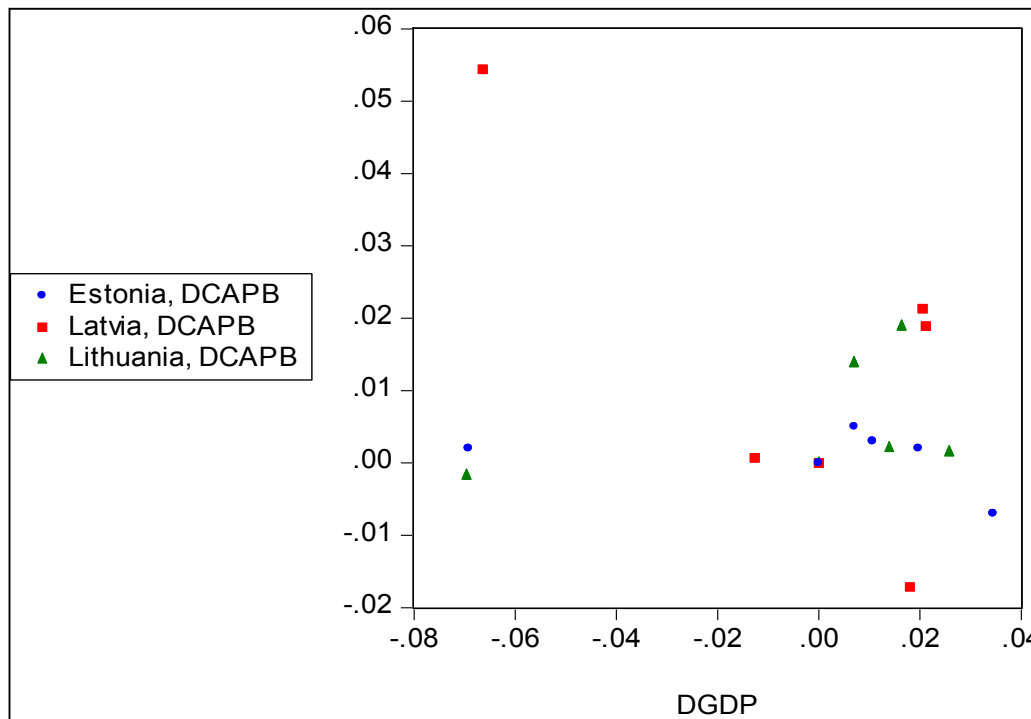
We compare the Baltic countries with another group of countries, namely, the GIPSI countries. We can see that positive values in (ΔCAPB), in general results in negative growth values for the GIPSI countries, by studying the Graph 3.

Graph 3. Suggestion of correlation between Fiscal Stance and change in GDP (GIPSI)
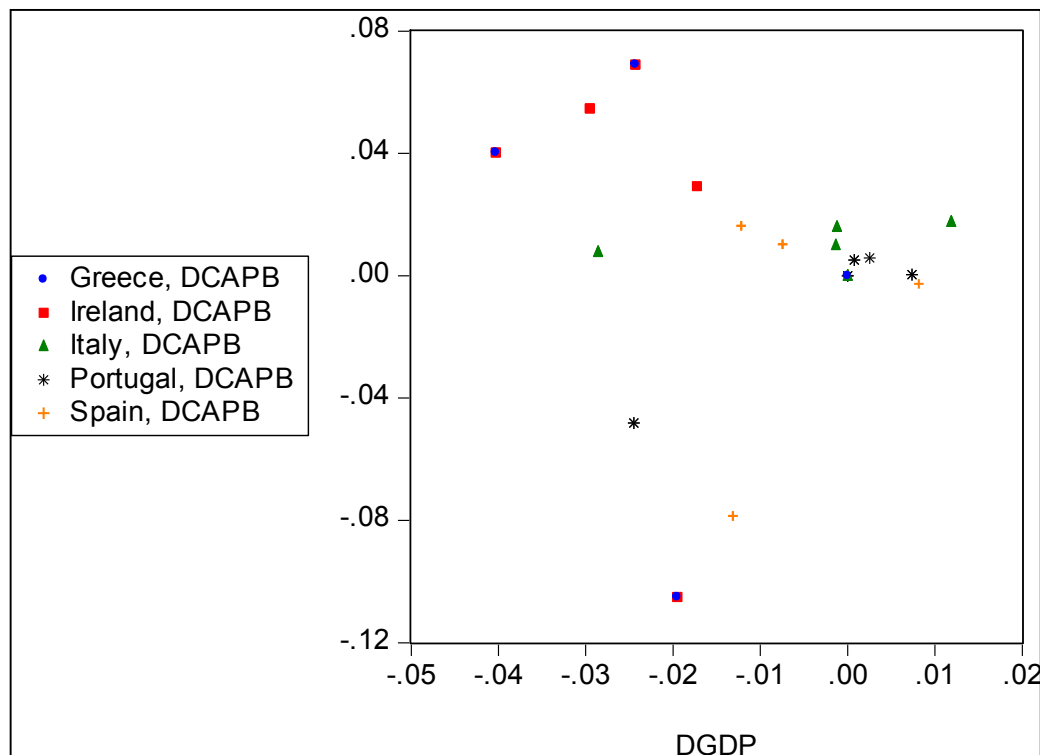
4.4.2 Fiscal stance and Unemployment

Unemployment in the Eurozone has increased substantially in many countries during our time period between 2009 and 2013, as Graph 4 shows us. One of the main reasons for this was that the financial crisis hit with decreased demand and GDP as consequences. The continuous increase, after the crisis, might be the result of fiscal austerity.

Graph 4. Unemployment ratio, the Eurozone
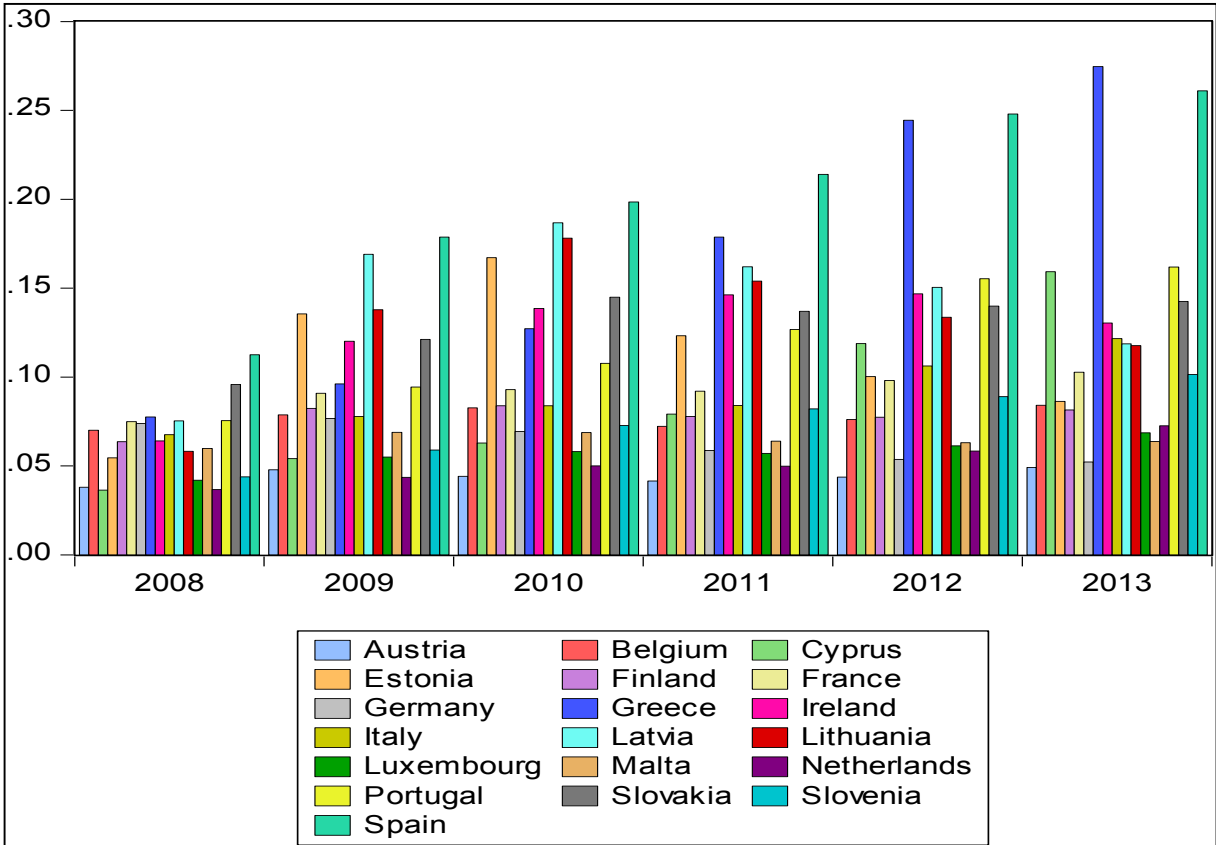
Our results show that the estimated general effect on unemployment is an expansionary effect of 0.34 percent (t-stat = 3.07). Previous year has an effect of 0.16 percent (t-stat = 2.57). All these general effect is independent of which country or time-period and is the peak effect on GDP in the time-period. The long-run multiplier is 0.55 percent. The results show us that an increase in CAPB by 1 percent of GDP has a negative effect on unemployment. Unemployment increases in short-term and with the long run multiplier we can see that it grows even more. The distinction between our two areas is shown in the graphs below (Graph 5 and 6).

Graph 5. Suggestion of correlation between Fiscal Stance and change in Unemployment (Baltics)
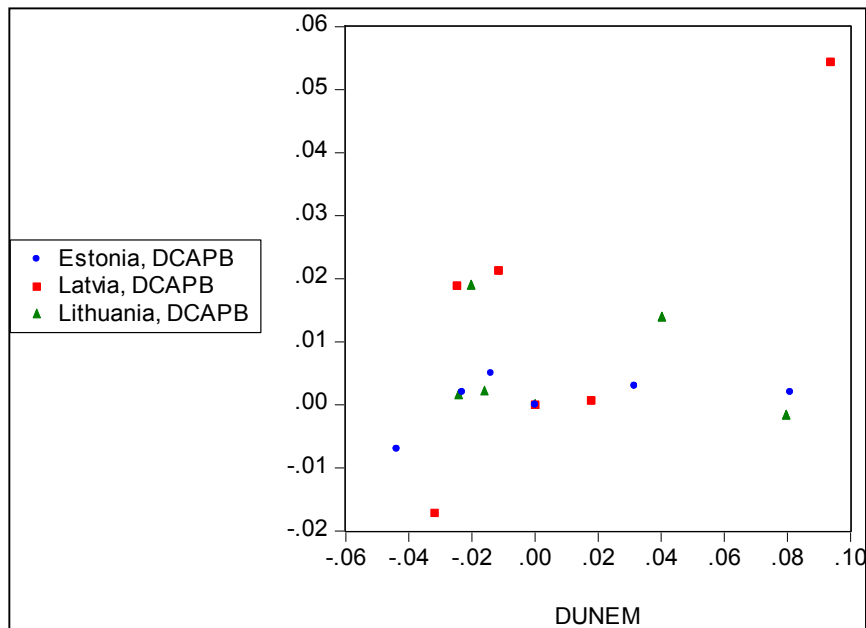
Graph 6. Suggestion of correlation between Fiscal Stance and change in Unemployment (GIPSI)
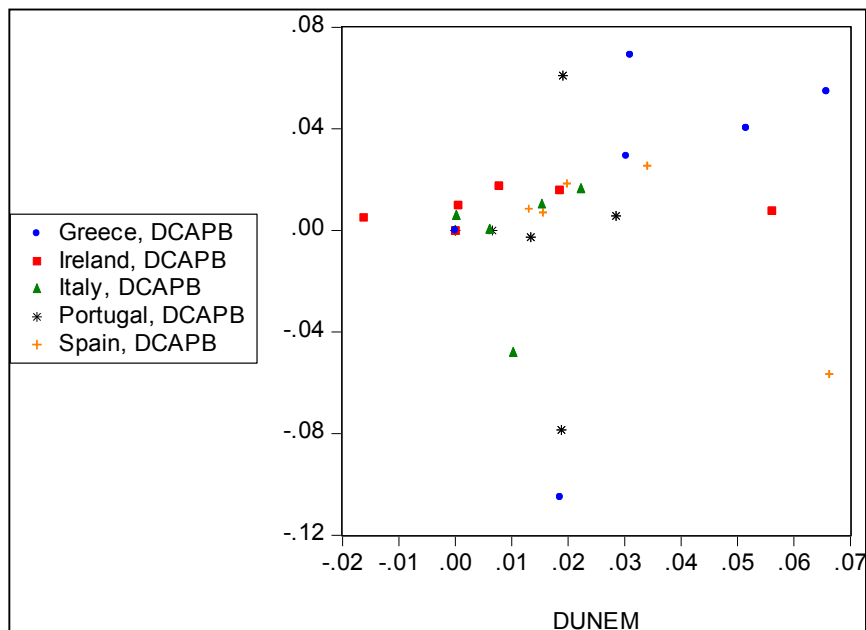
As we can see in the two scattered graphs above, annual increases in the change of CAPB have negative effect on unemployment in the majority of the observations for the GIPSI countries. The observations in the Baltic area show that they have had times of increased unemployment in correlation with ΔCAPB as well. But as you can see in Graph 4 and 5, the unemployment in Estonia, Latvia and Lithuania has decreased since 2010, in comparison to the GIPSI countries where the unemployment has escalated.

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Unemployment was above the average rate within the GIPSI countries before the financial crisis hit the Eurozone. During our observed time-period youth unemployment has totally exploded *(World Economic Outlook, 2013)*. The anti-crisis policies in the EU, together with harsh austerity measures, especially in the Southern Europe, have driven up the unemployment, decreased real wages and cut social security systems. But according to many studies, the current economic crisis is thus "regarded as a crisis of competitiveness in which the main aim is to achieve comparative advantages through more flexibility on the labor market and lower labor costs" *(Busch et. al, 2013)*. However, these cuts might have a positive effect on the economy in the long run. The Baltic countries' unemployment also increased sharply at the time when the financial crisis hit Europe in 2008. The difference shown in our result is that the Baltic countries have managed to reduce their unemployment, maybe because of austerity measures, which also contradict the Keynesian theory.

4.4.3 Fiscal stance and Bank Solvency

Graph 7. Suggestion of correlation between Fiscal Stance and change in Bank solvency (Eurozone)
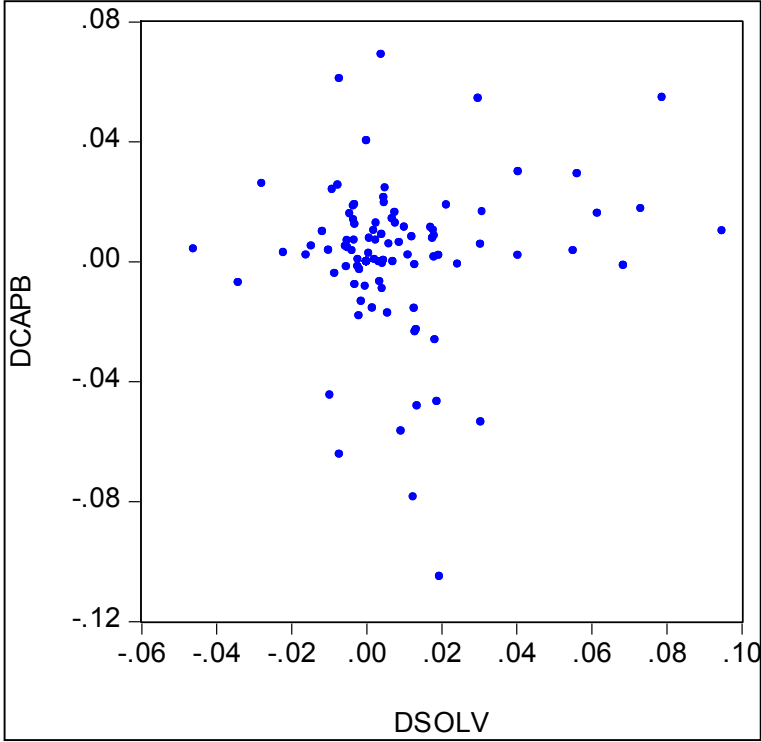
When we examined our third dependent variable, Bank solvency, we used the same equation as before, our baseline equation. However, when we lag the dependent variable only one time, we did not receive significant values. We therefore elaborated further with the variable and lagged it an additional time. By doing so, we received significant results. As you can see in our Result table, our estimated results indicates a general effect of a 1 percent GDP fiscal consolidation previous year (lag -1) has a positive/expansionary effect of 0.22 percent
(t-stat = 2.70) and the year (lag -2) an expansionary effect of 0.36 percent (t-stat = 4.24). The result indicates that an increase in CAPB (with one percent of GDP) has a positive effect on bank solvency. An interesting observation in this result is that the two-year-lagged CAPB coefficient has a bigger impact on solvency comparing to the one-year-lagged variable. Solvency is a variable that apparently react slower to change in CAPB than our other dependent variables.

Therefore, if we measure the solvency variable, we need to examine financial actions for a longer period to see what kind of effects CAPB has had on solvency. According to the long-run multiplier we get an effect of 0.23 percent.

The long-run multiplier value is lower than the effect of the two-year-lagged. This indicates that the short term affects covers most of the change in solvency and that the effects after that are slowing down.

A suggestion to a reason that an increase in CAPB might have a positive effect on bank solvency could be that banks in the Euro area reduced their lending to improve their solvency ratio to be able to successfully pass the bank stress test. These tests were prior to the crisis conducted by the banks themselves for internal valuation. Nowadays governmental regulators are conducting these tests, which put more pressure on the banks to show good results *(Quagliariello, 2009, p. 1-2)*. This change in bank regulations restricts their ability to lend, and therefore increases banks solvency since they are not lending as much as they usually would do. This is a factor that could prolong the financial crisis *(Wren-Lewis, 2014)*.

The Basel II and future Basel III requirement of higher solvency ratio, with minimum solvency of 9 percent, instead of 7 percent for EU banks might have an impact on the increase in solvency, even though the majority of our observed countries' bank sectors have a higher ratio than that.

Graph 8. Suggestion of correlation between Fiscal Stance and change in Bank solvency (Baltics)
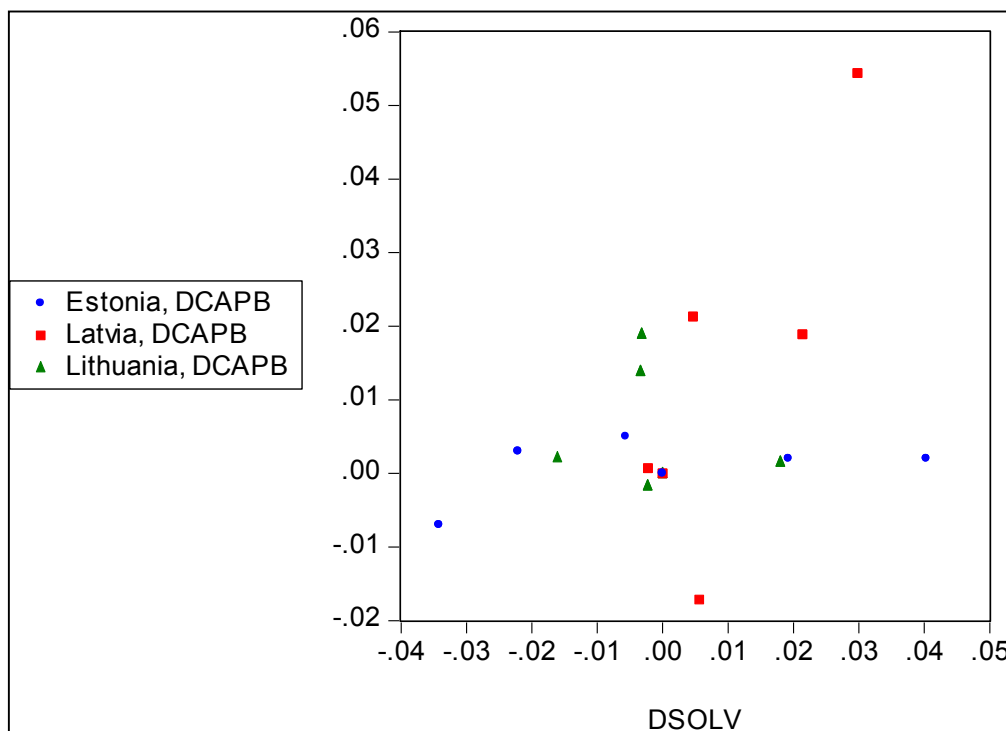
Graph 9. Suggestion of correlation between Fiscal Stance and change in Bank solvency (GIPSI)
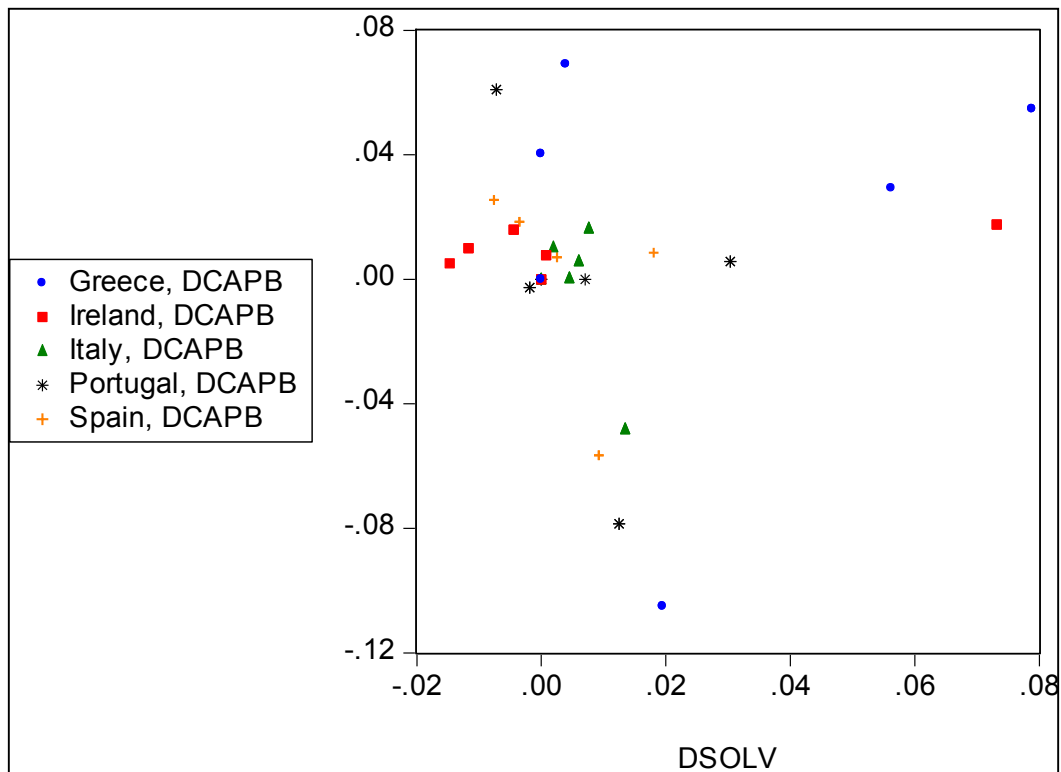

We are in the following section comparing the bank solvency between the Baltic States (see Graph 8) and the GIPSI countries (see Graph 9). As we can see, both of these groups of countries have in general a positive correlation between CAPB and bank solvency. During the two first years of the financial crisis most of the major European banks have enhanced their solvency and strengthen their liquidity to much better levels than before the crisis. The reason for these actions is the persistent uncertainty about the economic and financial future for the Eurozone. By studying our graphs we can observe that the values within Graph 8, the Baltic States, are more scattered compared to Graph 9, the GIPSI countries. It seems like the fiscal stance has affected the solvency in the financial sector of the GIPSI countries more effective and comprehensive. In the Baltic States it is difficult to see a trend of improved solvency, the observations is widely scattered. As we mentioned earlier an increasing solvency can be explained by the Basel requirements and stress tests. Many banks in the GIPSI countries, and maybe especially banks in Greece and Ireland have received extensive rounds of recapitalization to improve their solvency.

4.4.4 Fiscal stance and Government deficit

One of the main reasons for the implementation of austerity measures was to reduce the general government deficits, which in many countries were way to high. The contractionary fiscal stance that has been implemented has had significant effect on the deficits all around the Euro area. This is also the case for the Baltic States and the GIPSI countries. Both these regions have managed to reduce their deficits, which is probably a result of the contractionary fiscal stance that have been implemented, since the GDP growth in the GIPSI countries have been generally low or negative. You can see the positive trend in Graph 10 and 11.

Graph 10 and 11. Suggestion of correlation between Fiscal stance and change in Gov. deficit
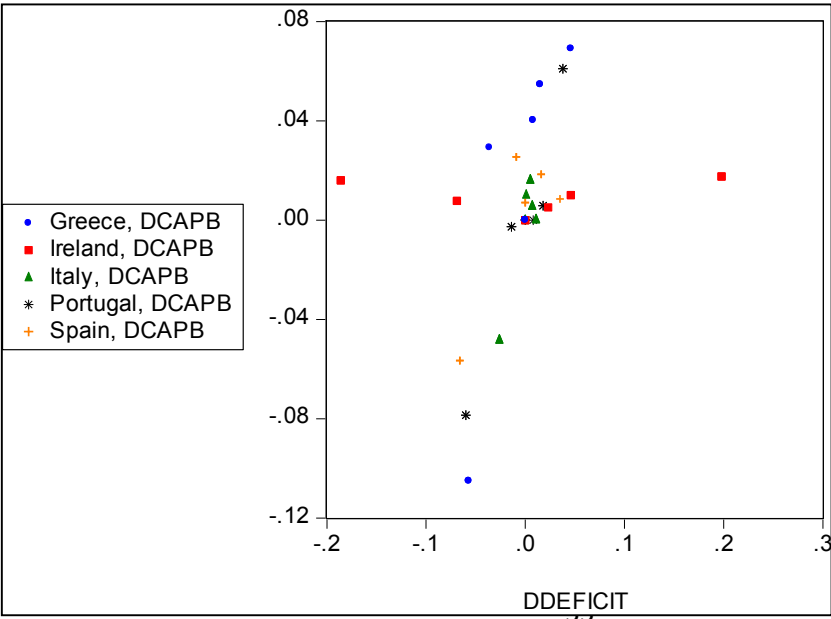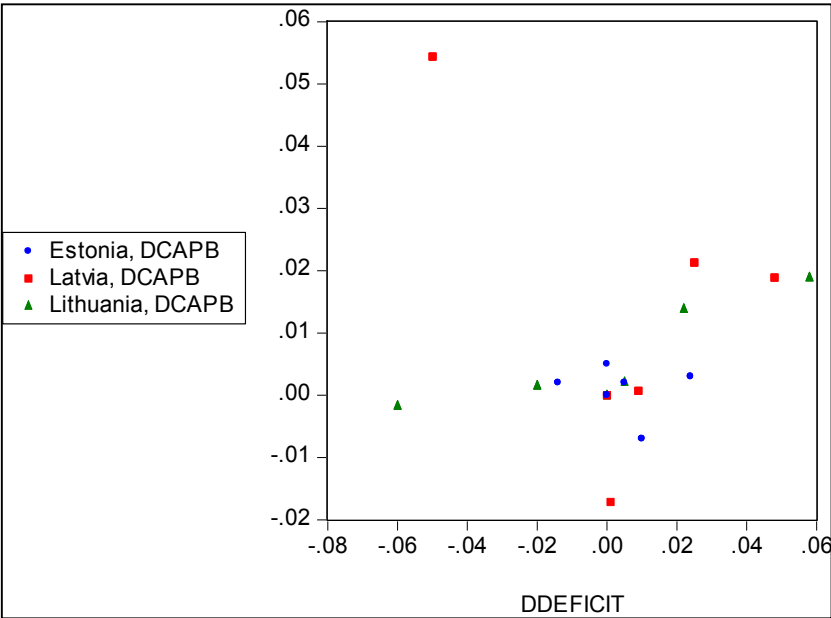
But the big difference between these two, is the debt-to-GDP ratio, where the GIPSI debt ratio have increased, while the Baltics have manage to keep their debt ratio low, as seen in Graph 12. Estonia, Latvia and Lithuania all have debts well below the 60% ratio that the Maastricht Treaty has as a criterion for EU members.

Graph 12. Debt-to-GDP ratio
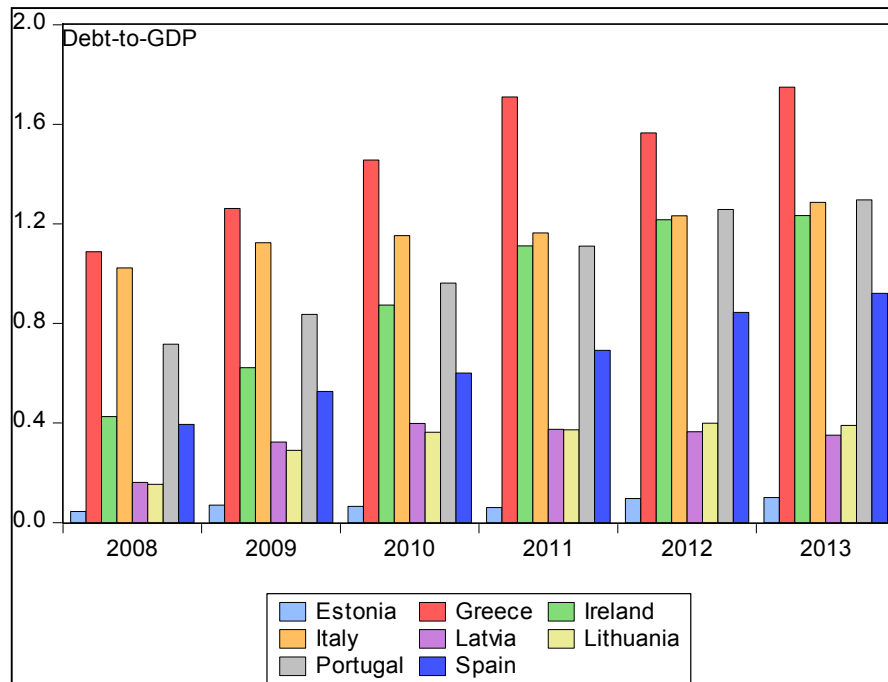
4.4.5 Control variables

We also addresses that there is a possibility that our baseline model omits variables that have an effect on economic activity and could correlate with fiscal consolidation. The omitted variable bias may occur if the model is created and omits one or more causal factors. When the model is compensating for these missing factors by under- or overestimating the effect, "bias" is created. It is important to at least control the equation with such factors, since they could influence our estimated effects.

The motivation for these tests is to evaluate the accuracy of our deficit-driven fiscal consolidation. If we don't take these variables into consideration, it could lead to that our model may under- or overestimates the effects of the change in fiscal stance.

Also, the reason for implementing the fiscal policy, and the size of this policy could be influenced by other factors. It is not easy to identify what kind of influence these variables may have on our current results.

One variable that we consider important to use as a control variable, and could plausibly bias our results and analysis to overstate the negative effects of fiscal consolidation on our dependent variables, is the debt-to-GDP ratio. If the government debt is high, it could raise borrowing costs and therefore have a negative impact on fiscal growth.

The second control variable we use is RULC. We choose this variable because it has been a heated topic in the debate regarding austerity and the recovery of the economy within the Euro area. Many countries in the Euro area are very dependent on exports and the RULC is an important factor when it comes to price competitiveness. Export affects GDP growth and that is why we thought this variable would be interesting to use.

Our table shows that the difference between the results in our original baseline equation and our further equation with the included control variables debt-to-GDP ratio and RULC is quite similar. But as we can see in our result table some control variables are significant. This means that they affect our CAPB results and the change in GDP. The difference is not much, but this means that by including these significant control variables, our results might become more accurate.

We noticed one specific change in our results that stands out using the control variables. It is the difference in the effect that (DCAPB) has on Bank solvency. Using the baseline regression only, CAPB has the effect on solvency 0.2226***. When including the control variable RULC the effect is 0.3177***, this with only one of the lagged variable significant RULC(-1), with an effect of 0.1296**. This is an interesting change. According to us, this proves that the solvency regression is not very robust, since the control variable is correlated with CAPB variable.

It is possible that both previous and current debt-to-GDP ratio is less interesting than future government debt. Therefore governments may undertake a fiscal consolidation as a reaction to the deficit if they are worried about the long-term outlook on debt-to-GDP. To inspect this you can focus on forward-looking indicators in variables such as, "perceived risk of future sovereign default" and "The long-term government bond yield" *(Guajardo et al., 2011)*.

4.4.6 Vulnerabilities in thesis

It is important to mention that using the CAPB variable to estimate the macroeconomic effects of changes in fiscal stance might be rather problematic, as several studies point out. To begin with, cyclical adjustment approaches suffer from measurement errors that are likely to be correlated with economic developments.

Especially, cyclical adjustment fails to eliminate the impact of heavy volatility within economic activity and asset prices from fiscal data. These effects are correlated with economic activity but are not necessarily related to fiscal policy actions. For example, a boom in the stock market improves the CAPB because it increases capital gains as well as cyclically-adjusted tax revenues. This effect is also likely to raise domestic demand. The next problem would be that even if the fiscal stance accurately reflects discretionary changes in fiscal policy, those reflections can be motivated by a desire to respond to cyclical fluctuations and not reductions in fiscal deficit. For instance, a government might want to cut government spending in an overheating economy, to imply that there is a positive correlation between fiscal policy tightening and fast economic growth. These shortcomings complicate potential examination to estimate the macroeconomic effects of fiscal consolidation, and are most likely to bias the analysis toward finding indication of expansionary effects *(Devries et al., 2011)*.

We also want to highlight that our results on our dependent variable bank solvency is very much affected by changes in the government fiscal stance and with high significant values. This surprised us a bit even though we were hoping for significant effects. CAPB analyze changes in fiscal stance, where government revenues and expenditures are the two components. Is it really reasonable that CAPB have the amount of impact and significance on bank solvency that we have received in our results? We stand inquisitive in this matter and let this be a question to ask in further studies.

5. Conclusion

In our thesis the main purpose was to examine if austerity measures have contributed to the Eurozone's recovery process from the financial crisis, by focusing on fiscal stance. An increase in CAPB would mean that the country is heading towards a more contractionary fiscal policy. We are observing the effects of the variable over a five-year period to see how much of an impact the fiscal stance has had on our dependent variables. By observing our dependent variables, which are acting like catalysts, we will see how much austerity measures have aggravated the economic situation in the countries.

The first conclusion that we can draw is that the Eurozone in general have suffered since the financial crisis hit in 2008. The contractionary fiscal policies with the aim to reduce deficits have had a negative impact on GDP growth and the economy in many Eurozone countries. This reaction is in line with Keynesian theory that is anticipating this effects by implementation of austerity. However, by analyzing different regions in the Eurozone, we can see that the recovery process, or lack of it, varies. Our comparison between the Baltic and the GIPSI countries is a good example of this. It is difficult to say why the Baltic States show a more positive 'relation' between CAPB and GDP (both increases) compared to the GIPSI countries. We believe that the Baltics have been through rough times before, where the population has been used to live during hard financially conditions, with increased unemployment following. Therefore, we consider the population within the Baltic States to be more 'adjustable' to fiscal reforms. In the GIPSI countries, on the contrary, they are not as used to these economic and financial conditions, which resulted in raging citizens when the GIPSI governments decided to cut salaries, jobs and state services. But we have seen Non-Keynesian tendencies in especially the Baltic States. This might have to do with that people in these states become more confident about the future, since the government is actively trying to solve the economic problem they have put themselves in.

This gives the public a positive view on the future and as a reaction, private consumption increases. If the rest of the world also starts to regain confidence in the country the foreign investments and capital would therefore start to increase and rise back to normal levels. The Baltic States have actually started to recover and they are on their way towards a normal economic situation.

Furthermore, it would be incorrect to state that austerity is overall negative for an economy. Fiscal measures in terms of austerity are regardless an important and effective way to improve a country's financial situation. High deficits and debt-to-GDP is harmful and austerity is a good tool for reducing these two. But it might be incorrect to implement harsh austerity measures as a way to recover from a financial crisis, when the demand and growth already is weak.

We would say that it is rather a matter of timing when to implement austerity measures. As we mentioned earlier in our thesis: "The indebted periphery countries had great possibilities to reduce their public debt during the time of economic growth before 2007, instead when the crisis hit, they already had high public debt and deficits /.../ Economists have after the beginning of the financial crisis argued that it is not the crisis itself that have caused this downward spiraling effects on the economy, but the non-existing austerity measures and preparation during the time of economic growth" *(Busch et. al, 2013)*.

Therefore we can state that; during normal conditions austerity is an effective method for tightening the economy and reduce deficits and debt. But it might become ineffective and counterproductive when the normal economic conditions past and fiscal turmoil emerges. The general conclusion would be that contractionary fiscal stance is not contributing to a country's recovery process, but with exceptions such as the Baltic States. Austerity is therefore not only cure for the Eurozone and we have to disagree with the German Finance Minister Wolfgang Schäuble.

5.2 Suggestions for further studies

Our study analyzes whether the policy of austerity improved the recovery process within the Eurozone or not. By measuring that, we examined only the CAPB variable to see how much it affected other variables we thought would be relevant. We did not focus on what type of austerity measures that would be the most effective or least harmful for GDP growth. Our suggestions for further studies could be to study austerity measures on a deeper level, to see whether an increase in taxes or a cut in government expenditures is the most effective solution towards a more contractionary fiscal policy. Therefore, another suggestion for further studies would be to find an additional measure of austerity and then compare it with CAPB to see which one of the measures that is of most impact on the Eurozone recovery process. Another field of studies could be to analyze how the bank sector is affected by changes in fiscal stance, by analyzing solvency and other important key values.

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7. Data Appendix

- Real GDP (logarithm values performed in Excel)
  http://databank.worldbank.org/data/

- Real GDP
  The difference in Real GDP, performed in Excel

- Unemployment rate
  http://databank.worldbank.org/data/

- Unemployment rate
  The difference in Unemployment rate, performed in Excel

- Bank solvency
  https://www.ecb.europa.eu/stats/euro/circulation/html/index.en.html#data

- Bank solvency
  The difference in Bank solvency, performed in Excel

- CAPB
  http://data.imf.org/?sk=7CB6619C-CF87-48DC-9443 2973E161ABEB&ss=1393468009141

- CAPB (=fiscal stance)
  *The difference in CAPB, performed in Exce*l

- Debt-to-GDP
  http://databank.worldbank.org/data/

- Relative ULC (RULC)
  http://ec.europa.eu/eurostat/home?p_auth=ezQbFvs0&p_p_id=estatsearchportlet_WAR_estat searchportlet&p_p_lifecycle=1&p_p_state=maximized&p_p_mode=view&_estatsearchportle t_WAR_estatsearchportlet_action=search&text=rulc