

**Determinants of Trust in Institutions:  
Survey-based evidence from the European Union**

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**Abstract:** We employ Eurobarometer micro-level data on trust in institutions, in order to explore its determinants. Our model considers socio-demographic characteristics as well as macroeconomic performance indicators. The thrust of our analysis investigates whether institutional trust is affected by sovereign credit rating episodes and the adoption of bail-out programmes. We find that trust in institutions is substantially eroded in countries that experience downgrade episodes and participate in fiscal adjustment programs.

**Keywords:** European Central Bank, European Parliament, EU Commission, National Government, Financial Crisis, Trust, Survey, Probit Model.

## I. Introduction

There has always been an implicit economic and social contract between institutions and the society they serve. Trust is fundamental for a competitive and properly functioning financial and political system, however its fragility and complexity means it can take time to be restored once hurt. Following government bailouts, political and economic scandals, volatile economic conditions, and a persistent recession among European Union countries and particularly those in the periphery (see Theodoropoulou and Watt 2011), the relationship between government, citizens and the financial sector has entered into a vicious cycle of blame and anger. It would be reasonable to argue that the current situation has inevitably damaged the trust people have in their government and institutions. This is linked to an increasing interest in exploring the determinants of trust, particularly given that during the last three decades, there has been a documented tendency of trust in institutions to decline in the most developed-industrialized countries (e.g. Citrin & Muste, 1999; Putnam, 2000; Dalton, 2004; Catterberg & Moreno, 2006 etc.).

A growing number of studies cite trust as the main positive component related to many outcomes like democracy, economic development and that of social capital (e.g. Putnam 1993; 2000; Paxton 1999; 2002). The issue of trust or social capital, that is, the generalized trust, is important both in sociology and in economics. As Roth (2009) argues, the relevant literature broadly groups the notion into three main categories: thick, interpersonal and systemic. The present study is interested in institutional trust, and more precisely in trust towards national and EU-level institutions, therefore we focus on the third category (systemic or institutional).

Lack of trust in institutions typically mirrors their failure to function up to the expected standards, leading to a weak state-society relation (see Citrin & Muste, 1999; Hutchison and Johnson 2011 for a review). In this respect, Arnold et.al. (2012) claim that trust in political and financial institutions is a key element in representative democracies and the association of trust with a set of public and financial institutions becomes a vital substance for their stability.

Our intention is to go beyond the study of individual characteristics and their effect on trust, by considering the larger social and institutional structures in which individual trust is rooted. Firstly, we attempt to shed light on the debate regarding the determinants of institutional trust for a number of relatively homogeneous, in terms of structure and political status, countries in the EU. Secondly, we seek to explore the idea that tight economic conditions serve as an accelerating mechanism of distrust in institutions.

In this respect, and since the onset of the crisis, trust in both national and European political institutions has eroded substantially (see Roth 2009 & 2011). The austerity policies followed have led many nations to frugality and have widened inequalities not only within countries but also between countries, with increasing differences in quality of life among EU citizens. According to Eurobarometer surveys, trust in the EU reached, on average, an unprecedented low of 31% in the Spring of 2012, while trust in National governments reached a low of 23% in the Autumn of 2013. This development brings forward the issue of growing mistrust during abnormal times. Newton (2008), Kosfeld et al. (2005) and Kaltenthaler et al. (2010), argue that people's distrust in institutions threatens their legitimacy and authority, which might ultimately lead to their abolishment by creating structural malfunctions in the overall system. It therefore becomes crucial to understand how and why individuals develop their commitment and trust in institutions.

In light of the above, the present study aims at providing new evidence on the drivers of trust for a set of European and National institutions, namely the ECB, the European Commission, the European Parliament and the National Governments across EU members. Surprisingly, within an environment of increasing Euroscepticism there are only a handful of empirical studies that examine the determinants of trust in EU institutions (e.g. Kaltenthaler, et.al. 2010; Munoz, et.al. 2011; Roth, 2009 & 2011 etc.). The paper contributes to the rapidly expanding literature on the impact of the financial turmoil on trust by presenting empirical results of the financial crisis on public opinion vis-à-vis institutional or

systemic trust. Within this framework, special attention is given to the confidence invested in: a) political and financial institutions at European level and b) the national government.

Our findings are consistent with the suggestions of the relevant theory regarding the effects of socio-demographic and economic factors. In addition, and based on the existence of social trust, there is strong evidence that the effects of the financial crisis exert an adverse impact on people's tendency to trust institutions. In particular, a downgrade episode significantly increases the probability of mistrust for all institutions under examination. Moreover, once a country follows a bail-out plan the average probability of mistrust is increased. In both cases, the National Government is set to be the most accountable compared to European Institutions in people's perception.

The paper proceeds as follows: In Section 2 we review the relevant empirical findings from previous studies on trust in the European institutions. Section 3 describes the data utilized and the empirical methodology applied. Section 4 presents the empirical results, and finally Section 5 concludes by highlighting the broader implications of our findings.

## **2. Literature Review**

The theory of social capital, as extensive as it is, suggests that social trust is an important requirement and a pivotal element in a complex system of individual and institutional behaviours. Trust, among other things, sustains cooperation and stimulates interest in public affairs (Zmerli and Newton, 2008). Discrepancies in the ways societies perceive and develop social trust as well as differences in levels have driven the relevant literature when scholars are trying to identify its determinants.

Social capital is defined by Putnam (2000) as: 'features of social life, networks, norms, trust that enables participants to act together more effectively to pursue stated objectives'. To that extend, as Alesina and Ferrara (2002) note, economists are interested in the dynamics of trust because it is a major component of social capital. The authors use the Generic Social Survey to evaluate the determinants of why people trust others and they find that individual (education, income, personal misfortunes) as well as community characteristics play a defining role. In particular, people find it more difficult to trust others in societies that are racially heterogeneous or exhibit increasing inequalities in income distribution. Group identity is also key, particularly when the respondents belong to groups that have been discriminated against (e.g. women, minorities, etc.).

Bjornikov (2006) highlights the difference between generalised and particularised trust and addresses the issue of what causes cross country differences in the former. He finds that social polarisation as it is expressed in terms of income inequality is detrimental to generalised trust. Religious differences are found to play a significant role as well; post-communist societies exhibit a less trusting behaviour while monarchies tend to show higher levels of trust. The author claims that generalised trust can be interpreted as a cultural feature as it is fairly stable over time.

Freitag (2003), in an attempt to evaluate the foundations of generalised trust in democracies that are not similar, uses the cases of Switzerland and Japan to find differences in the way trust is built. He also establishes significant correlation between institutional and social trust with the direction of causality going from the former to the latter. Zmerli and Newton (2008) pave the way for a discussion on the effects of social trust on political institutions and conclude that social trust, political confidence and satisfaction with democracy are tied together in what they call and 'three-cornered syndrome'.

The majority of the existing literature examining institutional trust in the context of the European Union focuses on the European Central Bank, and particularly in the period following the beginning of the financial crisis. As anticipated, European citizens' level of trust in the main financial Institution of the Union, reflecting the evolution and strengthening of the common currency, is of particular interest among scholars.

### **2.1 Trust in the European Central Bank**

Fischer and Hahn (2008) try to identify the determinants of people's trust in the ECB following the start-up of the monetary Union and the introduction of the new currency. Using data from the

Eurobarometer they assess the effect of economic factors and they find that inflation levels play an important role as does the level of national income. The latter poses a dilemma for the European monetary authorities since, as the authors argue, the ECB cannot induce long run economic growth. They argue that, although unemployment rates do not seem to have a significant effect on the level of trust and labour market policies are associated with lower levels of trust, probably due to the fact that they might reflect the overall state of the economy, national spending on unemployment benefits can be a trust building instrument as it relieves the ECB from having to follow intervention policies.

A different approach regarding trust in the Central Bank is followed by Kaltenthaler et.al. (2010). They ask the question as to whether the levels of distrust observed towards the ECB are the results of the Institution's policies or are due to the fact that citizens cannot control the Institution. They find that Europeans distrust the European Central Bank because either they have no knowledge of its functions or because they believe that their voices (or that of their countries) cannot be heard. Walti (2012) tries to identify those economic factors that could shape the trust levels towards the ECB during the crisis. He finds that inflation, unemployment levels, financial distress as well as country level fiscal developments, as they are reflected on sovereign debt size, have a negative effect on building a trust relationship.

Individual characteristics and socio-demographic determinants and their effect on people's trust towards the ECB are considered by Farvaque et.al. (2011). They find that educated, wealthier and conservative males tend to trust the ECB more than those who are unemployed and with lower incomes. Ehrmann et.al. (2013) use individual but also country specific variables in order to study the trust in the ECB during the global financial and the EU sovereign debt crisis. They conclude that the fall in trust levels towards the European Central Bank can be explained by pre-crisis factors such as the general macroeconomic deterioration, the decline in levels of trust in the other European Institutions in general and the severely problematic banking sector to which the ECB is strongly associated according to public opinion.

Bursian and Furth (2013) use the Eurobarometer survey to identify the socio-economic characteristics as well as those macroeconomic conditions that determine the levels of trust in the ECB. They find that, as expected, employment status, education and political orientation play a significant role, but when it comes to macroeconomic conditions, and in particular those related to government policies, short-run credit risk proves to be highly more relevant to long run government debt sustainability. Their finding of the importance of real GDP growth in the trust building process is, according to the authors, surprising as it is outside the control of the European Central Bank while, on the other hand, price stability is insignificant.

Hayo and Neuenkirch (2014) identify the attitudes of German public towards the ECB and in particular they are looking to assess the role of information search and that of the actual knowledge of the Bank's policies in creating higher levels of confidence. They find that factual as well as subjective knowledge about the ECB has significant influence on the levels of trust. Although they find that, during periods of negative media reports, information search has a negative effect on the level of trusts of the German public, a well trusted Central Bank receives public support in times of crises and particularly when there are conflicts with the government over what would constitute an appropriate monetary policy.

## **2.2 Other Institutions**

A rather small number of studies have attempted to examine the determinants of trust towards other European Institutions. Roth (2009) seeks to document the reaction to the crisis in terms of people's systemic trust and finds a significant fall in confidence of European citizens in the EU institutions (European Commission, European Parliament, ECB) when at the same time confidence levels in national governments, although still lower than in EU institutions, are rising. In a follow-up, Gros and Roth (2010) find a significant decline in the levels of trust in the ECB after the crisis and argue that the fall in GDP growth seems to be the triggering factor. They note that before the crisis, growth does not seem to be a determining factor. In the context of the effect people's confidence in the economy and in particular in the financial sector and its effect on the trust levels in the country's institutions, Mosch and Prast (2010) find a strong link for the case of the Netherlands.

The issue of the relationship between trust in national and European institutions has been addressed by Munoz et.al. (2011) who, although they find that in general there is a positive association between the confidence in national parliaments and the European parliament, when the performance of national institutions increases and in countries with well performing and highly trusted institutions, trust in the European Parliament tends to weaken. The role of corruption is highlighted and proven to be highly significant in driving the relationship between domestic and European institutional trust according to Arnold et.al. (2012) in a study that considers all five European Institutions. Individual characteristics such education and ideology are also highly important in shaping the relationship and as it is stated by the authors, the patterns of association between individual characteristics, political interest and institutional trust are quite complex and should be further examined.

Roth et.al. (2013) reveal an interesting perspective when the effects of the crisis on national and European institutional trust are examined. They find that the overall negative trends are driven by the Eurozone and in particular, although the crisis resulted in a moderate decline in trust for 8 European countries, they observe a significant decline for the periphery (Greece, Spain, Portugal and Ireland). They conclude that unemployment is a major factor in the trust building relationship, and deterioration in labour market conditions have a significant negative effect in institutional trust at both the national and the European levels.

Similarly, but outside the context of the European Union, Togler (2008) uses the World Value Survey and data from 38 countries to investigate trust in international organisations and in particular in the United Nations. He finds that trusting the national Institutions (legal, government or the parliament) strengthens the confidence citizens have in the United Nations. Significant and positive is also the role of generalised trust in the respective society while an interesting outcome is revealed when corruption is considered. In developed countries higher levels of corruption will affect people's trust in the United Nations negatively while in developing countries the effect is positive. As expected, the level of society's identification with the world increases the level of confidence in the UN as does the global capacity of the country in question.

Edwards (2009) extends the search to organisations like the International Monetary Fund, the World Bank and the World Trade Organization and finds that the views of people of International Economic Organisations is linked to their views of their own economy, their personal attributes but also to the country's relation to those organisations and in particular to the existence of loans taken. Similarly, Hessami (2011) finds that individual characteristics are important in the process of building trust, but the extent of globalisation is also a key factor. The state of the economy is relevant only when trust in the WTO is considered.

Stevenson and Wolfers (2011) find the nature of trust in institutions to be procyclical when examining its determinants both internationally and at the state level in the United States. Beckmann et.al. (2013) use the OeNB Euro survey to identify patterns of trust in EU in general and in Central, Eastern and South-eastern Europe and they find that the levels of trust in times of crisis, although declined for the EU countries members, they increased for the non-members. Finally, a recent study by Ligthart and van Oudheusden (2015), using survey data from 42 countries and for the period 1994-2007, finds a positive relationship between fiscal decentralization and trust in government institutions confirming earlier findings by Dincer (2010) who found a positive relationship between trust in a state and various measures that are part of fiscally decentralising the government in the United States.

### **3. Data**

#### **3.1 Trust in Institutions**

Trust in European Institutions is based on data from the Eurobarometer surveys (The Standard Opinion & Social Eurobarometer measures the public opinion in the European Union. This survey is conducted by TNS opinion & social at the request of the European Commission and Directorate-General for Communication. The survey includes among others topics such as the European political situation and the economy) which are conducted on behalf of the European Commission at least twice a year in all

European Union (EU) member states. The surveys cover a rich set of demographic characteristics and analyse how Europeans perceive their political institutions, both national governments and parliaments, the EU and its institutions. In particular, we combine Eurobarometer surveys in order to build a pooled dataset comprising of 29 cross sections, sampled semi-annually during the time span of 2000 until the first half of 2014. With 28 countries constituting the European Union, 18 of them being Eurozone members, and observed for 14 years, we obtain a total number of about 630,000 observations. In terms of countries, the dataset continuously covers Austria, Belgium, Denmark, Finland, France, Germany, Greece, Netherlands, Ireland, Italy, Spain and Portugal, Sweden, United Kingdom. As the enlargement process was under way the total number of countries reached to 28.

The survey asks participants the following question:

*“I would like to ask you a question about how much trust you have in certain institutions. For each of the following institution, please tell me if you tend to trust it or tend not to trust it?”*

There are four dependent variables to measure institutional trust, namely, trust in the European Central Bank (ECB), trust in the European Parliament, trust in the European Commission and trust in the National Government.

Participants are given the choice between three possible answers: “1, Tend to trust”, “2, Tend not to trust”, and “3, Do not know”. In order to have an operational and uniformed measurement, we recode the raw responses in the following manner. Let (i) denote the type of institution, and (c) and (t) the country in which the survey was conducted and time period respectively. Then we generate a set of new variables (Trust) that attain the following values:

$$\text{Trust}_{i,c,t} = \begin{cases} 0, & \text{if the } i^{\text{th}} \text{ type of institution at country } c \text{ in year } t \text{ is not trusted} \\ 1, & \text{if the } i^{\text{th}} \text{ type of institution at country } c \text{ in year } t \text{ is trusted} \end{cases}$$

As we test for the tendency to trust or mistrust we focus only on positive and negative responses. As it becomes apparent the new variables retain the information embodied in the original responses. Table B1 in Appendix B reports the unconditional mean responses for each institution by country.

There are various reasons for the selection of the particular institutions and for our attempt to closely monitor citizens' trust in them. The association of European and National Institutions is of great importance in this study. European citizens are governed by a complicated multi-layered administrative system including both national and European institutions. Despite that, causality is not our main focus in this paper and to avoid possible limitations in our approach we examine both national and European institutions and explore the differences in people's attitudes towards them. Previous works (e.g. Sanchez-Cuenca, 2000; Rohrschneider, 2002; Kritzing, 2003; Brinegar and Jolly, 2005; Scheuer and van der Brug, 2007 etc.) have provided contradicting results regarding people's trust in European Institutions relative to national ones. Trust in European institutions is basically a reflection of citizens' levels of trust in national institutions. However, the opposite argument is that increased confidence in, and satisfaction with, national institutions will impede support for European institutions.

We therefore choose to firstly include the European Central Bank. The ECB is an institution whose governing members are not elected and it is therefore important that it maintains a level of trust that will allow for its credibility and independence to be preserved. (Tabellini, 2010). The strongest argument for an independent central bank rests on the view that subjecting it to more political pressures would impart an inflationary bias to monetary policy. That is why charter cannot be changed by legislation but only by the revision of the Maastricht Treaty. Surprisingly, there is little empirical investigation regarding the determinants of trust in the ECB (see for example Fischer & Hahn, 2008; Roth et.al. 2011 and Wälti, 2012).

Secondly, and in line with Roth et.al. (2013) and Arnold et.al. (2012), we include trust in the European Commission as a dependent variable as this is an institution that represents the interests of the EU as a whole and at the same time it is the Union's executive body. It proposes new legislation to the European Parliament and the Council of the European Union, and it ensures that EU law is correctly

applied by member countries. The European Commission is neither elected directly nor elected by the EU parliament, hence its credibility is of great importance for a well-functioning group of independent states. Finally, we use trust in the European Parliament as a dependent variable as it is a directly elected body, and citizens are asked to evaluate it every five years. Hence, citizens are assumed to have a prior knowledge and information when forming a specific attitude towards it (see Munoz et.al. 2011; Arnold et.al. 2012).

Regarding national institutions, we introduce trust in national government is introduced as a dependent variable in our estimation process. Conceptually, trust in government reflects individuals' attitudes toward their government based on perceptions of how well elected officials meet personal expectations. Citizens' trust in government is necessary for political leaders to make necessary decisions in a representative democracy. When mistrusting, citizens withdraw their support from their government and become less willing to comply with political decisions, putting the legitimacy of elected government into question (Easton 1965, 1975)

### **3.2 Socio-Demographic Attributes**

To address the main questions stated above we use Eurobarometer surveys from 2000 to 2014 to construct the socio-demographic profile of respondents (see Table A1 in Appendix A). Starting with the individual-level variables, we choose to include the variable of presence of other persons during the interview in an attempt to control for people's behaviour. Alesina and La Ferrara (2002) claim that people have the tendency to feel good about themselves when responding in a politically correct manner to questions relating to trust. However, in order to avoid an upward bias in the number of affirmative responses, we believe that the presence of others during the interview forces interviewees to respond with honesty and moderation.

Following the existing literature, we add socio-demographic characteristics such as marital status, education, age, and the respondent's occupation in order to control for the expectations already formed by those who respond.

The fact that people perceive the world differently over their life cycle drove researchers to adopt age as a proxy to distinguish the way young or elder people tend to trust (Hudson, 2006; Putnam, 2000). Young people may have less experience in dealing with public institutions and hence be less critical while elder people behave in the opposite way. Yet, there are controversial findings merely because of different measurement approaches (Schoon and Cheng, 2011). Trust might increase with age as a result of a maturing process (Mishler & Rose, 2001; Glaeser et al., 1999; Patterson, 1999) while others report a curvilinear relationship (Brewer et.al., 2004; Hudson, 2006; Wollebaek & Selle, 2002). In addition, the type of a respondent's occupation can be viewed as a reflection of cumulative influences, like education, employment, all of them leading to higher occupational status (Schoon and Cheng, 2011). As Alesina and La Ferrara (2002) find, a successful professional is keen to trust more. According to Deary et al. (2008), the participants' current social class or professional status (professional/managerial, skilled non-manual, skilled manual, semi- or unskilled) as it is derived from their profession advocates that people in more managerial positions exhibited higher levels of trust. In addition, Gleave et al. (2011) claim that "being successful in the labour market is likely to promote trust because it provides people with the necessary resources to take risks and hence trust others."

Finally, according to Diener et al. (2000), it is expected that marital status may also impact upon life satisfaction and individuals who are satisfied with their lives and are committed to a relationship develop certain public attitudes and are less hesitant to place their trust in others. Hudson (2006) finds that married people are happier than those who were never been married and those who are divorced or separated. Therefore, any possible status change, such as that of marital status, might have a significant impact upon social trust in particular and in general with respect to institutions. Again there are some controversial results. Glaeser et. al. (1999) also report that married respondents are also more trusting, however Alesina and La Ferrara (2000) find marital status to be non-influential.

### 3.3 Macroeconomic Conditions

People's perceptions of institutions can also be influenced by the phase of the economic cycle (e.g. Inglehart, 1997; Hudson, 2006). The public might hold the financial and political institutions accountable for high levels of unemployment and low growth. Hence, we add real national GDP growth (GDP Growth) and the national unemployment rate (Unemployment Rate) as proxies for a country's macroeconomic conditions. Data on macroeconomic variables are obtained from Eurostat. Bursian and Furth (2013), in line with La Porta et al. (1997), report that a high level of real GDP as a proxy for national income might be regarded as an indicator of an economy that is well-functioning as well as of a certain level of efficiency associated with different economic institutions. Fischer and Hahn (2008) provide evidence that confidence in ECB significantly benefits from higher national income.

In addition, unemployment which in turn influences attributes such as social status, is assumed to reflect individual perceptions of the economic system. It is expected that employed people tend to trust public institutions more than the unemployed or those with no occupation. Losing a job might lead to less confidence in the government, particularly in the presence long unemployment spells, as would the failure to climb the occupational ladder (Hudson, 2006; Mishler & Rose, 2001; Youniss et al., 2002). Wälti (2012) finds that unemployment and deviations of inflation from its level consistent with price stability reduce net trust in European Institutions.

### 3.4 Events of Interest: Sovereign Credit Rating Episodes & Memorandums

Sovereign credit rating is a complex measure capturing various country performance indicators. Prior to the outbreak of the sovereign debt crisis the EU countries ratings' paths were almost a 'one-way bet' with downgrades almost absent. However, following the crisis, a number of EU countries have witnessed several and, in some cases severe, downgrade episodes. These unprecedented events, having a real economic effect, are also taken into account when we try to explore the determinants of institutional trust.

Data on sovereign credit ratings are obtained by Moody's. The ratings range from Aaa (highest credit quality possible) to CCC (default). Ratings of Aa3 and above are denoted as Prime-I, indicating high quality and very low credit risk. We follow Moody's announcements regarding each country's rating for the period 2000-2014 and create two variables, capturing the upgrade and downgrade episodes:

$$UP_{c,t} = \begin{cases} 1, & \text{if country } c \text{ in year } t \text{ is upgraded} \\ 0, & \text{if country } c \text{ in year } t \text{ is not upgraded} \end{cases}$$

$$DOWN_{c,t} = \begin{cases} 1, & \text{if country } c \text{ in year } t \text{ is downgraded} \\ 0, & \text{if country } c \text{ in year } t \text{ is not downgraded} \end{cases}$$

where (c) denotes the country and (t) the time period.

Table B3 in Appendix B presents the frequency of upgrades and downgrades by country from 2000 to 2014. During the sample period there are nine countries that never experienced any change in their credit rating status (Austria, Denmark, Finland, Germany, Luxembourg, Netherlands, Sweden, Czech Republic and Estonia). All other countries witnessed rating changes, and as it turns out most of them were downgrades, especially in countries where economic adjustment plans were implemented.

The outbreak of the financial crisis in the fall of 2008 has produced a wave of bailout schemes for a number of Eurozone countries. These have witnessed further challenges as their economies have plunged into a recession, and at the same time they have been the subjects of an ongoing sovereign debt crisis (mainly Cyprus, Greece, Ireland, Portugal, and Spain). With no intention to downplay the importance of economic variables as determinants of trust, we think that the search for evidence should include the role of fiscal-adjustment programmes (memorandums of agreement). The implementation of austerity policies in the memorandum era has drastically changed the socio-economic structure in countries where these reforms took and are still taking place. Greece was the

first Eurozone member to come under intense pressure after markets lost their confidence in its economy and it was also the first country to turn to fellow member states and the IMF for financial assistance. Ireland and Portugal followed and were later joined by Cyprus in 2013. All countries followed harsh austerity measures that were adopted as a precondition for the release of the bailout funds from the so-called Troika (European Union, IMF and ECB) in an environment of low economic growth, rising unemployment rates and signs of overall economic fragility. Thus, we explore whether, and to what extent, people's trust in institutions is influenced by economic outcomes.

A significant contribution of this paper is that it makes use of an unprecedented event for Europe. We believe that trust in institutions is very likely to be affected in countries that followed a bail-out plan (Greece, Cyprus, Ireland and Portugal), due to the agreed austerity measures. Based on this, we create a dummy variable to capture the fact that countries were in an economic adjustment program (EAP) during the period under consideration:

$$\text{MEMORANDUM}_{c,t} = \begin{cases} 1, & \text{if country } c \text{ in year } t \text{ follows an EAP} \\ 0, & \text{if country } c \text{ in year } t \text{ does not follow an EAP} \end{cases}$$

where (c) denotes the country and (t) the time period.

#### 4. Methodology and results

##### 4.1 Methodology

Trust is a set of discrete binary variables and will be modeled by a probit model. The probit model assumes that the observed Bernoulli “success” or “failure” results in from an underlying, but not directly observable, normally distributed random variable. We denote the unobservable or latent random variable by  $L$  and assume that  $L$  is associated with a vector of predictor variables  $x$  according to the linear specification as follows:

$$L_{i,t}^* = \mathbf{x}_{i,t}'\beta + c_i + e_{i,t}$$

where  $c_i$  is the unobserved heterogeneity and  $e_{i,t} | \mathbf{x} \sim N(0,1)$ . The vector of covariates  $\mathbf{x}_{i,t}$  is assumed for the time being to include country-specific factors, while  $\beta$  denotes a vector of constant parameters. Note that  $L$  can only be observed through its consequences. If  $L$  is below a certain level, you observe a success. Otherwise, you observe a failure. The regression of  $L$  on  $X$  models how the failure-success boundary changes with  $x$ .

Let the threshold parameters be:

$$L_{i,t} = \begin{cases} 0, & \text{if } L_{i,t}^* < 0 \\ 1, & \text{if } L_{i,t}^* \geq 0 \end{cases}$$

Given the assumption  $e_{i,t} | \mathbf{x} \sim N(0,1)$  one can derive the conditional distribution of  $L$  given  $\mathbf{x}_{i,t}$ :

$$\Pr(L_{i,t} = 0 | \mathbf{x}_{i,t}) = \Pr(L_{i,t}^* < 0 | \mathbf{x}_{i,t}) = \Pr(\mathbf{x}_{i,t}'\beta + c_i + e_{i,t} < 0 | \mathbf{x}_{i,t}) = \Phi(-\mathbf{x}_{i,t}'\beta - c_i)$$

$$\Pr(L_{i,t} = 1 | \mathbf{x}_{i,t}) = \Pr(L_{i,t}^* \geq 0 | \mathbf{x}_{i,t}) = \Pr(\mathbf{x}_{i,t}'\beta + c_i + e_{i,t} \geq 0 | \mathbf{x}_{i,t})$$

$$= 1 - \Phi(-\mathbf{x}_{i,t}'\beta - c_i)$$

where  $\Pr(\cdot)$  and  $\Phi(\cdot)$  denote the probability and the normal cumulative distribution function respectively.

In our empirical analysis we investigate whether (i) the socio-demographic variables (SOCIO), (ii) the economic conditions via real GDP Growth (GDP) and Unemployment rate (UNEM), (iii) the Sovereign Credit Rating episodes dummy of downgrade or upgrade (RAT) or (iv) the existence of a fiscal reform plan, that is, the memorandum dummy (MEMO), are significant members of the vector of covariates. Hence, we employ the following four alternative models:

**Model 1 (M1):**

$$\Pr(L_{i,t} = 1) = \gamma_0 + \gamma_1 SOCIO + \varepsilon_{i,t}$$

**Model 2 (M2):**

$$\Pr(L_{i,t} = 1) = \gamma_0 + \gamma_1 SOCIO + \gamma_2 GDP + \gamma_3 UNEM + \varepsilon_{i,t}$$

**Model 3 (M3):**

$$\Pr(L_{i,t} = 1) = \gamma_0 + \gamma_1 SOCIO + \gamma_2 GDP + \gamma_3 UNEM + \gamma_4 RAT + \varepsilon_{i,t}$$

**Model 4 (M4):**

$$\Pr(L_{i,t} = 1) = \gamma_0 + \gamma_1 SOCIO + \gamma_2 GDP + \gamma_3 UNEM + \gamma_4 RAT + \gamma_5 MEMO + \varepsilon_{i,t}$$

We are primarily interested in the parameters  $(\gamma_1, \gamma_2, \gamma_3, \gamma_4, \gamma_5)$  which capture the impact, if any, of the variables of main interest. Our main priors are:

- the propensity to trust will tend to be lower for countries experiencing downgrade episodes, so we expect  $\gamma_4 < 0$ .
- the propensity to trust will tend to be lower for countries involved in a financial assistance program (MEMO), so we expect  $\gamma_5 < 0$ .

With respect to socio-demographic factors we expect a positive effect on trust for education, age, marriage and managerial occupation. Regarding the variables relating to macroeconomic stance, we expect a positive sign for GDP and a negative for unemployment  $\gamma_2 > 0$ , and  $\gamma_3 < 0$ .

## **4.2 Empirical Results**

### **4.2.1 Baseline Results**

Tables 1 & 2 report the estimation results from the probit model for each of the four institutions. As for discrete choice useful information derived from the estimated coefficients relates to their sign and significance (the actual estimation results are available upon request), we further quantify the effects by reporting the estimated Marginal Effects (estimated Marginal Effects across the two possible outcomes - tend to trust, tend not to trust - add up to unity).

Table 1 reports the marginal effects for the models that include the socio-demographic attributes and economic variables. For all four models the likelihood ratio test is used to measure the significance of the model, which in all cases is highly significant.

We start our analysis by assessing the extent to which socio-demographic attributes play a role in understanding the variation of trust in EU & National institutions. Socio-demographic characteristics shed light into the determinants of trust at the individual level. These characteristics have a long-standing effect in the literature on trust (Alesina and La Ferrara, 2002; Brehm and Rahn, 1997; Knack and Keefer, 1997; Paxton, 2007; Zak and Knack, 2001). According to Alesina and La Ferrara (2002) trusting others may be a moral or cultural attitude emphasizing the role of individual characteristics. We make use of determinants of trust on individual basis focusing on marital status, age, education, respondent's occupation and the presence of other persons during the interview. All these attributes may affect the social tightness between individuals putting barriers to developing trust (e.g. Delhey and Newton, 2005; Leigh, 2006).

Model 1 in Table 1 captures the demographic determinants of trust for different levels of trust in EU and National institutions. We first include the marital status as a psychological determinant of attitude formation which possibly captures an individual's subjective well-being. For those who are married, in comparison to those who are singles, the probability of trust is significantly increased across all facets. The strongest increases are encountered in the case of ECB (13 percentage points, pp hereafter), whereas the increase in European Parliament and European Commission is about 10 pp. Moving on to the question of trust in national institutions, we observe that married respondents display considerably lower levels of trust in their national government (4.6 pp). When marital status changes to single the tendency to trust remains positive, though deteriorates significantly relative to those being married across institutions ranging between 2.1 pp for National Government and 6.5 pp for ECB. In line with our priors, marriage has a significant impact as married people seem to exhibit higher levels of generalised but also institutional trust (Glaeser et. al. 1999).

The respondents' occupational status provides mixed results relative to trust in the EU institutions, but insignificant for national institutions. In particular, managers, having achieved a social class or professional prestige, tend to trust more than e.g. the unemployed, manual workers or the self-employed who seem to distrust (e.g. Deary 2008; Gleave et al. 2011). In line with our expectations, individual with higher level of education are more likely to trust the EU and National institutions. We expected that trust would increase with age however our results suggest that the probability to mistrust is common for all age groups in our sample. Finally, the presence of others during the interview increases the probability to mistrust for the European institutions, while this is not the case for national institutions.

In order to shed light on the importance of macroeconomic conditions, we include in the model GDP growth and the unemployment rate. According to Bursian and Furth (2013), one would expect variables that are not related to financial institutions like the ECB or are outside of their control to be irrelevant for the trust-building process. However, if we assume that the general public does not always act rationally and cannot distinguish the real mandate of each institution, they might be influenced by such factors as well. Institutional accountability could be indiscriminate in people's conscience. Hence, the public might associate good economic performance, as measured by real GDP growth and the result of high employment rate with personal improvement along with an indication of efficiently functioning institutions in line with La Porta et al. (1997). In contrast, deteriorating economic activity might be thought of as a situation that will affect someone's welfare while a high unemployment rate will be viewed as a proxy of the probability of someone becoming unemployed.

In the augmented specification (Model 2), the macroeconomic variables are all significant at the 1 percent level for all different types of institutions. Our results show that real GDP growth has a positive impact on trust only for the European Institutions, whereas the unemployment rate negatively influences trust across all facets. More specifically, in line with previous findings (e.g. Bursian and Furth, 2013; La Porta et al. 1997), we find that an increase in real GDP growth by 1.0 percent implies a 0.8 pp increase in the probability of trust in the ECB, and 0.9 pp for both the EU Parliament and the EU Commission. Contrary to our priors, the National Government being accountable for the followed fiscal policy carries the opposite sign, suggesting that the public holds a more rigorous stance against their national governments. The unemployment rate carries the expected sign and is significant for all

institutions (similar findings by Hudson, 2006; Walti, 2012) However, for the national government the magnitude of the tendency to trust is lower than all other institutions.

| Table 1. Marginal Effects for the Probability of tend to trust: Models 1& 2                                                                                                                 |                     |                      |                      |                      |                      |                      |                      |                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|                                                                                                                                                                                             | M1                  | M2                   | M1                   | M2                   | M1                   | M2                   | M1                   | M2                   |
| Covariate                                                                                                                                                                                   | ECB                 | ECB                  | National Government  | National Government  | EU Parliament        | EU Parliament        | EU Commission        | EU Commission        |
| Married                                                                                                                                                                                     | 0.13***<br>(0.002)  | 0.09***<br>(0.002)   | 0.046***<br>(0.002)  | 0.029***<br>(0.002)  | 0.10***<br>(0.002)   | 0.08***<br>(0.002)   | 0.10***<br>(0.002)   | 0.07***<br>(0.002)   |
| Single                                                                                                                                                                                      | 0.065**<br>(0.002)  | 0.036***<br>(0.003)  | 0.035***<br>(0.002)  | 0.021***<br>(0.003)  | 0.024***<br>(0.002)  | 0.029***<br>(0.002)  | 0.044***<br>(0.002)  | 0.025***<br>(0.003)  |
| up to 14-18 years old                                                                                                                                                                       | 0.07***<br>(0.01)   | 0.04***<br>(0.012)   | 0.016<br>(0.01)      | 0.006<br>(0.01)      | 0.06***<br>(0.01)    | 0.05***<br>(0.01)    | 0.07***<br>(0.01)    | 0.064***<br>(0.01)   |
| up to 19-21 years old                                                                                                                                                                       | 0.15***<br>(0.01)   | 0.12***<br>(0.01)    | 0.033***<br>(0.01)   | 0.022**<br>(0.01)    | 0.13***<br>(0.009)   | 0.11***<br>(0.01)    | 0.14***<br>(0.01)    | 0.12***<br>(0.01)    |
| up to 22 years old                                                                                                                                                                          | 0.19***<br>(0.01)   | 0.16***<br>(0.01)    | 0.064***<br>(0.01)   | 0.054***<br>(0.01)   | 0.15***<br>(0.009)   | 0.14***<br>(0.01)    | 0.16***<br>(0.01)    | 0.15***<br>(0.01)    |
| Still studying                                                                                                                                                                              | -0.05***<br>(0.005) | -0.04***<br>(0.005)  | -0.016***<br>(0.005) | -0.018***<br>(0.005) | -0.009*<br>(0.005)   | 0.006<br>(0.005)     | -0.01**<br>(0.005)   | 0.001<br>(0.005)     |
| 15-24 years old                                                                                                                                                                             | -0.02***<br>(0.003) | -0.014***<br>(0.004) | -0.032***<br>(0.003) | -0.03***<br>(0.003)  | 0.02***<br>(0.003)   | 0.02***<br>(0.003)   | 0.01***<br>(0.003)   | 0.02***<br>(0.003)   |
| 25-34 years old                                                                                                                                                                             | -0.04***<br>(0.003) | -0.03***<br>(0.003)  | -0.038***<br>(0.003) | -0.039***<br>(0.003) | -0.01***<br>(0.003)  | -0.007**<br>(0.003)  | -0.11***<br>(0.003)  | -0.004***<br>(0.003) |
| 35-44 years old                                                                                                                                                                             | -0.04***<br>(0.003) | -0.036***<br>(0.003) | -0.032***<br>(0.002) | -0.032***<br>(0.003) | -0.02***<br>(0.003)  | -0.024***<br>(0.003) | -0.025***<br>(0.003) | -0.02***<br>(0.003)  |
| 45-54 years old                                                                                                                                                                             | -0.04***<br>(0.003) | -0.035***<br>(0.003) | -0.031***<br>(0.002) | -0.032***<br>(0.002) | -0.03***<br>(0.002)  | -0.031***<br>(0.002) | -0.028***<br>(0.003) | -0.026***<br>(0.003) |
| 55-64 years old                                                                                                                                                                             | -0.024**<br>(0.002) | -0.02***<br>(0.002)  | -0.022***<br>(0.002) | -0.022***<br>(0.002) | -0.02**<br>(0.002)   | -0.024***<br>(0.002) | -0.021***<br>(0.002) | -0.019***<br>(0.002) |
| Self employed                                                                                                                                                                               | -0.01***<br>(0.003) | -0.007***<br>(0.003) | -0.001<br>(0.003)    | 0.0007<br>(0.003)    | -0.012***<br>(0.003) | -0.005*<br>(0.003)   | -0.012***<br>(0.003) | -0.005*<br>(0.003)   |
| Managers                                                                                                                                                                                    | 0.03***<br>(0.003)  | 0.026***<br>(0.003)  | 0.004<br>(0.003)     | 0.002<br>(0.003)     | 0.002***<br>(0.003)  | 0.016***<br>(0.003)  | 0.02***<br>(0.003)   | 0.017***<br>(0.003)  |
| Manual worker                                                                                                                                                                               | -0.04***<br>(0.002) | -0.04***<br>(0.002)  | 0.0007<br>(0.002)    | 0.0015<br>(0.002)    | -0.04***<br>(0.002)  | -0.04***<br>(0.002)  | -0.04***<br>(0.002)  | -0.045***<br>(0.002) |
| Unemployed                                                                                                                                                                                  | -0.12***<br>(0.003) | -0.09***<br>(0.003)  | -0.032***<br>(0.003) | -0.019***<br>(0.003) | -0.10***<br>(0.003)  | -0.09***<br>(0.003)  | -0.10***<br>(0.003)  | -0.091***<br>(0.003) |
| Retired                                                                                                                                                                                     | -0.04***<br>(0.003) | -0.049***<br>(0.003) | -0.010***<br>(0.003) | -0.01***<br>(0.003)  | -0.03***<br>(0.003)  | -0.03***<br>(0.003)  | -0.03***<br>(0.003)  | -0.038***<br>(0.003) |
| Students                                                                                                                                                                                    | 0.02***<br>(0.004)  | 0.004<br>(0.003)     | 0.001<br>(0.004)     | 0.004<br>(0.004)     | 0.014**<br>(0.004)   | -0.03<br>(0.004)     | 0.015**<br>(0.004)   | -0.003<br>(0.004)    |
| Number of persons                                                                                                                                                                           | -0.03***<br>(0.003) | -0.04***<br>(0.003)  | 0.024***<br>(0.003)  | 0.019***<br>(0.003)  | -0.01***<br>(0.003)  | -0.016***<br>(0.003) | -0.016***<br>(0.003) | -0.019***<br>(0.003) |
| Unemployment Rate                                                                                                                                                                           | -                   | 0.013***<br>(0.00)   | -                    | -0.009***<br>(0.00)  | -                    | -0.005***<br>(0.00)  | -                    | -0.006***<br>(0.00)  |
| GDP Growth                                                                                                                                                                                  | -                   | 0.008***<br>(0.00)   | -                    | -0.001***<br>(0.00)  | -                    | 0.009***<br>(0.00)   | -                    | 0.009**<br>(0.00)    |
| Diagnostics                                                                                                                                                                                 |                     |                      |                      |                      |                      |                      |                      |                      |
| Observations                                                                                                                                                                                | 46790<br>5          | 444019               | 495067               | 467827               | 506997               | 481740               | 482532               | 458428               |
| Wald test                                                                                                                                                                                   | 14752.67<br>(0.00)  | 22143.99<br>(0.00)   | 1523.63<br>(0.00)    | 4037.85<br>(0.00)    | 11788.44<br>(0.00)   | 14798.38<br>(0.00)   | 10959.16<br>(0.00)   | 14038.11<br>(0.00)   |
| Pseudo R <sup>2</sup>                                                                                                                                                                       | 0.0241              | 0.039                | 0.0023               | 0.068                | 0.0178               | 0.024                | 0.017                | 0.023                |
| Log Likelihood                                                                                                                                                                              | -303603.36          | -281569.01           | -328004.64           | -309104.22           | -327974.93           | -307450.79           | -316902.11           | -297324.45           |
| Notes: (a) ***, **, * denote statistical significance at the 1%, 5% and 10% level respectively, (b) numbers in brackets denote robust standard errors. Omitted Variable: 65 years and older |                     |                      |                      |                      |                      |                      |                      |                      |

**Table 1. Marginal Effects for the Probability of tend to trust: Models 1& 2**

We proceed with the results reported in Table 2, starting with Model 3, where the impacts of downgrade or upgrade episodes are considered. We expect that a downgrade episode will lead to a decline in trust. Note here that any development regarding the country's solvency is monitored by the

European Commission and the National Government and not by the ECB. The ECB is not clearly responsible for monitoring sovereign solvency. However, the recent crisis and frequent credit rating announcements by rating agencies combined with an increasing cost of borrowing, particularly for the most heavily affected economies, may have shaped public perceptions about the efficiency of institutions significantly.

We find that downgrade episodes exert a higher impact on National Government, EU Parliament and EU Commission in the trust-building process as reflected by the corresponding marginal effects. A downgrade episode decreases the average probability of trust by 0.7 pp to 7 pp for all the institutions, with the highest effect found for the ECB. For upgrade episodes, we find that for all European Institutions, they significantly increase the probability to trust in all facets. The probability to trust is higher for the European Commission and the EU Parliament and lower for the ECB, while for the National Governments, that are expected to receive the benefit, results reveal the lowest increase in probability to trust, only 2pp.

Having established that rating episodes affect the tendency to trust we move to Model 4, where over and above the socio-demographic characteristics, macroeconomic conditions and sovereign rating trajectory, the potential effect of a bail-out plan- or a memorandum programme is considered. For the first time in the relevant literature, we examine the effect of such agreements in the trust building process.

Model 4 reveals several interesting findings. To conserve space we will only discuss the covariates from the models that include the memorandum dummy. The austerity measures of the bail-out plans have led people to reduce their trust in institutions across the board. For countries that have adopted these measures the probability of trust is significantly lower across all types of institutions. We find a higher probability of deterioration to trust mainly with respect to the ECB and EU Commission (12 pp) and for the EU Parliament (10pp). This is anticipated as the ECB and the European Commission jointly formed the bailout plans with the IMF for the Eurozone countries. The corresponding probability to trust the National Government diminishes by only 1.7 pp.

| Table 2. Marginal Effects for the Probability of tend to trust: Models 3 & 4 |                      |                      |                         |                         |                      |                      |                      |                      |
|------------------------------------------------------------------------------|----------------------|----------------------|-------------------------|-------------------------|----------------------|----------------------|----------------------|----------------------|
|                                                                              | M3                   | M4                   | M3                      | M4                      | M3                   | M4                   | M3                   | M4                   |
| Covariate                                                                    | ECB                  | ECB                  | National Governmen<br>t | National Governmen<br>t | EU Parliamen<br>t    | EU Parliamen<br>t    | EU Commissio<br>n    | EU Commissio<br>n    |
| Married                                                                      | 0.09***<br>(0.002)   | 0.09***<br>(0.002)   | 0.02***<br>(0.002)      | 0.02***<br>(0.002)      | 0.07***<br>(0.002)   | 0.07***<br>(0.002)   | 0.07***<br>(0.002)   | 0.07***<br>(0.002)   |
| Single                                                                       | 0.03**<br>(0.003)    | 0.03***<br>(0.003)   | 0.02***<br>(0.003)      | 0.02***<br>(0.003)      | 0.02***<br>(0.002)   | 0.02***<br>(0.002)   | 0.024***<br>(0.003)  | 0.024***<br>(0.003)  |
| up to 14-18 years old                                                        | 0.04***<br>(0.012)   | 0.045***<br>(0.012)  | 0.005<br>(0.010)        | 0.005<br>(0.010)        | 0.05***<br>(0.011)   | 0.05***<br>(0.011)   | 0.06***<br>(0.012)   | 0.06***<br>(0.012)   |
| up to 19-21 years old                                                        | 0.12***<br>(0.01)    | 0.11***<br>(0.01)    | 0.021*<br>(0.01)        | 0.021*<br>(0.01)        | 0.11***<br>(0.01)    | 0.11***<br>(0.01)    | 0.12***<br>(0.01)    | 0.12***<br>(0.01)    |
| up to 22 years old                                                           | 0.16***<br>(0.01)    | 0.16***<br>(0.01)    | 0.05***<br>(0.01)       | 0.05***<br>(0.01)       | 0.14***<br>(0.01)    | 0.13***<br>(0.01)    | 0.15***<br>(0.01)    | 0.14***<br>(0.01)    |
| Still studying                                                               | -0.04***<br>(0.005)  | -0.04***<br>(0.005)  | -0.019***<br>(0.005)    | -0.019***<br>(0.005)    | 0.004***<br>(0.005)  | 0.003***<br>(0.005)  | -0.001<br>(0.005)    | -0.001<br>(0.005)    |
| 15-24 years old                                                              | -0.014***<br>(0.004) | -0.01***<br>(0.004)  | -0.032***<br>(0.003)    | -0.032***<br>(0.003)    | 0.03***<br>(0.003)   | 0.03***<br>(0.003)   | 0.026***<br>(0.003)  | 0.026***<br>(0.003)  |
| 25-34 years old                                                              | -0.03***<br>(0.003)  | -0.034***<br>(0.003) | -0.039***<br>(0.003)    | -0.039***<br>(0.003)    | -0.006***<br>(0.003) | -0.006***<br>(0.003) | -0.004<br>(0.003)    | -0.004<br>(0.003)    |
| 35-44 years old                                                              | -0.036***<br>(0.003) | -0.036***<br>(0.003) | -0.032***<br>(0.003)    | -0.032***<br>(0.003)    | -0.024***<br>(0.003) | -0.024***<br>(0.003) | -0.020***<br>(0.003) | -0.020***<br>(0.003) |
| 45-54 years old                                                              | -0.034***<br>(0.003) | -0.035***<br>(0.003) | -0.032***<br>(0.002)    | -0.032***<br>(0.002)    | -0.031***<br>(0.002) | -0.031***<br>(0.002) | -0.025***<br>(0.003) | -0.025***<br>(0.003) |
| 55-64 years old                                                              | -0.020***<br>(0.002) | -0.021***<br>(0.002) | -0.022***<br>(0.002)    | -0.022***<br>(0.002)    | -0.024***<br>(0.002) | -0.024***<br>(0.002) | -0.019***<br>(0.002) | -0.019***<br>(0.002) |
| Self employed                                                                | -0.007***<br>(0.003) | -0.005<br>(0.003)    | 0.0008<br>(0.003)       | 0.001<br>(0.003)        | -0.005***<br>(0.003) | -0.003<br>(0.003)    | -0.005<br>(0.003)    | -0.003<br>(0.003)    |
| Managers                                                                     | 0.026***<br>(0.003)  | 0.026***<br>(0.003)  | 0.002<br>(0.003)        | 0.002<br>(0.003)        | 0.016***<br>(0.003)  | 0.016***<br>(0.003)  | 0.017***<br>(0.003)  | 0.017***<br>(0.003)  |
| Manual worker                                                                | -0.049***<br>(0.002) | -0.049***<br>(0.002) | 0.001<br>(0.002)        | 0.001<br>(0.002)        | -0.04***<br>(0.002)  | -0.04***<br>(0.002)  | -0.04***<br>(0.002)  | -0.04***<br>(0.002)  |
| Unemployed                                                                   | -0.098***<br>(0.003) | -0.098***<br>(0.003) | -0.02***<br>(0.003)     | -0.019***<br>(0.003)    | -0.094***<br>(0.003) | -0.093***<br>(0.003) | -0.09***<br>(0.003)  | -0.09***<br>(0.003)  |

|                                                                                                                                                                                                    |                      |                      |                     |                     |                     |                     |                     |                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Retired                                                                                                                                                                                            | -0.05***<br>(0.003)  | -0.05***<br>(0.003)  | -0.01***<br>(0.003) | -0.01***<br>(0.003) | -0.04***<br>(0.003) | -0.04***<br>(0.003) | -0.03***<br>(0.003) | -0.04***<br>(0.004) |
| Students                                                                                                                                                                                           | 0.005<br>(0.004)     | 0.005<br>(0.004)     | 0.004<br>(0.004)    | 0.004<br>(0.004)    | -0.002<br>(0.004)   | -0.002<br>(0.004)   | -0.001<br>(0.004)   | -0.001<br>(0.004)   |
| Number of persons                                                                                                                                                                                  | -0.04***<br>(0.003)  | -0.03***<br>(0.003)  | 0.01***<br>(0.003)  | 0.02***<br>(0.003)  | -0.01***<br>(0.003) | -0.01***<br>(0.003) | -0.01***<br>(0.003) | -0.01***<br>(0.003) |
| Unemployment Rate                                                                                                                                                                                  | -0.012***<br>(0.00)  | -0.010***<br>(0.00)  | -0.009***<br>(0.00) | -0.009***<br>(0.00) | -0.004***<br>(0.00) | -0.003***<br>(0.00) | -0.005***<br>(0.00) | -0.003***<br>(0.00) |
| GDP Growth                                                                                                                                                                                         | 0.007***<br>(0.00)   | 0.006***<br>(0.00)   | -0.002***<br>(0.00) | -0.002***<br>(0.00) | 0.007***<br>(0.00)  | 0.007***<br>(0.00)  | 0.007***<br>(0.00)  | 0.007***<br>(0.00)  |
| Downgrade                                                                                                                                                                                          | -0.077***<br>(0.003) | -0.059***<br>(0.003) | -0.02***<br>(0.003) | -0.01***<br>(0.003) | -0.05***<br>(0.003) | -0.03***<br>(0.003) | 0.007***<br>(0.00)  | 0.003***<br>(0.00)  |
| Upgrade                                                                                                                                                                                            | 0.05***<br>(0.004)   | 0.05***<br>(0.004)   | 0.02***<br>(0.004)  | 0.02***<br>(0.004)  | 0.09***<br>(0.004)  | 0.09***<br>(0.004)  | 0.09***<br>(0.004)  | 0.09***<br>(0.004)  |
| Memorandum                                                                                                                                                                                         | -                    | -0.12***<br>(0.004)  | -                   | -0.017***<br>(0.00) | -                   | -0.10***<br>(0.00)  | -                   | -0.12***<br>(0.004) |
| <b>Diagnostics</b>                                                                                                                                                                                 |                      |                      |                     |                     |                     |                     |                     |                     |
| <b>Observations</b>                                                                                                                                                                                | 444019               | 444019               | 467827              | 467827              | 481740              | 481740              | 458428              | 458428              |
| <b>Wald test</b>                                                                                                                                                                                   | 22846.57<br>(0.00)   | 23462.41<br>(0.00)   | 4094.61<br>(0.00)   | 4114.71<br>(0.00)   | 15538.26<br>(0.00)  | 16161.18<br>(0.00)  | 14748.81<br>(0.00)  | 15548.75<br>(0.00)  |
| <b>Pseudo R<sup>2</sup></b>                                                                                                                                                                        | 0.04                 | 0.041                | 0.069               | 0.007               | 0.025               | 0.026               | 0.024               | 0.026               |
| <b>Log Likelihood</b>                                                                                                                                                                              | -281169.13           | -280779.29           | -309065.29          | -309056.95          | -307056.61          | -306740.2           | -296951.51          | -296544.19          |
| <b>Notes:</b> (a) ***, **, * denote statistical significance at the 1%, 5% and 10% level respectively, (b) numbers in brackets denote robust standard errors. Omitted Variable: 65 years and older |                      |                      |                     |                     |                     |                     |                     |                     |

**Table 2. Marginal Effects for the Probability of tend to trust: Models 3 & 4**

#### 4.2.2 Mapping Trust across different sample subgroups

To further gauge how trust behaves, we compare the predicted probabilities of mistrust of selected subgroups against the whole sample. The population subgroups considered highlight specific stand-alone or combined characteristics. The subgroups are:

- Countries whose credit status was downgraded vs. the rest.
- Countries being in a memorandum scheme vs. the rest.
- Countries whose GDP growth is below a set of certain thresholds (countries in recession) vs. the rest.
- Countries whose Unemployment rate is above a set of certain thresholds (countries with high unemployment rate) vs. the rest.
- Respondents that were employed vs. those that were unemployed.
- Respondents that were employed or unemployed before 2010 vs. their status after 2010.
- Respondents that were employed/unemployed during the presence/absence of a memorandum.
- Countries that were downgraded during the presence/absence of memorandum.
- A country not being in memorandum and was not downgraded and the respondent was employed.
- A country that was downgraded and the respondent was unemployed in the presence of memorandum.

The relevant results for the mean predicted probabilities are reported in Table 3. We start by comparing countries that are in a bail-out plan during the examined time-period and those that witnessed a downgrade episode. In countries that have followed a bail-out plan relative to their counterparts that have not, the average tendency to trust deteriorates with a predicted probability that varies between 34% and 43% for European Institutions and by 29% for the National Government as the public sees the local administration as fully accountable for that development due to the previously adopted fiscal policy. The largest difference is found in the predicted probabilities of deterioration for the ECB.

The tendency to trust is predicted with a probability of 34% for countries going through a fiscal stability program while for countries not being in a fiscal adjustment program the tendency to trust carries a probability of 63%, producing a Predicted probability Ratio (PPR hereafter) of 1.85. This suggests that the average respondent residing in a country experiencing a bail-out program is 1.85 times more likely to respond that it does not trust the ECB.

The PPR's for the other facets are in the range 1.31 and 1.58 indicating that the likelihood of mistrust is higher in countries that have followed a bail-out plan. For countries that have (have not) witnessed a downgrading episode, the predicted probability to trust is 0.43 (0.64) for the ECB, 0.50 (0.64) for the European Parliament, 0.48 (0.62) for the European Commission and 0.32 (0.38) for the National Governments.

A significant drop of trust across institutions is reported when GDP growth is considered. The more the economy is falling into a recession the more the tendency to trust weakens across the four types of institutions. The highest impact is found in counties at the worst 5 per cent when GDP growth diminishes by a rate higher than 5.8% indicating a significant drop of economic activity, with the largest difference found in the case of ECB with a PPR of 1.08 when compared to the lowest fragment. Interestingly, the PPR for the case of National Government is 1.0 while for the EU Parliament and EU Commission is 1.075 and almost 1.08 respectively, revealing that when the economy is severely damaged, public opinion tends to blame mostly the European Institutions due, probably, to the strict directives coming from European treaties. This applies to the unemployment rate as well. The higher the unemployment rate, the lower on average the tendency to trust. In particular in countries at the worst 5 per cent of the unemployment rates (16.4% and above), the trust in National Government plunges to 27% while at the same time for European Institutions varies between 43% and 53%. Finally, a similar picture emerges for the single scenarios with the unemployed respondents on average mistrusting the institutions more than those who are employed holding the National government particularly accountable (0.34, the lowest score across all institutions). Nevertheless, the largest difference is found again for the case of ECB with a PPR of 1.21.

Moving on to the comparison of bivariate scenarios across countries we introduce a break in 2010, the year in which Greece first agreed sign a bailout plan with the IMF and the European Institutions. The PPRs for all possible scenarios are higher than 1 implying that the deterioration of trust increases significantly across all institutions during harsh economic times. The tendency to trust seems to be affected by the time period and this is mainly reflected on National Governments rather than on European Institutions. When being employed the predicted probability to trust falls by 36% after 2010 which this is even more emphatic by 31% for those who were unemployed in the same period. When the case of the presence of memorandum enters into the scenario, someone who is employed during the years of memorandum tends to trust less on average (30% vs. 39% in memorandum absence). This result is even stronger for those who were unemployed during those years decreasing the probability to trust to from 0.34 to 0.26 for National Governments. When a downgrading episode is included in the scenario, results show that if a country is downgraded and at the same time follows a bail-out plan, people tend to trust less (28%) than in countries that were downgraded but were not in a bail-out plan (33%).

The final triangular scenario confirms the above. The average tendency to trust is significantly lower for people who are unemployed in a country that was downgraded and simultaneously follows an economic adjustment program. Results show that institutional trust is between 0.24 and 0.33 for these countries, compared to a level between 0.39 and 0.65 (depending on the institution) for countries that were not downgraded, were not participating in a fiscal adjustment program and the respondent is employed. This result emphatically points out that under harsh economic conditions and especially within an environment of abnormal events the tendency to trust is significantly affected. Therefore, there is strong evidence that the economic crisis has resulted in an adverse impact on trust in institutions.

| Table 3. Predicted Probability of Trust across sample subgroups |            |                     |               |                     |
|-----------------------------------------------------------------|------------|---------------------|---------------|---------------------|
|                                                                 | ECB        | National Government | EU Parliament | European Commission |
| Scenarios based on a single characteristic                      | Mean Value | Mean Value          | Mean Value    | Mean Value          |
| Being in Memorandum                                             | 0.34       | 0.29                | 0.43          | 0.39                |

|                                                            |      |      |      |      |
|------------------------------------------------------------|------|------|------|------|
| Not being in Memorandum                                    | 0.63 | 0.38 | 0.64 | 0.62 |
| No downgrade                                               | 0.64 | 0.38 | 0.64 | 0.62 |
| Downgrade                                                  | 0.43 | 0.32 | 0.50 | 0.48 |
| GDP growth $\leq -0.1$                                     | 0.54 | 0.37 | 0.57 | 0.55 |
| GDP growth $\leq -3$                                       | 0.53 | 0.38 | 0.55 | 0.53 |
| GDP growth $\leq -5.8$                                     | 0.50 | 0.37 | 0.53 | 0.51 |
| Unemployment $\geq 10.1$                                   | 0.53 | 0.33 | 0.59 | 0.57 |
| Unemployment $\geq 13.7$                                   | 0.46 | 0.29 | 0.54 | 0.52 |
| Unemployment $\geq 16.4$                                   | 0.43 | 0.27 | 0.53 | 0.51 |
| Being Employed                                             | 0.63 | 0.38 | 0.64 | 0.62 |
| Being Unemployed                                           | 0.52 | 0.34 | 0.55 | 0.53 |
| <b>Scenarios based on two characteristics</b>              |      |      |      |      |
| If Employed before 2010                                    | 0.66 | 0.40 | 0.66 | 0.64 |
| If Employed after 2010 inclusive                           | 0.58 | 0.36 | 0.60 | 0.58 |
| If Unemployed before 2010                                  | 0.57 | 0.36 | 0.58 | 0.57 |
| If Unemployed after 2010 inclusive                         | 0.45 | 0.31 | 0.50 | 0.48 |
| If Employed in memorandum absence                          | 0.54 | 0.39 | 0.65 | 0.63 |
| If Employed in memorandum presence                         | 0.35 | 0.30 | 0.44 | 0.41 |
| If Unemployed in memorandum absence                        | 0.54 | 0.34 | 0.56 | 0.54 |
| If Unemployed in memorandum presence                       | 0.27 | 0.26 | 0.35 | 0.32 |
| If downgraded in memorandum absence                        | 0.47 | 0.33 | 0.53 | 0.52 |
| If downgraded in memorandum presence                       | 0.31 | 0.28 | 0.41 | 0.38 |
| <b>Scenarios based on three characteristics</b>            |      |      |      |      |
| If not downgraded and being employed in memorandum absence | 0.65 | 0.39 | 0.65 | 0.63 |
| If downgraded and being unemployed in memorandum presence  | 0.24 | 0.26 | 0.33 | 0.31 |

**Table 3. Predicted Probability of Trust across sample subgroups**

## 5. Conclusions

We examined the levels of trust in European Institutions and National Governments for the 28 countries members of the European Union for the period 2000-2014. Using micro-level data obtained from the Eurobarometer we seek to identify the determinants of individual trust taking into account a number of factors that may influence people's attitude towards the national and European institutional structures including socio-demographic characteristics, credit rating episodes and fiscal adjustment memorandum agreements.

Our results are consistent with the existing literature and our priors, they do however shed additional light in the intrinsic trust building process as we consider, for the first time, the idea of sovereign rating episodes as well as the existence of mutual bail-out agreements between national governments and European Institutions. We find that European Institutions like the European Central Bank, the Commission and the Parliament are, in general, trusted more by highly educated individuals who are married and are employed having secured a managerial position. Levels of trust are also increasing, as anticipated, for countries that enjoy better macroeconomic performance.

However, our analysis reveals that downgrading episodes negatively affect people's tendency to trust the European Central Bank more than the other Institutions whilst in the case of upgrading episodes national governments fail to capitalize in trust levels when compared with the increased levels of trust enjoyed by European Institutions. Finally, in countries that have participated in bailout and fiscal adjustment programs, levels of distrust seem to rise substantially for European Institutions whereas national governments follow the same trend but at significantly lower rates.

The latter reveals that communication of information appears to be an issue that is worth further investigation. Citizens' perception of the role of the national government and that of EU institutions often reveals a sense of confusion as to the levels of shared responsibility. The general public's direct exposure to information communicated by national governments seems to have a greater effect on public opinion compared to that of European institutions, particularly as they seem to struggle to get a clear message to the public. Policy implications are therefore derived regarding the channels of information dissemination on the role of the ECB, the Parliament and the Commission.

A further and deeper look in the ways European 'citizenship' for individuals is formed and the implications of that in the trust building process is therefore required. The recent vote in the UK referendum concerning the country's future as a member of the European Union provide a new insight which combined with the results of this paper create exciting opportunities for future research when trying to identify the determinants of institutional trust in the continent.

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## Appendix

### Appendix A: Descriptive Demographic Variables

| TABLE 1A. Summary of Demographic Variables                                                             |                       |              |       |           |     |     |
|--------------------------------------------------------------------------------------------------------|-----------------------|--------------|-------|-----------|-----|-----|
| Description                                                                                            | Variable              | observations | Mean  | Std. Dev. | Min | Max |
| <b>Marital Status:</b><br>Question on respondent's marital status is grouped into: Married and single. | Married               | 661,284      | 0.68  | 0.46      | 0   | 1   |
|                                                                                                        | Single                | 661,284      | 0.249 | 0.43      | 0   | 1   |
| <b>Age Education:</b><br>Question about the age of                                                     | up to 14-18 years old | 650,068      | 0.57  | 0.49      | 0   | 1   |
|                                                                                                        | up to 19-21 years old | 653,068      | 0.16  | 0.37      | 0   | 1   |

|                                                                                                                                                                                           |                    |         |      |      |   |   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------|------|------|---|---|
| education is grouped into:<br>up to 14-18 years, 19-21 years,<br>up to 22 years,<br>and still studying                                                                                    | up to 22 years old | 653,068 | 0.25 | 0.43 | 0 | 1 |
|                                                                                                                                                                                           | Still studying     | 653,068 | 0.07 | 0.26 | 0 | 1 |
| <b>Age Groups:</b><br>Question regarding respondent's<br>age is grouped into:<br>15 - 24 years, 25-34 years,<br>35-44 years, 45-54 years,<br>55-64 years and 65 years and older           | 15-24 years old    | 663,568 | 0.12 | 0.33 | 0 | 1 |
|                                                                                                                                                                                           | 25-34 years old    | 663,568 | 0.15 | 0.36 | 0 | 1 |
|                                                                                                                                                                                           | 35-44 years old    | 663,568 | 0.17 | 0.38 | 0 | 1 |
|                                                                                                                                                                                           | 45-54 years old    | 663,568 | 0.17 | 0.37 | 0 | 1 |
|                                                                                                                                                                                           | 55-64 years old    | 663,568 | 0.16 | 0.36 | 0 | 1 |
|                                                                                                                                                                                           | 65 years and older | 663,568 | 0.20 | 0.40 | 0 | 1 |
| <b>Respondent's Occupation:</b><br>Question regarding respondent's occupations<br>has been grouped into: Self-employed,<br>Managers, Manual workers, Unemployed,<br>Retired and Students. | Self employed      | 607,926 | 0.07 | 0.26 | 0 | 1 |
|                                                                                                                                                                                           | Managers           | 607,926 | 0.09 | 0.29 | 0 | 1 |
|                                                                                                                                                                                           | Manual worker      | 607,926 | 0.19 | 0.39 | 0 | 1 |
|                                                                                                                                                                                           | Unemployed         | 607,926 | 0.07 | 0.26 | 0 | 1 |
|                                                                                                                                                                                           | Retired            | 607,926 | 0.26 | 0.43 | 0 | 1 |
|                                                                                                                                                                                           | Students           | 607,926 | 0.09 | 0.29 | 0 | 1 |
| <b>Number of persons present<br/>during the interview</b>                                                                                                                                 | Number of persons  | 607,926 | 0.09 | 0.28 | 0 | 1 |

## Appendix B: Descriptive Variables

| <b>TABLE 1B</b>                              |            |                            |                      |                            |
|----------------------------------------------|------------|----------------------------|----------------------|----------------------------|
| <b>Raw Probabilities to trust by country</b> |            |                            |                      |                            |
| <b>Country</b>                               | <b>ECB</b> | <b>National Government</b> | <b>EU Parliament</b> | <b>European Commission</b> |
| Austria                                      | 60.34%     | 44.08%                     | 55.59%               | 50.64%                     |
| Belgium                                      | 64.59%     | 41.20%                     | 67.96%               | 66.71%                     |
| Germany                                      | 62.78%     | 40.57%                     | 59.93%               | 53.30%                     |
| Denmark                                      | 76.52%     | 50.24%                     | 66.45%               | 62.71%                     |
| Spain                                        | 52.51%     | 39.18%                     | 61.29%               | 58.89%                     |
| Finland                                      | 70.52%     | 47.58%                     | 61.85%               | 60.64%                     |
| France                                       | 50.83%     | 35.20%                     | 60.68%               | 57.56%                     |
| United Kingdom                               | 37.74%     | 34.58%                     | 34.93%               | 34.83%                     |
| Greece                                       | 47.14%     | 38.11%                     | 58.14%               | 53.08%                     |
| Ireland                                      | 66.44%     | 35.37%                     | 72.68%               | 71.35%                     |
| Italy                                        | 60.05%     | 37.54%                     | 68.71%               | 66.32%                     |
| Luxembourg                                   | 74.21%     | 55.84%                     | 73.54%               | 71.12%                     |
| Netherlands                                  | 75.52%     | 48.39%                     | 63.45%               | 66.33%                     |
| Portugal                                     | 62.64%     | 35.10%                     | 65.64%               | 64.76%                     |
| Sweden                                       | 67.69%     | 41.65%                     | 63.00%               | 60.64%                     |
| Bulgaria                                     | 70.69%     | 30.94%                     | 73.81%               | 72.15%                     |
| Cyprus                                       | 58.47%     | 51.76%                     | 62.77%               | 60.55%                     |
| Czech Republic                               | 61.97%     | 27.89%                     | 58.77%               | 57.18%                     |
| Estonia                                      | 73.49%     | 48.89%                     | 74.06%               | 74.55%                     |
| Croatia                                      | 47.35%     | 24.50%                     | 50.33%               | 48.30%                     |
| Hungary                                      | 57.40%     | 33.37%                     | 68.51%               | 66.23%                     |
| Lithuania                                    | 71.09%     | 26.25%                     | 73.72%               | 74.33%                     |

|                 |        |        |        |        |
|-----------------|--------|--------|--------|--------|
| Latvia          | 54.80% | 25.20% | 56.12% | 54.55% |
| Malta           | 74.90% | 43.62% | 74.59% | 74.62% |
| Poland          | 64.79% | 30.87% | 67.53% | 67.65% |
| Romania         | 67.15% | 28.43% | 73.84% | 72.39% |
| Slovenia        | 58.03% | 35.91% | 58.86% | 59.41% |
| Slovak Republic | 66.65% | 33.72% | 69.47% | 66.78% |

| <b>TABLE 2B Descriptive Statistics for Macro Variables</b> |              |       |               |      |      |
|------------------------------------------------------------|--------------|-------|---------------|------|------|
|                                                            | Observations | Mean  | St. Deviation | Min  | Max  |
| <b>Austria</b>                                             |              |       |               |      |      |
| GDP Growth                                                 | 28460        | 1.18  | 1.81          | -4.1 | 3.4  |
| Unemployment Rate                                          | 29333        | 4.73  | 0.66          | 3.6  | 5.6  |
| <b>Belgium</b>                                             |              |       |               |      |      |
| GDP Growth                                                 | 28398        | 0.79  | 1.61          | -3.5 | 3.4  |
| Unemployment Rate                                          | 29362        | 7.76  | 0.61          | 6.6  | 8.5  |
| <b>Germany</b>                                             |              |       |               |      |      |
| GDP Growth                                                 | 28870        | 1.20  | 2.27          | -4.9 | 4.2  |
| Unemployment Rate                                          | 29810        | 8.03  | 1.86          | 5    | 11.2 |
| <b>Denmark</b>                                             |              |       |               |      |      |
| GDP Growth                                                 | 27881        | 0.37  | 2.24          | -6.2 | 3.2  |
| Unemployment Rate                                          | 28801        | 5.44  | 1.41          | 3.4  | 7.6  |
| <b>Spain</b>                                               |              |       |               |      |      |
| GDP Growth                                                 | 27443        | 0.62  | 2.08          | -4.5 | 4.2  |
| Unemployment Rate                                          | 28332        | 14.6  | 5.98          | 8.2  | 26.1 |
| <b>Finland</b>                                             |              |       |               |      |      |
| GDP Growth                                                 | 28883        | 1.37  | 3.4           | -9   | 5.1  |
| Unemployment Rate                                          | 29755        | 8.28  | 0.87          | 6.4  | 9.8  |
| <b>France</b>                                              |              |       |               |      |      |
| GDP Growth                                                 | 27852        | 0.59  | 1.54          | -3.6 | 3    |
| Unemployment Rate                                          | 28720        | 8.77  | 0.79          | 7.4  | 10.3 |
| <b>United Kingdom</b>                                      |              |       |               |      |      |
| GDP Growth                                                 | 27692        | 1.14  | 2.47          | -5.8 | 4    |
| Unemployment Rate                                          | 28477        | 6.03  | 1.27          | 4.7  | 8.1  |
| <b>Greece</b>                                              |              |       |               |      |      |
| GDP Growth                                                 | 25918        | 0.73  | 4.34          | -6.9 | 5.6  |
| Unemployment Rate                                          | 28802        | 13.21 | 6.21          | 7.8  | 27.5 |
| <b>Ireland</b>                                             |              |       |               |      |      |
| GDP Growth                                                 | 27557        | 1.22  | 3.77          | -7.3 | 9.2  |
| Unemployment Rate                                          | 28406        | 7.86  | 4.33          | 3.9  | 14.7 |
| <b>Italy</b>                                               |              |       |               |      |      |
| GDP Growth                                                 | 27945        | -0.28 | 2.31          | -6.1 | 3.6  |
| Unemployment Rate                                          | 28807        | 8.52  | 1.65          | 6.1  | 12.7 |
| <b>Luxemburg</b>                                           |              |       |               |      |      |
| GDP Growth                                                 | 15395        | 1.22  | 3.41          | -7.3 | 7    |
| Unemployment Rate                                          | 15853        | 4.20  | 1.19          | 1.9  | 5.9  |
| <b>Netherlands</b>                                         |              |       |               |      |      |
| GDP Growth                                                 | 27006        | 0.62  | 2.01          | -4.2 | 3.7  |
| Unemployment Rate                                          | 27947        | 4.9   | 1.16          | 3.1  | 7.4  |
| <b>Portugal</b>                                            |              |       |               |      |      |
| GDP Growth                                                 | 27488        | 0.13  | 1.75          | -3   | 3.4  |
| Unemployment Rate                                          | 28462        | 9.72  | 3.41          | 5.1  | 16.4 |
| <b>Sweden</b>                                              |              |       |               |      |      |
| GDP Growth                                                 | 29202        | 1.68  | 2.77          | -5.8 | 5.7  |
| Unemployment Rate                                          | 30130        | 7.13  | 0.96          | 5.6  | 8.6  |
| <b>Bulgaria</b>                                            |              |       |               |      |      |
| GDP Growth                                                 | 18112        | 3.66  | 3.92          | -5   | 7.3  |

|                        |       |       |      |       |      |
|------------------------|-------|-------|------|-------|------|
| Unemployment Rate      | 18928 | 9.56  | 2.4  | 5.6   | 13   |
| <b>Cyprus</b>          |       |       |      |       |      |
| GDP Growth             | 9304  | -0.73 | 3.13 | -5.8  | 2.9  |
| Unemployment Rate      | 9753  | 7.38  | 4.13 | 3.7   | 16.1 |
| <b>Czech Republic</b>  |       |       |      |       |      |
| GDP Growth             | 19412 | 2.19  | 3.67 | -5.1  | 6.7  |
| Unemployment Rate      | 20318 | 6.66  | 1.05 | 4.4   | 8.3  |
| <b>Estonia</b>         |       |       |      |       |      |
| GDP Growth             | 18210 | 3.16  | 7.35 | -14   | 10.4 |
| Unemployment Rate      | 19007 | 9.45  | 3.73 | 4.6   | 16.7 |
| <b>Croatia</b>         |       |       |      |       |      |
| GDP Growth             | 19066 | 0.83  | 3.73 | -6.8  | 5.1  |
| Unemployment Rate      | 19962 | 12.54 | 2.81 | 8.6   | 17.3 |
| <b>Hungary</b>         |       |       |      |       |      |
| GDP Growth             | 18791 | 0.94  | 3.14 | -6.6  | 5    |
| Unemployment Rate      | 19802 | 9     | 1.73 | 6.1   | 11.2 |
| <b>Lithuania</b>       |       |       |      |       |      |
| GDP Growth             | 18187 | 4.77  | 7.17 | -13.9 | 11.1 |
| Unemployment Rate      | 18986 | 10.72 | 4.38 | 4.3   | 17.8 |
| <b>Latvia</b>          |       |       |      |       |      |
| GDP Growth             | 18345 | 4.18  | 8.46 | -16.3 | 12   |
| Unemployment Rate      | 19184 | 12.23 | 4.47 | 6.1   | 19.5 |
| <b>Malta</b>           |       |       |      |       |      |
| GDP Growth             | 11961 | 2.10  | 2.14 | -3.5  | 3.8  |
| Unemployment Rate      | 12378 | 6.56  | 0.31 | 5.9   | 7.2  |
| <b>Poland</b>          |       |       |      |       |      |
| GDP Growth             | 18045 | 3.96  | 1.83 | 1.5   | 6.8  |
| Unemployment Rate      | 18805 | 11.09 | 3.58 | 7.1   | 19.1 |
| <b>Romania</b>         |       |       |      |       |      |
| GDP Growth             | 18531 | 3.77  | 4.70 | -5.8  | 9.2  |
| Unemployment Rate      | 19419 | 6.82  | 0.55 | 5.6   | 8    |
| <b>Slovenia</b>        |       |       |      |       |      |
| GDP Growth             | 19208 | 1.07  | 4.40 | -8.8  | 6.4  |
| Unemployment Rate      | 20138 | 6.97  | 1.76 | 4.4   | 10.1 |
| <b>Slovak Republic</b> |       |       |      |       |      |
| GDP Growth             | 20129 | 3.98  | 4.29 | -5.1  | 10.4 |
| Unemployment Rate      | 21040 | 13.45 | 2.26 | 9.6   | 18.4 |

| <b>Table 3B. Frequency of Financial Events* from 2000-2014</b> |            |          |                |
|----------------------------------------------------------------|------------|----------|----------------|
|                                                                | Downgrades | Upgrades | In Memorandum  |
| Austria                                                        | 0          | 0        | NO             |
| Belgium                                                        | 1          | 0        | NO             |
| Germany                                                        | 0          | 0        | NO             |
| Denmark                                                        | 0          | 0        | NO             |
| Spain                                                          | 5          | 2        | NO             |
| Finland                                                        | 0          | 0        | NO             |
| France                                                         | 1          | 0        | NO             |
| United Kingdom                                                 | 1          | 0        | NO             |
| Greece                                                         | 7          | 2        | YES (May 2010) |
| Ireland                                                        | 5          | 2        | YES (Nov.2010) |
| Italy                                                          | 4          | 2        | NO             |
| Luxembourg                                                     | 0          | 0        | NO             |
| Netherlands                                                    | 0          | 0        | NO             |
| Portugal                                                       | 5          | 1        | YES (May 2011) |

|                                                                                                                      |   |   |                  |
|----------------------------------------------------------------------------------------------------------------------|---|---|------------------|
| Sweden                                                                                                               | 0 | 0 | NO               |
| Bulgaria                                                                                                             | 0 | 4 | NO               |
| Cyprus                                                                                                               | 7 | 2 | YES (March 2013) |
| Czech Republic                                                                                                       | 0 | 0 | NO               |
| Estonia                                                                                                              | 0 | 0 | NO               |
| Croatia                                                                                                              | 3 | 0 | NO               |
| Hungary                                                                                                              | 5 | 0 | NO               |
| Lithuania                                                                                                            | 2 | 2 | NO               |
| Latvia                                                                                                               | 3 | 2 | NO               |
| Malta                                                                                                                | 2 | 0 | NO               |
| Poland                                                                                                               | 0 | 0 | NO               |
| Romania                                                                                                              | 0 | 0 | NO               |
| Slovenia                                                                                                             | 5 | 1 | NO               |
| Slovak Republic                                                                                                      | 3 | 1 | NO               |
| * Frequency of events per country: Credit Rating Status and Countries that are committed to an austerity fiscal plan |   |   |                  |