Credibility of fiscal policy and politics: an empirical assessment

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Abstract: *In this paper we address the measurement and the analysis of credibility in fiscal policy. In many instances fiscal policy as conducted by governments is not perceived as credible, because the targets set forward by the government are often not met. Usually the divergence is on the negative side. Taxes are overestimated and spending is underestimated, leading to a deficit bias and growing indebtedness of governments. This paper focuses on a measure of credibility that builds on the deviations of the actual budget balances from the projections about these balances in the preceding year for 26 EU member states over the period 1999-2009.[1] The objective is to extract from these data insights into the credibility of these governments' fiscal policies and to explain credibility by a number of political determinants.*

JEL-codes : H3, H6
Keywords : fiscal policies, credibility

1. Introduction

As the recent problems of countries like Greece, Portugal, Ireland, Italy and Spain in containing the deficit and the growth of public debt show, a lack of credibility in the eyes of the financial markets can lead to a domino effect which can also infect other countries and which even can put a major currency under speculative pressure. The crisis in the euro zone thus put the credibility question of fiscal policies to the

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[1] In November 2009, it was revealed that Greece had manipulated its balance sheets prior in order to hide its debt. Therefore we have removed the figures of Greece from our dataset. Our analyses will contain data of the 26 EU remaining member states.

foreground. The new Directive on requirements for budgetary frameworks of the Member States included in the "Six Pack" that was recently adopted by the European Parliament and the Council refers to the credibility question too. Budgetary forecasts for fiscal planning will be subject to ex post evaluation of which the result shall be made public and taken into account appropriately in future budgetary forecasts.

In this paper we analyse the concept of credibility in general and provide an overview of the literature about credibility of fiscal policies. This paper looks at the divergences between the actual government budget balances of the EU member states and what these governments' targets were for the balance. First, we use these data to construct indicators for the credibility of fiscal policies and derive some insights into credibility from these indicators. Second, we expand the analysis with an econometric model to discover the driving forces of the divergence between the actual and projected budget balances. The focus of that extended analysis will be on political determinants.

2. Credibility in general

As the following examples show, credibility is a crucial factor of any government policy. A government may announce a final regularisation of illegal asylum seekers but looses credibility if it subsequently announces another regularisation. The next influx of asylum seekers may be the result. The same is true for a government announcing a final tax amnesty in order to encourage re-imports of capital followed by the announcement of another amnesty program. The first program will not attain its objective and the credibility of the policy will be undermined. As a result capital will continue to avoid taxes. The monetary policy of another government may attempt to fight against inflation in the aftermath of elections, still if the government forgets about its intentions when the next election draws nearer, it will lose its credibility. Consequently, economic actors may base their decisions on high inflation expectations. Finally, in regulatory policy a government setting rules to attract investors in some network industry, can drive investors out by changing the rules and so hurting those investors. Lack of credibility will be the cause of suboptimal investment.

The World Bank (2005; 66) suggests that budget credibility improves the allocation of resources. A lack of credibility in the budget may lead to short-falls in the funding of priority expenditures. In fiscal policy, credibility is thus equally important. Announcing a target for spending, taxing, balance or debt and then ending up somewhere else will influence the behaviour of the actors that receive government funds, pay taxes, hold government bonds,… They will act in accordance with the real

conduct of policy in terms of saving, spending, producing, instead of with the announced targets. A specific aspect of this question is when investors lose their belief in the creditworthiness of governments that systematically fail to reach their deficit targets and accumulate unforeseen debt that probably cannot be repaid in the future.

The problem of credibility of government policy has been framed as the problem of time inconsistency by Kydland & Prescott (1977). Doing something at t_1 that differs from what the government announced at t_0 about its plans for t_1 is the root of the problem. Leaning towards rules instead of towards discretion was the obvious solution to this problem. This means that a government has to abstain from discretionary decision making and has to govern by rules that are fixed a priori and are clear to the public. A further step is to hand over policy making to institutions that can operate independently, at arm's length, from elected politicians. Independent central banks and regulators were, consequently, set up at the speed of light during the last decennia all over the world.

Recall that the central idea behind all this was credibility, or the lack of it. Credibility is the capacity for inspiring belief. A credible policy is a policy worthy of being accepted as true or reasonable. A government is credible when agents believe it will fulfil it promises (Naert, 2011). Notwithstanding the central place of credibility, there have not been many attempts to measure credibility directly. It is crucial but it is usually set aside to focus on rules and independence (see Beetsma *et al.*, 2010 for an example).

The input for the paper comes from the Stability and Convergence Programmes that European Union member states have to submit yearly to the European Commission. In these programmes member states have to lay down a path of future budget balances for the next 3 to 5 years next to a historical record for evaluation. Ex-post these targets can be compared with the actual budget balances and the difference between these two figures reveals information about the crucial aspect of credibility: the degree to which an announced policy has actually been carried out. Indeed, a lack of credibility increases the likelihood of overshooting the deficit target that may arise from e.g. over-optimistic revenue forecasts, under-budgeting of non-discretionary expenditures, non-compliance in budget execution,... (World Bank, 2005).

The ambition of this paper is twofold. First, we will quantify credibility and extract information on its evolution and the relative position of governments. This qualification is restricted to a descriptive and graphical approach. Second, we will run some regressions that explain the level of credibility of EU member states.

3. Credibility in the literature

Definitions of credibility in the literature are scarce. According to Baxter (1985) "credibility is defined to be the subjective probability, as assessed by agents in the economy, that a reform has in fact taken place." Hauner *et al.* (2007) have it that "standard models of policy credibility (Drazen & Masson, 1994; Dornbusch, 1991) define it as the expectation that an announced policy will be carried out". Usually the concept of credibility further remains unquantified. Jacobs (2010) e.g. starts from the time inconsistency approach of Kydland & Prescott (1977), but subsequently turns to anecdotal proof for explaining what is credible and incredible policy. In the same vein IMF (2010) regularly mentions 'credibility' but never defines nor quantifies it. According to Tavares (2004) credibility means the persistence, the success of fiscal adjustments.

Next to the literature on credibility, the literature on the track record of the Stability and Convergence Programmes is relevant for this paper. Different papers focus on the accuracy of deficit projections. Artis & Marcellino (2001) analyse the relative performance of some EU member states in forecasting the government deficit as a ratio to GDP. Poplawski-Ribeiro & Rülke (2010) focus on the forecasting abilities of financial market experts on fiscal policies and the impact on these abilities of the introduction of the Stability and Growth Pact (SGP) to introduce their definition of credibility, i.e. the convergence of the forecasts on budget balances by financial experts and by governments (Commission and member states). The accuracy of the data in the Stability and Convergence Programmes is also the subject of the papers by Annett (2006), Beetsma *et al.* (2009), Brück & Stephan (2006), Pina & Venes (2011), Strauch *et al.* (2004) and Van Meensel & Dury (2008).[2] Annett (2006) studied forecast errors under stability programs for the period 1999-2004 for 12 EU member states. Beetsma *et al.* (2009) explore the factors determining fiscal policy in 14 EU countries in its different fiscal policy making stages over the period 1998-2007. Brück & Stephan (2006) assess the political, electoral and institutional determinants of the quality of the budget deficit forecasts for euro zone countries before and after the introduction of the SGP. Pina & Venes (2011) compare the balance forecasts over the period 1994-2007 prepared by the 15 countries belonging to the EU before the 2004 enlargement in their Excessive Deficit Procedure reportings with the actual balances. For the 15 old member states Van Meensel & Dury (2008) report, without much further comment, the average difference between the actual budget balance of

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[2] Also the EC includes since a couple of years in it's assessment of national programmes a graph confronting the objectives and the actual balances, without further comments.

governments in one year in % of GDP and the projection of the balance for this year in the previous year. Strauch *et al.* (2004) work with the data from the Stability and Convergence Programmes over the period 1991-2002 from a forecasting perspective on growth and the budget balance. They use descriptive statistics to assess the quality of forecasts and to explain the qualitative differences in forecasts and is related to the work of Keereman (1999) and Jonung & Larch (2006). Strauch *et al.* (2004) firstly focus on the variance of forecast biases. Cautious as well as optimistic biases are found in different countries. Furthermore governments do not seem to use the available information efficiently to minimise the forecast errors of their projections. Their second exercise points at the cyclical position of the economy and the form of fiscal governance as the important determinants for the quality of forecasts. Our paper fits closely into the first part of the Strauch *et al.* (2004) approach and into the recent work of Pina & Venes (2011). The differences are threefold. The data we use cover all EU member states (except for Greece, see footnote 1). Secondly we cover larger time periods: the period 1999-2009 for the 'old' member states, the period 2004-2009 for the 10 member states that joined in May 2004 and 2007-2009 for Romania and Bulgaria. The third distinction is that the focus in our paper is not on forecasting quality but on the credibility aspect of the budgetary plans made in the country programmes. Pina & Venes (2011) also use EDP data which are less useful for explaining credibility since EDP forecasts are made (twice) in the current year.

4. Credibility and projection of budget balances

According to the definition of credibility put forward by Baxter (1985) and Hauner *et al.* (2007), credibility is the idea living in the minds of market agents about how close the results of a policy will be to the announced policy. This idea is formed at a point in time when only the information on the announced policy is available, while the results of the policy are situated in the future. The comparison of the fiscal policy plans that governments of member states put forward in their Stability and Convergence Programmes and the actual budget balances can therefore teach us something about the credibility of their fiscal policy. The focus of this paper will be on the difference between the actual budget balance and the planned budget balance. This is in line with the idea of the World Bank (2005; 2) that states that a budget is credible if "it is realistic and implemented as intended".

A matter of discussion is the meaning and the intention of the projections in Stability and Convergence Programmes. As Strauch *et al.* (2004) put it "the objective of this paper raises the issue as to whether the projections in programmes are intended to be unconditional forecasts or rather the announcement of a political target". In the case

that programme projections are interpreted solely as forecasts two other assumptions can be made. The first assumption is that the projection is the result of a purely a-political statistical exercise. In that case deviations from the projection are also a-political in nature and the causes should be searched in factors such as the business cycle or economic shocks. As a consequence the concept of credibility is not involved here. In the second assumption one can suspect the authors to manipulate their projections for political reasons. Indeed, governments may use optimistic projections strategically and as Jonung & Larch (2006) show, these optimistic forecasts have systematically affected the budgetary position of the EU member states. Such optimism gives another meaning to deviations from programme projections. Besides being the result of shocks or the business cycle, they thus can be political in nature and can offer an alibi for avoiding politically risky and costly reforms. Credibility thus is involved here, in a sense that the projection is unrealistic and as a consequence policy must fail to meet the projection.

Credibility is also involved when the projection is clearly stated as a political target that the government vows to pursue. In a strict sense a deviation from the target can always be avoided by government, since even severe adverse shocks with negative effects on the budget balance can always be countered by a change in budgetary policy. This rather theoretical situation can however act as the yardstick for perfect credibility of fiscal policy, i.e. a situation in which there is no deviation between target and actual balance. In this paper we assume that budgetary projections have to be regarded as the announcements of a political target, deviations from which affect the credibility of fiscal policy.

5. The statistics

Assessing the quality of targeting can be done using a multitude of techniques. Firstly a qualitative indication of targeting accuracy can be given by presenting some descriptive statistics and by applying a graphical analysis. This method has the advantage of being straightforward; still it does not permit to test the statistical significance of the results.

5.1 The data

Analogously to Annett (2006), Beetsma *et al.* (2009), Moulin & Wierts (2006), Strauch *et al.* (2004) and Von Hagen (2010) we extract the data from the Stability or Convergence Programmes that EU-members put down before the European Union. Our dataset consists of data for the period 1999-2009. All over there were 231 such

programmes submitted to the EU (including Greece). The 'old' member states submitted 11, the member states that acceded in 2004 submitted 6 and Bulgaria and Romania each 3.

The year t targeting error of EU member i ($E_{i,t}$) is the difference between its actual budget balance in year t ($A_{i,t}$) in % of GDP , and its planned budget balance for year t in t-1 ($P_{i,t}$). The targeting error $E_{i,t}$ is the simplest way of measuring credibility and is calculated as:

$$E_{i,t} = A_{i,t} - P_{i,t}$$

$P_{i,t}$ is the most recent target of the budget balance of the following fiscal year t. Nevertheless, for each programme governments made projections and forecasts for on average 4 years. These data can be used to calculate the mean error (ME) between planned and actual budget balance. For each country the average difference was calculated between the actual outcome for that year and the several targets or projections, or thus ;

$$ME = \frac{1}{N} \sum_{t=1}^{N} E_{i,t}$$

The mean error (ME) provides information on the difference between the actual outcome and the average forecasts or projections. ME gives only a first impression of the quality of the different forecasts as positive and negative errors can offset each other. The size of the error thus is reduced. To tackle this, one can calculate the mean absolute error (MAE). The MAE measures the average magnitude of the errors of the forecasts, without considering their direction. MAE is calculated as following :

$$MAE = \frac{1}{N} \sum_{t=1}^{N} |E_{i,t}|$$

Finally, we calculate the root mean squared errors (RMSE) to capture that large differences between forecasts and outcomes are more harmful than small errors. RMSE penalises large mistakes more than MAE. RMSE has the same dimension as MAE, yet the larger the standard deviation of the differences, the more the RMSE will be above the MAE. Comparing both figures allows interpreting the relative size of the error. A strong difference between MAE and RMSE suggests large errors in certain years. RSME is calculated as following :

$$RSME = \sqrt{\frac{1}{N}\sum_{t=1}^{N}E_{i,t}^{2}}$$

We consider E and ME as our primary indicators of credibility since they give us the more direct information on how well the budgetary targets are achieved. MAE and RSME are secondary measures as they give additional information as regarding the direction and size of the deviations from the targets. The values of the primary indicators reveal information on credibility in the sense that the further away from zero the less credibility is involved. The primary indicators become more relevant in a relative sense, i.e. when comparisons are made over time and between countries.

5.2 General results

Following standard practice in the forecast evaluation literature, Table 1 presents the essential information on the size of the targeting mistake by providing error (E), mean error (ME), mean absolute error (MEA) and root mean squared error (RSME) of the budget balance. Irrespective of the size of the errors, targeting mistakes should be unbiased. They should not be systematically too optimistic or too pessimistic, implying that positive and negative errors should offset out each other on average. Yet, for all 26 countries taken together the budget balance turned out to be on average 0,31% of GDP worse than projected in the previous year (E), thus meaning that governments on average do overestimate the budget balance for the next year. When comparing E and ME, which stands at 2,00, we see as expected that the error increases with the years the forecasts are made in advance.

Table 1   E, ME, MAE & RSME of the budget balance forecast error (26 EU members, 1999-2009)

E	-0,31
ME	-0,70
MAE	2,00
RSME	2,88

The value of MAE is 2,00 % of GDP, pointing at the fact that the deviations from the target are not restricted to negatives only. Indeed an absolute deviation of 2,00 % seems to be quite considerable. Given a RSME of 2,88 the deviations seem to be of a rather equal magnitude revealing that the other measures do not result from a combination of a few large deviations and a lot of small ones.

5.3 Evolution over time

If we look at the evolution of the deviations of actual balances (E and ME) from the projections and forecasts over the period 1999-2009 (Figure 1) we see that the average overestimation of the budget balance is mostly due to the crisis years 2008 and 2009. In six out of eleven years the E-indicator shows a positive sign however. The ME-indicator scores worse with seven negative outcomes. About a decade ago, the European Commission (2002) stated a divergence between budgetary commitments taken by member states in their Stability and Convergence Programme and their actual implementation. Our recent figures thus show that the evidence since then is mixed. Figure 1 moreover indicates a strong correlation between the credibility measures and real GDP growth. When growth accelerates (slows down) credibility improves (worsens). This acceleration is usually not fully forecasted by governments, leading to a better than targeted budget balance. A slowing down of growth is equally not foreseen by governments making their actual budget balances seem worse than the targeted balances.

Figure 1   Evolution of E, ME & real gdp growth (26 EU members, 1999-2009)
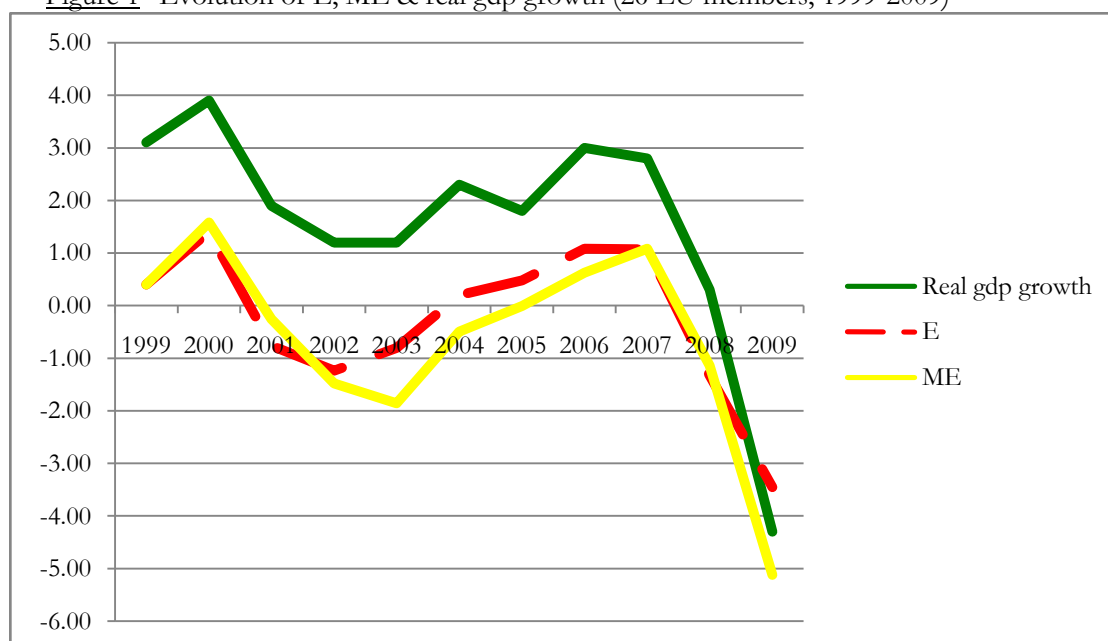
5.4 Average results per country

In Table 2 and Figure 2 we find the results per EU member state. These results vary between an E of -2,9% of GDP in Bulgaria and an E of +1,9% of GDP in Luxembourg. The budget balance of Bulgaria thus situates itself on average 2,9% of GDP below the projections that the Bulgarian government made in the preceding year. The MAE indicates that this deviation is the result of a systematic

overestimation of the budget (in the sense that a projection of -1% is an overestimation of 2% if the actual budget balance ends up at -3%). The Bulgarian government thus is underachieving compared to the objectives it set for itself in the previous year. Put in another way, the Bulgarian government does not exhibit a lot of credibility as concerns its fiscal policy. The other extreme is Luxembourg. The budget balance in Luxembourg was on average 1,9% of GDP better that planned. The question then is what this means for credibility. Credibility is the extent to which a government does what it had previously said it would be doing. Is this a symmetric concept? Does fiscal policy become less credible when the results of the policy are better than projected? In our view this is an unsustainable premise. Governments that do better than planned do not as a consequence suffer from a drop of credibility. It could be tempting to anchor credibility around the 0% benchmark. However, we prefer to work with a full linear measure: the higher the figure the higher the credibility.

Proceeding on this route we identify a gap of 0,8% between Bulgaria and the second worst scoring country Romania. This country scores an E of -2,1% . A third group of countries have scores that range between -1,2% and -0,7% : Poland, Portugal, Lithuania, Latvia, Spain, Italy, Hungary, Malta and France. The next range is between -0,5% and -0,3% with countries such as the UK, Belgium, Austria, Ireland, the Netherlands and Sweden. Denmark, Slovenia, Germany, Estonia, Cyprus and Finland find themselves in a range of +0,1% to +0,4%. The Czech Republic scores very well with +0,7% and finally Luxembourg is at +1,9%.

Table 2   Average results per country (1999-2009)

|	E	ME	MAE	RSME
Austria	-0,3	-0,6	1,0	1,7
Belgium	-0,5	-0,9	1,3	2,2
Bulgaria	-2,9	-2,5	2,8	5,1
Cyprus	0,4	0,5	2,4	3,7
Czech Republic	0,7	0,7	1,8	2,2
Denmark	0,1	-0,1	1,9	2,4
Estonia	0,3	0,3	2,1	2,5
Finland	0,4	0,4	1,9	2,5
France	-0,7	-1,5	1,6	2,6
Germany	0,2	-0,5	1,8	2,2
Hungary	-0,8	-1,9	2,4	2,7
Ireland	-0,3	-0,9	3,5	5,0
Italy	-0,8	-1,6	1,9	2,4
Latvia	-0,9	-1,2	2,9	4,4
Lithuania	-1,0	-1,1	2,7	4,0
Luxembourg	1,9	1,5	2,4	2,8
Malta	-0,8	-1,1	1,5	2,2

Netherlands	-0,3	-0,3	2,0	2,5
Poland	-1,2	-1,3	1,5	2,6
Portugal	-1,1	-2,2	2,3	3,2
Romania	-2,1	-2,7	2,8	4,2
Slovakia	-0,3	-0,6	1,5	2,5
Slovenia	0,1	-0,4	1,1	1,9
Spain	-0,9	-1,1	1,9	3,4
Sweden	-0,3	-0,2	1,9	2,3
United Kingdom	-0,5	-1,4	2,2	2,9
EU-26	-0,3	-0,7	2,0	2,9
EU-14	-0,2	-0,7	2,0	2,8
EU-10	-0,3	-0,6	2,0	3,0
EU-2	-2,5	-2,6	2,8	4,7
Eurozone	-0,2	-0,6	1,9	2,8
Non-eurozone	-0,8	-0,8	2,2	3,0

There is a difference between the deviations in the eurozone group (-0,2% of GDP) en de non-eurozone group (-0,8% of GDP). The 10 member states (-0,3%) that joined in 2004 score the same as the older member states (-0,2%). The 2 new member states since 2007 are scoring significantly worse (-2,5%) than the other members.

When looking also at MAE and RSME we see that the two countries at the bad end of the E-ranking are now joined by Ireland and Latvia. The bad MAE score of Ireland strongly deviates from the E-indicator, pointing at strong deviations, influenced by an exceptional year 2009 as shown by the high RSME.

For the countries that score an ME around 0 (Denmark, Slovenia, Germany, Estonia, Cyprus and Finland) it stands out that this good score coincides with an MAE that strongly deviates from E (except for Slovenia), pointing at symmetry in the deviations. Only for Cyprus do exceptional circumstances seem to be important (high RSME).

Figure 2 A measure of credibility of fiscal policies in the EU (26 EU members, 1999-2009)
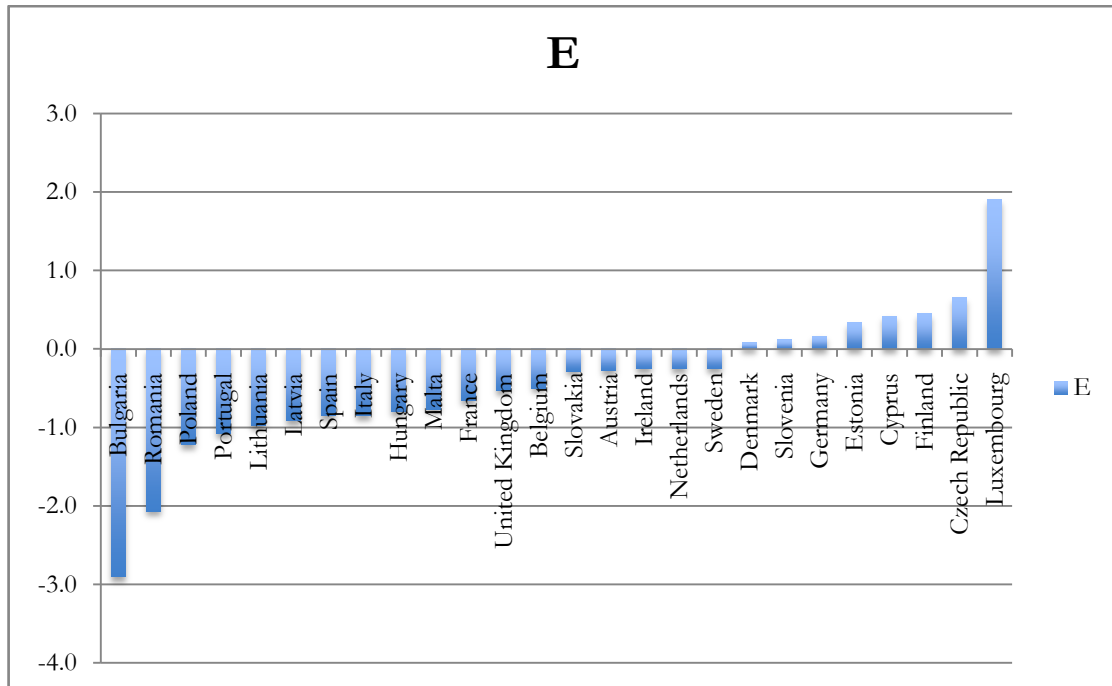
What does the observation of MAE and MRSE mean for the credibility question? Two countries can have the same ME, but in the one case this can be result of a history of low deviations combined with some outliers, while in the other case the same ME can result from systematic high deviations. It seems to us that exceptional circumstances erode credibility less than a systematic failure in reaching preset targets.

6. Explaining differences in credibility

The first aim of this paper is to characterize and to measure credibility in fiscal policy. We provided above a first assessment of the level of credibility of the EU member states. It is clear from this first analyses that there is strong variation of biases across EU member states. The second step is to explain these cross country differences in credibility.

First, the fact whether or not the announced policy is carried out may reflect the government's ability and willingness to make adequate assessments of their future fiscal policy. There is a literature that points to the influence of the technical aspects of the budgeting process and explores the effect of, for example, using 'expert' judgements rather than more advanced econometric techniques to make forecasts (Bretschneider *et al.*, 1989 or Voorhees, 2004), of the level of politicians' risk aversion when faced with uncertainty in the forecasting process (Rubin, 1987) or of the role of

independent fiscal agencies could be assessed (Jonung & Larch, 2006). Second, the economic environment may have an impact whether or not the government succeeds in carrying out its projected policy (Strauch *et al.*, 2004). Figure 1 shows that the business cycle fundamentally affects the divergences between projected and effective results. But even after discounting for technical aspects and for the business cycle, budgetary policy may still struggle with credibility. In fact, also political-institutional characteristics of the governments may affect (or incite) the policy's credibility. Indeed, critics of the SGP point to its weak mechanisms to prevent politically-motivated policies (Buti & Van den Noord, 2003). E.g. Tavares (2004) describes credibility as the persistence, the success of fiscal adjustments and then analyses the factors that determine this success. He finds proof for the thesis that leftist governments are more credible when they reduce spending and rightist when they raise taxes. So the ideological stance of governments should be taken into account, as well as the political fragmentation of the government. Goeminne *et al.* (2008) find that the level of tax revenues pocketed by a government during the fiscal year often deviates from that projected by this government in its budget. When explaining the degree of deviation, they find that it is affected by the level of political fragmentation. Also the effect of elections may not be underestimated. When elections come near, uncertain incumbents in particular will try to attract votes to guarantee their re-election. Therefore it would not be surprising if fiscal policy is electorally manipulated by means of biased projections, as the theory of the electoral budget cycles suggest. Also Beetsma *et al.* (2009), Brück & Stephan (2006) and Pina & Venes (2011) point to politico-institutional determinants of fiscal forecasts. In the next section we test possible political reasons that may explain the level of credibility. Therefore we will run regressions that explain credibility by a number of political variables, supplemented with a number of control variables.

7. The model

The most natural way to assess econometrically the impact of politics on credibility is to introduce a number of political variables into a model of fiscal behaviour and check whether the estimated coefficients are both quantitatively meaningful and statistically significant. We thus run a regression that explains credibility by a number of political variables, while economic and institutional determinants will be added as control variables.

We formulate the following regression model for credibility :

$$E_{i,t} = \alpha_0 + \alpha_1\,POL_{i,t-1} + \alpha_2\,ECON_{i,t} + \alpha_3\,INSTITUT_{i,t} + \alpha_4\,CRISIS_t + \alpha_5\,MEMBERS_i + v_t$$

were v_t is the error term.

The dependent variable $E_{i,t}$ thus is the difference between the actual budget balance in year t ($A_{i,t}$) and the planned budget balance for year t in t-1 ($P_{i,t}$) and is analogously defined as the dependent variable in Annet (2006) and Pina & Venes (2011).[3] Both $A_{i,t}$ and $P_{i,t}$ are expressed in % of GDP. Positive values of $E_{i,t}$ mean a better than projected policy execution, yielding a higher surplus or a lower deficit. Negative values indicate that governments achieved a result that was worse than projected, or that forecasts were optimistic, that is an underestimation of the deficit or an overestimation of the surplus. Figure 1 demonstrated that E and ME follow similar trends. Indeed, there is a strong correlation of 0,92 between E and ME. Yet we choose E above ME as the dependent variable for credibility. The latter takes into account projections that may have lost value because e.g. the government was changed, the economic situation has turned suddenly or institutional parameters have been changed since the first projections were made. In explaining $E_{i,t}$ we use the data that are as close as possible to the information sets of the policy-makers when they form their plans and when they implement their actual policies. We thus explain the difference between the actual budget balance and the targeted budget balance when preparing the final budget. The importance of the budget is stressed by OECD (2002) when they state that the budget is the single most important policy document of governments, where policy objectives are reconciled and implemented in concrete terms. Indeed, in the budget, the government, given its characteristics and known circumstances, formulates its final projection. In that senses, only the difference between the final outturn and the final forecast can be used to explain the credibility of a government.

POL groups the political variables that are retrieved from the Armingeon *et al.* (2011) Comparative Political Data Set III 1990-2009. This is a collection of political and institutional data which consists of annual data for EU-member countries for the period 1990-2009. First, the ideological position of the government may explain differences in credibility. Hibbs (1977), and subsequently Tufte (1978), introduced the idea that ideological differences may play an important role in shaping policy. The left-right position of a government thus could affect credibility. Brück & Stephan

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[3] Beetsma *et al.* (2009) and Brück & Stephan (2006) construct their forecast error as the predicted value minus the actual value.

(2006) hypothesise that leftist governments pursue employment at the expense of price stability. The opposite is expected for rightist governments. A leftist government may be too optimistic about employment and hence overestimate income tax revenue and thus also the budget balance. To test the argument that left-wing and right-wing cabinets may differ in credibility, ideological variables are introduced that control for the orientation of the main parties of the governing coalition along the right/left axis. We introduce two dummy variables LEFT and RIGHT. LEFT takes value 1 if social-democratic and other left-wing parties dominate the government, that is when they have at least 66,66% of the parliamentary seats (weighted by the number of days the government was in office in a given year) and value 0 if other. A negative sign may be expected. RIGHT is created analogous for right-wing parties dominating the government.[4] Here a positive sign is expected. The remaining category is when neither rightist nor leftist parties dominate the government.

Second, the fragmentation of governments may explain credibility. Roubini & Sachs (1989a & 1989b) and Grilli *et al.* (1991) show empirically that coalition cabinets tend to be more fiscally irresponsible. They present empirical evidence of the Weak Government Hypothesis. This theory predicts that more fragmented governments follow less restrictive fiscal policies leading to higher levels of expenditures as well as higher debts and deficits. To finance this higher spendthrift, fragmented governments require more revenues and may therefore be tempted to increase their financial leeway by being more optimistic in their projections (Voorhees, 2004), leading to a lower degree of credibility.[5] Also the War of Attrition model (Alesina & Drazen, 1991) may explain why the governments' fragmentation may affect credibility. We illustrate this using the following example. In the event of an (exogenous) shock that deteriorates the government's budgetary situation, a stabilization process will be initiated in which each group of the coalition attempts to wait the others out. The reason is that waiting until the others capitulate allows a party to pass the largest part of the negative effects of the stabilization effort to the other parties. The lower the degree of political cohesion (or, the more fragmented the government), the later is the expected date of stabilization (Martinelli & Escorza, 2007) and the more difficult

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[4] Right-wing parties dominate the government when they have at least 66,66% of the parliamentary seats (weighted by the number of days the government was in office in a given year).

[5] Remark that we do not impose an explicit objective by fragmented governments to consciously overestimate revenues, i.e. we do not assume a desire for deficits in fragmented governments. The politicians drafting the budget may well believe in achieving their goals. Indeed, the 'cognitive dissonance' literature argues that people have preferences over their states of beliefs and select sources of information to confirm these 'desired beliefs' (see e.g. Akerlof & Dickens, 1982). In other words, people like to believe what they want to be the(ir) truth. Thus politicians desire a certain level of revenues (which is likely to be higher for fragmented governments) and they are convinced to realize (at least) that revenue level. This conviction is built on arguments that support the achievement of this revenue level while other arguments that reject these beliefs are disregarded.

it is for fragmented governments to agree on necessary adjustments in the budget. Optimism then is a means to shift the burden of these adjustments to the future. Since Alesina & Drazen (1991) state that large coalitions find it particularly hard to reach agreements, politically fragmented governments can be expected to be more optimistic than single party governments.[6] The introduction of NUMPAR may measure the effect of fragmentation on credibility. NUMPAR represents the Effective Number of Government Parties as introduced by Laakso & Taagepera (1979).[7] Higher values of NUMPAR represent increases in fragmentation. As we assign lower credibility to higher fragmentation (Brück & Stephan, 2006), the expected coefficient of NUMPAR is negative. Yet credibility may not decrease linearly in the number of parties (Goeminne *et al.*, 2008). Therefore, we also test for a possible non-linearity in the effect of fragmentation by including a squared term of NUMPAR.

Third we take into account whether changes in the government affect credibility. Variable CHANGE is a dummy variable that has value 1 if the ideological composition of the cabinet has changed and value 0 if otherwise. The sign of this variable is a priori unknown. A positive coefficient would suggest that new governments aim to inspire confidence by building up credibility. A negative coefficient could be an indication that new governments have difficulties in meeting the objectives or that the budget balance is overestimated. This may reflect optimism by the new government and may have strategic goals, as better projections may smoothen a cabinet crisis.

Like Pina & Venes (2011) we lag the political variables one year in order to capture the political characteristics of the governments at the time of making the forecast.

Fourth, we are interested whether or not governments change their policy at election time. Questions like these are the central focus of electoral cycle models (Rogoff, 1990). There is a lot of empirical evidence to support the idea that incumbents, motivated by their chances of re-election, change their policy before elections (e.g. Drazen *et al.*, 2001). Buti & Van den Noord (2003) point to a revival of the political budget cycle in the EU after the run-up to EMU. Elections can be seen as a moment for voters to evaluate the current government's performance. The government thus may want to issue optimistic forecasts about the budget balance when elections come

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[6] As for the Weak Government Hypothesis, we do not expect an intention to overestimate to be present.

[7] The 'effective number of parties' is calculated as the inverse of $\sum_{i=1}^{n} p_i^2$, where n is the number of parties in the government and p_i is the party i's share in the total number of seats. Size inequalities result in values of the effective number of parties that are lower than the actual number of parties. Lower concentrations result in higher values and represent increases in fragmentation.

near since these optimistic forecasts may voters make believe that the government is doing well. Or they may increase spending prior to elections and hide the emerging budget deficit from the electorate until after the elections (Brück & Stephan, 2006). Both situations suggests that forecasts may be more optimistic when elections are not on the horizon than when they are not. To capture this, like Brück & Stephan (2006), Pina & Venes (2011) or Strauch *et al.* (2004) we introduce dummies to test the impact of the presence of elections to credibility. ELECTION has value 1 in election years and 0 if other. Since we hypothesize that forthcoming elections induce governments to issue optimistic budget forecasts, a negative coefficient is expected. To test the degree of foresight of incumbents, we also introduce dummy variable PREELECTION that has value 1 in the year prior to elections and 0 if other.

We also introduce some economic and budgetary control variables to the model. DEBT captures the general government gross debt expressed in percentage of GDP to capture the impact of the member states' budgetary situation (Beetsma *et al.*, 2009). GROWTH reflects the projected economic growth. Here the percentage change of the expected growth of GDP on previous year's GDP is used. This variable controls for the possibility of greater optimism in economic good times (Annett, 2006; Pina & Venes, 2011 and Strauch *et al.*, 2004). This variable may be used politically too since the pressure to plan substantial medium-term adjustments can be reduced by formulating overly-optimistic growth assumptions. This strategy allows governments to show favourable ex ante outcomes, while allowing them to blame poor ex post outcomes on the economy (Annett, 2006). Optimistic estimates of potential growth also make underlying balances look healthier, again leading to looser ex post fiscal policy evaluations. So, not only the expected growth of GDP can explain the credibility of fiscal policy, also the accuracy of these growth forecasts should be taken into account. Economic forecasts are crucial building blocks of budgetary projections. They determine the budgetary goals along with the tax codes and expenditure plans. By result, in the subsequent assessment of fiscal policy, the discrepancy between actual and projected economic growth has to be considered. Besides a political motivation, the inclusion of the prediction errors in economic activity to the model allows to control for the effects of unobserved macro-economic shocks. Since GDP forecasts are published simultaneously with the budget balance forecast, they both may share a common forecast bias caused by the business cycle (Brück & Stephan, 2006). Jonung & Larch (2006), Beetsma *et al.* (2009) and Moulin & Wierts (2006) find that growth projections incorporated in the EU Stability and Convergence Programs are on average too optimistic. Jonung & Larch (2006) show that optimism of the growth forecast has a measurable negative effect on budgetary outcomes. If real GDP growth is projected too high, this could contribute to a

widening of the gap between the planned and final outcomes. Moulin & Wierts (2006) find moreover that the tendency to overestimate GDP growth has been more pronounced in Member States with high initial deficits. To capture the impact of economic growth forecast accuracy, we introduce GROWTHGAP, that is the difference between the actual growth (in %) of the GDP and the planned growth (in %) of the GDP as mentioned in the Stability and Convergence Programs. Overestimated growth expectations may lead to overestimated budget balances, so a positive coefficient is expected.

INSTITUT groups the institutional variables FED and FRI. FED is a dummy variable that takes value 1 if an EU member is federalised and 0 otherwise.[8] Federalism is a system in which the power to govern is shared between national and provincial/state governments. Although the operations of all levels of government are relevant to compliance with the SGP regulations, which refer to general government, in fact it is the central government that is responsible for compliance. SGP regulations do not take the existence of different levels of government into account. Without suitable regulation, entities of lower government levels thus could free-ride on the back of central governments. Therefore we expect that it is more difficult to get accurate projections in federalised than in a unitary states and thus a negative sign is expected. FRI takes into account the impact of fiscal rules and fiscal institutions.[9] Marneffe *et al.* (2010), the European Commission (2011) and Beetsma *et al.* (2009) find that fiscal rules have some effect on fiscal balances in the euro zone. Annet (2006) finds that countries utilizing independent forecasts tend to have lower forecast errors. To test the impact of fiscal rules on credibility, we introduce the European Commission's (2011) Fiscal Rule Index that combines the strength and coverage of all rules in force.[10] Stronger rules and institutions result in higher FRI. The sign of FRI is a priori unknown. On the one hand, stronger rules and better institutions may foster fiscal discipline. Better institutions may also be associated with more realistic and, therefore, less optimistic projections leading to ex-post better than projected results. In that case a positive sign could be expected. On the other hand plans may be distorted by the need to comply with ex-ante fiscal rules that require

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[8]   FED is retrieved too from the Armingeon *et al.* (2011) Comparative Political Data Set III 1990-2009.

[9]   "A fiscal rule is a permanent constraint on fiscal policy, defined in terms of an indicator of overall fiscal performance. These rules cover summary fiscal indicators, such as the government budget deficit, borrowing, debt, or major components thereof – often expressed as a numerical ceiling or target, in proportion to GDP" (Kopits & Symansky, 1998; 2).

[10] The European Commission has constructed an index of strength of fiscal rules. This index captures information on (i) the statutory base of the rule, (ii) the body in charge of monitoring the respect of the rule, (iii) the body in charge of enforcement of the rule, and (iv) the enforcement mechanisms relating to the rule. Based on the strength index for each rule, a comprehensive time-varying Fiscal Rule Index (FRI) for each Member State was constructed that is calculated by summing up all fiscal rule strength indices in force in the respective Member State, weighted by the coverage of general government finances by the respective rule.

fiscal discipline only in terms of plans but not in terms of outcomes (Beetsma *et al.*, 2009). These ex-ante rules thus may institutionalize fiscal surprises by distorting the budgeting process (Inman, 1996). In particular, they may imply unrealistically disciplined fiscal plans, which then produce larger deviations of outcomes from the original plan (Beetsma *et al.*, 2009), so a negative coefficient for FRI can be expected too.

Finally, we add some dummy variables to the model to answer some specific questions. First we were interested if the economic and financial crisis had an impact on credibility. CRISIS is a vector of two year dummy variables that are introduced to take into account the exceptional circumstances resulting from the economic and financial crisis starting in 2008. Dummy variable Y2008 (Y2009) has value 1 in the year 2008 (2009) and 0 otherwise. A second question is whether credibility in the 10 countries that joined the EU in 2004 and Romania and Bulgaria that joined the EU in 2007 is similar to the remaining 15 countries. MEMBERS is a pair of dummy variables that is introduced to discriminate between these sets of member states. For the 10 (2) new members of 2004 (2007) we add dummy MEM10 (MEM02). These dummies have value 1 if a member state entered the EU in 2004 (2007) and 0 otherwise.

8. The results

In Table 3 a number of regression results are shown which differ in a number of methodological characteristics. Depending on the estimation method, the regression above was slightly modified to meet the methodological needs of the different methods. In general the different estimations fit well with R^2 from 0.57 to 0.66. These values are highly comparable to those in the models of Brück & Stephan (2006). Before running our model, we tested for the existence of multicollinearity in our dataset by running a correlation analysis. The correlation matrix shown in Table 5 in appendix indicates that none of the pair wise correlation coefficients are over the suggested threshold of $|r|>0.80$ (Gujarati, 2003; 359). To deal with potential endogeneity of projected GDP growth (GROWTH) and the economic growth forecast accuracy (GROWTHGAP) we instrument these variables and thus use an IV-approach.[11] Sargan tests of the validity of the instruments indicate that they are

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[11] We instrument the projected GDP growth (GROWTH) and the economic growth forecast accuracy (GROWTHGAP) with real GDP growth, the one year lagged real GDP growth and the product of GROWTHGAP and real GDP growth.

valid.[12]

Table 3   Estimation results

Dependent var : $E_{i,t}$	1	2	3	4
Intercept	2.020 *** (3.03)	2.116 (1.02)	1.856 (0.82)	-
Left$_{i,t-1}$	-1.136 *** (-4.40)	-1.096 ** (-2.33)	-1.120 ** (-2.42)	-0.818 * (-1.67)
Right$_{i,t-1}$	-0.686 (-2.34)	-0.504 (-1.13)	-0.378 (-0.93)	-0.305 (-0.69)
Numpar$_{i,t-1}$	-0.063 (-0.28)	-0.192 (-0.78)	-0.351 (-1.15)	-0.666 * (-1.79)
Numpar²$_{i,t-1}$	0.019 (0.81)	0.032 (1.21)	0.043 (1.28)	0.079 * (1.82)
Change$_{i,t-1}$	0.346 (1.22)	0.179 (0.51)	0.156 (0.47)	0.149 (0.61)
Election$_{i,t}$	-0.672 *** (-3.09)	-0.611 ** (-2.37)	-0.507 ** (-2.02)	-0.483 * (-1.80)
Preelection$_{i,t}$	-0.128 (-0.51)	-0.003 (-0.01)	-0.021 (-0.07)	0.157 (0.46)
Debt$_{i,t}$	-0.020 *** (-3.52)	-0.025 (-0.82)	-0.017 (-0.53)	-0.031 (-0.96)
Growth$_{i,t}$	-0.055 (-0.45)	0.030 (0.15)	-0.007 (-0.03)	-0.324 (-1.61)
Growthgap$_{i,t}$	0.290 *** (3.80)	0.292 *** (3.38)	0.190 (1.61)	0.297 *** (2.85)
Fed$_{i,t}$	0.121 (0.365)	-	-	-
FRI$_{i,t}$	0.053 (0.48)	0.148 (0.45)	0.081 (0.25)	-0.419 ** (-2.42)
Mem02$_t$	-1.870 *** (-3.35)	-	-	-
Mem10$_t$	0.046 (0.13)	-	-	-
Y2008$_i$	-0.780 ** (-2.10)	-0.782 * (-1.91)	-	-
Y2009$_i$	-2.23 *** (-3.63)	-1.816 ** (-2.32)	-	-
$E_{i,t-1}$	-	-	-	0.453 *** (4.45)
$E_{i,t-2}$	-	-	-	-0.095 (-1.10)
Fixed cross section effects	No	Yes	Yes	Yes
Fixed time effects	No	No	Yes	Yes
R²	0.571	0.605	0.659	-
Adjusted R²	0.534	0.523	0.568	-
N	220	220	220	142
Period	1999-2009	1999-2009	1999-2009	2002-2009
Cross-sections	26	26	26	24
Sargan Chi²	0.018 (p=0.89)	0.742 (p=0.39)	0.342 (p=0.56)	9.079 (p=0.87)

Note: Data for all EU member states, except for Greece; t-values between brackets (except for Sargan tests where p is presented); * significant at 10%, ** at 5% and *** at 1%.

In column 1 the results of a simple IV-estimation using random effects are shown. The results give a first indication that politics matter in credibility. Ideology and the timing to elections seem to affect credibility. Yet this regression only takes into account a very restricted set of time and country specific characteristics. The results

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[12] The Sargan test assesses the validity of the instrumental variables. Therefore, we obtain the residuals of both estimations, regress them on all exogenous variables and obtain the number of observations (N) and the R² values. Then, N*R² yields the Sargan statistic. Under the null hypothesis that all instruments are exogenous, the Sargan statistic is Chi² distributed with R degrees of freedom (R being the number of instruments minus the number of endogenous parameters). If we fail to reject the hypothesis, which is the case in our model because both p-values exceed the value 0.10, the instruments are acceptable.

show that at the timing of the financial crisis credibility was worse than in the years before. Especially 2009, when the crisis reached its first peak, is characterised by a very substantial and significant shortfall of the actual balance from the originally planned balance. These first results also indicate that Bulgaria and Romania that joined in 2007 scored significant worse on credibility.

Still, the analysis could be extended. Like Strauch *et al.* (2004) we add country fixed effects (column 2). Subsequently we add time fixed effects too (column 3) like in Brück & Stephan (2006) and Beetsma *et al.* (2009). These fixed effects symbolize country and time specific characteristics affecting credibility but possibly omitted in $POL_{i,t-1}$, $ECON_{i,t}$ and $INSTITUT_{i,t}$. The country dummy variables indicate whether there are country specific biases in forecasts.[13] The year effects reflect biases common to all forecast errors in a given year.[14] This could be due to forecasting behaviour or – more likely– due to business cycles making the forecasts in some years more optimistic (or more pessimistic) than in others. The role of the time fixed effects may not be underestimated in the context of this paper. They capture what a group of member states has in common, leaving the political variables to capture the true political effects in each year (Brück & Stephan, 2006). Overviewing the results in columns 1, 2 and 3, we could conclude that the results are highly comparable.

Finally, in column 4 of Table 3 we conduct a further robustness check by presenting a model in which lagged dependent variables are included. Both the one and two year lagged values are introduced (respectively $E_{i,t-1}$ and $E_{i,t-2}$). On the one hand these lagged dependent variables may account for possible slow adjustments in credibility. Then a positive sign is expected, indicating that over- or underestimation of the budget balance is not magically resolved in the following years (Goeminne *et al.*, 2008). On the other hand, the lagged dependent variables may also control for the possibility that learning from past over- or underestimations makes governments more cautious in determining their new plans (Beetsma *et al.*, 2009). Then a negative sign is expected. The sign of the lagged dependent variables thus is a priori unknown. Yet, the introduction of these lagged dependent variables forces us to introduce a new estimation method. Indeed, the standard approaches to panel data analysis are inappropriate in a dynamic setting. In the presence of a lagged dependent variable both fixed and random effects estimators lead to biased and inconsistent estimation results (Baltagi, 1995). To remove this bias, it is necessary to provide a valid set of instruments for the lagged dependent variable. Arellano & Bond (1991) offer a

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[13] The introduction of fixed cross section effects requires the removal of MEM02 and MEM10 from the model since the introduction of the fixed cross section dummies lead to exact collinearity with MEM02 and MEM10. The same is true for FED.

[14] When fixed year effects are estimated, Y2008 and Y2009 are inserted in the full set of year dummies.

solution to this problem by treating the model as a system of equations (viz. one for each time period) and developing a Generalized Method of Moments estimator. We employ system GMM estimation (GMM-SYS; Arellano & Bover, 1995; Blundell & Bond, 1998) and introduce the two- and three-year lagged values of the dependent variables as instruments.[15] Note that we use the one-step rather than the two-step variant of GMM-SYS. Although the latter is asymptotically more efficient, two-step GMM estimation is found to lead to significant downward bias in the estimated standard errors (Arellano & Bond, 1991; Blundell & Bond, 1998).

Focusing the discussion of our results on column 4 of Table 3, fixed time and country effects as well as the impact of the lagged dependent variable are taken into account. The absence of a lagged dependent variable could lead to an omitted variable bias.[16] Unlike in Beetsma *et al.* (2009), the lagged dependent variables affect credibility and indicate that models ignoring the lag in the dependent variable indeed may suffer from the omitted variable bias. The effect of the lagged dependent variable is positive, suggesting that adjustments in credibility only occur gradually. Each overestimation (underestimation) of the budget balance of 1% of GDP in the preceding year leads to an overestimation (underestimation) of 0.453% in the current year. This effect is restricted in time, since there is a significant effect of the one year lagged dependent variable, but not of the two year lagged variable.

With respect to our central variables, the political variables, we find evidence that leftist governments are less credible than centre and rightist governments. This is in line with our expectations and thus suggests that leftist governments indeed are more optimistic about the budget balance. Also Brück & Stephan (2006) find a similar effect for eurozone economies, while Pina & Venes (2011) fail to find a significant influence. It seems that the introduction of the lagged dependent variables reveals fragmentation effects. While in columns 1 to 3 no evidence was found of fragmentation effects, the results in column 4 allow to assign lower credibility to higher fragmentation. NUMPAR presents a significant negative coefficient which indicates that the number of parties in the government reduces credibility. Again this

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[15] The Economic and Monetary Union (EMU) was created at January 1, 1999. The members submitted their first stability programmes before the end of 1998. Since the data from these programmes is used to calcultate our dependent variable, there are no observations for our dependent variable prior to 1999. Therefore the introduction of the lagged values as instruments reduces our dataset to the period 2002-2009. Also Bulgaria and Romania dissappear from the dataset since they joined EU in 2007, while our dataset is restricted to 2009. We prefer this method over the use of figures from the convergence programmes as lagged values to make sure that our conclusions hold for the EMU members, being undisturbed by potential biases created by candidate EMU members. This is relevant since Strauch *et al.* (2004) show that the optimistic biases in forecasts of budget surpluses and economic growth are more apparent during the convergence process.

[16] E.g. Brück & Stephan (2006) or Pina & Venes (2011) do not take into account possible lagged dependent variables effects.

is in line with Brück & Stephan (2006) who do and Pina & Venes (2011) who do not find that coalition governments present more optimistic budget deficit forecasts. Still in our model the effect of fragmentation on credibility is not linear since NUMPAR^2 presents a significant positive coefficient. Taken both effects together[17] an increase in fragmentation reduces credibility until a government contains 4.19 effective parties.[18] Further increases in fragmentation than lead to an improvement in credibility. The negative effect of fragmentation on credibility thus is mainly driven by the "smaller" coalitions. "Larger" coalitions are more likely to follow fiscal policies representative of a larger part of the population (see Lijphart & Crepaz, 1991). They might thus be less prone to threats of minor interest groups, limiting the need to present optimistic budgets. Note, moreover, that "an increase in the number of powerful groups [leads to] a dilution of power concentration" (Tornell & Lane, 1999; 32). Hence, increases in the number of coalition partners reduce the power of each of these. This leads to lower levels of overspending when the number of coalition parties increases -thereby limiting the need to present optimistic budgets (Goeminne *et al.*, 2008). Like Beetsma *et al.* (2009) we do not find evidence that there would be a difference in credibility when a new government is installed. In line with Brück & Stephan (2006) and Pina & Venes (2011) we find empirical evidence that elections matter. As expected, governments overestimate the budget balance in election years. They present optimistic projections prior to election years. By doing so, they mirror voters that they are doing well, while the results ex ante do not meet these projections.[19] This suggests that the electoral benefits of presenting optimistic budget forecasts outreach the political costs of deviating from the fiscal plans. Finally, there is no evidence that governments are more credible in the year before elections.

Regarding the economic variables, there is only evidence that overestimated GDP growth rates lead to overestimated budget balances. As in Brück & Stephan (2006) the coefficient of GROWTHGAP is positive, but smaller than 1, indicating that the overestimated growth rates are only partially reflected in overestimated budget balances, or that other variables, such as the political variables, explain credibility. As in Beetsma *et al.* (2009) there is no indication that the level of debt affects credibility. The same is true for the expected economic growth.

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[17] This can be calculated as following : NUMPAR*(-0.666) + NUMPAR^2*(0.079). Numpar varies between 1.99 and 9.07 (see Table 4 in appendix).

[18] It may sound unnatural that a government contains n number of parties where n is a comma number. This is because we use the Effective Number of Government Parties as introduced by Laakso & Taagepera (1979) in which size inequalities are taken into account (see footnote7).

[19] Strauch *et al.* (2004; p. 25; footnote 24) insinuate an opposite effect, yet their electoral effect does not fully pass the robustness check.

With respect to the impact of fiscal rules, FRI presents a significant and negative coefficient. This suggests that plans may be distorted by the need to comply with ex-ante fiscal rules that require fiscal discipline only in terms of plans but not in terms of outcomes. In fact, this is the case for the Stability and Convergence Programs (Beetsma *et al.*, 2009). These ex-ante rules allow governments to present unrealistically disciplined fiscal plans that result in ex-post larger deviations of outcomes from these original plans.

9. Conclusions

In this paper we present the results of an analysis into the credibility of fiscal policies in 26 EU Member States. We offer indicators for this credibility and present the determining factors of credibility. As for the measurement of credibility we construct indicators that focus on the difference between the actual budget balance in year t and the budget balances that were targeted in previous years for year t. Regardless of the indicator chosen (E or ME) the same conclusions can be drawn. On an aggregated level the credibility of fiscal policies seems to evolve with the business cycle : in good times credibility is higher than in bad times. On a country level the worst results are to be found in peripheral EU countries that also were late joiners such as Bulgaria, Romania, Portugal and Lithuania. The best performing countries also belong to the periphery and the group of late joiners with the exception of Luxembourg : Estonia, Cyprus, Finland and Czech Republic. The EU core countries are all to be found in the middle range of the standing.

When explaining the differences by political, economic and institutional variables, our results suggest that political factors affect the credibility of fiscal policy properly. While Beetsma *et al.* (2009) judge the role for political factors to be rather limited, our empirical analyses suggest that its role may not be dismissed. Political determinants affect the credibility of fiscal policy properly. Both ideology and fragmentation define credibility in a significant way. There is also evidence of a political business cycle effect. Governments overestimate the budget balance in election years and thus mislead voters pretending that they are doing better than they actually doing. Besides political determinants, the planning of the budget also depends strongly on the projections made of economic growth. Overestimated (underestimated) GDP growth rates lead to partially overestimated (underestimated) budget balances. The results also show that more (fiscally) centralised member states perform better and that adjustments in credibility only occur gradually.

What do we learn from these results? They may raise the question whether it would not be better to bind the hands of politicians by putting them under the constraints

of rules or even by handing over the autonomy of policy making to a non-political institution. Indeed, the optimism bias of official deficit forecasts could be tackled by assigning the task of forecasting to an independent authority. There seems to be a consensus in the academic world that curtailing politicians is a good method to establish credibility in the field of monetary policy, as well as in the field of regulatory policy (e.g. Debrun *et al.*, 2009; Gilardi, 2002; Kydland & Prescott, 1977). Concerning fiscal policy academics have been less outspoken. The reason could be that fiscal policy contrary to monetary or regulatory policy is besides being technical also highly distributive. Income and wealth redistribution creates winners and losers, necessitating democratic handling by elected parliaments and governments. Nevertheless a case can be made for devolving some part of fiscal agencies that themselves are entrusted with powers in executing fiscal policy. The policy making powers to independent fiscal agencies, although it never has been tried in practice. A further shift away from discretion towards rules seems to be warranted by the difficulties that many governments seem to have in dealing with their budget deficits. That is why the proposals of Calmfors (2011 & 2011) and Wyplosz (2005) should receive renewed attention by the academic world and by policy makers. These authors search for ways to take discretion, leading to deficit bias, out of the hands of politicians without endangering the accountability of fiscal policy. Their proposals are a careful mixture of decisions that can be taken by government and decisions that better can be delegated to independent fiscal agencies. These set-ups take advantage of the improved academic insights into the cyclical and structural behaviour of the budget.

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Appendices

Table 4   Descriptive statistics and datasources

	Mean	Median	Max.	Min.	Std. Dev.	Source
Credibility ($E_{i,t}$)	-0.31	0.00	5.00	-7.70	2.15	1
Leftist government parties (Left)	0.29	0.00	1.00	0.00	0.45	2
Rightist government parties (Right)	0.48	0.00	1.00	0.00	0.50	2
Effective Number of Government Parties (Numpar)	3.96	3.71	9.07	1.99	1.41	2
Government change (Change)	0.27	0.00	1.00	0.00	0.45	2
Elections	0.24	0.00	1.00	0.00	0.43	2
Preelections	0.26	0.00	1.00	0.00	0.44	2
Debt	46.75	47.10	116.10	3.70	25.25	1
Growth	2.84	2.75	9.00	-5.00	2.25	1
Growth gap	-0.49	0.08	5.00	-13.00	2.80	1
Fiscal centralisation	58.59	55.50	100.00	27.30	15.01	2
Federalism	0.12	0.00	1.00	0.00	0.32	2

1 : own calculations on data retrieved from Eurostat

2 : Armingeon *et al.*, 2011

Table 5   Correlation matrix

	Left	Right	Numpar	Change	Election	Preelection	Debt	Growth	Growthgap	Fiscentr	Fed	Y08	Y09	MEM02	MEM10
Left	1.00	-0.61	-0.06	-0.04	0.00	-0.02	0.05	-0.04	0.00	-0.09	-0.11	-0.03	-0.02	-0.12	0.05
Right		1.00	0.06	0.10	-0.07	0.05	-0.14	-0.03	-0.08	0.19	-0.13	0.04	0.06	0.02	0.02
Numpar			1.00	-0.09	0.04	-0.05	0.01	-0.02	0.01	-0.01	0.06	-0.02	-0.01	-0.03	0.00
Change				1.00	-0.19	0.18	-0.01	0.06	0.05	-0.07	-0.01	0.10	-0.09	-0.03	0.07
Election					1.00	-0.32	-0.01	0.09	0.08	-0.04	0.05	0.01	-0.09	0.03	-0.04
Preelection						1.00	0.04	-0.09	-0.02	-0.02	0.04	0.03	0.03	-0.04	-0.01
Debt							1.00	-0.21	-0.02	-0.17	0.36	-0.07	0.00	-0.22	-0.32
Growth								1.00	0.86	0.13	-0.10	-0.10	-0.72	-0.01	0.11
Growthgap									1.00	0.07	0.04	-0.26	-0.61	-0.10	-0.06
Fiscentr										1.00	-0.40	0.00	-0.04	0.10	0.12
Fed											1.00	-0.04	-0.01	-0.07	-0.24
Y08												1.00	-0.12	0.11	0.09
Y09													1.00	0.13	0.10
MEM02														1.00	-0.10
MEM10															1.00