Distrust in the ECB – product of failed crisis prevention or of inappropriate cure?

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Abstract

We contribute to the new, albeit fast-growing empirical literature on the determinants of trust in central banks. Like in most other studies we use panel data models based on the Eurobarometer survey on trust in the European Central Bank. Firstly, we confirm the main conclusion from previous studies that the trust in the ECB has suffered from the crisis' outburst. Moreover, households perceive the ECB's responsibility for the occurrence of the crisis to go beyond the responsibility of other institutions. This finding casts some doubt on the central bank's ability to manage expectations in a country having been hit by a severe negative demand shock, while this ability is precondition of the central banks' power to boost aggregate demand when its interest rates are at the zero lower bound. Secondly (and most importantly), in addition to previous studies, we examine the links between the trust in the ECB and its policy. Our main result is that when households have pessimistic expectations, aggressive cuts in interest rates have an adverse effect on their trust in central bank. This result is in accordance with the 'lack-of-confidence shock' hypothesis developed by Schmitt-Grohé and Uribe (2012) and go against the 'fundamental shock' hypothesis which would imply positive effects of aggressive cuts for trust in the ECB. These findings are robust to changes in the estimation method, the definition of the lack of confidence shock, control variables and countries under consideration. We also show that it cannot be easily rejected as spurious.

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1. Introduction

The global financial crisis hit a majority of economies badly. As a result, the global economy contracted in 2009 for the first time since the end of the Second World War. A vast majority of central banks, including all major central banks, responded to the crisis by a sharp loosening of the monetary policy stance. They aggressively shifted to very low interest rates (in many cases close to zero) and undertook other unconventional measures resulting in the ballooning of their balance sheets. Then, many of them decided to use "forward guidance", announcing the intention to keep the monetary policy accommodative for a very long period (more on this, see, e.g. Cecioni, Ferrero and Secchi, 2011, Habermeier et al., 2013 or Stone, Fujita and Ishi, 2011). Such a monetary policy response to the crisis was broadly in line with policy recommendations stemming from the new Keynesian (nK) analytical framework (see, e.g. Walsh, 2009)[1] commonly used in central banks.

However, in spite of the monetary policy being very expansive by historical standards, the post-crisis recovery of the global economy has been sluggish in comparison with its previous recoveries. This sluggishness has been exclusively caused by advanced economies, where monetary policy has been notably expansive. Many explanations of this phenomenon have been presented so far (see, e.g. Bordo and Haubrich, 2012; Gali, Smets and Wouters, 2012 or Stock and Watson, 2012). Yet it still seems to be a puzzle, which raises the question of, *inter alia*, the effectiveness of monetary policy pursued by major central banks.[2]

Answering this fundamental question is far beyond the scope of this paper. We only deal with it in one dimension, by studying the post-crisis trust in the European Central Bank (ECB). A central bank needs to be trusted in order to stabilize the economy. It needs to be trusted all the more, the less room for policy manoeuvre it has. If it is trusted, then it conserves a power to stabilize the economy even with interest rates having been reduced close to the zero lower bound (ZLB). As shown in nK framework (see, e.g. Adam and Billi, 2007; Eggertsson and Woodford, 2003; Jung, Teranishi and Watanabe, 2005 or Nakov, 2008) it can boost aggregate demand by a mere commitment not to raise interest rates over a certain period, once the ZLB ceases to constrain its actions. However the open question, and still under-researched, is whether trust in the central bank is immune to the crisis occurrence and the ZLB becoming binding.

The crisis' impact on the trust in the central bank may be empirically tested as there are surveys directly measuring public trust in central banks. The poll that is receiving growing attention in economic literature is the Eurobarometer survey containing questions concerning trust in the ECB. A large decline of trust in the ECB after the outbreak of the global financial crisis[3] has been analyzed in several papers (see Bursian and Faia, 2013; Bursian and Furth, 2011; Ehrmann, Soudan and Stracca, 2012; Farvaque et al., 2012; Gros and Roth, 2010 or Wälti, 2012; we review them hereafter.) They

[1] However, one has to stress that this claim, although widely shared by central bankers, is far from being uncontroversial among academics (see, e.g. Woodford, 2012.)

[2] This question arises, even though most explanations point to systematic forces (e.g. population's aging), lowering potential output growth which is indicated as the cause for poor growth performance. According to all available estimates, regardless of the method applied and the institution estimating, the output gap in advanced economies is negative and in some cases very deeply negative.

[3] The global financial crisis outbreak was followed by a decline in public trust also in other central banks, distinctive for their reputation. In particular, there are surveys showing that this was the case of the Federal Reserve or Swedish Riksbank.

usually conclude that it reflected a common fall in trust in both European and national institutions or depended on country-specific macroeconomic situations. Nonetheless, these studies, except for Bursian and Faia (2013), do not give much attention to the effects of the ECB's response to the crisis on trust in the ECB. We aim to fill this gap.

Analyzing the effects of the ECB's interest rate policy on trust in the ECB is our major contribution to a new, albeit fast growing empirical literature on trust in central banks. We confront two theoretically possible predictions of the effects of lowering the policy rate close to the ZLB. The first one is supported by the standard interpretation of recession within nK analytical framework and monetary policy recommendations. The second one is backed by the 'lack-of-confidence' hypothesis developed by Schmitt-Grohé and Uribe (2012) within the same analytical framework. Going beyond the standard interpretation of recession allows us to establish a strongly statistically significant and robust relationship between the trust in a central bank and its interest rate policy, unlike Bursian and Faia (2013) who analyse only the standard case.

Obviously, we also take into account hypotheses already tested in other studies which link a fall in trust in central banks during the crisis with the households' conviction about its responsibility for the occurrence of the crisis. We verify them in the sample including data up to the end of 2012.

The remainder of the article is organized as follows: section 2 presents a theoretical hypothesis linking trust in the central bank with the crisis' occurrence and policy rate response to the crisis. Section 3 reviews previous studies based on the Eurobarometer survey. Section 4 presents the estimation strategy. Section 5 describes the sample under study. Section 6 provides the estimation results of panel models analyzing the effect of the crisis occurrence and policy rate response to the crisis on trust in the ECB. Section 7 verifies the results robustness and section 8 concludes. The appendix including tables and figures follows.

2. Trust in a central bank during the crisis – some theoretical links

Even though public trust in a central bank is of crucial importance for its ability to stabilize economy after the crisis outburst, there is no developed theory of trust in a central bank during the crisis in economic literature. Even the issue of credibility, which is related to trust (see, e.g. Barro and Gordon, 1983), largely disappeared from the research agenda of economists once a theoretical solution to the problem of time inconsistency of price stability, i.e. the acknowledgement of a central bank's independence, started to be commonly used in practice (c.f. Acemoglu, Arellano and Dekel, 2013 or Friedman and Woodford [eds.], 2011).[4] Then the period of Great Moderation occurred and the issue of trust in the central bank during the crisis was considered to have no policy relevance. Only the global financial crisis outburst revived the research on this issue. Yet, it has so far been almost exclusively empirical.

Lacking the detailed theory, one can only speculate on the reasons for a possible decline in trust in a central bank during the crisis in general. Three possible explanations, which we do see, are the following:

[4] Both books review the research frontier in economics. The former deals with the of whole economics while the latter is focused exclusively on monetary economics.

I. A central bank is perceived as one out of the multiple public institutions collectively blamed for crisis' occurrence.
II. A central bank is viewed as an institution which is responsible for the crisis outbreak in a specific part.
III. A central bank is blamed for an inappropriate reaction to the crisis, resulting in a deepened or protracted recession which could otherwise be muted or shorter.

The first two hypotheses are set in papers which we refer to in the next section. By contrast, the third one is rarely *explicitly* stated, despite the fact that its correctness cannot be *a priori* ruled out. The hypotheses are not mutually exclusive. On the contrary, they seem to be complementary.

According to the first hypothesis, crisis may prompt households to reduce their overall trust in public institutions. Such a reaction may stem from the households' inability to recognize the causes of the crisis. The hypothesis would be confirmed within an econometric model if the variables denoting trust in other institutions were statistically significant in explaining trust in central banks.

The second hypothesis refers to the situation where a central bank is blamed for the crisis occurrence independently of the blame put down on other institutions. Such a situation may arise in two cases. Firstly, households may have a specified image of the causes of the crisis and consider the pre-crisis monetary policy to have contributed to the crisis outburst. Secondly, they could perceive the central bank as being powerful enough to prevent the crisis. Thus, the crisis' occurrence forces them to revise their view on the central bank's power, previously over-estimated, or is understood as this power having been untapped. Regardless of the case better fitted to the situation considered under this hypothesis, it could be supported within an econometric model, if the crisis' dummy variable was statistically significant after controlling for trust in other institutions. Moreover, if many households came to the conclusion that the central bank had not used its power to prevent the crisis, then unemployment or other burdensome consequences of the crisis sought to explain much of the variation of this part of trust in the central bank which is left unexplained by an overall decline of trust in institutions.

With regard to the third hypothesis, it represents in fact two competing hypotheses, as the central bank may be blamed either for a too high or, conversely, for a too low policy rate during the crisis. Support for both views may be derived from nK analytical framework. The former view is backed by the standard interpretation of a post-crisis recession and monetary policy recommendations. Implications of this standard approach for trust in centrals bank are formally elaborated by Bursian and Faia (2013). Theoretical foundations for the latter are provided by Schmitt-Grohé and Uribe (2012).

The standard approach while applying nK analytical framework interprets recession as caused by an exogenous fall in the natural interest rate. The fall reflects a shift in households' preferences towards substituting their current spending for future spending, i.e. a negative demand shock. The shock results in a negative output gap. The gap induces households to lower inflation expectations. Their fall raises a real cost of funding, encouraging households to further reduce their current spending. The appropriate reaction of a central bank is to lower the policy rate. In reducing the real cost of funding, such a reaction allows for closing the output gap and prevents inflation from a deep fall. Thereby, it may be conducive to trust in a central bank.

An alternative interpretation explains recession with a non-fundamental shock in confidence. In the case of such a shock, policy rate cuts validate pessimistic expectations, which leads to further cuts and may end up in a self-fulfilling liquidity trap equilibrium. Locked in this trap, a central bank, in spite of aggressive cuts in the policy rate (or rather due to them), appears incapable to restore confidence, and even to lower the unemployment increased during the crisis. The appropriate reaction of a central bank to a lack of confidence shock would be to abandon any standard policy rule (most often exemplified by Taylor rule – see, first and foremost Taylor, 1993) and to set the policy rate clearly above the ZLB.

One needs to mention that aggressive cuts in the policy rate may be considered inappropriate also for other reasons than the risk of validating pessimistic expectations. For more on these other reasons, see, e.g. Borio (2012), Ciżkowicz and Rzońca (2013), Hannoun (2012), or White (2012). We focus on the argument developed by Schmitt-Grohé and Uribe (2012), since it is grounded in nK analytical framework, i.e. in the same framework which is standardly used to justify aggressive cuts in the policy rate. The other cited papers (except for Ciżkowicz and Rzońca, 2013) do not use this workhorse model of monetary policy[5], whereas we would like to keep a consistency in the theoretical foundations of both competing views.

An econometric model would be supportive for the standard conclusion, if the interest rate coefficient was negative and statistically significant during the periods of recession. By contrast, it would support an alternative conclusion if the interest rate coefficient was positive and statistically significant during the periods of the lack-of-confidence shock. However, it has to be stressed that so as to avoid a spurious regression, a careful control for other possible determinants of the trust in central banks other than the interest rate policy is badly needed.

3. Literature on trust in the ECB based on the Eurobarometer survey

An empirical analysis of trust in the central bank is possible when a sufficiently long time series recording households' opinions on central banks exists. Such a possibility is provided by the Eurobarometer survey on which all articles surveyed in this section are based.

Generally, previous empirical research test the first and the second hypothesis advanced in section two, i.e. that the central bank is blamed for allowing the crisis to occur and that part of this blame is independent of the one put down on other institutions. The results mainly differ in significance of the macroeconomic variables impact on trust in the ECB. According to a part of the studies, macroeconomic data does not satisfactorily explain the variation of trust in the ECB. By contrast, other studies point out that households formulate their opinions on the ECB largely upon macroeconomic data.

[5] Nonetheless, one has to stress that the narrative approach applied in these papers is entirely understandable, given that they deal with a broad spectrum of unconventional monetary policy measures and not only with aggressive cuts in the policy rate. Although considerable efforts have recently been made to develop nK analytical framework so as to be useful in analyzing these measures (see, e.g. Cúrdia and Woodford, 2011), that dimension of nK (and indeed of any other models) is still in infancy (see, e.g. Stockton, 2012.)

These studies usually conclude that the decline of trust in the ECB in the aftermath of the financial crisis is just a result of worsened economic conditions.[6]

The first view is exemplified by Gros and Roth (2010). This is the first study on the determinants of trust in the ECB after the global financial crisis outburst. Admittedly, it finds that GDP growth is important in explaining the variation of trust in the ECB (and it is more important than inflation). Yet, the authors interpret the decline of trust, observed since the autumn of 2008, as a residual result of the ECB's failure to prevent the financial crisis. In another study, Roth, Gros and Nowak-Lehmann, (2012) confirm their previous proposition that the crisis outburst constitutes a structural break. In the pre-crisis period, economic growth was important in explaining the trust in the ECB while during the crisis, unemployment and inflation became statistically significant explanatory variables. In turn, Farvaque et al. (2012) working on a set of individual data for the 27 EU member countries, find that the trust in the ECB is determined by the personal characteristics of the respondent (education, age, income, political view) rather than by macroeconomic variables[7], wherein inflation is households' primary concern. It should be noted that the impact of the crisis on trust in the ECB might be captured in their model, in spite of the relatively small effect of macroeconomic variables, by: time (survey wave) fixed effects, the respondent's economic expectations and the dummy variable representing trust in the European Commission which also experienced a substantial drop following the crisis.

In the second group there are Ehrmann, Soudan and Stracca (2012) who show that macroeconomic data play an important role in explaining trust in the ECB and that the deteriorating economic conditions during the crisis affected the trust with nearly the same elasticities as during the pre-crisis period. In a similar vein, Wälti (2012) argues that country-specific fiscal developments influence the households trust in the ECB. Bursian and Furth (2011), who analyze individual data from the Eurobarometer and control the results for individual respondents' characteristics as well as regional effects within countries, confirm the importance of macroeconomic variables in explaining trust in the ECB. In particular, they find that GDP growth has stronger effects on this trust than the inflation.[8] Bursian and Faia (2013) establish that although inflation deviation from the target, i.e. the variable closely related to the ECB's mandate, has a direct effect on trust in the ECB, the short run variation of trust[9] is also affected by other macroeconomic variables, such as GDP growth, which are not directly within the ECB's mandate.

Bursian and Faia (2013) is so far the only study that analyzes the effects of the interest rate policy on trust in the ECB, that is to say deals, at least indirectly, with the third hypothesis. Yet the paper is mainly theoretical. Its empirical results on these effects are hardly conclusive. In both VAR specifications, estimated on the whole sample and the sample covering only the crisis respectively, an unexpected fall in the EONIA interest

[6] This conclusion often suffices them to strongly recommend unconventional monetary policy measures, as they *implicitly* assume that these measures are capable to improve economic conditions. This assumption, combined with the aforementioned conclusion, implies that unconventional measures ought to be conducive to trust in the central bank.

[7] Based on this finding, the paper postulates that the ECB should focus more on its communication strategy in order to gain support from distrustful social groups.

[8] Based on this finding, Bursian and Furth (2011) conclude that the ECB should continue buying government bonds with newly created money, as according to their results such a policy, having a positive effect on GDP growth, would also improve households' trust in the ECB.

[9] Bursian and Faia (2013) start by analyzing the long term links between trust and a number of socio-economic characteristics of the respondents based on individual data and then proceed to study the short term variation in trust using aggregate data.

rate has a positive effect on the trust but hardly statistically different from zero, and changing sign shortly after the shock.

4. Estimation strategy

We verify three theoretical hypotheses, listed in the second section, using panel data models for 12 Euro area members[10]. As a dependent variable, we model net trust in the ECB (for more on this see section five).

We start our research by verifying the first two hypotheses; in it we exploit the findings from previous literature. Hence, we use unemployment, inflation and the dummy variable *crisis* denoting period from 2008 onward as the explanatory variables. We control our results for the general sentiment of respondents, thus including the model balance of consumer expectations. Lastly, we insert net trust in the European Commission to the model in order to control for a general sentiment toward the EU and to eliminate the responses given without reflection. To justify including this variable it is enough to mention that about 2/3 of the respondents give the same answer to all the questions concerning the trust in European institutions[11] (Ehrmann, Soudan and Stracca, 2012, see also figure 1. in the appendix, which compares the evolution of public trust in EU-12 countries toward both institutions; generally, those series follow a similar pattern.) Thereby, model 1. has the following form:

$$ECB\_trust_{it} = \alpha_0 + \beta_1 EC\_\_trust_{it} + \beta_2 exp_{it} + \beta_3 U_{it} + \beta_4 \pi_{it} + \beta_5 crisis_{it} + w_{it} \quad (1)$$

where α_0 is constant for pooled estimators and country-specific constant for fixed effects estimators, exp_{it} denotes consumer expectations, U_{it} stands for unemployment, π_{it} is inflation and w_{it} is error term.

As pointed in section three, other studies, with the exception of Bursian and Faia (2013), do not analyze the effects of the post-crisis monetary policy on trust in the ECB. As a starting point to study these effects, i.e. the third hypothesis, we estimate the second model with an official refinancing rate of the ECB as an explanatory variable. We include all previously used data as control variables in the model. Thus, model 2. is the following:

$$ECB\_trust_{it} = \alpha_0 + \beta Z + \beta_6 ECB\_rate_t + w_{it} \quad (2)$$

where Z denotes the vector of the explanatory variables used in model 1.

Then in the third model we test the hypothesis developed by Schmitt-Grohé and Uribe (2012). For that purpose we identify country-specific periods of extraordinary pessimistic expectations using consumer surveys. Model 3. has the following form:

$$ECB\_trust_{it} = \alpha_0 + \beta Z + \beta_6 ECB\_rate_t + \beta_7 ECB\_rate_t * shock_{it} + w_{it} \quad (3)$$

[10] That are 11 countries belonging to the Euro area from 1999 and Greece, which adopted the euro in 2000.
[11] Usually, there are five such institutions enlisted in the survey.

where *shock* is a dummy variable denoting periods of lack-of-confidence shock in a given country.

We define a period of lack-of-confidence shock in a given country as an episode starting when the consumer expectations balance declines by more than a half of standard deviation below the mean and ending when the balance reaches back the mean. Periods of lack-of-confidence shocks for all countries are depicted in figure 2 in the appendix.

We do use an arbitrary definition of a period of lack-of-confidence shock since available procedures of endogenous threshold estimation do not allow to determine country specific threshold values. However, as a part of the robustness analysis, we re-estimate the model under different shock definitions (for more on the robustness analysis, see section seven).

We estimate the equations described above using a set of panel data estimators. We start with the pooled estimator (OLS) which ignores the possibility of individual effects, i.e. the specific characteristics of a given country that are not included in the model but affect the dependent variable. In case this assumption is not true, the estimator is biased, hence it is regarded in literature as the first approximation. Next we apply the fixed effects (FE) estimator, which assumes homogeneous coefficients of the explanatory variables but allows for a different constant term for particular countries and the random effects (RE) estimator which treats individual effects as a part of the error term. The results based on the mentioned estimators may be biased due to several methodological problems. The first is a possible cross-sectional dependence (or spatial correlation) of error terms. In the analyzed model, this is equivalent to the assumption that there are unobserved time-varying omitted common variables which impact individual states. Actually, results of the Pesaran's test for cross-ectional dependence indicate that this is a characteristic of the data set used. If these unobservable common factors are uncorrelated with the independent variables, the coefficient estimates based on the OLS or FE regression are consistent, but standard errors estimates are biased. Therefore we use the Driscoll and Kraay (1998) nonparametric covariance matrix estimator (DK) which corrects for the error structure spatial dependence. This estimator also addresses the second problem, which is the standard errors bias due to a potential heteroscedasticity and autocorrelation of the error terms. The consistency of the estimators presented above may be also affected by the third problem, i.e. endogeneity due to a potential correlation between the regressors and the error term. It is controlled to some extent by using the crisis dummy as well as the exogenously defined lack-of-confidence shocks, howevever it may be insufficient to fully eliminate the endogeneity bias. One of the possible solutions is to use the instrumental variables estimator, however there are at least two reasons which prevent us from using it in this research. Firstly, this estimator is asymptotically consistent yet it may be severely biased when applied to such short samples as our. Secondly, standard approach for the instrumental variables estimator is to use lagged variables as instruments. In our case this would be problematic for variables identyfing periods of the crisis and lack-of-confidence shocks.
Taking into account all of the above-mentioned restrictions, we use five types of panel data estimators: pooled (OLS), fixed effects (FE), random effects (RE) and Driscoll-Kraay with corrected standard errors in both the pooled (DK) and fixed effects (DK FE) version. At the same time, we do realize that the obtained results could be affected by

some of the abovementioned problems and that the conclusions drawn on their basis should be taken with caution.

5. Data and descriptive statistics

We base our research on the Eurobarometer survey which is a public opinion analysis conducted on behalf of the European Commission. The poll has been carried out since 1973 in member- as well as in candidate countries. The main survey is conducted biannually and contains questions concerning, *inter alia*, the perception of the political and economic situation, the attitude toward the European Union, and trust in some of the European institutions. Since 1999 a regularly included question about trust in the ECB has been included with the following answers available: "tend to trust", "tend not to trust" and "don't know". Net trust in the ECB is defined as the difference between a share of the population that tend to trust in the ECB and a share that tend not to trust. Aggregate results are presented on country level which enables the application of panel data analysis. The data analyzed in our research covers the period from the Eurobarometer 51 (Spring 1999) to the Eurobarometer 78 (Autumn 2012) and also includes the special Eurobarometer 308 (Winter 2009). The dataset contains 348 observations for the Eurozone 12 countries and 651 for the whole EU-27.

In addition to the net trust in the ECB we draw from the Eurobarometer survey the net trust in the European Commission as a control variable in basic regressions, the net trust in the national government, the net opinion on that the EU membership is a good thing and the share of the population that has heard of the ECB in the robustness analysis. All other data are obtained from the Eurostat. For each wave of the Eurobarometer survey we choose the value for the first month of the poll's fieldwork. The full list of variables used in the estimations is contained in table 1 in the appendix.

It follows descriptive statistics, as presented in table 2, that generally people tend to trust in the ECB more than in other European institutions (represented herein by the European Commission) and much more than in national governments. Yet the net trust in the ECB is on average quite low in absolute terms. That makes its ability to stabilize the economy through expectations management questionable. Even if this low level of trust did not deprive the ECB of this ability, then it could clearly put this ability at risk in the case of its decline.

In that context it is worth noting that the net trust in the ECB has a large variance, larger than the net trust in the European Commission albeit smaller than in national governments. Still worse, it is on average almost twice as low during periods of pessimistic expectations than in other periods, that is to say the trust in the ECB is particularly low exactly when it is badly needed. The difference in net trust across both types of periods is mainly driven by an increase in the share of population that tend not to trust in the ECB, while a fall in the share of population that trust in the ECB is moderate. Apparently, in the time of pessimistic expectations there are less people who do not have any opinion on the central bank. This being said one has to stress that aggregate data masks a significant variation, namely across time. As shown in figure 3. in the appendix, the trust in the EBC was not particularly low nor had it declined during all of the periods of lack-of-confidence shock. The co-occurrence of a strikingly low level of trust in the ECB and of lack-of-confidence shocks is visible only after the crisis outburst.

Descriptive statistics do not reveal clear links between particularly low trust in the ECB during periods of pessimistic expectations and inflation. Lack-of-confidence shocks occurred both in periods of low and relatively high inflation with the mean exactly the same as over the remaining periods. Interestingly, particularly low trust in the ECB during the periods of pessimistic expectations seems to have a more clear link to unemployment despite the fact that unemployment, contrary to inflation, is not within the ECB legal mandate. Periods of pessimistic expectations overlapped with periods of relatively high unemployment. Lastly, it is worth remarking that the ECB pursued a more expansive monetary policy during the periods of pessimistic expectations than in other periods. The nominal interest rates during periods of lack-of-confidence shock were on average lower than during the remaining periods, whereas inflation was exactly the same in both types of periods..

We do present results of a more thorough analysis of trust in the ECB in the two subsequent sections.

6. Estimation results

Estimation results of the three models described in section four are presented in table 3.

It stems from the estimated model 1. that the net trust in the ECB decreases during the periods during which net trust in the European Commission declines. This result holds across all other estimated models, strongly supporting the first hypothesis presented in section two. Yet the statistical significance of the crisis dummy in model 1. across all estimators applied indicates that a crisis lowers trust in the ECB, also independently of its impact on the general trust in European institutions. This result backs the second hypothesis. Macroeconomic variables weakly enhance this support. High unemployment has a negative impact on trust in the ECB, albeit of a questionable significance. By contrast, a fall in inflation, another crisis consequence, has – if any – positive effect on trust. Yet it ceases to be statistically significant once country-specific effects are taken into account. This result may be interpreted as a sign that inflation has not deviated (too much) from the range within which it does not distort households' decisions (the estimated model 3., discussed later in this section, sheds new light on this conclusion and allows to reformulate it).

Evidence on links between trust in the ECB and the monetary policy pursued by the ECB, arising from model 2., are mixed. Estimators RE and FE attribute a high significance to the ECB rate as an explanatory variable, suggesting that the monetary policy stance could matter for trust in the ECB. Interestingly, the sign of the respective coefficients is positive, indicating that reductions in the interest rate are accompanied by a decline in trust in the ECB rather than by its increase. This result is opposite to the standard one (that could be expected on the basis, e.g. of the model by Bursian and Faia, 2013, cited in section two.) In the case of the aforementioned estimators, the crisis dummy variable remains strongly statistically significant, although its impact on trust in the ECB is weaker than in model 1. Combining both of these results leads to the conclusion that the trust in the ECB has suffered from both the ECB's inability to prevent the crisis (as stated in the second hypothesis) and the response to the crisis (as asserted in the third hypothesis). A combination of the statistical significance of the macroeconomic variables

(with, inflation being significant at best), if anything, supports the third hypothesis. It makes the situation where the direct negative effect of aggressive interest rate's cuts on trust in the ECB would be outweighed by an indirect positive effect stemming from a fall in unemployment less plausible. In turn, the weak statistical significance of unemployment in model 1. reduces the risk that the negative direct effect of cuts in interest rates in model 2. blurs the central bank's reaction to unemployment and the negative relationship between trust in the ECB and unemployment. This being said, one has to treat the third hypothesis with caution. The caution is all the more justified that pooled estimators as well as DK FE do not confirm the statistical significance of the policy rate effect on trust in the ECB.

The third model provides additional (and stronger) support for the third hypothesis. It helps to understand the effect of policy rate on trust in the ECB, appearing in model 2. According to this, model reductions in the policy rate are accompanied by a decline in trust in the ECB only during the periods of pessimistic expectations. Policy rate being positive and highly significant (only) during those periods, regardless of the applied estimator, supports the hypothesis developed by Schmitt-Grohé and Uribe (2012), discussed in section 2. A positive sign and strong statistical significance of consumer expectations balance, across all estimators used, are also in favor of this hypothesis. This result suggests that households could blame the ECB for the pessimistic economic outlook. It is worth remarking that statistical significance of the crisis dummy is restored in model 3. across all estimators applied. Lastly, all estimators except for DK FE point to the statistical significance of inflation as an explanatory variable for trust in the ECB with a negative sign, whereas in the case of unemployment, it remains questionable. This last result suggests that the ECB's legal mandate is broadly in line with households preferences in the Euro area. Despite the fact that the ECB has managed to keep inflation reasonably stable, increases in inflation, even if only limited and temporary, have been weakening the trust in the ECB. Several years of crisis have not deprived households of their aversion to inflation.
To sum up, our results seem to confirm all three theoretical hypotheses advanced in section two. The results suggest that the ECB is viewed by households in the Euro area as an institution responsible for the outbreak of the crisis and they perceive its responsibility to go beyond the responsibility of other European institutions. On top of that (and most importantly) the result indicate that the trust in the ECB could also suffer from the conviction of households in the Euro area that lowering the policy rate close to the ZLB was an inappropriate reaction to the crisis.

7. *Robustness check*

The tables 4. and 5. summarize the regressions estimated in order to check the robustness of our three base models. Since we treat pooled estimators only as a first approximation, we now confine to testing more reliable estimators with country effects. In model 4., we introduce net trust in national governments as a control variable instead of net trust in the European Commission. The crisis dummy variable becomes more important than in the base models. Moreover, the coefficient of the ECB rate during lack-of-confidence shock periods increases almost twice. Model 5. extends the base models by additional control variables from the Eurobarometer survey. We include, firstly, the net opinion that membership in the EU is a good thing and, secondly, the percentage of

the population that have heard about the ECB[12]. Then, the crisis dummy variable has a lower significance and the ECB rate in model 2. loses it. However, the ECB rate during periods of lack-of-confidence shock remains statistically significant. Next, we change base model 3. by using alternative definitions of the period of lack-of-confidence shock (for details see table 6. in the appendix.) In model 6., the period of lack-of-confidence shock starts when consumer expectations in a given country fall by a standard deviation below the country-specific mean. In model 7. for each country in the sample we use the same threshold of consumer expectations balance to determine the lack-of-confidence shock periods. The ECB rate remains significant at a 1% level in both models during the lack-of-confidence shock periods. Lastly, we verify whether exclusion of any country from the sample does affect main results. It does not: regardless of country excluded the ECB rate during lack-of-confidence shock in the model 8. is significant at 1% level (see table 5).

Next, we check whether our findings on the monetary policy's links with trust in the ECB are not spurious, i.e. if they do not result from e.g. endogeneity issues. The respective regressions are presented in table 7. In model 9. we modify our base regressions by treating trust in the European Commission as a dependent variable while trust in the ECB as a control variable. Neither the crisis dummy nor the ECB rate are significant at any standard level of confidence in this model. It indicates that the impact of the ECB policy and crisis outburst on trust in the ECB is not spurious. In model 10., we estimate regressions for the sample of EU countries which are not Eurozone members. Households from these countries could base their assessment of the ECB on economic performance or on the monetary policy stance in the Euro area, hence both the crisis dummy and the ECB rate could be significant in the model of their trust in the ECB. Obviously, their trust (or distrust) in the ECB can have other roots (in particular, it may reflect their general attitude toward the European institutions.) Thus, it would be easily understandable if these variables turned out to be insignificant. By contrast, the variable representing the interaction of lack-of-confidence shock periods with the ECB rate ought to be unequivocally insignificant in model 10. Consumer expectations from outside the Euro area are of no relevance neither for the ECB rate nor for its effect on the economic conditions in the Euro area. Thus, any variable combining periods of shock in these expectations with the ECB rate could hardly matter for explaining trust in the ECB. Actually, none of the aforementioned explanatory variables are significant in explaining trust in the ECB in the sample of the EU countries from outside the Euro area, which again supports the reliability of previously drawn conclusions.

All in all, our main result: that when households have pessimistic expectations, then aggressive cuts in interest rates have an adverse effect on their trust in central banks, seems to be robust not only to the choice of estimators applied (as shown in the previous section), but also to the introduction of additional control variables, to changes in the definition of lack-of-confidence shock periods and to exclusion of particular country from the sample. On top of that, the fact that the ECB rate during periods of lack-of-confidence shock is of no relevance neither for the trust of the Euro-area households' in other European institutions nor for non-Euro area households' trust in the ECB, ensures us that this result is not spurious.

[12] Adding those variables limits the number of observations for recent years. This may be a reason for some changes in the results.

8. Concluding remarks

Firstly, we do confirm results already present in literature. We find, like several papers before, that the decline of trust in the ECB after the crisis outbreak could reflect the Euro area households' conviction that the ECB is partly responsible for the crisis occurrence. Our findings also support previous results according to which the perceived fault of the ECB is not fully dependent on the blame put down by the households to other institutions.

Secondly and most importantly, we go a step further and analyse the impact of the ECB's interest rate policy on trust in the ECB during the crisis. Our main result supports the 'lack-of-confidence shock' hypothesis developed by Schmitt-Grohé and Uribe (2012) and go against the standard interpretation of the post-crisis recession and monetary policy recommendations. Namely, we find that lowering the ECB rate close to the ZLB in the situation of pessimistic consumer expectations could further undermine the trust in the ECB. To put it differently, distrust in the ECB during the crisis could partly be a product of an inappropriate cure to the crisis.

This being said, we are fully aware that the obtained results should be considered with caution – at the very least due to estimation problems typical for panel data models-based datasets with a short time dimension. These results constitute only the first, imperfect step in establishing links between the trust in central banks and its interest rate policy during crises. The next steps should follow.

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Table 1. Variable definitions and data sources

Variable	Definition	Source
ECB net trust	Difference between the share of population declaring they tend to trust in the ECB and the share declaring they tend not to trust in the ECB.	Eurobarometer
EC net trust	Difference between the share of population declaring they tend to trust in the European Commission and the share declaring they tend not to trust.	Eurobarometer
Net trust in National Government	Difference between the share of population declaring they tend to trust in the National Government and the share declaring they tend not to trust.	Eurobarometer
Membership is good (net opinion)	Difference between the share of population considering membership in the EU as a good thing and the share having an opposite opinion.	Eurobarometer
Heard of ECB	Share of population declaring they have heard about the ECB	Eurobarometer
Inflation	Annual change of harmonized index of consumer prices; monthly data	Eurostat
Unemployment	Harmonized unemployment rate, definition according to ILO; seasonally adjusted monthly data	Eurostat
Consumer expectations	Balance of consumers' opinion on the general economic situation over the next 12 months. Difference between the shares of, respectively, optimistic and pessimistic expectations; seasonally adjusted monthly data	Eurostat
ECB rate	Central bank interest rate: main refinancing operations; value at the end of the first month of corresponding Eurobarometer survey	Eurostat
ECB rate (shock)	ECB rate for the periods defined by Shock dummy	
Crisis	Dummy for years 2008-2012	
Shock	Dummy for periods of "lack-of-confidence" shock.	

Table 2. Descriptive statistics

	Full sample					No shock sample					Shock sample				
Variable	Obs.	Mean	Std. Dev.	min	max	Obs.	Mean	Std. Dev.	min	max	Obs.	Mean	Std. Dev.	min	max
Tend to trust ECB	348	51.4	11.1	16	79	218	52.9	9.5	29	76	130	48.9	12.9	16	79
Tend not to trust ECB	348	28.0	12.2	9	81	218	24.5	8.6	9	57	130	34.0	14.9	10	81
Net trust in ECB	348	23.4	21.6	-65	69	218	28.5	15.6	-28	67	130	14.8	26.9	-65	69
Net trust in European Commission	348	21.9	19.1	-57	57	218	26.4	16.0	-20	57	130	14.2	21.5	-57	53
Net trust in national government	300	-10.5	30.4	-85	61	171	-5.1	25.5	-64	59	129	-17.7	34.6	-85	61
Membership is good (net opinion)	300	46.2	18.4	1	81	209	47.0	18.2	1	81	91	44.5	18.7	5	81
Heard of ECB	336	80.3	10.6	28	98	217	78.0	11.3	28	98	119	84.3	7.9	63	97
Inflation	348	2.2	1.3	-2.8	5.9	218	2.2	1.1	-1.9	5.9	130	2.2	1.5	-2.8	5.5
Unemployment	348	8.0	3.9	1.9	27.0	218	7.4	3.0	1.9	23.0	130	9.0	4.9	2.6	27.0
Consumer expectations over next 12 months	340	-15.1	18.6	-83.7	21.7	210	-5.5	12.4	-42.4	21.7	130	-30.6	16.3	-83.7	-2.6
ECB policy rate (end of the survey's first month)	348	2.5	1.2	0.8	4.8	218	2.8	1.1	1.0	4.8	130	2.0	1.2	0.8	4.8

Table 3. Estimation results

Variable	Model 1					Model 2					Model 3				
	OLS	DK	RE	FE	DK FE	OLS	DK	RE	FE	DK FE	OLS	DK	RE	FE	DK FE
EC net trust	0.601***	0.601***	0.817***	0.835***	0.835***	0.597***	0.597***	0.809***	0.825***	0.825***	0.591***	0.591***	0.781***	0.795***	0.795***
	(0.039)	(0.076)	(0.039)	(0.04)	(0.085)	(0.039)	(0.067)	(0.039)	(0.04)	(0.069)	(0.037)	(0.059)	(0.039)	(0.04)	(0.065)
Consumer expectations	0.148***	0.148**	0.045	0.04	0.04	0.147***	0.147**	0.045	0.041	0.041**	0.244***	0.244***	0.139***	0.132***	0.132***
	(0.039)	(0.059)	(0.033)	(0.033)	(0.027)	(0.039)	(0.063)	(0.032)	(0.033)	(0.019)	(0.042)	(0.061)	(0.039)	(0.04)	(0.019)
Unemployment	-2.064***	-2.064***	-0.455**	-0.326	-0.326	-2.029***	-2.029***	-0.355	-0.242	-0.242	-1.858***	-1.858***	-0.362*	-0.263	-0.263
	(0.184)	(0.321)	(0.217)	(0.222)	(0.293)	(0.185)	(0.35)	(0.217)	(0.221)	(0.358)	(0.182)	(0.288)	(0.212)	(0.217)	(0.352)
Inflation	-1.361***	-1.361**	-0.375	-0.287	-0.287	-1.589***	-1.589***	-0.654*	-0.581	-0.581	-1.662***	-1.662***	-0.815**	-0.744**	-0.744
	(0.5)	(0.636)	(0.368)	(0.368)	(0.718)	(0.522)	(0.398)	(0.376)	(0.377)	(0.558)	(0.503)	(0.336)	(0.37)	(0.371)	(0.465)
Crisis	-3.687**	-3.687	-4.549***	-4.536***	-4.536*	-2.489	-2.489	-3.093***	-3.069***	-3.069	-5.757***	-5.757**	-4.666***	-4.567***	-4.567**
	(1.518)	(2.99)	(1.092)	(1.089)	(2.43)	(1.712)	(3.878)	(1.186)	(1.184)	(2.657)	(1.765)	(2.458)	(1.224)	(1.225)	(2.113)
ECB rate						1.01	1.01	1.338***	1.352***	1.352	-0.27	-0.27	0.605	0.652	0.652
						(0.673)	(1.298)	(0.456)	(0.455)	(1.152)	(0.693)	(0.86)	(0.482)	(0.483)	(0.803)
ECB rate (shock)											3.239***	3.239***	1.923***	1.836***	1.836***
											(0.623)	(0.205)	(0.48)	(0.482)	(0.458)
Cons	33.46***	33.46***	12.36***	10.61***	10.61**	30.76***	30.76***	8.46**	6.89**	6.89	33.10***	33.10***	11.86***	10.33***	10.334
	(2.418)	(5.16)	(4)	(2.88)	(5.482)	(3.01)	(8.083)	(4.309)	(3.11)	(7.76)	(2.933)	(5.865)	(4.351)	(3.178)	(6.54)
Total R^2	0.730	0.730	0.639	0.625	NA	0.732	0.732	0.636	0.624	NA	0.752	0.752	0.672	0.661	NA
Within R^2	NA	NA	0.810	0.810	0.810	NA	NA	0.815	0.815	0.815	NA	NA	0.823	0.823	0.823
Between R^2	NA	NA	0.383	0.352	NA	NA	NA	0.368	0.340	NA	NA	NA	0.442	0.414	NA
Pesaran's test (p value)	NA	NA	0.000	0.000	NA	NA	NA	0.000	0.000	NA	NA	NA	0.000	0.000	NA
Observations	340					340					340				

Note: The dependent variable is the net trustin the ECB. Variables definitions are reported in the Table 1. The first row of the table lists estimators used in the subsequent regressions. T-statistics are reported in parenthesis. Stars denote estimates significance at 1 (***), 5 (**) and 10 (*) percent levels.

Table 4. Robustness analysis – part I

		Model 4 Trust in national government instead of EC			Model 5 Additional control variables from Eurobarometer survey			Model 6 Shock definition: mean – std. dev.			Model 7 Universal shock, threshold (-20)		
		RE	FE	DK FE	RE	FE	DK FE	RE	FE	DK FE	RE	FE	DK FE
Model 1	Crisis	-11.261***	-11.286***	-11.286**	-2.763**	-2.48**	-2.48						
		(1.591)	(1.615)	(4.404)	(1.151)	(1.126)	(1.866)						
Model 2	Crisis	-8.514***	-8.536***	-8.536	-3.001**	-1.986*	-1.986						
		(1.724)	(1.745)	(5.276)	(1.306)	(1.157)	(1.868)						
	ECB rate	2.7***	2.733***	2.733	0.729	0.755*	0.755						
		(0.729)	(0.737)	(2.1)	(0.491)	(0.433)	(1.016)						
Model 3	Crisis	-11.006***	-10.981***	-10.981***	-4.921***	-3.483***	-3.483**	-4.169***	-4.111***	-4.111	-4.013***	-3.97***	-3.97*
		(1.737)	(1.75)	(3.906)	(1.307)	(1.201)	(1.677)	(1.203)	(1.206)	(2.605)	(1.201)	(1.19)	(2.291)
	ECB rate	0.997	1.002	1.002	-0.025	0.207	0.207	0.926**	0.95**	0.95	0.777	0.81*	0.81
		(0.783)	(0.792)	(1.452)	(0.491)	(0.448)	(0.68)	(0.463)	(0.464)	(1.034)	(0.477)	(0.472)	(0.987)
	ECB rate (shock)	3.601***	3.651***	3.651***	2.324***	1.669***	1.669**	1.844***	1.787***	1.787***	1.671***	1.639***	1.639***
		(0.736)	(0.748)	(0.772)	(0.478)	(0.453)	(0.641)	(0.529)	(0.532)	(0.485)	(0.462)	(0.458)	(0.36)
	Observations	295			281			340			340		

Note: The dependent variable is the net trust in the ECB. Variables definitions are reported in the Table 1. The first row of the table lists estimators used in the subsequent regressions. T-statistics are reported in parenthesis. Stars denote estimates significance at 1 (***), 5 (**) and 10 (*) percent levels. In all above models consumer expectations, unemployment and inflation are used as explanatory variables. Results for these variables are not presented but are available upon request. In Model 4. there is net trust in national government as an additional control variable. Model 5. contains net trust in the European Commission, net opinion that membership in EU is good and heard of ECB as control variables. Models 6. and 7. differ from Model 3. only by modified definition of lack-of-confidence shock.

Table 5. Robustness analysis – part II

Excluded country	Crisis			ECB rate			ECB rate (shock)		
	RE	FE	DK FE	RE	FE	DK FE	RE	FE	DK FE
Belgium	-4.185***	-4.074***	-4.074*	0.724	0.784	0.784	1.756***	1.648***	1.648***
	(1.307)	(1.306)	(2.227)	(0.507)	(0.506)	(0.74)	(0.503)	(0.504)	(0.488)
Germany	-3.778***	-3.753***	-3.753**	0.221	0.26	0.26	1.815***	1.764***	1.764***
	(1.265)	(1.271)	(1.789)	(0.492)	(0.495)	(0.64)	(0.494)	(0.498)	(0.555)
Ireland	-4.527***	-4.387***	-4.387**	0.514	0.579	0.579	2.075***	1.972***	1.972***
	(1.269)	(1.269)	(2.005)	(0.501)	(0.501)	(0.822)	(0.509)	(0.511)	(0.54)
Greece	-4.2***	-4.133***	-4.133*	0.853*	0.884*	0.884	2.031***	1.977***	1.977***
	(1.276)	(1.282)	(2.14)	(0.513)	(0.515)	(0.845)	(0.504)	(0.508)	(0.46)
Spain	-5.073***	-4.98***	-4.98**	0.721	0.76	0.76	1.687***	1.625***	1.625***
	(1.294)	(1.301)	(2.313)	(0.507)	(0.51)	(0.864)	(0.497)	(0.501)	(0.418)
France	-5.013***	-4.887***	-4.887**	0.595	0.644	0.644	1.908***	1.803***	1.803***
	(1.296)	(1.297)	(2.22)	(0.518)	(0.519)	(0.9)	(0.507)	(0.51)	(0.455)
Italy	-4.953***	-4.887***	-4.887**	0.661	0.708	0.708	1.964***	1.877***	1.877***
	(1.28)	(1.285)	(2.28)	(0.513)	(0.515)	(0.932)	(0.511)	(0.515)	(0.482)
Luxemburg	-4.774***	-4.66***	-4.66**	0.58	0.622	0.622	1.948***	1.854***	1.854***
	(1.308)	(1.309)	(2.063)	(0.515)	(0.515)	(0.756)	(0.503)	(0.505)	(0.513)
Netherlands	-3.715***	-3.623***	-3.623*	0.302	0.327	0.327	1.793***	1.722***	1.722***
	(1.201)	(1.207)	(2.042)	(0.458)	(0.46)	(0.671)	(0.47)	(0.474)	(0.342)
Austria	-5.226***	-5.17***	-5.17**	0.757	0.797	0.797	1.802***	1.73***	1.73***
	(1.28)	(1.282)	(2.208)	(0.508)	(0.509)	(0.858)	(0.503)	(0.505)	(0.498)
Portugal	-4.381***	-4.244***	-4.244*	0.724	0.785	0.785	2.026***	1.897***	1.897***
	(1.304)	(1.298)	(2.212)	(0.518)	(0.516)	(0.911)	(0.519)	(0.519)	(0.461)
Finland	-5.86***	-5.675***	-5.675**	0.649	0.715	0.715	2.201***	2.097***	2.097***
	(1.259)	(1.25)	(2.077)	(0.484)	(0.48)	(0.695)	(0.491)	(0.49)	(0.388)

Note: The dependent variable is the net trust in the ECB. Variables definitions are reported in the Table 1. The first row indicates particular variable from Model 3. The second row of the table lists estimators used in the subsequent regressions. T-statistics are reported in parenthesis. Stars denote estimates significance at 1 (***), 5 (**) and 10 (*) percent levels. In all above models consumer expectations, unemployment and inflation are used as explanatory variables. Results for these variables are not presented but are available upon request.

Table 6. Identification of shock periods for EU-12 countries

	Mean of consumer expectations balance	Std. dev. of consumer expectations balance	Threshold of shock, base definition*	Number of shock periods*	Threshold of shock, alternative definition**	Number of shock periods**	Number of shock periods, universal threshold***
Belgium	-5.1	10.7	-10.5	12	-15.9	11	5
Germany	-11.1	14.1	-18.2	13	-25.2	10	7
Ireland	-14.3	16.6	-22.6	13	-30.9	12	11
Greece	-32.4	24.6	-44.7	9	-57.0	9	20
Spain	-11.8	12.8	-18.2	9	-24.6	8	7
France	-19.3	12.2	-25.4	13	-31.4	7	14
Italy	-13.1	10.5	-18.3	10	-23.5	7	6
Luxembourg	-12.2	12.2	-18.3	11	-24.4	9	10
Netherlands	-11.2	18.1	-20.3	12	-29.4	9	11
Austria	-4.6	12.6	-10.9	9	-17.2	7	5
Portugal	-34.2	17.2	-42.8	11	-51.4	7	23
Finland	1.2	11.5	-4.5	8	-10.3	7	2

Identification of lack-of-confidence shock periods is based on time series of monthly data for period 1999-2012
*threshold of shock = mean value – 0.5*std. dev.
**threshold = mean – std. dev.
*** period is classified as shock, if value of consumer expectations balance is below (-20)

Table 7. Robustness analysis – part III

		Model 9			Model 10		
		RE	FE	DK FE	RE	FE	DK FE
(1)	Crisis	-0.989 (1.018)	-0.867 (1.014)	-0.867 (1.495)	-1.201 (0.95)	-0.924 (0.933)	-0.924 (1.162)
(2)	Crisis	-1.475 (1.102)	-1.375 (1.096)	-1.375 (1.385)	-1.282 (1.047)	-0.807 (1.007)	-0.807 (1.16)
	ECB rate	-0.489 (0.426)	-0.514 (0.423)	-0.514 (0.345)	0.057 (0.435)	0.131 (0.418)	0.131 (0.795)
(3)	Crisis	-1.198 (1.175)	-1.165 (1.172)	-1.165 (1.408)	-1.484 (1.051)	-0.881 (1.021)	-0.881 (1.202)
	ECB rate	-0.391 (0.454)	-0.431 (0.453)	-0.431 (0.304)	-0.208 (0.466)	0.045 (0.454)	0.045 (0.77)
	ECB rate (shock)	-0.291 (0.462)	-0.235 (0.462)	-0.235 (0.26)	0.639 (0.419)	0.201 (0.414)	0.201 (0.251)
	Observations	340			203		

Note: The dependent variable in Model 9. is the net trust in the European Commission, while the net trust in the ECB becomes explanatory variable. Model 10. is Model 5. estimated on the data for EU 27 countries which are not Eurozone members. Variables definitions are reported in the Table 1. In both above models consumer expectations, unemployment, inflation, net opinion that membership in EU is good and heard of ECB variable are used as explanatory variables. Results for these variables are not presented but are available upon request. The first row of the table lists estimators used in the subsequent regressions. T-statistics are reported in parenthesis. Stars denote estimates significance at 1 (***), 5 (**) and 10 (*) percent levels.

Figure 1. Net trust in the European Central Bank and the European Commission, an unweighted average for Eurozone 12

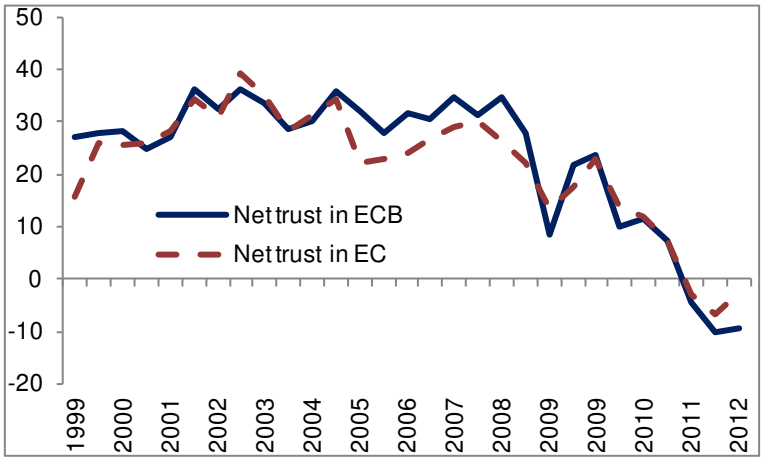

Figure 2. Consumer expectations balance, periods of lack-of-confidence shock distinguished

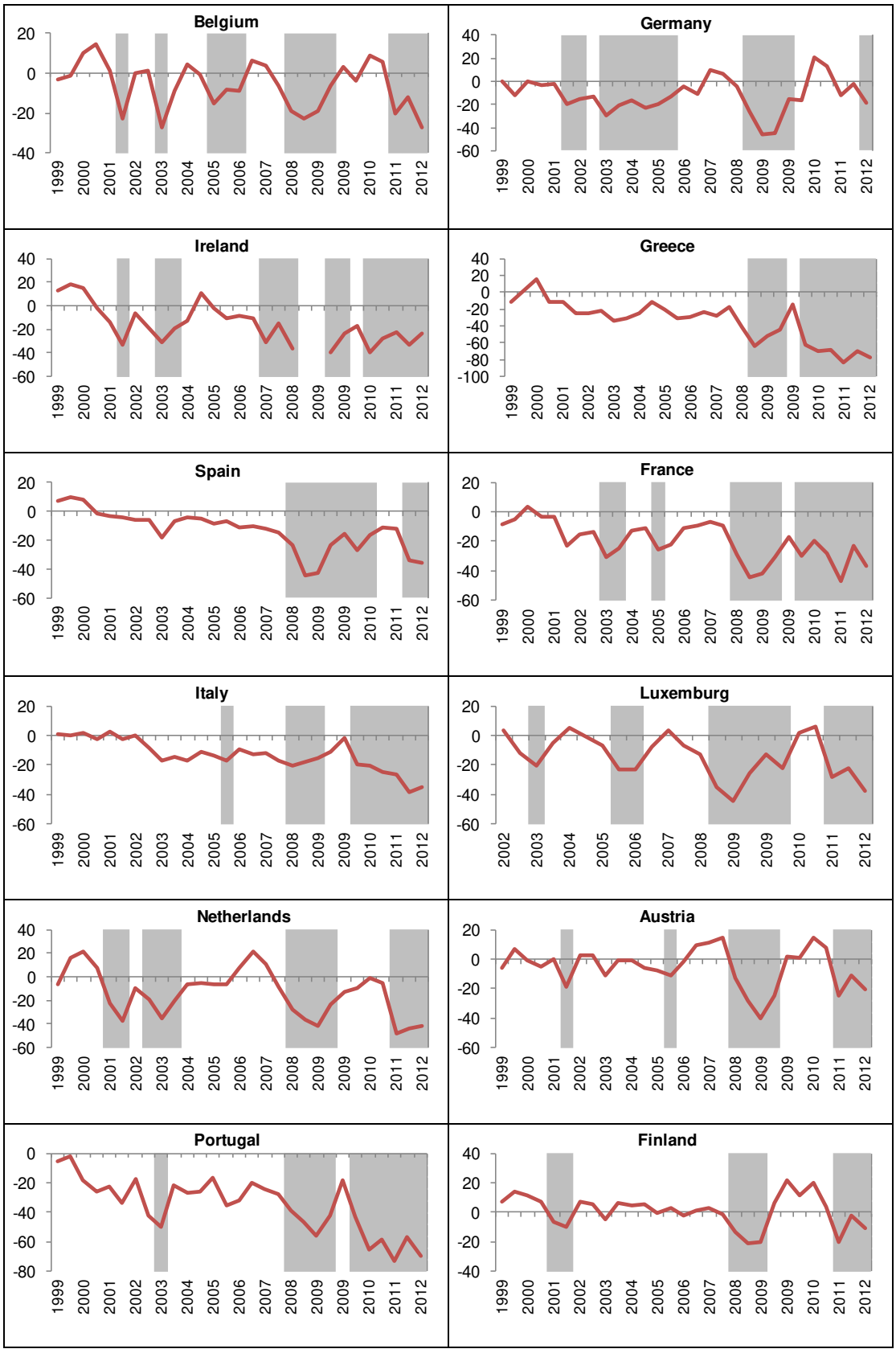

Figure 3. Net trust in the ECB, periods of lack-of-confidence shock distinguished