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Abstract

This paper analyses the appropriateness of the euro area fiscal stance. In this context, the paper presents the relevant definitions and how the euro area fiscal stance has evolved over time. Furthermore, it contains an evaluation of the appropriateness of the euro area aggregated fiscal stance set out in the European Commission's Spring 2016 European Economic Forecast, concluding that, while it is broadly appropriate from the stabilisation perspective, it deviates slightly from the sustainability objective. Finally, the paper investigates the impact of a fiscal stimulus in Germany on the main euro area macroeconomic variables under an adverse risk scenario.

The analytical exercise conducted in the paper is agnostic about the relative weights of the stabilisation and sustainability objectives and considers them separately. This is distinct from the SGP framework, which synthesises the two, placing a stronger emphasis on the latter. The ultimate aim of this approach is to analyse the possible interactions between the two objectives at the current juncture.

Keywords: fiscal stance, output gap, debt sustainability, output stabilisation

JEL codes: E61

Executive summary

The appropriate euro area fiscal stance is increasingly a subject of debate. The ongoing discussion is largely motivated by the prevailing macroeconomic conditions and institutional developments. On the former, many argue that fiscal policy should play a more supportive role in the current environment of subdued growth, high unemployment and constrained conventional monetary policy in the euro area, while others stress the need to focus on debt sustainability needs. On the latter, there is recognition, most notably in the Five Presidents' Report, "Completing Europe's Economic and Monetary Union", that there is a need to reflect on ways to ensure an appropriate fiscal stance for the euro area as a whole. The recent creation of the European Fiscal Board, which will advise the European Commission on the appropriateness of the euro area fiscal stance, takes a step in this direction.¹

There is broad consensus that automatic stabilisers represent a desirable form of the fiscal policy response to adverse shocks of a usual magnitude.

Automatic stabilisers contribute to smoothing out the business cycle without the need for the government to undertake any action. They do not require a cyclical position of the economy to be measured and implementation procedures to be launched. As such, in normal times they constitute a superior fiscal policy tool compared with discretionary measures.

The circumstances that would justify a more active management of the fiscal stance that goes beyond automatic stabilisers need to be carefully analysed. In this context, a cost-benefit analysis may prove to be very useful. On the one hand, discretionary fiscal measures may provide an effective demand-supporting tool to counteract deep downwards swings in the cycle or periods of prolonged subdued growth with constrained monetary policy. In particular, they could support closure of the output gap or reduce the likelihood of a deflationary trap. On the other hand, the usual drawbacks of discretionary policies (i.e. uncertainty regarding a cyclical position, the implementation lag, the problem of reversibility) are problematic, and the scope for such policies is limited on account of debt sustainability concerns. Besides careful analysis of discretionary policies, it should therefore always be a priority to explore the possibilities of pursuing a more growth-friendly composition of public finances.

In general, an appropriate euro area fiscal stance needs to simultaneously balance the two objectives of short-term stabilisation and long-term sustainability, as well as recognise the national situation. The different time dimension (short-term versus long-term) of the two objectives may on first sight call for a sequential prioritisation. However, this might prove impossible, given the practical difficulty for fiscal authorities to credibly commit to time-consistent policies.

¹ European Central Bank (2016b) contains a comprehensive discussion of the concepts of an appropriate euro area aggregate fiscal stance and, similarly, justifies the need for one based on recent economic and institutional developments.

Moreover, the assessment of the appropriate fiscal stance at the euro area level needs to reflect country perspectives.

In line with the above, the methodology used to determine the desirable fiscal stance in this paper is guided by the two criteria of stabilisation and sustainability.

A desirable fiscal stance from the stabilisation point of view is assumed to be one that ensures certain degrees of output gap closure in 2016-17. The paper uses the output gap as the most comprehensive measure of economic slack, and hence of stabilisation needs. Turning to the second objective, the analysis relies on a modified version of the European Commission's S1 indicator. The metric quantifies the fiscal adjustment needs necessary to bring the government debt-to-GDP to a sustainable level in a pre-defined time horizon. The desirable fiscal stance derived is expressed in ranges to reflect the measurement uncertainty and inherent arbitrariness of defining the objectives of fiscal policy.

Achieving the two objectives may involve trade-offs. These may arise particularly in situations when large consolidation requirements owing to elevated sustainability risks conflict with the need for a supportive fiscal policy in response to an adverse macroeconomic shock. In principle, however, prudent conduct of fiscal policies in normal times should ensure adequate fiscal space to stabilise the economy in the face of adverse shocks, with the exception of extreme crisis situations.

Given the uncertainties surrounding fiscal stance assessment, any policy recommendation regarding the euro area fiscal stance should err on the side of caution. The metrics developed in this paper should not be considered as conclusive measures of stabilisation and sustainability objectives. In particular, the reliance on output gap estimates makes the calculation of stabilisation needs uncertain. In a similar vein, the analysis in this paper is not meant to substitute the Stability and Growth Pact (SGP), which remains the only relevant legal framework for coordinating national fiscal policies in the euro area. The analytical exercise is agnostic about relative weights of the stabilisation and sustainability objectives and considers them separately, unlike the SGP framework, which synthesises the two, placing a stronger emphasis on the latter. The ultimate purpose of this approach is to analyse the possible interactions between the two objectives at the current juncture.

The analysis indicates that the mildly expansionary aggregated euro area fiscal stance projected for 2016 and 2017 broadly fulfils the stabilisation objective, but deviates slightly from the range implied by sustainability.

According to the European Commission's Spring 2016 European Economic Forecast, the fiscal stance over 2016-17 – as measured by the average change in the structural primary balance (SPB) – is -0.3 percentage point of GDP. This falls into the desirable stabilisation-implied range derived for the euro area. Turning to the sustainability objective, the projected fiscal stance is slightly more expansionary than the corresponding desirable range identified for the euro area aggregate. The distance between the stabilisation and sustainability-implied ranges points to a limited trade-off between the two objectives in the case of the euro area aggregate. Importantly, however, the analysis of the aggregated stance does not provide information on possible country deviations. The fiscal stance can only be regarded

as entirely optimal if it strikes a right balance for all euro area countries. In this respect, it is possible that some countries would need to pursue tighter policies to fulfil their sustainability objective, while other countries would have space for more expansionary policies.

The paper also includes an illustrative adverse scenario, in which the trade-off between stabilisation and sustainability in the euro area widens and the projected euro area fiscal stance cannot be regarded as optimal from the stabilisation perspective. Compared with the baseline, the reduction of the negative output gap in the adverse scenario is more limited, calling for a more supportive fiscal policy.

A more expansionary fiscal stance in response to the adverse shock – if judged to be desirable – would need to be implemented asymmetrically, as only a few countries have fiscal space under the Stability and Growth Pact (SGP). Illustrative model simulations show that an increase in expenditure in Germany of 1% of GDP that is evenly split between government consumption and investment would perceptibly support the output gap closure in the euro area. This stimulus would have a much larger impact domestically than in the rest of the euro area. The effects on other countries crucially depend on the magnitude of fiscal spillover effects, which, as presented in this paper, are very uncertain. At the same time, the fiscal stimulus would lead to an increase in the government debt-to-GDP ratio in Germany in the long run.

1 Introduction

While the fiscal stance in the euro area received only limited attention in the past, this has changed recently. In accordance with the architecture of Economic and Monetary Union (EMU), the euro area fiscal stance is the sum of the stances at the national level. In the absence of a centralised fiscal policy, the national policies are guided by the European Union's (EU) common fiscal framework, the Stability and Growth Pact (SGP), which assigns a central role to automatic stabilisers in absorbing macroeconomic shocks. Currently, however, the environment may be exceptional in view of subdued growth, high unemployment and constrained conventional monetary policy in the euro area. In this context, there is an ongoing debate as to whether discretionary fiscal policy could exceptionally have a greater macroeconomic stabilisation function. This discussion, moreover, is motivated by the recognition that the independent conduct of national policies may not lead to an appropriate fiscal stance for the euro area as a whole. Finally, given Regulation (EU) No 473/2013, which is a part of the "two-pack", the fiscal stance of the euro area as a whole effectively plays a role in the assessment by the European Commission and thereafter by the Eurogroup of the draft budgetary plans of the Member States.²

The circumstances that would justify the use of discretionary fiscal policies need to be carefully analysed. In exceptional circumstances, a more active management of the fiscal stance that goes beyond automatic stabilisers may appear warranted, as reflected in the provisions of the SGP. However, low growth and constraints on conventional monetary policy do not automatically warrant fiscal support through discretionary actions. General drawbacks related to discretionary policies and the lack of fiscal space owing to considerable debt sustainability risks prevailing in several countries ought also to be duly reflected.³ To this end, a policy priority should be to explore the possibilities of pursuing a more growth-friendly composition of public finances in a budget-neutral way.

In general, an appropriate fiscal stance should be determined by a combination of short-term stabilisation and long-term sustainability. The different time dimension of the two objectives would, in principle, allow a sequential prioritisation: first an emphasis on countercyclical fiscal expansion, followed by a fiscal tightening to ensure debt sustainability. However, such a policy may not be fully credible, and would thus be ineffective in practice on account of the well-known difficulties for governments to make commitments in a time-consistent manner. In addition, addressing sustainability concerns may require imminent action in a situation when a starting fiscal position is particularly weak. In this context, and given

² The two-pack consists of two regulations, namely Regulation (EU) No 473/2013 of the European Parliament and of the Council on common provisions for monitoring and assessing draft budgetary plans and ensuring the correction of excessive deficit of the Member States in the euro area and Regulation (EU) No 472/2013 of the European Parliament and of the Council on the strengthening of economic and budgetary surveillance of Member States in the euro area experiencing or threatened with serious difficulties with respect to their financial stability.

³ In this paper, fiscal space is assessed on the basis of a modified S1-indicator used for the sustainability objective analysis. See the detailed description given in Section 5.

already existing debt sustainability concerns in multiple countries, both objectives ought to be weighted simultaneously. Furthermore, there are other factors that might be relevant for the debate. One relates to the issue of intergenerational fairness, which could be a factor against further increases in public debt. This is on account of high public and private indebtedness that some argue is already a burden on the young and future generations.

Hypothetically speaking, a discretionary fiscal stimulus would be warranted if the costs associated with not using discretionary fiscal policies to temporarily stimulate growth outweigh these associated with debt sustainability risks and other possible drawbacks of such policies. “Cliff effects” can arise from the high costs associated with a failure to close the output gap or to bring inflation to its target in an environment with a constrained conventional monetary policy. Those might materialise for instance through hysteresis effects, which translate short-term output losses into long-term ones. Moreover, there is a risk that prolonged periods of high unemployment will impoverish the labour force, negatively affecting potential output. There are also potentially high costs associated with inflation remaining below the objective for too long in terms of the de-anchoring of expectations de-anchoring or even deflation. On the other hand, the costs from a failure to ensure fiscal sustainability involving a loss in market access and a renewed sovereign debt crisis would be evidently extremely high. Moreover, discretionary fiscal policies involve several drawbacks that may bring additional costs.

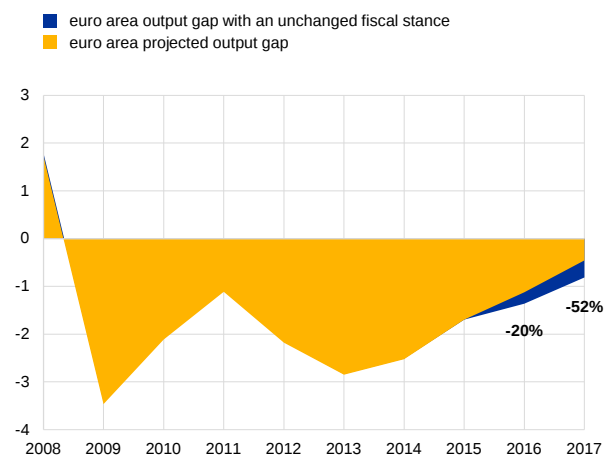
The assessment of the appropriate fiscal stance at the euro area level needs to reflect country perspectives. On the sustainability objective, sovereign sustainability risks in the current EMU’s institutional setup are country-specific. Nevertheless, they remain of crucial importance for the entire Monetary Union as they may become systemic in nature, as seen in the sovereign debt crisis. As far as the stabilisation objective is concerned, in the presence of a single monetary policy and its role in stabilising the euro area economy, the assessment could first consider the aggregate dimension. However, in this regard, a national perspective remains very relevant, too, in terms of imbalances within the Monetary Union.

Chart 1 outlines the economic situation in the euro area as depicted in the European Commission’s Spring 2016 European Economic Forecast. Euro area real GDP was estimated to have been systematically below its potential for seven consecutive years despite temporary convergence in 2011. The output of the euro area only reached its pre-crisis level in the first quarter of 2016, implying no growth on average for an extended period of time. Several Member States did not even manage to achieve this. For instance, Italy’s annual output was around 8% lower than before the crisis. The unemployment rate in the euro area increased markedly following the two downturns. Even more strikingly, the differences between low unemployment and high unemployment countries grew significantly compared with the past. The inflation dynamics, in particular during the last couple of years, were significantly lower than the ECB price stability objective of below, but close to, 2%. At the same time, conventional monetary policy was subject to limitations around the zero lower bound.

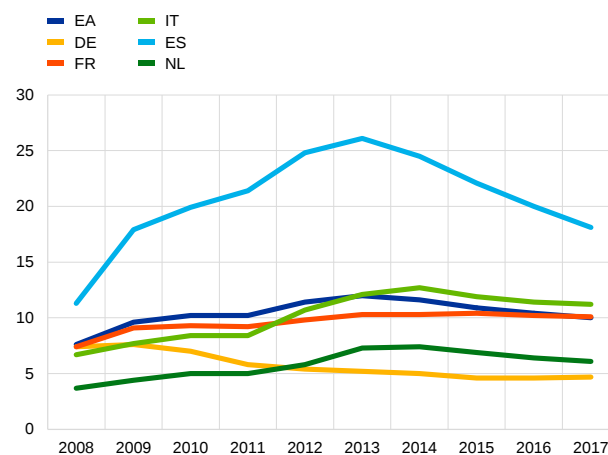
Chart 1

Euro area selected macroeconomic indicators as depicted in the European Commission's Spring 2016 European Economic Forecast

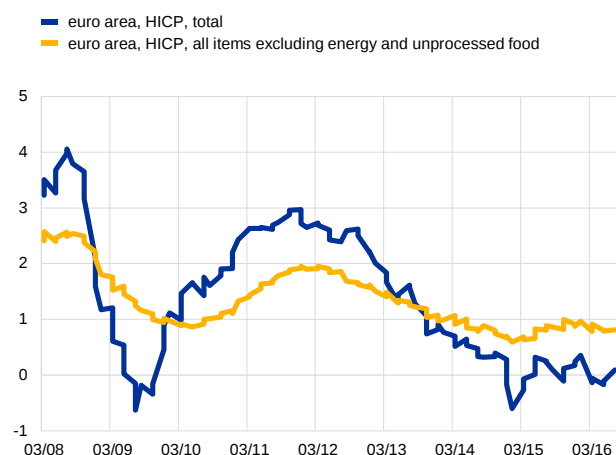
(percentage of potential GDP)



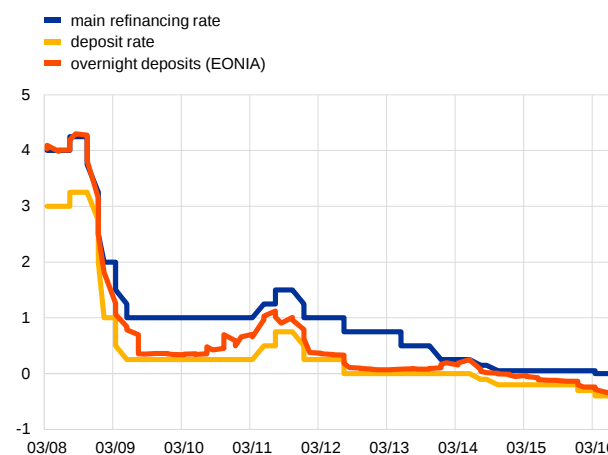
(unemployment rate (%))



(annual percentage changes)



(percentages)



Sources: European Commission Spring 2016 European Economic Forecast, Eurostat and own calculations.

Notes: The output gap estimates are from the European Commission's Spring 2016 European Economic Forecast. The percentage numbers in the upper-left chart quantify the reduction in the output gap with respect to 2015 level with an unchanged fiscal stance. The projection of the output gap with an unchanged fiscal stance assumes a standard fiscal multiplier of 0.55.

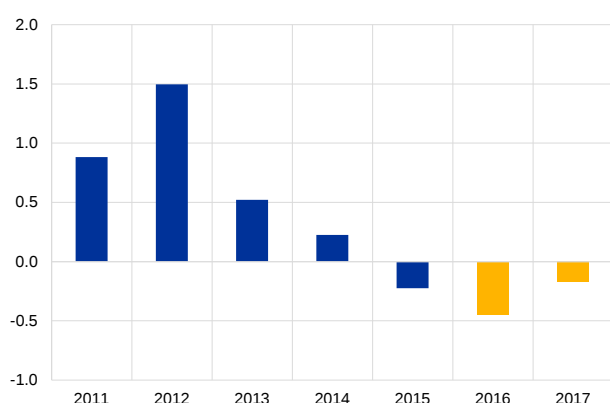
According to the European Commission's Spring 2016 European Economic Forecast, the output gap was expected to close further and the inflation rate would return to closer to the ECB's price stability objective. The output gap for the euro area was foreseen to narrow from -1.7% of GDP in 2015 to around -0.5% of GDP in 2017. This would take place on the back of accommodative unconventional monetary policy measures, a decline in oil prices and a more supportive fiscal stance (see Charts 1 and 2). The expected average annual deterioration in the aggregated euro area structural primary balance, which can be used as an indicator for the euro area fiscal stance, amounted to 0.3% of GDP in 2016-17. Even without any fiscal expansion, the output gap would shrink to around -0.8% of GDP in 2017 (by over

50% compared with 2015).⁴ Notwithstanding these positive developments, unemployment was projected to remain at historically high levels and risks to the outlook were on the downside.⁵ Constrained conventional monetary policy and excessively high public debt levels (see Chart 2) made policy buffers limited.

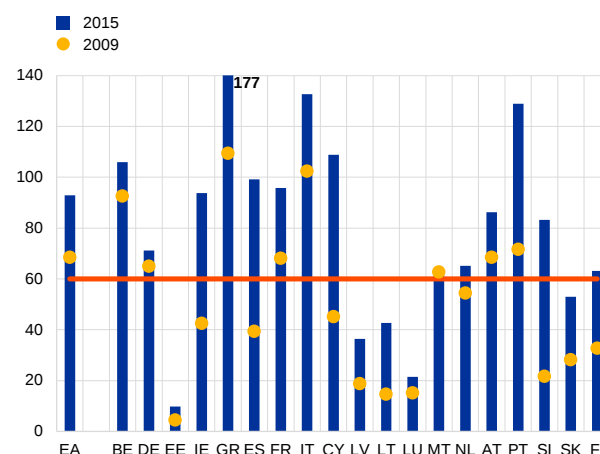
Chart 2

Euro area fiscal stance and government debt

(change in the euro area structural primary balance (pp of GDP))



(government debt (% of GDP))



Source: European Commission Spring 2016 European Economic Forecast.

Fiscal sustainability risks are still a major concern in several countries.⁶ The euro area sovereign debt crisis has shown that debt sustainability risks involve significant costs, as four euro area countries had to enter an EU/IMF adjustment programme.⁷ Government debt-to-GDP ratios in most countries were still well above their pre-crisis values, with the euro area aggregate standing above 90% in 2015 compared to below 70% in 2008 (Chart 2).⁸ According to the projections, the government debt-to-GDP ratios in most of the euro area countries were on a declining path. Nevertheless, in multiple cases, it would take many years and significant effort to bring them to the reference level of 60%.

Recent initiatives have shifted the focus towards an aggregate perspective of fiscal policy in the euro area. The Council – based on the European Commission's assessment of euro area Member States' draft budgetary plans – now issues policy

⁴ The adjustment of the projections to investigate the evolution of the output gap with an unchanged fiscal stance assumes a standard fiscal multiplier of 0.55.

⁵ According to the European Commission's Spring 2016 European Economic Forecast, the downside risks stem most notably from heightened uncertainty about emerging market economies, geopolitical tensions, and the continuation of crisis legacies (e.g. deleveraging needs and non-performing loans).

⁶ Fiscal Sustainability Report 2015 of the European Commission (2016a) classifies eight euro area countries as having high medium-term fiscal sustainability risks.

⁷ The Member States that received financial assistance are Greece, Ireland, Portugal and Cyprus. In addition, Spain implemented a programme for a recapitalisation of financial institutions with the programme conditionality covering the banking sector.

⁸ Following the typical decomposition of a change in a debt-to-GDP ratio, the increase of 25 percentage points for the euro area aggregate between 2008 and 2015 is explained as follows: unfavourable growth-interest differential of 12 percentage points, primary deficit of 9 percentage points and stock-flow adjustment of 4 percentage points.

recommendations for the euro area as a whole, including advice regarding the appropriateness of the euro area aggregate fiscal stance. Member States should take this advice into account when defining their policy strategies in the context of the annual Stability Programme updates. Moreover, the Five Presidents' report, which was released in mid-2015, highlighted the need to reflect on ways to ensure that "the sum of national budget balances leads to an appropriate fiscal stance at the level of the euro area as a whole" (see Juncker et al., 2015). This triggered the setting up of the European Fiscal Board (EFB) which was given the task of advising the European Commission on the appropriateness of the euro area fiscal stance within the rules of the SGP.⁹ Furthermore, the report contemplates more decisive means to enable a more active steering of the euro area fiscal stance in the future. More specifically, it proposes the establishment of a central macroeconomic stabilisation function to complement national automatic stabilisers. In addition, it envisages the creation of a euro area treasury to achieve more collective decision-making on fiscal policy in the future.

The EFB will advise the European Commission on an appropriate fiscal stance both at national and euro area level within the rules of the SGP. In this context, the EFB shall evaluate the implementation of the provisions of the SGP and the implications of budgetary policies at the Member State level for the aggregate euro area fiscal stance. Its advisory function, according to the Five Presidents' Report, "should lead to better compliance with the common fiscal rules, a more informed public debate, and a stronger coordination of national fiscal policies". The EFB will, however, not be independent from the European Commission. It will also not be equipped with policy tools to actively influence the setting of fiscal policy in the euro area.

The EFB will need to develop a sound methodological framework on which to build its assessment of the fiscal stance. The Commission Decision establishing the EFB remains vague on how the Board shall perform its tasks in practice. While the assessment of Member States' compliance with the provisions of the EU fiscal framework can build on well-established methodological foundations, this is not the case for the assessment of the appropriateness of the fiscal stance, notably at the euro area level. This paper makes a contribution to ongoing discussions on methodologies to assess the euro area fiscal stance.

The two fiscal arrangements contemplated by the Five President's Report – a euro area fiscal capacity and a fiscal union – could contribute to the effective setting of the euro area fiscal stance. While the exact design of a central macroeconomic stabilisation function is unknown, the mechanism could complement automatic stabilisers at the national level. To this end, it should take the form of automatic stabilisation rather than be aimed at active stance management. Directing additional stabilisation efforts in an automatic manner towards countries facing severe downswings would be more effective, as fiscal multipliers tend to be higher in these cases. Moreover, it could make the automatic response sufficient even in

⁹ Based on Commission Decision (EU) 2015/1937 establishing an independent advisory European Fiscal Board.

severe economic circumstances and hence reduce the need for discretionary action. On the second instrument, a euro area treasury could be created and equipped with fiscal instruments for setting the euro area fiscal stance. The creation of a fiscal union or, even, depending on its design, in some cases of a fiscal capacity, would imply potentially significant risk-sharing and, consequently, would need to go hand-in-hand with a shift of sovereignty to the central level. As such, this would constitute a far-reaching institutional reform. A discussion of the benefits and drawbacks of a fiscal capacity or fiscal union lies beyond the scope of this paper.

This paper discusses the concept of the euro area fiscal stance and its appropriateness in the context of the current EU's institutional framework. To this end, it presents the relevant definitions and how the euro area fiscal stance in the past has evolved. Furthermore, the paper contains an evaluation of the appropriateness of the fiscal stance based on a methodology that builds on the analysis in the European Commission's Report on Public Finances in EMU 2015 (see European Commission, 2015). Finally, the paper investigates the effects of a fiscal stimulus in Germany on the euro area economy in the context of a risk scenario.

Insufficient structural and institutional reform over the past 10 to 15 years are the main reason for a lack of resilience and weak trend growth in the euro area. This paper, however, entirely abstains from discussing whether other policy areas (e. g. monetary policy, structural and institutional reforms, wage policies, and macroprudential and microprudential banking regulation) provide more efficient tools than fiscal policy for enhancing confidence and aggregate demand. In the same vein, the paper does not consider possible undesirable implications (e.g. originating from political economy interactions) of discretionary fiscal policy on the incentives and constraints faced by other policymakers.

This paper is structured as follows. Section 2 briefly reviews the literature on the role played by fiscal policy in macroeconomic stabilisation, which is extremely relevant for the current debate on the euro area fiscal stance. Section 3 discusses conceptual issues on how to measure and how to assess the euro area fiscal stance. Section 4 provides a brief overview of the evolution of the euro area fiscal stance over time. Section 5 assesses the currently projected fiscal stance for 2016-17. Section 6 compares the outcome of this analysis with the requirements implied by the SGP. Section 7 describes the effects of a simulated fiscal stimulus as a policy option and its effects on the euro area economy in the context of a risk scenario.

2 Overview of the literature on the role of fiscal policy in macroeconomic stabilisation

The literature based on New Keynesian models posits that there is a role for macroeconomic stabilisation policies through monetary and/or fiscal policy tools. The New Keynesian theory puts strong emphasis on price and output stability in the presence of market failures and deviations from natural output. Against the backdrop of economic growth and low inflation that characterised the period of “Great Moderation” from the mid-1980s to 2007, a prolific strand of literature focused on the development of DSGE models that were able to replicate the relatively smooth cyclical fluctuations and in which the main friction justifying policy interventions were nominal rigidities. Woodford (2011a) and Galí (2015), for instance, provide comprehensive overviews of these models.

Conventional monetary policy and automatic stabilisers can be effective tools in addressing typical macroeconomic shocks of a small to moderate magnitude. Traditional New Keynesian DSGE models reflected the widely held view that monetary policy should play a key role in macroeconomic stabilisation. In the same vein, the models drew on the ideas that the short-term nominal interest rate was the quintessential monetary policy tool and that central banks follow formal inflation targeting regimes. As recalled by Brendon and Corsetti (2016), by the late 1990s both were already well established in policymaking and the economic literature only formalised them. In turn, the role of fiscal policy was limited to the operation of automatic stabilisers. Discretionary fiscal measures were seen as unnecessary and hence should be reduced to a minimum – the view advocated at least since the seminal proposal of Friedman (1948).^{10 11}

Recent experience has demonstrated that conventional monetary policy can become constrained for a significant period of time after the materialisation of a large adverse shock. The great recession has challenged several assumptions of the New Keynesian framework. In particular, traditional models without financial frictions and liquidity constraints were not able to replicate the effects of such a large and persistent adverse shock. Moreover, after successive cuts to nominal interest rates, conventional monetary policy became constrained close to or at the zero lower bound for interest rates in order to provide stimulus to economies. Against this backdrop, policymakers turned to unconventional monetary measures. At the same time, the discussion on whether fiscal policy should play a bigger role in complementing them has rekindled.

¹⁰ Auerbach (2002) and Blinder (2004) point to the relevance of automatic stabilisers as a stabilisation policy tool despite contrasting views on the desirability of discretionary fiscal policy actions.

¹¹ Notwithstanding the general consensus on the usefulness of automatic stabilisers McKay and Reis (2013) demonstrated recently that in their present form in the United States, these do not have a significant impact in terms of reducing the volatility of the business cycle.

Most academic authors advocate that the most effective way to stabilise the economy with constrained conventional monetary policy is through government spending. Studies like Eggertsson (2011) and Christiano et al. (2011) argue that the government spending multiplier is particularly large when economies are at the zero lower bound. The mechanism for this finding relies not only on public consumption, but also on private consumption, which benefits from avoiding deflationary pressures through the pricing effect of a fiscal expansion. Moreover, Rendahl (2016) finds significant gains in terms of current and future employment and suggests the existence of a virtuous cycle that spreads the effectiveness of fiscal stimulus over the long run. Although the claims about a relatively high spending multiplier during the crisis are backed by empirical findings, dynamic stochastic general equilibrium (DSGE) models, in general, may overemphasise the size of government spending multipliers at the zero lower bound (see, for instance, Wieland, 2012).

Although an expansion in government expenditure may be an effective stabilisation tool when conventional monetary policy is constrained, it is generally not warranted in normal times. Woodford (2011b) highlights that the strong evidence regarding the effectiveness of government spending stabilisation holds only in the case of severe and persistent shocks. In such circumstances, results based on Woodford's model suggest that the expansion of government expenditure is beneficial even if it is financed through distortionary tax hikes – as long as both expenditure and tax increases are perceived as temporary. In this respect, Eggertsson (2011) also suggests that the effectiveness of such a policy mix depends on its temporary nature, whereas a stimulus perceived as permanent may even have contractionary effects. The same argument is made by Corsetti et al. (2012), who emphasise the link between the impact of fiscal stimulus measures and expectations about their reversal.

Several studies have suggested alternative fiscal policy mixes for effective stabilisation. Instead of making the entire fiscal stimulus rely on the expenditure side, Eggertsson (2011) considers a mix of temporary spending increases, temporary investment tax credits and temporary cuts in consumption taxation. A clearer departure from a conventional expenditure-based stimulus is proposed in Correia et al. (2013). These authors suggest that a revenue-neutral combination of permanent consumption tax hikes, cuts in labour taxation and either a temporary investment tax credit or a temporary cut in capital taxation, although distortionary, delivers stimulus and replicates the effects of negative nominal interest rates.

Although it has focused on the stabilisation function of macroeconomic policies, the New Keynesian literature has insufficiently taken account of the sustainability of public finances. More recently an increasing number of theoretical and empirical studies have attempted to reflect policymakers' concerns about fiscal sustainability, especially in the context of multiple equilibria (Lorenzoni and Werning, 2013). This recent strand of the literature has typically aimed at producing measures of government debt limits (i.e. maximum sustainable debt ratios) so as to gauge fiscal space, which is understood as policymakers' leeway in pursuing macroeconomic stabilisation while ensuring the sustainability of public

finances. In a reduced-form model, Ghosh et al. (2013) define the debt limit as the debt ratio at which fiscal fatigue hinders primary balance adjustments sufficient to prevent explosive debt dynamics. In a New Keynesian model with parametric debt limit distribution and sovereign default, Davig et al. (2010) find that the conventional mix (inflation-targeting monetary policy and debt-targeting fiscal policy) cannot anchor private expectations on policy targets and that private agents' sustainability concerns may engender self-fulfilling debt crises. Using a non-parametric debt limit distribution based on time-varying Laffer curves in a neoclassical model, Bi (2012) argues that consolidation measures aimed at a balanced budget in the short run fail to contain the default risk premium, as long as they do not credibly affect market expectation about future fiscal policies. Finally, in a similar economic environment, Polito and Wickens (2014) explore several definitions of debt limits, which produce wide-ranging results for European countries. Given the high levels of uncertainty associated with such debt limit estimates, which in some cases are considerably above levels at which countries actually lost market access, they have not been used in practice for policy purposes.

Box 1

Fiscal reaction functions¹²

The literature on fiscal reaction functions (FRF) sheds some light on how the fiscal stance was set across euro area countries in the past. While not sufficient to guarantee appropriate policies, past fiscal behaviour can provide useful indications on the extent to which governments observe the sustainability and/or stabilisation objectives. From this perspective, the FRF literature covers the estimation of “fiscal reactions” based on the literature on monetary policy rules, in line with Taylor (2000) or the work on active and passive fiscal policy regimes by Leeper (1991).¹³

The fiscal reaction framework is sometimes used as a weak test for fiscal sustainability, as described by Bohn (1998). Accordingly, governments are seen to abide by sustainability constraints if they react systematically to increases in the debt-to-GDP ratio by raising their primary surplus ratio. As pointed out in several studies (see Ghosh et al., 2013 or the discussion in Afonso and Toffano, 2013), this can only be seen as a weak test of sustainability if there is an upper limit for primary surpluses as a share to GDP. Most empirical studies on FRF test the sustainability condition by estimating the response of fiscal policy (usually the primary balance) to the (lagged) debt ratio and controlling for cyclical conditions (current output gap), in addition to other factors. Specifying the fiscal reaction function in terms of both debt and output gap allows policymakers' efforts (or the lack thereof) to jointly stabilise public debt and output to be assessed (see, for example, Plödt and Richter, 2015).

Focusing on output stabilisation in the United States, Taylor (2000) points out that a fiscal reaction function would be analogous to a monetary policy reaction function, in which monetary policymakers seek to stabilise inflation and output. However, he also cautions that (discretionary) fiscal policy is normally at a disadvantage compared with monetary policy as a countercyclical tool. For this reason, it would be important for fiscal policy to be clearly stated and systematic, with

¹² contribution from Cristina Checherita-Westphal

¹³ For applications in the FRF context, see, inter alia, Galí and Perotti (2003), and Afonso and Toffano (2013).

automatic stabilisers representing a good example of this kind of predictable and systematic response. Discretionary fiscal policy could play a role as a “fail-safe” device in situations where monetary policy is constrained at the zero lower bound.¹⁴ In this case, one would need to state explicitly how fiscal policy would be used, such rules being more difficult to specify and enforce in practice than parallel rules for monetary policy (Taylor, 2000, pp. 35).

While a monetary policy rule, such as the Taylor rule (see Taylor, 1993), has been considered closely in line with good performance over past periods, a fiscal reaction function would not necessarily be regarded as a normative description of the behaviour of fiscal authorities. Taylor proposed coefficients for the reaction of real short-term interest rates of 0.5 for both the output and inflation gaps, with “values near this suggestion commonly found in empirical work in the United States in the 1980s and 1990s” and also “resulting in good performance in model simulations” (see Taylor, 2000, pp. 32). The literature on fiscal reaction functions does not provide for “optimal” coefficients. Instead, a statistically significant, positive reaction coefficient for the lagged debt may be a sufficient, but not necessary, condition for sustainability as discussed by Bohn (1998). Particular caution is warranted in making inferences about debt sustainability solely from FRF estimates based on past behaviour.

As regards the fiscal reaction to the output gap, a statistically significant, positive coefficient is generally taken to indicate a countercyclical fiscal policy and a negative coefficient a procyclical policy. A coefficient not significantly different from zero indicates an acyclical fiscal policy. The literature is, however, not straightforward with respect to the definition of fiscal policy cyclicity. In this respect, various concepts, as well as empirical specifications, are often used interchangeably. For instance, Alesina et al. (2008) claim that the most common definition for countercyclicality in the literature is that of “a policy that follows the tax-smoothing principle of holding constant tax rates and discretionary government spending over the cycle”. Empirically, they test this hypothesis by considering the fiscal response (captured by the change in the budget balance) to both changes in the output gap as well as to regimes of negative and positive output gap separately.¹⁵ In this respect, Turrini (2008) distinguishes between two concepts of fiscal policy procyclicality: (i) “at the margin”, i.e. response of budget balance to changes in output gap; (ii) “on average”, i.e., response of budget balance on average depending on whether output gap is positive or negative.

In general, in the FRF literature, the size and the statistical significance of the output gap coefficient depend on the use of the primary (PB) versus cyclically adjusted primary balance (CAPB) in the estimation model in addition to the use of levels versus changes. As a rule of thumb, in line with the cyclical adjustment literature, the difference between the estimated coefficients in the two specifications of the primary balance (PB versus CAPB) should be around 0.5, as discussed in Golinelli and Momigliano (2008). A statistically significant, positive reaction coefficient of the output gap in regressions using CAPB would imply that governments have used discretionary fiscal policy as a countercyclical tool for output stabilisation. In regressions using PB, a coefficient higher than 0.5 would imply a reaction beyond the normal effects of automatic stabilisers, capturing either revenue windfall (shortfalls) or/and countercyclical discretionary measures.

¹⁴ Yet, Taylor also cautions that Japan’s fiscal activism has not exactly solved the problem of the zero lower bound, casting some doubt on this as a fail-safe role for fiscal policy.

¹⁵ The study is based on a sample of developing countries in comparison to advanced (OECD) economies.

For the euro area countries, the FRF literature generally finds that governments have, on average, paid (some) consideration to sustainability constraints.¹⁶ The responsiveness seems to be much stronger over the recent euro area sovereign debt crisis, which had its onset in the economic and financial global crisis as of 2008 (see, *inter alia*, Plödt and Richter, 2015; Checherita-Westphal and Ždarek, 2015 and Baldi and Staehr, 2015). The debt reaction coefficient (the improvement in the primary balance to GDP ratio following an increase in the debt ratio by 1 percentage point) is most often estimated at 0.04-0.06. This is in the middle of the broader range of coefficients found in the linear regression studies on FRF, depending mostly on the estimation period, as well as the method used (see Checherita-Westphal and Ždarek, 2015 for a review). The response coefficient of lagged debt is similar (only marginally lower across most studies) when CAPB is employed instead of PB. The evidence with respect to the responsiveness in the period since the Maastricht Treaty entered into force (usually from 1992 onwards) and the period since the launch of the euro (from 1999 onwards) is more mixed. While Gali and Perrotti (2003) do not find evidence of a statistically different fiscal reaction to debt before and after the Maastricht Treaty, other more recent studies (see, *inter alia*, Bénétrix and Lane, 2013; Weichenrieder and Zimmer, 2014 and Plödt and Richter, 2015) point to a stronger average responsiveness after the Maastricht Treaty, followed, however, by a weakening responsiveness after joining the euro area (up until the start of the crisis).

As regards the stabilisation role of fiscal policy, most evidence points to a significant countercyclical role through automatic stabilisers and less through discretionary fiscal policy. For instance, Gali and Perotti (2003) conclude that there is no evidence that the Maastricht Treaty and the SGP may have prevented automatic stabilisers in EMU countries from doing their job. On the contrary, up to 2002 countries appeared to have strengthened the countercyclical nature of fiscal policy. This and other studies conclude that both the overall fiscal policy and the discretionary component responded in a countercyclical manner after the introduction of the Maastricht Treaty. However, the evidence for the discretionary fiscal policy, as well as for responsiveness during the period of euro area membership, is weaker. Turrini (2008) finds, for instance, evidence of procyclical bias only in good times, that is, the average stance of fiscal policy in the euro area up to 2005 was expansionary in times of positive output gap, with no strong evidence for a cyclical bias found in bad times. The procyclical bias was found to be stronger during the period of euro area membership.

Overall, there is some evidence of improvement in the conduct of fiscal policy from both the sustainability and stabilisation perspectives in the wake of the Maastricht Treaty and for a weakening of responsiveness during the first part of the EMU period. As pointed out by Bénétrix and Lane (2013), the policy following the entry into force of the Maastricht Treaty does indicate that fiscal reform is possible and that the institutional environment can assist in promoting better fiscal outcomes.¹⁷ However, the deterioration in the cyclical conduct of fiscal policy after the launch of the euro and the lower feedback from debt suggests that the incentives to run stabilising fiscal policies were weak during the first decade of EMU. The crisis acted as a disciplining device for sustainability, with a stronger reaction to the rising debt levels shown on average by the euro area countries up to 2012-13 (when the most recent studies stop).

¹⁶ The annex of the report by the European Commission (2015) includes analysis and an overview of fiscal reaction functions for EU countries.

¹⁷ Critics also mention various reasons related to accounting gimmicks or statistical misreporting in some countries, during both the Maastricht Treaty and the SGP periods (see, for instance, Koen and van den Noord, 2005 and Annett, 2006).

3 Conceptual measurement and assessment of the fiscal stance

3.1 How to measure the euro area fiscal stance

The concept of the fiscal stance aims at capturing only that part of the initial fiscal impulse on economic activity which derives from governments' discretionary policy action.¹⁸ Two main measures of the fiscal stance are used in practice. First, the change in the cyclically adjusted balance, or a variant thereof, which most notably excludes the cyclical component and interest payments from the headline balance. Second, bottom-up estimates of discretionary measures, which sum up the estimated yields of policy actions considered by governments.

The use of cyclically adjusted indicators has limitations stemming from uncertainties about the size of the output gap. Real-time values of potential GDP, which is an unobservable variable, suffer from frequent ex post revisions because estimating them involves several difficulties. These include the “end-point bias” problem of univariate statistical filters, such as the Hodrick-Prescott filter (see Blagrove et al., 2015 for a review of various methods of cyclical adjustment) and structural unemployment estimates (see Kamps et al., 2014). Recent empirical evidence on the size of real-time output gap errors also indicates that these have remained unchanged over time, despite more effective use of contemporaneous data (see Chiu and Wieladek, 2012). In practice and following methodological constraints, real-time estimates of potential output tend to be overstated, leading to overestimated fiscal stance indicators that can add to the incentives for a deficit bias and, consequently, trigger the accumulation of additional debt (see, for instance, Kempkes, 2014).

In addition, revenue windfalls and shortfalls influence the reliability of fiscal stance measures based on cyclically adjusted indicators. Where revenues show a stronger than expected response to the macro bases, this results in revenue windfalls (or shortfalls) and leads to an overestimation (or underestimation) of the structural balance in good (or bad) times. This occurs, in particular, in the presence of a build-up or collapse of asset price bubbles, as asset price variations pass through to tax revenues, for instance, through taxes on immovable property and financial transactions (see, inter alia, Morris and Schuknecht, 2007 and Reiss, 2013).

Measurement issues also exist in the bottom-up approach, which is used to estimate discretionary revenues under the expenditure benchmark and the

¹⁸ In general, the effects of fiscal policy on an economy materialise in various ways. First, the so-called automatic stabilisers provide an automatic buffer to private demand through built-in features of government budgets. Second, interest payments on government debt constitute a financial flow from the government to the economy. Finally, discretionary measures implemented by the government affect the economy through public revenue and expenditure.

assessment of effective action in the SGP context.¹⁹ Drawbacks of this approach are related to the realism of revenue measures, which are usually recorded at face value based on official national estimates. These are often not updated with the actual ex post yield realisations. Moreover, on the expenditure side it is not usually straightforward to distinguish a fiscal measure from other developments, such as the cyclical dynamics of social security benefits and demographic changes.

In general, recommendations regarding the fiscal stance need to acknowledge the caveats that apply to its measurement. Not only is the size of discretionary fiscal policy measures difficult to capture in real time, but so is their direction (i.e. tightening or loosening). This, compounded with difficulties surrounding the measurement of a country's position in the business cycle, renders the determination of the nature of fiscal policy (i.e. procyclical or countercyclical) challenging in practice.

This paper uses the change in the structural primary balance (SPB) as a measure of fiscal stance. This concept is commonly used, in addition to the impact of the cycle and interest expenditure, in economic projections, national fiscal plans and fiscal rules, excluding one-off fiscal measures.

Given the existing institutional set-up, the euro area fiscal stance is a mechanical aggregation of the national fiscal stances. This takes place particularly in the absence of a meaningful centralised fiscal policy. The aggregated euro area fiscal stance may mask very different situations at the country level with, for instance, fiscal tightening in some Member States and loosening in others.

In addition, the mechanically aggregated euro area fiscal stance may not adequately capture the impact of country-specific fiscal policies on the euro area economy. Most notably, this occurs if a fiscal impulse that originated in one country spills over to other euro area Member States in the presence of strong trade links and the interest rate channel in the Union.²⁰ Depending on the magnitude of such spillover effects, the assessment of the euro area fiscal stance – being a purely mechanical aggregation of national fiscal stances – may differ.

3.2 How to assess the euro area fiscal stance

As presented in the overview of the literature, there is broad consensus that automatic fiscal stabilisers constitute an effective – although not always sufficient – stabilisation tool. During a downturn, even without governments taking action, unemployment and social security benefits increase, while tax revenues tend to fall. By this means, these stabilisers contribute to a smoothing of the business cycle and more broadly to macroeconomic stabilisation. Within the euro area, the magnitude of such automatic fiscal stabilisers tends to be different across countries,

¹⁹ The expenditure benchmark is defined in net of revenue terms. Discretionary revenues are estimated following a bottom-up approach.

²⁰ For a more detailed discussion of spillover effects, see Box 4.

and relatively large on average, reflecting the broad social security and tax systems. The significant scope of automatic stabilisers in the euro area becomes evident when compared with other countries, such as the United States.²¹

The absence of a role for discretionary policy was motivated by serious drawbacks in its implementation. Any decision on fiscal intervention requires analysis of the location of an economy in the business cycle, which is something inherently difficult. Moreover, fiscal stimuli usually involve significant implementation lags and come into effect when they may not be necessary. Finally, fiscal measures implemented by governments, even if assumed temporary, may be difficult to unwind owing to political considerations. Automatic stabilisers have clear advantages over discretionary policy in these respects, as they come into force and expire on their own when triggered by economic conditions. As such, if allowed to operate freely, they can provide a timely boost of a desirable magnitude to an economy facing ordinary shocks.

Only exceptional circumstances may justify the application of discretionary fiscal interventions by governments. Following an extraordinarily large adverse shock, automatic stabilisers alone may not be sufficient to cope with the detrimental effects of the downturn. This particularly applies to a situation in which conventional monetary policy is subject to the lower bound constraint on policy rates. At the same time, the effectiveness of a fiscal stimulus, while still uncertain, is larger in such conditions than in normal times (see Section 2).

A desirable fiscal stance should be determined by a combination of (short-term) stabilisation and (long-term) sustainability needs. Output stabilisation through discretionary measures relates to the role of fiscal policy in bringing an economy to its full potential. This occurs through positive (or negative) demand effects, which eventually result in stimulating non-utilised resources (or addressing over-utilisation of capacity). This is to ensure that the economy does not remain considerably below (or above) its potential for an overly long period of time. The existence of a persistently negative output gap may spill over to potential output and increase the likelihood of hysteresis. Similarly, a positive gap is unwarranted as it increases the risk of overheating. Naturally, short-term output stimulation with a fiscal expansion would add debt and increase sustainability risks. In this context, fiscal policy needs to also ensure sustainability of public finances as a prerequisite for stable economic functioning.

There is no generally agreed definition of the stabilisation and sustainability objectives for an assessment of the fiscal stance, and their formulation is therefore somewhat arbitrary. Underutilised resources and the resulting stabilisation needs could be measured based on the output gap, inflation expectations or unemployment rate. However, targeting the closure of the employment gap or inflation expectations is difficult to implement given the complex and uncertain relation between those variables and fiscal policy. For the

²¹ While estimates differ across studies, Dolls et al. (2009), for example, find that automatic stabilisers absorb 38% of a proportional income shock in the EU, compared with 32% in the United States.

sustainability objective, the task is even more challenging, since risks to sustainability could potentially arise from various sources which are very different in nature, and from the time horizon. As such, a multi-dimensional approach, where fiscal sustainability challenges are identified and then pooled together in a synthetic indicator, has become increasingly widespread.²² However, a fully-fledged debt sustainability analysis cannot be easily translated into a desirable fiscal stance, which renders its application difficult in the context of this paper.

Difficulties in specifying an optimal fiscal rule impede the combination of the stability and sustainability objectives. The literature does not provide optimal weights on stabilisation and sustainability objectives (see Box 1). Any estimate based on past data would require an implicit assumption on optimal behaviour of policymakers. Another difficulty is that not only are the coefficients uncertain, but also the variables to which each fiscal instrument should react (see Kliem and Kriwoluzky, 2014). This is particularly challenging in the context of the euro area, which has been in existence for a relatively short period of time, and where the past fiscal policy conduct seems far from optimal, as evidenced by the conditions in which countries entered the recent crisis. In practice, the relative weights assigned to the two criteria often remain a matter of policy prioritisation determined by a political decision-making process.

Finding the right balance between sustainability and stabilisation objectives is even more challenging at the aggregate euro area level. Any optimal fiscal policies at the individual country level may not necessarily entail optimal fiscal policy for the euro area as a whole. There may for instance be different preferences for the euro area and at the national level regarding the importance of the two objectives. Moreover, inconsistencies may arise if countries are unable to perform the required stabilisation functions on account of sustainability concerns and if other countries with significant fiscal space have insufficient incentives to pursue expansionary policies.

The optimal aggregate euro area fiscal stance must strike the right balance for all euro area countries. Since fiscal policy in EMU remains under national responsibility, sovereign debt sustainability must be ensured in all euro area countries. Debt sustainability indicators applied to the euro area aggregate debt ratio are not meaningful and can be used for indicative purposes only. Regarding the stabilisation objective, to some extent it remains debatable whether its achievement at the aggregate level should materialise for each country. Nevertheless, creating or widening country imbalances in the euro area would have serious drawbacks and hence would be highly undesirable.

²² See, for instance, Bouabdallah et al. (2017).

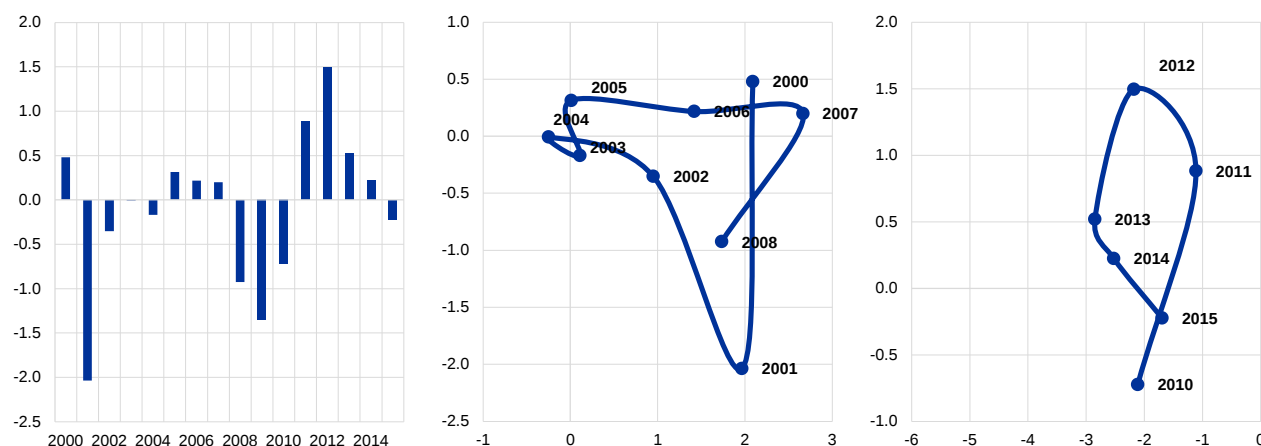
4 The euro area fiscal stance in the past

Following several years of tightening, the euro area aggregate fiscal stance appears to have turned mildly expansionary in more recent times. Chart 3 presents the developments in the fiscal stance from the inception of EMU to 2015. It shows that, with the exception of 2001, the fiscal stance remained broadly unchanged before the great recession.²³ The fiscal loosening in 2008-10 reflects among other factors the impact of several stimulus measures, including the European Economic Recovery Plan (EERP) (see Box 2). This was followed by a tightening of the euro area aggregate fiscal stance over 2011-13, reflecting comprehensive consolidation packages in euro area countries to restore debt sustainability and correct the excessive deficits that had emerged during the sovereign debt crisis. Subsequently, the fiscal stance was broadly neutral in 2014 or even mildly expansionary in 2015 in the absence of broad-based fiscal adjustment measures in most euro area countries.

Chart 3

The euro area fiscal stance in the past

(y-axis: fiscal stance (percentage points of GDP); plot area 2 and 3: x-axis: output gap (percentage of potential GDP))



Source: European Commission's Spring 2016 European Economic Forecast.

Notes: The fiscal stance before 2011 is represented by the change in cyclically adjusted primary balance (CAPB) on account of unavailability of structural primary balance.

Before the crisis, the euro area fiscal stance showed only scant evidence of a countercyclical fiscal policy at the margin. The fiscal stance tightened only marginally in years with a positive change of the output gap. Instead, with a view to addressing the sustainability objective, a greater tightening would have been warranted given the positive developments in the output gap. In fact, the fiscal stance fell (far) short of a standard SGP improvement of 0.5% of GDP in almost all of

²³ The changes in the CAPB in 2000 and 2001 were heavily influenced by a temporary and sizeable impact of the sale of third-generation UMTS (Universal Mobile Telecommunications System) licences. This follows from the Eurostat decision of 14 July 2000, which states that the proceeds from the sale would be recorded as negative capital expenditure in the general government accounts at the time of the sale of the licence. These UMTS proceeds are thus included in the government budget balances and in the CAPB. Their impact on the euro area aggregate balance was +1.1% of GDP in 2000.

the years. This would be broadly in line with the minimum requirement applied to countries that were not in structural balance – the majority of euro area countries in most of the years under investigation.

After the crisis, the fiscal stance was determined by a much greater focus on sustainability rather than stabilisation. The fiscal stance tightened significantly, well above 0.5% of GDP in several years during the post-crisis period, despite unfavourable economic conditions. This greater emphasis on consolidation was motivated by the emergence of large fiscal imbalances and, in a number of countries, acute debt sustainability concerns. Support to the financial sector, the impact of the crisis on output growth and, in some cases, the discretionary stimulus enacted in 2008-09 contributed to large deficits and increases in debt-to-GDP ratios. The fact that most countries had not achieved a balanced position in structural terms in the pre-crisis period restricted the fiscal space available for the operation of automatic stabilisers. This drastically limited the scope for a countercyclical discretionary fiscal policy when the crisis hit (see Box 2 for a comparison with other large economic blocks).

Box 2

Comparison of fiscal policies from 1999 until now in the euro area and in the United States, United Kingdom and Japan^{24 25}

From the inception of the EMU in 1999 to 2007, fiscal balances in the United Kingdom, the United States and, most notably, in the euro area floated within a relatively narrow band (see Chart A). Government debt-to-GDP ratios were relatively stable or even slightly declining in the case of the euro area. Fiscal developments were different in Japan, where public finances were still recovering from the impact of the collapse of asset prices in the early 1990s. During 1999-2007 the Japanese government enacted a series of stimulus packages to tackle the recession, which led to sizable primary deficits and an increase in the debt-to-GDP ratio as a consequence.

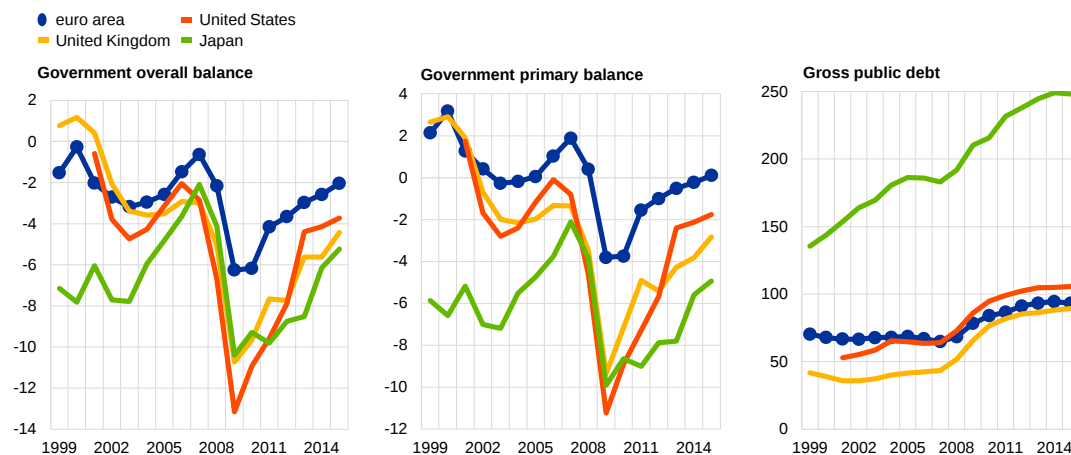
²⁴ contribution from Maria Manuel Trindade Campos

²⁵ To ensure cross-country comparability, the analysis undertaken in this box relies on the data from the IMF's World Economic Outlook, April 2016.

Chart A

Government balance and public debt developments

(% of GDP)



Source: IMF WEO, April 2016.

Note: Data for the United States covers the period after 2001 only.

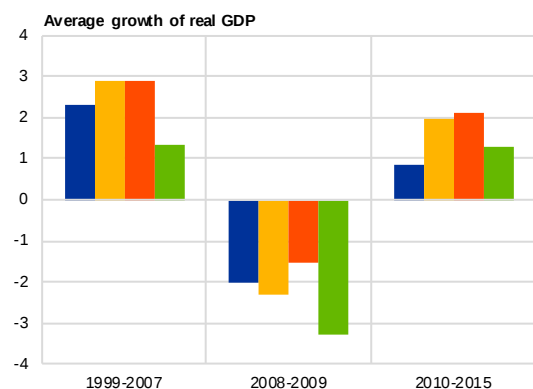
In 2008-09 the fiscal positions worsened significantly in all the analysed regions, with the drop in the headline balance being relatively smaller in the euro area. The deterioration mirrored the adverse macroeconomic conditions since the onset of the crisis, as reflected in the emergence of negative output gaps (see Chart B). Besides the economic environment, the operation of automatic stabilisers, the application of a discretionary expansionary fiscal policy and the bail-out of financial institutions played a role, albeit to a different degree across the regions (for the euro area, see van Riet (ed.), 2010).

Chart B

Cyclical conditions

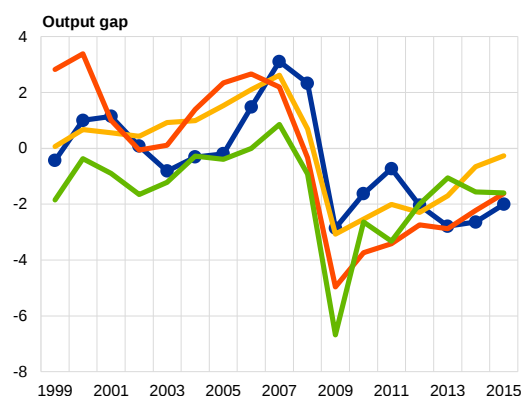
(annual percentage change)

Legend: euro area (blue), United States (orange), United Kingdom (yellow), Japan (green).



(percentage of potential GDP)

Legend: euro area (blue), United States (orange), United Kingdom (yellow), Japan (green).



Source: IMF WEO, April 2016

After 2009, as economies started to rebound, fiscal positions began to improve. The recovery was particularly pronounced in the United States and the United Kingdom, where primary deficits declined by 9.5 and 6.5 percentage points of GDP respectively between 2009 and 2015 (see Chart A). In the euro area, despite the fact that multiple countries embarked on front-loaded fiscal

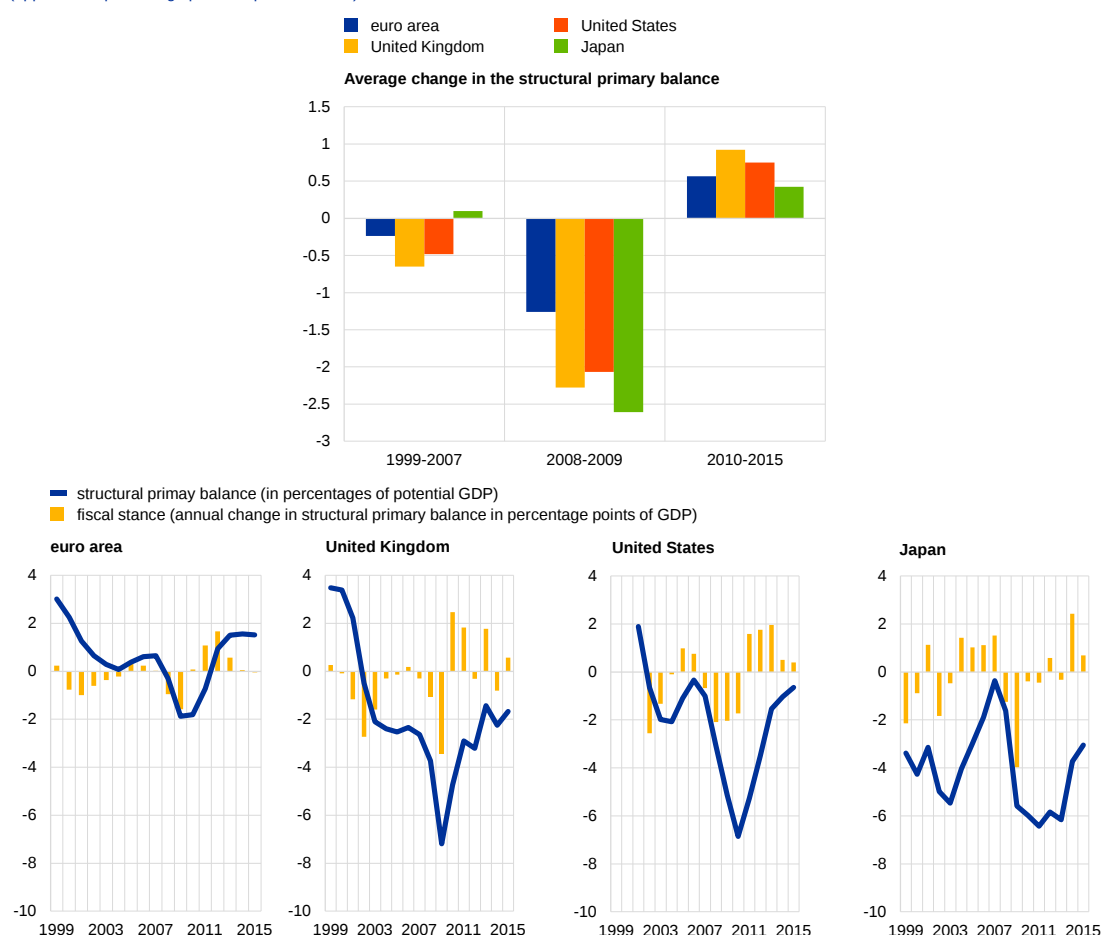
consolidation strategies, a more subdued economic recovery with a double-dip recession resulted in a milder improvement in the aggregate fiscal balance.

According to current estimates, primary structural balances deteriorated markedly during 2008-09, albeit to different degrees in different regions (see Chart C). Among other factors, such as revenue shortfalls, this reflects the fact that governments turned to countercyclical and expansionary fiscal policy in an attempt to stabilise their economies and mitigate the effects of the adverse shocks. Fiscal loosening measured by the cumulative change in the SPB was more limited in the euro area (-2.6 percentage points of potential GDP in 2008-09) compared with the United Kingdom, the United States and Japan (respectively -4.8, -4.4 and -5.6 percentage points of potential GDP). Fiscal loosening has been followed, albeit to a different extent across the regions, by improvements in structural balances, which reflected the unwinding of fiscal support and consolidation efforts aimed at improving sustainability of public finances.

Chart C

Fiscal policy developments

(upper chart: percentage points of potential GDP)



Source: IMF WEO, April 2016.

Notes: Fiscal stance is measured as the change in the structural primary balance as a percentage of potential GDP; data for the United States covers the period after 2001 only.

Regarding the experience with discretionary fiscal policy in the euro area, at the end of 2008 the European Commission set up an action plan to counter the effects of the economic downturn. This was included in the European Economic Recovery Plan (EERP), which relied on a coordinated

countercyclical fiscal stimulus across EU Member States amounting to 1.5% of GDP. The bulk of the stimulus (1.2% of EU GDP) was implemented at the national level and within the scope of each Member State's budget for 2009. According to the report by the European Commission entitled "Public Finances in EMU" (2009), the overall magnitude of the stimulus packages implemented in 2009-10 in the euro area as a whole amounted to 1.8% of GDP, with considerable variation across countries. The Commission recommended that the stimulus be implemented through a combination of revenue and expenditure and that it have the following characteristics: timely, temporary, targeted, and coordinated.²⁶ In terms of its effectiveness, simulations presented in the European Commission report (2009), imply that EERP was expected to generate an increase in real GDP growth of around 0.8 percentage point and 0.3 percentage point respectively in 2009 and 2010. Model-based evidence provided in Coenen et al. (2013), assuming the Commission's estimates for the magnitude of the stimulus, suggests that the EERP had a sizable, albeit short-lived, impact on euro area GDP.

Similarly, policymakers in the other regions sought recourse to discretionary fiscal policies in an attempt to counteract the economic crisis. In the United Kingdom, the loosening of the fiscal stance in 2009 reflected a fiscal stimulus based on a temporary cut in VAT rates that year. In the United States, the American Recovery and Reinvestment Act was enacted in 2009 and was later extended by the Tax Relief, Unemployment Insurance Reauthorisation and Job Creation Act of 2010. These packages encompassed tax cuts, a temporary decline in social security contributions and an extension of unemployment benefits. In Japan, the magnitude of the stimulus packages enacted by the government in 2008-09 ranks high among the G20 economies. The packages were mostly expenditure-based, as opposed to those of the United States and the United Kingdom. The measures included increases in government investment, subsidies and expenditure on employment programmes. Moreover, in December 2008 the government approved a comprehensive programme that increased the generosity of the social security system.

²⁶ The Communication from the Commission to the European Council outlines the principles of the design of the European Economic Recovery Plan (see [legal-content](#)).

5 Outlook and assessment of the euro area fiscal stance

5.1 Framework for the euro area fiscal stance assessment

This section provides an assessment of the projected outlook for the euro area fiscal stance through the lenses of the stabilisation and sustainability objectives discussed in Section 3. The outlook for the euro area fiscal stance is based on the European Commission's Spring 2016 forecast. It is compared with the desirable ranges of the fiscal stance that fulfil certain predefined stabilisation and sustainability objectives. Given the lack of a general prescription for fiscal policy, the two objectives are not combined into one formula, but should rather be considered separately. Notwithstanding this, they are subsequently checked for any conflicts.

In order to account for uncertainty, a desirable fiscal stance, which is expressed as the annual change in the structural primary balance (SPB) during 2016-17, is specified in the form of ranges. This is to reflect the measurement uncertainty (especially related to cyclical indicators) and inherent arbitrariness in the specification of both stabilisation and sustainability objectives. In line with Section 3, the fiscal stance is based on the annual change in the SPB, which enables it to be compared with the economic projections.²⁷

Given the difficulties surrounding the fiscal stance assessment, any policy recommendations regarding the euro area fiscal stance should err on the side of caution. The metrics developed in this paper should not be considered conclusive measures of stabilisation and sustainability objectives. In particular, the reliance on output gap estimates in this exercise makes the calculation of stabilisation needs uncertain. Instead, the analysis is aimed at illustrating a possible framework for the discussion of the appropriateness of the euro area fiscal stance.

This assessment builds on the methodology proposed by the European Commission (2015) and includes several innovations.²⁸ First, the assessment horizon is longer (two years instead of one), which provides a more complete picture of macroeconomic and fiscal developments. Second, the incorporation of a risk scenario captures some of the uncertainties surrounding current economic projections. Finally, the use of the endogenous growth equation in our calculations

²⁷ The derivation of the desirable fiscal stance assumes equal annual change in the SPB in both years.

²⁸ The European Commission (2015) proposes an approach to assess the appropriateness of the euro area fiscal stance. The stabilisation objective of the Commission's assessment is captured by the change in the SPB that ensures a closure of the output gap by 25% and 50% during 2016, which is the year under investigation. The sustainability objective is captured by a variant of the S1 indicator, which quantifies the cumulative adjustment of the SPB over 2016-20 needed to bring the government debt-to-GDP ratio to 60% of GDP in 2030. The calculation takes into account projected ageing-related spending. A quarter of this adjustment is treated as the amount satisfying the sustainability objective in 2016.

allows us to incorporate the effect of fiscal measures on economic growth in a consistent way across the assessment horizon.²⁹

By way of example, a desirable fiscal stance driven solely by the stabilisation objective could be assumed to ensure an output gap closure by 50-100% during 2016-17 with respect to the level estimated in 2015. The use of the range reflects the uncertainty about what constitutes a desirable pace for closing the output gap and its measurement. With regard to the assumed values, these would, to a significant degree or even entirely, address the existing negative output gaps over the next two years. In practice, this would put an end to the accumulation of GDP losses in the euro area, with respect to its potential, as has been the case since 2009. This pace of closure might not be feasible for countries starting with an unusually large output gap, in which case a more gradual pace of closure might need to be pursued in reality.

With regard to the stabilisation objective, the analysis uses the output gap as the most comprehensive measure of economic slack. Importantly, the methodology takes into account the development of the projected output gap with an unchanged fiscal stance. As such, the calculations are more suitable than the ones relying solely on the estimated output gap at a certain point in time without considering a forward-looking element. This is because even if an economy has a significant negative output gap, a supportive fiscal policy may not be needed if it moves towards its potential at a sufficiently quick pace.

According to the European Commission's Spring 2016 European Economic Forecast, the output gap of the euro area was estimated at around -2% of GDP in 2015 and is projected to shrink significantly over the 2016-17 period.³⁰

Adjusted for the slightly expansionary fiscal stance, the output gap was envisaged to close by around half by the end of 2017.³¹ The projection that the output gap of the euro area would remain in negative territory reflected unused capacity in many Member States, which was only partially offset by several countries which had a positive gap. In the same vein, a significant closure of the gap at the aggregate level reflected shrinking gaps in multiple countries.³²

The fiscal stance warranted solely based on the sustainability objective could be based on the SPB adjustment necessary to reach a ratio of government debt to GDP of 60% in the period 2025-35.³³ The approach taken in this paper for

²⁹ This framework models real GDP growth endogenously as a weighted average between its own lag and the potential GDP growth rate. The growth equation includes a cyclical closure of the output gap. The fiscal stance is introduced with a standard fiscal multiplier of 0.55. The potential GDP remains exogenous and, in particular, does not respond to non-zero output gaps persisting for a long period of time. For details, see Warmedinger et al., (2015).

³⁰ The output gap estimates from the European Commission's Spring 2016 European Economic Forecast that are used in the assessment may differ in size or even in sign from other output gap estimates.

³¹ The calculation adjusts for projected changes in the SPB during 2016-17 with a standard multiplier of 0.55. As such, the output gap evolution assumes an unchanged fiscal stance compared to 2015.

³² See the European Commission's Spring 2016 European Economic Forecast for exact figures.

³³ According to the SGP, Member States should not target a 60% debt-to-GDP ratio, but consider it as a threshold.

illustrative purposes relies largely on the S1 indicator of the European Commission.³⁴ In order to derive a range for a desirable stance, two end dates (2025 and 2035) for bringing the debt-to-GDP ratio to the target of 60% feature in our analysis. Following the construction of the S1 indicator, the change in the SPB is spread equally over the entire five-year period of 2016-20. However, in line with the assessment horizon for the stabilisation objective, the analysis developed here is confined to the period 2016-17.

In essence, this paper assumes that sustainable fiscal policies require the debt-to-GDP ratio to return to an acceptable level in the medium term. This is operationalised using a modified version of the European Commission's S1 indicator, which accounts for multiple relevant considerations. Most notably, it encompasses the current level of debt, its expected evolution and the expected cost of ageing-related spending, which are both relevant for the assessment of public finance sustainability. It is also important that the S1 indicator is tractable and is closely related to a more comprehensive debt sustainability analysis, which is not necessarily the case for other indicators (e.g. the distance to a structural balance budget, a debt rule or the S2 indicator).

The S2 indicator is aimed at representing fiscal sustainability from a theoretical perspective, but its application for policy purposes is problematic.

The S2 indicator is based on the required permanent SPB adjustment necessary to satisfy the government's intertemporal budget constraint over the infinite horizon.³⁵ As such, this sustainability concept is fully consistent with the definition of fiscal solvency, which requires that the present value of future primary balances is at least equal to the current level of debt. However, the S2 indicator does not define any specific debt-to-GDP ratio requirement. In fact, the adjustment implied by the indicator might also lead to debt stabilising at relatively high levels. As a result, the indicator may fail to identify relevant risks to sustainability in the short and medium term. Indeed, many countries that were assessed in the European Commission's 2015 Fiscal Sustainability Report on the basis of the S2 indicator as having a low risk of long-term fiscal sustainability challenges were actually assessed to face a high fiscal sustainability risk in the medium term.³⁶

A fiscal stance that is desirable from a sustainability perspective should primarily be interpreted as a measure of fiscal space, which becomes a binding restriction for countries subject to sustainability concerns. Targeting a government debt-to-GDP ratio of 60% in the medium term results in a call for fiscal tightening in countries with high levels of debt. By contrast, it implies a loosening of the fiscal stance for countries with a low debt-to-GDP ratio and/or favourable debt dynamics, which is not a desirable policy from a sustainability point of view. In the

³⁴ The standard S1 indicator estimates the adjustment in the SPB necessary in 2018-22 to bring debt-to-GDP ratio to the 60% reference value in 2030.

³⁵ See Annex A2 of the 2015 Fiscal Sustainability Report of the European Commission (2016a) for the exact specification.

³⁶ For details, see Section 6 (Overall assessment of fiscal sustainability challenges) of European Commission (2016a). The differences in sustainability risk assessment particularly concern Ireland, Spain, France, Croatia and Italy.

latter case, the desirable fiscal stance essentially provides a quantification of their positive fiscal space.

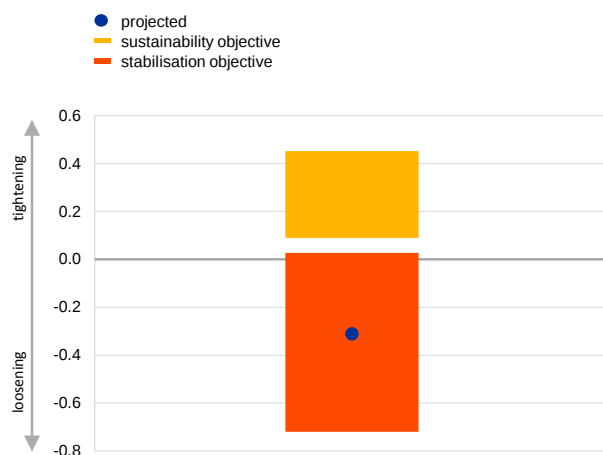
5.2 Assessment of the fiscal stance under the baseline scenario

While a mildly expansionary euro area fiscal stance appears warranted from a stabilisation perspective, the sustainability criterion would require a slight tightening (see Chart 4). The calculations indicate that a 50-100% reduction in the output gap would require 0.0-0.7 percentage point of GDP average annual loosening in the structural primary balance. On the other hand, compliance with the S1 indicator-based sustainability criterion by all countries would imply an annual tightening amounting to 0.1-0.5 percentage point of GDP for the euro area aggregate. Both ranges of course mask country heterogeneity, with single Member States exhibiting significantly different fiscal policy needs.

Chart 4

Euro area fiscal stance assessment under the baseline scenario

(annual change in SPB during 2016-17; percentage points of GDP)



Sources: European Commission's Spring 2016 European Economic Forecast and own calculations.

Note: The calculations assume a standard fiscal multiplier of 0.55.

From a stabilisation perspective, a desirable aggregate euro area fiscal stance can be reached through various combinations of national stances, but an optimal policy would need to consider the country dimension. Hypothetically speaking, the recommendable stance for the euro area as a whole could be achieved by some countries implementing more restrictive than required fiscal policies which would offset other countries' looser than warranted stances. However, this would lead to imbalances: in some cases, it would lead to larger than advisable negative output gaps; in others, it would lead to overheating, especially in a situation of limited spillover effects (see Box 4). Unaddressed deviations at the country level, particularly those of a large magnitude, would hinder convergence in EMU. In this context, they should be regarded as far from optimal and minimised to the extent possible. On the other hand, the implementation in each country of the warranted fiscal stance would bring the euro area stance within the

desirable interval, while addressing national needs. Only a euro area fiscal stance achieved in this way could be deemed entirely optimal from a stabilisation perspective.

The sustainability objective needs to be achieved at country level given the institutional set-up of EMU. The sovereign crisis has demonstrated that fiscal sustainability risks, even in a small country, can have adverse implications for the entire Union. Given that the responsibility for public finances falls to the national level, it is crucial that each country follows its own sustainability objective. Without mutualised euro area debt and with the "no-bail-out clause", the euro area aggregated government debt has very limited meaning. In this context, the

improvement in the SPB for the euro area implied by the sustainability objective is merely an aggregation of country results.

The projected mildly expansionary aggregated euro area fiscal stance fulfils the stabilisation objective, but deviates slightly from the range implied by the sustainability objective (see Chart 4). The projected average change in the SPB of -0.3 percentage point of GDP should ensure closure by two-thirds of the 2015 output gap by 2017. In this context, the SPB change falls into the stabilisation-implied range (from -0.7 to 0.0 percentage point of GDP) derived for the euro area. Importantly, the analysis of the aggregated stance does not reveal country deviations even if these exist. Turning to the sustainability objective, the desirable aggregated euro area fiscal stance would call for an improvement in the SPB in the range of 0.1-0.5 percentage point of GDP. This is more restrictive than the average change of -0.3 percentage point of GDP foreseen in the projections. The slight deviation at the aggregate level may mask large differences at the country level. As explained previously, addressing these is important given the institutional setup of the euro area.

The relatively small discrepancy between the stabilisation and sustainability objectives for the euro area may mask significant differences at the country level. The stabilisation-implied fiscal stance for the euro area is slightly more expansionary compared with the one focusing on sustainability. The difference points to a limited trade-off between the two objectives. These deviations could be significantly higher at the national level, especially in countries facing a significant and persistent output gap and elevated fiscal sustainability risks.

Our assessment seems broadly consistent with the view expressed recently in European fora. Indeed, the Eurogroup has repeatedly stressed that, while the aggregate stance implied by the plans could be viewed as broadly appropriate, its composition across Member States is problematic. This is because Member States with remaining fiscal imbalances were falling short of SGP commitments, implementing a looser than warranted fiscal stance, while Member States with fiscal space were not fully using it.³⁷

A more growth-friendly composition of fiscal policies can be an alternative to a supportive fiscal stance. As evident from the assessment, trade-offs between the stabilisation and sustainability objectives can exist. They may impose a limit on the contribution that fiscal policy can provide to a macroeconomic stabilisation. An alternative to an expansionary fiscal stance would be a neutral adjustment of fiscal policies towards a more growth-friendly composition of public finances (see Box 3).

³⁷ See, for example, the "Eurogroup Statement on the Draft Budgetary Plans for 2016", 23 November 2015.

Box 3

Growth-friendly fiscal policies – an assessment of alternative scenarios³⁸

General considerations

In the current environment of low growth and low inflation, the extent to which fiscal policy can support economic recovery is widely debated. However, even if there appears to be limited, if not non-existent, room for fiscal policy to play an active role, fiscal policy is not completely out of ammunition. Moving towards a more growth-friendly composition of fiscal policies can be an option to support growth without endangering fiscal sustainability. On the spending side, this means reallocating resources in a way that creates space for growth, by enhancing spending categories. On the revenue side, it means shifting the structure of taxation away from more distortionary taxes towards taxes that are relatively less distortive for agents' economic decisions.

The economic literature provides evidence that fiscal multipliers tend to be instrument-specific. The short-run effects of fiscal policy on economic growth depend, among several other factors, on the composition of fiscal packages.³⁹ In general, fiscal multipliers are assessed to be higher (around one or above) for expenditure items such as government investment and government consumption, whereas smaller multipliers are estimated for direct and indirect taxes, as well as for transfers. In particular, changes in government consumption and investment are likely to have a more direct impact on aggregate demand, while changes in taxes and transfers to households affect an economy via consumption and savings behaviour.

On the revenue side, a shift in taxation from distortionary taxes (e.g. direct taxes on labour) towards relatively less distortionary ones (e.g. consumption taxes) is often advocated. This recommendation rests on the claim that labour income taxes, by distorting individuals' labour supply decisions and firms' incentives to hire workers, are detrimental to growth.⁴⁰ On the other hand, consumption taxes are deemed to be relatively less distortionary as they do not affect intertemporal consumption decisions (i.e. consumption now and consumption in the future are taxed equally). The idea of shifting the burden of taxation from direct to indirect taxes has also gained traction in the debate about the merits of fiscal devaluation as a tool to regain external competitiveness in the presence of a fixed exchange rate.⁴¹

On the expenditure side, a shift of resources to relatively more productive categories is advocated. For example, reducing transfers to households, which may distort incentives to look for a job, could free up space for new and growth-enhancing spending programmes, thereby boosting public

³⁸ contribution from Maria Grazia Attinasi

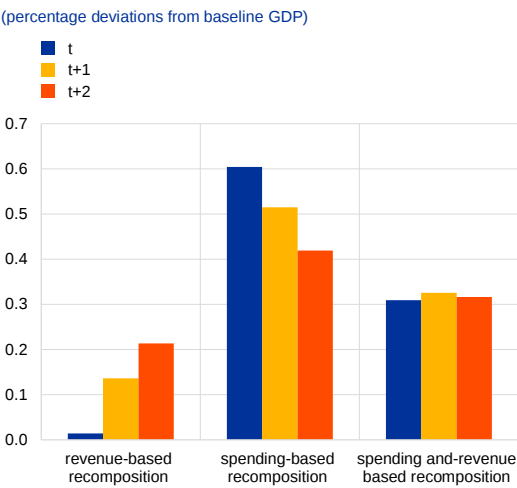
³⁹ Warmedinger et al., (2015) provide a review of the literature on fiscal multipliers and the factors that influence their size.

⁴⁰ This concerns both the decision to enter the labour market (i.e. the extensive margin of labour supply) and the decision by individuals regarding the number of hours to work (i.e. the intensive margin of labour supply).

⁴¹ The standard textbook definition of fiscal devaluation entails a cut in the employer's social security contributions, which is offset by an increase in VAT. In such a scenario and under the assumption of sufficiently rigid wages and competitive markets, a cut in social security contributions paid by employers reduces unit labour costs, which in turn leads to lower producer prices. Higher taxes on consumption, on the other hand, foster domestic firms' competitiveness as they apply to domestically produced and imported goods equally, but not to exported goods, which are subject to the consumption tax of the destination country. This generally leads to an increase in output and production.

investment.⁴² With regard to the government wage bill, Perez et al. (2016) point to the fact that, while cuts in public wages may generate adverse short-term macroeconomic effects, these are mitigated by indirect favourable labour market effects via a number of channels. In particular, public wage moderation via interlinkage with private wages may set in motion a labour market adjustment with positive effects on firms' competitiveness.

Chart A
Growth-friendly recomposition of government budget: an illustrative assessment



Source: Own calculation using the ESCB's macroeconomic elasticities.

Using the ESCB's macroeconomic elasticities, the short-term implications of three recomposition scenarios are assessed.⁴³ The revenue-based scenario assumes a permanent cut in direct taxes on labour of 1% of GDP, which is entirely funded by an increase in consumption taxes. The spending-based recomposition scenario assumes a permanent increase in government investment of 1% of GDP, which is financed by a reduction in government transfers to households and government sector wages split evenly. Finally, a combination of the two scenarios is considered in which cuts in direct taxes and increases in government investment (each of 0.5% of GDP) are financed by higher indirect taxes (0.5% of GDP) and lower government transfers and public wages (each reduced by 0.25% of GDP). The short-term effects on growth are expressed in terms of deviations from the GDP baseline level and are illustrated in Chart A.

According to the simulations, the growth effects of the revenue-based recomposition are smaller in size compared with those of the spending-based scenario. This is on account of the smaller size of fiscal revenue multipliers compared with the spending multipliers, especially those associated with government investment. The effect on the level of GDP is negligible on impact, but it strengthens in the subsequent years. A spending-based recomposition tends to yield larger gains in GDP. The growth-enhancing effects of higher investment more than offset the negative impact of cuts in transfers to households and public wages. In the short run, an increase in government investment supports economic growth mainly via aggregate demand. In the long run, additional public investment also contributes to the productive capacity of the economy, thereby producing long-lasting effects.

The above results should be interpreted with caution. The simulations are conducted under the assumption of normal economic conditions. As documented in the literature, fiscal multipliers tend to be higher during periods of economic recession, when the proportion of liquidity-constrained households in the economy is higher. This may also be the case during periods of financial crisis

⁴² Lorenzani and Reitano (2015) emphasise the objective of expanding fiscal space to prioritise new and growth-enhancing spending in the context of spending reviews undertaken in Italy.

⁴³ In essence, the ESCB's macroeconomic elasticities represent a reduced-form multi-country model, which is linearised around a certain baseline.

and when monetary policy is constrained by the zero lower bound. Moreover, the degree to which agents in the economy anticipate government plans also affects the size of fiscal multipliers.

Furthermore, the assumptions about investment efficiency and productivity of public capital are crucial for long-term effects. As shown in the article by the European Central Bank (2016a), budget-neutral recomposition in which higher government investment is funded by alternative instruments is also growth-enhancing in the long term. However, the effects are smaller when the efficiency of investment is low or when the output elasticity of public capital is low (i.e. the public capital has no productive use).

In addition, the growth effects of a revenue-based recomposition crucially depend on the modelling assumptions underlying the government sector and the labour market structure. Attinasi et al. (2016), using a DSGE with firms that are able to adjust employment via the intensive and the extensive margin (i.e. by changing the number of hours worked by existing employees or by hiring new workers, respectively), show that reducing labour income tax brings more favourable macroeconomic effects (in terms of long-term GDP growth) than a cut in firms' social security contributions.⁴⁴ This stands in contrast with the findings of the literature on fiscal devaluation, which generally do not consider the intensive and extensive margin in a unified framework.

What is more, the size of the budget recomposition considered in this box is mainly for the purpose of illustration and its actual feasibility depends on a number of factors, including political considerations. In reality, the size of the assumed changes in the relevant fiscal variables needs to be carefully assessed. For example, the spending-based recomposition scenario assumes an increase in government investment by 1% of GDP. However, given that government investment accounts for a relatively small share of GDP (2.7% of GDP in the euro area in 2015), such a scenario might imply unrealistically high increases in government investment in a single year (around 40%).

Finally, the analysis presented in this box does not cover long-term structural reforms, such as those in the area of public financial management and tax administration. Such reforms are an important complement to ensure durable benefits from a fiscally neutral budget recomposition. They usually take longer to materialise and are hard to measure and to model.

5.3 Assessment of the fiscal stance in an adverse scenario

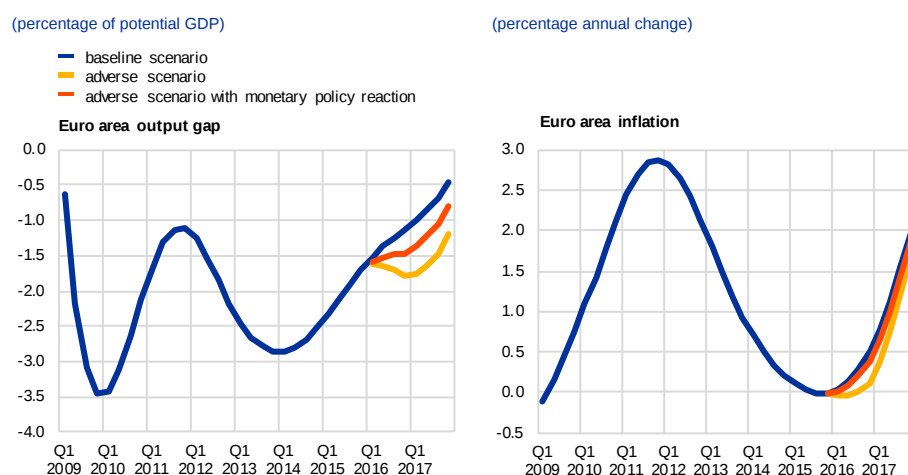
Below, the paper considers a scenario in which the euro area economy is hit by temporary, albeit persistent, adverse shocks in 2016.⁴⁵ The purpose of this exercise is to investigate how the assessment of the euro area fiscal stance changes if the downside risks surrounding the economic projections described in Section 1 materialise. In this illustrative adverse scenario, the growth rate of the euro area

⁴⁴ Attinasi et al. (2016) provide a comprehensive explanation of the mechanism behind this particular finding.

⁴⁵ The adverse scenario consists of preference and investment shocks symmetrically affecting both regions (Germany and the rest of the euro area).

output is lower by 0.8 percentage point in 2016-17 in cumulative terms.⁴⁶ This would result in a situation in which the output gap of the euro area would widen in 2016 before starting to close again (see Chart 5, left-hand side). In normal circumstances, conventional monetary policy would react to the negative shock and provide some support to the economy (green line in Chart 5), but this may not necessarily be the case when the policy rate is constrained at the lower bound.

Chart 5
Adverse scenario



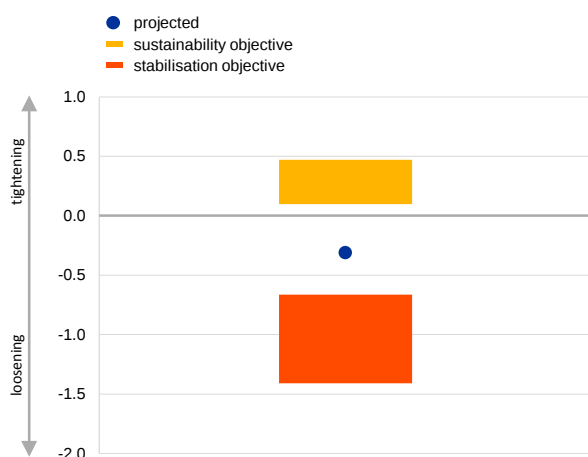
Source: Own calculations using the EAGLE model (see Section 7 for a description of the model).
Note: The baseline is consistent with the European Commission's Spring 2016 European Economic Forecast.

⁴⁶ The magnitude of the adverse scenario is broadly consistent with a scenario of a synchronised downturn in emerging market economies, as described in the March 2016 ECB staff macroeconomic projections for the euro area ([ecbstaffprojections](#)).

Chart 6

Euro area fiscal stance assessment under the adverse scenario

(annual change in SPB during 2016-17, percentage points of GDP)



Sources: European Commission's Spring 2016 European Economic Forecast and own calculations.

Note: The calculations assume a standard fiscal multiplier of 0.55.

In the illustrative adverse scenario, the trade-off between stabilisation and sustainability widens as the latter increases more than the former. Compared with the baseline scenario, in which the output gap projected to close by over two-thirds, the reduction in the output gap in the adverse scenario would be far more limited (less than one-third by the end of 2017 with respect to the estimated level for 2015). On the other hand, given the cyclical nature of the shocks in the adverse scenario and under the assumption that the projected structural balances do not change, the increase in sustainability risk is negligible. As a consequence, the projected aggregated euro area fiscal stance would be further away from the stabilisation objective and could no longer be considered broadly appropriate from this perspective (see Chart 6). Section 7 discusses a fiscal stimulus in Germany as a policy option to achieve a more expansionary euro area fiscal stance.

6 Stabilisation and sustainability in the institutional framework of EMU

The SGP includes various elements that consider the state of the economy with the application of fiscal rules. Most importantly, the first SGP reform in 2005 introduced the concept of the structural balance, thus accounting for cyclical impacts on the government budget balance. The medium-term budgetary objectives (MTOs), which set country-specific structural balance targets over the medium term, are designed, inter alia, to ensure sustainable government debt ratios. At the same time, MTOs are aimed at ensuring sufficient fiscal space to deal with cyclical downturns through the operation of the automatic stabilisers.

For countries under the preventive arm of the SGP, the structural adjustment requirements towards the MTO are modulated by the size of the output gap and economic growth, as well as the level of the government debt ratio. A matrix released in a Commission Communication on making the best use of the flexibility within the existing rules of the SGP⁴⁷ defines different states of the economy. The Communication distinguishes between “good times” and, beyond this, granulates economic developments which are worse than those experienced in “normal times” into “bad”, “very bad” and “exceptionally bad times” (see Table 1).⁴⁸ Consequently, in an unfavourable economic environment, even countries with a high debt-to-GDP ratio could be allowed to let their structural balance deteriorate and still be compliant with the EU's fiscal rules.

⁴⁷ The communication of the Commission Communication can be found under at [communication_sgp_flexibility_guidelines](#).

⁴⁸ These adjustment requirements can be reduced further if a country implements structural reforms or undertakes public investment, with the possible reduction capped at 0.75% of GDP. The communication of the Commission can be found under [communication_sgp_flexibility_guidelines](#).

Table 1

Matrix for specifying the annual fiscal adjustment towards the MTO under the preventative arm of the SGP

	Condition	Required annual fiscal adjustment (as a percentage of GDP)	
		Debt below 60% and	Debt above 60% or sustainability risk
Exceptionally bad times	Real growth <0 or output gap <-4	No adjustment needed	
Very bad times	-4 ≤ output gap <-3	0	0.25
Bad times	-3 ≤ output gap <-1.5	0 if growth below potential, 0.25 if growth above potential	0.25 if growth below potential, 0.5 if growth above potential
Normal times	-1.5 ≤ output gap <1.5	0.5	>0.5
Good times	output gap ≥ 1.5%	>0.5 if growth below potential, ≥0.75 if growth above potential	≥0.75 if growth below potential, ≥1 if growth above potential

Source: European Commission.

Under the SGP's corrective arm, excessive deficit procedure (EDP) deadlines can be extended, which effectively lower the amount of required structural adjustment. This would be the case if there were a positive assessment of the delivered fiscal effort ("effective action") and unexpected adverse economic events with major unfavourable consequences for government finances. Furthermore, various relevant factors, such as low inflation, are taken into account when assessing compliance with the requirements under the debt rule.

The SGP also contains a general escape clause, introduced with the second SGP reform in 2011. This can be triggered for all euro area countries in case of "an unusual event outside the control of the Member State concerned, which has a major impact on the financial position of the general government or in case of severe economic downturn for the euro area or the Union as a whole". In the event of such developments, it is possible to depart from the adjustment requirements under the preventive arm. Similarly, the fiscal effort requirements under EDPs can be adjusted and EDP deadlines can be extended. However, under the corrective arm, an annual structural improvement of 0.5% of GDP should in principle apply. In any case, the general escape clause can only be triggered if it does not endanger the fiscal sustainability of the Member State concerned in the medium term. However, the exact conditions for the application of this clause (including the metric for sustainability) are not explicitly defined.⁴⁹

The SGP is aimed at ensuring fiscal sustainability and contains provisions that are conducive to fulfilling the stabilisation objective. Chart 7 shows the assessment of the euro area fiscal stance under the baseline scenario with the requirements implied by the SGP along with the projected evolution of the fiscal stance. The SGP-based requirements take into consideration country-specific

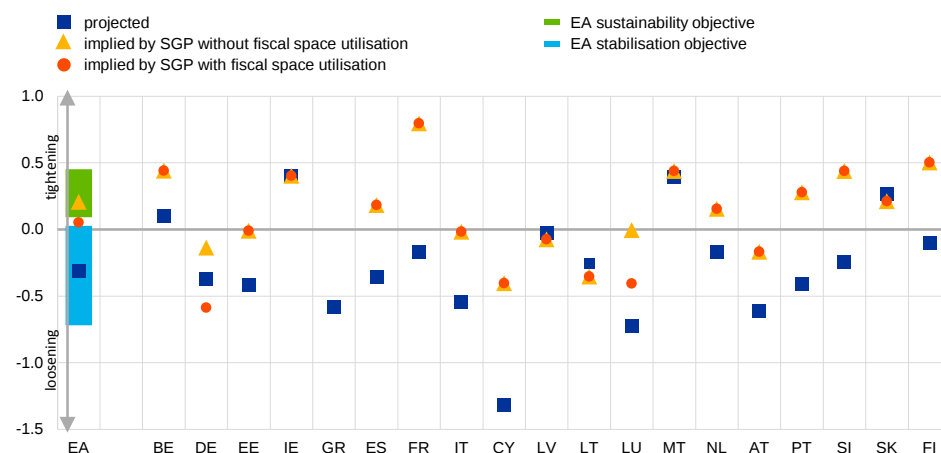
⁴⁹ The European Fiscal Board could play a role in activating the "general escape clause" of the SGP, for example, by providing an assessment of whether sustainability considerations are duly taken into account.

recommendations, including flexibility regarding cyclical conditions and the application of investment and structural reform clauses. For the euro area as a whole, SGP's implied fiscal stance, without using available fiscal space, is tilted towards the sustainability objective. The fiscal loosening that is allowed, although not required, by the SGP in countries with positive fiscal space (most notably Germany and Luxembourg), would bring the overall SGP-based euro area fiscal stance slightly closer to the stabilisation objective.

Chart 7

Euro area fiscal stance assessment and the SGP

(annual change in SPB during 2016-17; (p.p. of GDP))



Sources: Own calculations based on the European Commission's Spring 2016 European Economic Forecast and country-specific SGP requirements.

Notes: The SGP requirements, which are expressed in overall structural balance changes, are translated into structural primary balance changes by adding projected interest payments. This is with a view to aligning the quantitative SGP requirements with the definition of the fiscal stance outlined in this paper based on the change in the structural primary balance. The SGP requirements are not available for Greece, given that the country remains under the EU/IMF economic adjustment programme. The fiscal stance without using fiscal space assumes an unchanged fiscal stance for countries above their MTO, given that the SGP would only allow, but not strictly require, fiscal loosening. On the other hand, the fiscal stance using fiscal space is based on the assumption that countries use positive fiscal space relative to their MTO.

The SGP provisions may not automatically ensure an appropriate euro area fiscal stance.

First, the fact that the SGP-implied stance for the euro area tilts towards the sustainability objective is primarily on account of a certain asymmetry. The SGP requires fiscal tightening in countries with debt sustainability concerns, but it does not stipulate an expansion in the presence of positive fiscal space. Second, from the euro area perspective, when countries with legacy sustainability issues start strictly adhering to SGP requirements, there is no mechanism in place to compensate for this effect with a loosening of the stance in other countries that possess fiscal space, even if it is needed for the aggregate. Finally, there may be idiosyncratic reasons for some Member States to target a stricter MTO than the obligatory minimum stipulated by the SGP framework. On a separate note, it should be noted that, under Regulation (EU) No 473/2013, which is a part of the two-pack, in their assessment of the draft budgetary plans of the euro area Member States, the Commission and thereafter the Eurogroup consider the "overall assessment of the budgetary situation and prospects in the euro area as a whole, on the basis of the national budgetary prospects and their interaction across the area". This assessment

also outlines “measures to reinforce the coordination of budgetary and macroeconomic policy at the euro area level”.⁵⁰

⁵⁰ Article 7(4) of Regulation (EU) No 473/2013.

7 Illustration of a fiscal stimulus in an adverse scenario

In the case of an adverse economic scenario one may see more need for an active fine-tuning of the euro area fiscal stance. Following on from the adverse scenario discussed in Section 5.3, in which the fiscal stance insufficiently addresses stabilisation needs, an expansion in some Member States is one option. This would result in a more desirable fiscal stance for the euro area as a whole, which could counteract adverse macroeconomic shocks in the absence of a (sufficiently strong) monetary policy response.

The fiscal expansion considered in this analysis is designed to have a potentially significant impact on the euro area economy and to minimise its adverse effects on debt sustainability risks. The expansion consists of public consumption and investment, given that short-term fiscal multipliers are relatively high for these spending categories.⁵¹ It is implemented in a timely manner in the second quarter of 2016 following adverse shocks in the first quarter of 2016 and lasts until the end of 2017. The spending increase is only implemented in Germany, as this is the only sizable country with some positive fiscal space implied by the SGP framework. An increase of 1% of GDP in public expenditure is assumed for illustrative purposes. The monetary policy with the nominal interest rate in the euro area, which remains unchanged until the end of 2017, is accommodative. The sensitivity analysis of this assumption, as well as the share of liquidity constrained households, which amounts to 25% in the simulation, is presented in the Annex.

This paper attempts to investigate the macroeconomic effects of the fiscal stimulus within the general equilibrium framework. To this end, it makes use of the multicountry Euro Area and Global Economy (EAGLE) model, the basic version of which is described in Gomes et al. (2012). The EAGLE has been calibrated for Germany, the rest of the euro area, the United States and the rest of the world. In addition, the model includes some extensions to make public consumption and investment less trivial in line with Clancy et al. (2016). In particular, government capital stock is an important factor of production. As a result, fluctuations in public investment not only have short-term demand effects, but also long-term supply effects. In addition, households derive utility from both private and public consumption, which complement one another. Unlike Clancy et al. (2016), government purchases of intermediate goods are fully biased towards domestic firms.⁵²

⁵¹ Even stimulus packages that are equally split between government consumption and investment would result in a significant increase in investment spending in Germany, given its value of 2.2% of GDP in 2015.

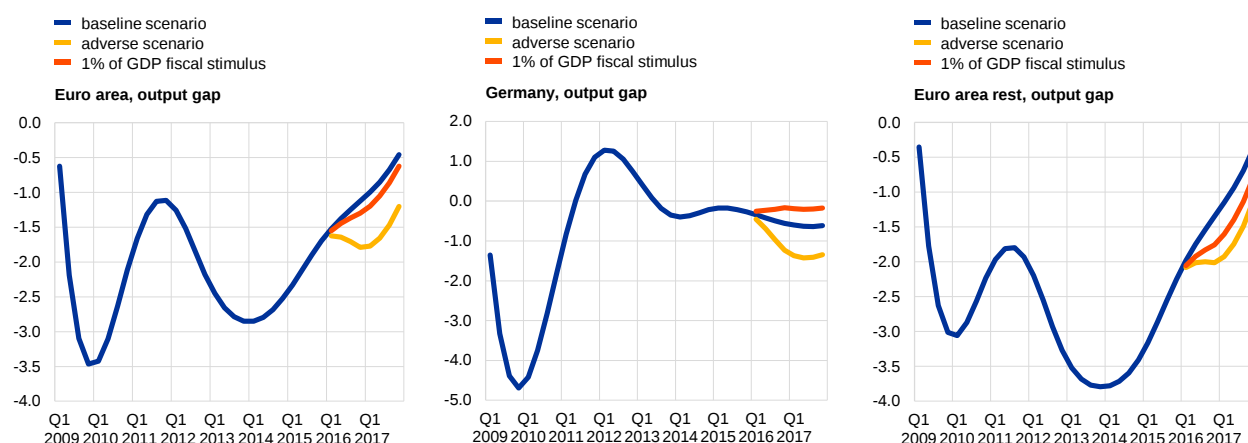
⁵² In the investigation of small euro area economies (Ireland and Slovenia), Clancy et al. (2016) assume that final public goods (both investment and consumption) are assembled using both domestic and imported goods. This model complication is not necessary for Germany owing to the availability of all goods on the domestic market.

The simulations indicate that a spending increase in Germany in 2016-17 after a negative shock to the euro area would have a stabilising impact on both the German and the euro area economies. The expenditure increase of 1% of German GDP would largely eliminate negative effects of adverse shocks and bring the output gap broadly back on track, which is currently anticipated in the projections (see Chart 8, left-hand side). Certainly, a fiscal stimulus implemented in Germany has a much larger impact on German economic output than the rest of the euro area. Fiscal support amounting to 1% of GDP would more than counteract the impact of adverse shocks in Germany. Given the European Commission's projections, it would close the output gap (see Chart 8, centre). At the same time, the expansion would also support closing the output gap in the rest of the euro area, given non-negligible spillover effects (see Chart 8, right-hand side).

Chart 8

The effects of the stimulus on the output gap

(percentage of potential GDP)



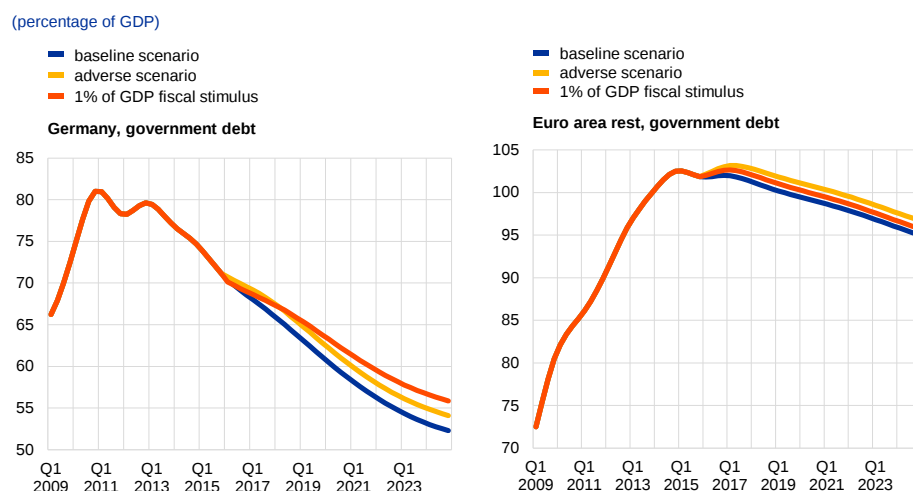
Source: Own calculations with EAGLE model.

Note: The baseline is consistent with the European Commission's Spring 2016 European Economic Forecast.

In the long run, the fiscal stimulus would increase the government debt-to-GDP ratio in Germany. The increase in public expenditure in Germany is assumed to be debt-financed. In the short term higher spending is broadly offset by positive demand effects on GDP and the fiscal balance. After two to three years, however, an increase in debt becomes evident as the positive impact is not sufficient enough to outweigh accumulated costs. As a result of the fiscal stimulus of 1% of GDP, the debt-to-GDP ratio in Germany is higher by around 2 percentage points in the long run (see Chart 9, left-hand side). Since there is no fiscal stimulus in place in the rest of the euro area, there are no direct negative effects on the government debt-to-GDP ratio. Some indirect positive effects from the increase in output through spillovers can be observed (see Chart 9, right-hand side).

Chart 9

The effects of the stimulus effects on government debt



Source: Own calculations with EAGLE model.

Note: The baseline is consistent with data extrapolated from the European Commission's Spring 2016 European Economic Forecast.

The effectiveness of fiscal stimulus stabilisation is sensitive to the spillover effects of national fiscal policies into other countries.

In our analysis, the fine-tuning of the euro area fiscal stance rests on countries that can afford a limited fiscal expansion, without undermining the sustainability of public finances. It is of crucial importance whether the benefits of this policy reach those other economies that continue to have a strong need for output stabilisation. The estimates of the size of spillover effects within the euro area are uncertain and differ depending both on the models used and economic circumstances (see Box 4 for discussion).

Box 4

Fiscal spillover effects in the euro area

A fiscal shock in one country affects the output in other economies via three main channels: (1) trade interlinkages; (2) the real exchange rate; and (3) the interest rate. While in reality they all work simultaneously, this box briefly explains how each of them work in isolation in a monetary union set-up. Moreover, it compares the magnitudes of spillover effects present in the fiscal stimulus simulations of this paper, supported by findings in the relevant literature. Finally, some sensitivity analysis is performed by conducting simulations under various modelling assumptions.

With regard to trade interlinkages, a fiscal expansion in one country can benefit economic activity in a second economy, as higher aggregate demand would partly spill over into demand for foreign goods. The extent to which this effect materialises depends on both the magnitude of the domestic

multiplier and the importance of trade links. This channel should be particularly relevant in the euro area, where trade linkages between member countries are strong.⁵³

As far as the real exchange rate is concerned, in a monetary union where the nominal exchange rate is fixed among member states, this channel would work mainly via changes in the real effective exchange rate. Most notably, in the event of a fiscal expansion, the increase in domestic prices would reduce the competitiveness of the home economy to the benefit of other members, which would result in switching towards relatively cheaper imports. Additional dynamics may be put in place if a country implementing fiscal expansion is sufficiently large enough to cause an appreciation of the monetary union currency in relation to the rest of the world. This would give rise to negative effects stemming from trade with partners outside the union.

Regarding the interest rate channel, a fiscal expansion should, in principle, lead to an increase in interest rates in the home economy. However, in a monetary union, the significance of this channel differs depending on the country implementing a stimulus. If the domestic economy is sufficiently large (e.g. Germany) a fiscal expansion may exert upward pressure on area-wide inflation, thus leading to a monetary policy response by the central bank. This would result in negative spillover effects through interest rate increases in the monetary union.

In the baseline calculations using the EAGLE model presented in this paper, additional spending of 1% of GDP in Germany is estimated to increase output in the rest of the euro area by around 0.3% of GDP after two years. This corresponds to a spillover ratio of 0.28, as shown in Chart A. A crucial assumption in this respect, as illustrated by the sensitivity analysis below, is the assumption of exogenous monetary policy over two years. This estimate of the effects on foreign output lies in the upper range of the values discussed in the literature, which reports a wide range of spillover estimates. These primarily depend on the analytical method used, as well as other assumptions involved, such as monetary policy accommodation, confidence effects in financial markets, the mechanism underlying the formation of expectations and the percentage of liquidity constrained households.

In an empirical analysis focusing on the trade channel and based on a panel VAR, Beetsma et al. (2006) estimate that a similar spending-based expansion in Germany would lead to an overall increase in output in other economies of 0.15% of GDP. The magnitude, however, differs considerably across countries, with those sharing a border with Germany and being small, open economies exhibiting the largest values (even exceeding 0.4% of GDP in the cases of Austria, Belgium and the Netherlands).⁵⁴ In another empirical study based on numerical calculations, Ivanova and Weber (2011) find that the size of fiscal spillover effects in 2011-12 in aggregate

⁵³ The model specification assumes a full home bias of the public sector towards domestic non-tradable goods, consistently with the standard version of the EAGLE model. While it is conceivable that not only the private sector but also the government buys abroad to some extent, Beetsma et al. (2006) estimate that the discretionary spending impulse exerts no direct effect on bilateral trade. Generally, most government spending is directed towards domestic goods and services. This may be particularly relevant for large economies, such as Germany, which do not experience an unavailability of domestically produced goods and services.

⁵⁴ The impact on foreign output calculated by Beetsma et al. (2006) is derived on the basis of direct contemporaneous contributions of higher exports to output in a second economy. As such, they are only intended to give a rough sense of the magnitude of the spillover, rather than exact estimates. These findings are challenged in the discussion in Beetsma et al. (2006) on the grounds that the study does not duly consider the features of the monetary union, namely the single monetary policy and the unified nominal exchange rate. According to structural models accounting for both features, spillover effects are smaller or even negative. This consideration features prominently in Cwik and Wieland's work (2011), which is also discussed in this box.

spillovers was small. This was notwithstanding the prevailing unfavourable economic conditions during the investigation period and the coordinated swing from fiscal stimulus to consolidation, which could have magnified the spillover effects. They admit, nevertheless, that for small, open economies, the spillovers are sizable.

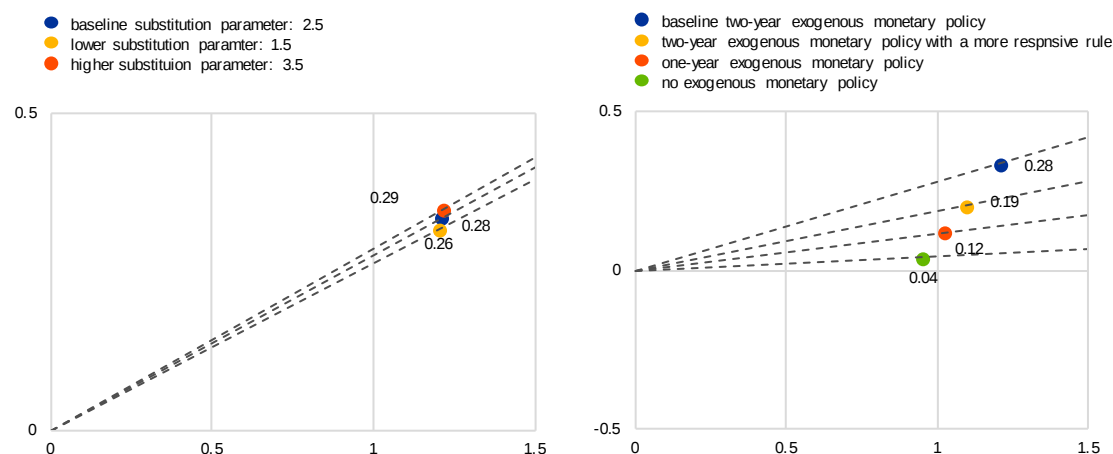
The findings in the theoretical literature are also mixed. In a similar study, in't Veld (2013) finds that additional public investment in Germany and other euro area core countries of 1% of GDP would lead to a 0.2-0.3% increase in GDP in the remaining Member States. While the Deutsche Bundesbank (2016) does not contradict these findings, its analysis suggests that this relatively high magnitude could only materialise for small countries in close proximity to Germany and characterised by strong trade links (i.e. the Netherlands, Belgium, Austria and Slovakia). In contrast, the effects on other economies, such as Spain and Italy, could be less pronounced. The International Monetary Fund (2013) includes a study of a similar policy, namely a two-year increase in expenditure in Germany totalling 1% of GDP, using three different structural models. According to the analysis, this fiscal expansion could boost real GDP in the rest of the euro area by a maximum of 0.2% depending on the model used and monetary policy accommodation. Conversely, in their analysis of stimulus measures adopted by the German government in 2009 and 2010 using the Taylor model of G7 economies, Cwik and Wieland (2011) concluded that fiscal spillovers were small. The main driving factor of this result appears to be an appreciation of the euro area currency, which had adverse effects on the competitiveness of both France and Italy vis-à-vis trading partners from outside the Monetary Union.

To demonstrate the sensitivity of the baseline results, the charts below show the size of fiscal spillovers in alternative scenarios. First, the parameters governing the substitution between domestic and imported tradable goods are alternated, which should at least partially verify the sensitivity of trade linkages to the model specification. Second, the sensitivity of the interest rate channel is investigated under various monetary policy regimes.

Chart A

Spillover effects from Germany to the rest of the euro area

(x-axis: percentage change in output: Germany; y-axis: percentage change in output: rest of euro area)



Source: Own calculations using EAGLE model.

Notes: The figures presented in the charts are spillover ratios in the last (seventh) quarter of the stimulus implementation. The exogenous monetary policy over two years presented in the chart lasts exactly seven quarters, which is the duration of the fiscal stimulus in Germany. The more responsive monetary policy rule involves a 2.5 coefficient on the inflation deviation and a 0.125 coefficient on the output gap, which are higher than these used in the standard version of the EAGLE model (1.7 and 0.1 respectively). The former values are based on Lindé et al. (2015).

Plotting Germany on the horizontal axis with the rest of the euro area on the vertical axis clearly illustrates the relation between the effects on output in the two regions, representing the spillover ratio. The ratio remains broadly insensitive to the parameter governing the substitution between domestic and imported tradables used by final good producers (see Chart A, left-hand side). In contrast, the reaction of monetary policy to the stimulus in Germany is of great importance (see Chart A, right-hand side). Shortening the period of unchanged nominal interest rates or a quicker normalisation through a more responsive reaction of the central bank can roughly halve the value of the spillover ratio. Furthermore, assuming a fully endogenous monetary policy, which would react to the fiscal stimulus in Germany with interest rate increases in the Monetary Union, would curb output growth in the entire Monetary Union and thereby largely offset the positive effect from the trade channel.

References

- Afonso, A. and Toffano, P. (2013), "Fiscal regimes in the EU", *Working Paper Series*, No 1529, ECB, Frankfurt am Main, April.
- Alesina, A., Tabellini, G. and Campante, F. (2008), "Why is fiscal policy often pro-cyclical?", *Journal of the European Economic Association*, Vol. 6, Issue 5, pp. 1006-1036.
- Annett, A. (2006), "Enforcement and the stability and growth pact: how fiscal policy did and did not change under Europe's fiscal framework", *IMF Working Paper*, No 06/116.
- Attinasi, M.G., Prammer, D., Stahler, N., Tasso, M. and Van Parys, S. (2016), "Budget-neutral labour tax wedge reductions: a simulation-based analysis for selected euro area countries", *Bundesbank Discussion Paper*, No 26/2016.
- Auerbach, A. (2002), "Is there a role for discretionary fiscal policy?", *NBER Working Paper*, No 9306.
- Baldi, G., Staehr, K. (2016), "The European debt crisis and fiscal reactions in Europe 2000-2014", *International Economy and Economic Policy*, Vol. 13, Issue 2, pp. 297-317.
- Beetsma, R., Giuliadori, M. and Klaassen, F. (2006), "Trade spill-overs of fiscal policy in the European Union: a panel analysis", *Economic policy*, Vol. 21, Issue 48, pp. 640-687.
- Bi, H. (2012), "Sovereign default risk premia, fiscal limits, and fiscal policy", *European Economic Review*, Vol. 56, Issue 3, pp. 389-410.
- Bénétrix, A.S. and Lane, P.R. (2013), "Fiscal cyclicalities and EMU", *Journal of International Money and Finance*, Vol. 34, pp. 164-176.
- Blagrove, P., Garcia-Saltos, M.R., Laxton, M.D. and Zhang, F. (2015), "A simple multivariate filter for estimating potential output", *IMF Working Paper*, No 15/79.
- Blinder, A.S. (2004), "The case against the case against discretionary fiscal policy", *CEPS Working Paper*, No 100, June.
- Bohn, H. (1998), "The behavior of U.S. public debt and deficits", *The Quarterly Journal of Economics*, Vol. 113, Issue 3, pp. 949-963.
- Bouabdallah, O., Checherita-Westphal, C., Warmedinger, T., de Stefani, R., Drudi, F., Setzer, R. and Westphal, A. (2017), "Debt sustainability analysis for euro area sovereigns: a methodological framework", *Occasional Paper Series*, (forthcoming), ECB, Frankfurt am Main.

- Brendon, C. and Corsetti, G. (2016), "COEURE Survey: fiscal and monetary policies after the crises", *CEPR Discussion Paper*, No DP11088, January.
- Checherita-Westphal, C. and Ždarek, V. (2015), "Fiscal reaction function and fiscal fatigue in the euro area", paper presented at the Public Finance Workshop, Hrvatska narodna banka, Zagreb, June.
- Chiu, A. and Wieladek, T. (2012), "Did output gap measurement improve over time?", *Bank of England Discussion paper*, No 36, July.
- Christiano, L., Eichenbaum, M. and Rebelo, S. (2011), "When is the government spending multiplier large?", *Journal of Political Economy*, Vol. 119, Issue. 1, pp. 78-121.
- Clancy, D., Jacquinot, P. and Lozej, M. (2016), "Government expenditure composition and fiscal policy spillovers in small open economies within a monetary union", *Journal of Macroeconomics*, Vol. 48, pp. 305-326.
- Coenen, G., Straub, R. and Trabandt, M. (2013), "Gauging the effects of fiscal stimulus packages in the euro area", *Journal of Economic Dynamics and Control*, Vol. 37, Issue 2, pp. 367-386.
- Correia, I., Farhi, E., Nicolini, J. and Teles, P. (2013), "Unconventional fiscal policy at the zero bound", *American Economic Review*, Vol. 103, Issue 4, pp. 1172-1211.
- Corsetti, G., Meier, A. and Müller, G.J. (2012), "Fiscal stimulus with spending reversals", *Review of Economics and Statistics*, Vol.94, Issue 4, pp. 878-895.
- Cwik, T. and Wieland, V. (2011), "Keynesian government spending multipliers and spillovers in the euro area", *Economic Policy*, Vol. 26, Issue 67, pp. 493-549.
- Davig, T., Leeper, E.M. and Walker, T.B. (2010), "Unfunded liabilities and uncertain fiscal financing", *Journal of Monetary Economics*, Vol. 57, Issue 5, pp. 600-619.
- De Groot, O., Holm-Hadulla, F. and Leiner-Killinger, N. (2015), "Cost of borrowing shocks on fiscal adjustment", *Journal of International Money and Finance*, Vol. 59, pp. 23-48.
- Deutsche Bundesbank (2016), "The international spillover effects of an expansion of public investment in Germany", *Monthly Report*, August, pp. 13-18.
- Dolls, M., Fuest, C. and Peichl, A. (2012), "Automatic stabilisers and economic crisis: US vs. Europe", *Journal of Public Economics*, Vol. 96, Issue 3, pp. 279-294.
- European Central Bank (2016a), "Public investment in Europe", *Economic Bulletin*, Issue 2/2016.
- European Central Bank (2016b), "The euro area fiscal stance", *Economic Bulletin*, Issue 4/2016.
- Eggertsson, G. (2011), "What fiscal policy is effective at zero interest rates?", *NBER Macroeconomics Annual 2010*, Vol. 25, pp. 59-112, May.

European Commission (2009), *Public Finances in EMU – 2009*.

European Commission (2015), *Report on Public Finances in EMU 2015*.

European Commission (2016a), *Fiscal Sustainability Report 2015*.

European Commission (2016b), “European Economic Forecast Spring 2016”, *European Commission Institutional Paper*, No 025.

Friedman, M. (1948), “A Monetary and Fiscal Framework for Economic Stability”, *American Economic Review*, Vol. 38, Issue 3, pp. 245-264.

Galí, J. (2015), *Monetary Policy, Inflation, and the Business Cycle: An Introduction to the New Keynesian Framework and Its Applications*, Princeton University Press, Princeton.

Galí, J. and Perotti, R. (2003), “Fiscal policy and monetary integration in Europe”, *Economic policy*, Vol. 18, Issue 37, pp. 533-572.

Ghosh, A.R., Kim, J.I., Mendoza, E.G., Ostry, J. D. and Quereshi, M.S. (2013), “Fiscal fatigue, fiscal space and debt sustainability in advanced economies”, *Economic Journal*, Vol. 123, Issue 566, pp. F4–F30.

Golinelli, R. and Momigliano, S. (2008), “The cyclical response of fiscal policies in the euro area. Why do results of empirical research differ so strongly?”, *Banca d'Italia Working Paper*, No 654.

Gomes, S., Jacquinot, P. and Pisani, M. (2012), “The EAGLE. A model for policy analysis of macroeconomic interdependence in the euro area”, *Economic Modelling*, Vol. 29, Issue 5, pp. 1686-1714.

in 't Veld, J. (2013), “Fiscal consolidations and spillovers in the euro area periphery and core”, *European Commission Economic Paper*, No 506.

IMF (2013), “Germany: 2013 Article IV Consultation”, *IMF Country Report*, No 13/255.

Ivanova, A. and Weber, S. (2011), “Do fiscal spillovers matter?”, *IMF Working Paper*, No. 11/211.

Juncker, J.-C., Tusk, D., Draghi, M., Dijsselbloem, J. and Schulz, M. (2015), *Completing Europe's Economic and Monetary Union*, European Commission, Brussels.

Kamps, C., De Stefani, R., Leiner-Killinger, N., Ruffer, R. and Sondermann, D., (2014), “The identification of fiscal and macroeconomic imbalances – unexploited synergies under the strengthened EU Governance Framework”, *Occasional Paper Series*, No 157, ECB, Frankfurt am Main, November.

Kempkes, G. (2014), “Cyclical adjustment in fiscal rules: Some evidence on real-time bias for EU-15 countries”, *FinanzArchiv: Public Finance Analysis*, Vol. 70, Issue 2, pp. 278-315.

Kliem, M. and Kriwoluzky, A. (2014), "Toward a Taylor rule for fiscal policy", *Review of Economic Dynamics*, Vol. 17, Issue 2, pp. 294-302.

Leeper, E.M. (1991), "Equilibria under 'active' and 'passive' monetary and fiscal policies", *Journal of Monetary Economics*, Vol. 27, Issue 1, pp. 129-147.

Lindé, J., Blanchard, O.J. and Erceg, C.J. (2015), "Jump-starting the euro area recovery: would a rise in core fiscal spending help the periphery?" *Sveriges Riksbank Working Paper*, No 304.

Lorenzani, D. and Reitano V.E. (2015), "Italy's spending maze runner: an analysis of the structure and evolution of public expenditure in Italy", *European Commission Discussion Paper*, No 023.

Lorenzoni, G. and Werning, I. (2013), "Slow moving debt crises", *NBER Working Paper*, No 19228.

Koen, V. and van den Noord, P. (2005), "Fiscal Gimmickry in Europe: One-Off Measures and Creative Accounting", *OECD Economics Department Working Paper*, No 417.

McKay, A. and Reis, R. (2013), "The role of automatic stabilizers in the US business cycle", *NBER Working Paper*, No 19000.

Morris, R. and Schuknecht, L. (2007), "Structural balances and revenue windfalls. The role of asset prices revisited", *ECB Working Paper*, No 737.

Pérez, J.J., Aouriri, M., Celov, D., Campos, M.M., Depalo, D., Papapetrou, E., Pesliakaitė, J. and Rodriguez-Vives, M. (2016), "Fiscal and macroeconomic effects of the government wage bill", *Banco de España Occasional Paper*, No 1607.

Plödt, M. and Richter, C.A. (2015), "Estimating fiscal policy reaction functions: The role of model specification", *Journal of Macroeconomics*, Vol. 46, pp. 113-128.

Polito, V. and Wickens, M. (2014), "Modelling the U.S. sovereign credit rating", *Journal of Banking and Finance*, Vol. 46, pp. 202-218.

Reiss, L. (2013), "Structural budget balances: calculation, problems and benefits", *Monetary Policy & the Economy*, No Q1/13, pp. 12-28.

Rendahl, P. (2016), "Fiscal policy in an unemployment crisis", *The Review of Economic Studies*, Vol. 0, pp. 1-36.

Taylor, J.B. (1993), "Discretion versus policy rules in practice", *Carnegie-Rochester Conference Series on Public Policy*, No 39, pp. 195-214.

Taylor, J.B. (2000), "Reassessing discretionary fiscal policy", *The Journal of Economic Perspectives*, Vol.14, Issue 3, pp. 21-36.

Turrini, A. (2008), "Fiscal policy and the cycle in the Euro Area: the role of government revenue and expenditure", *European Commission Economic Paper*, No 323.

van Riet, A. (ed.) (2010), “Euro area fiscal policies and the crisis”, *Occasional Paper Series*, No 109, ECB, Frankfurt am Main, April.

Warmedinger, T., Checherita-Westphal, C.D. and Hernández De Cos, P. (2015), “Fiscal multipliers and beyond”, *Occasional Paper Series*, No 162, ECB, Frankfurt am Main.

Weichenrieder, A. and Zimmer, J. (2014), “Euro membership and fiscal reaction functions”, *International Tax and Public Finance*, Vol. 21, Issue 4, pp. 598-613.

Wieland, J. (2012), “Are negative supply shocks expansionary at the zero lower bound?”, manuscript, University of California, Berkeley.

Woodford, M. (2011a), *Interest and Prices: Foundations of a Theory of Monetary Policy*, Princeton University Press, Princeton.

Woodford, M. (2011b), “Simple Analytics of the Government Expenditure Multiplier”, *American Economic Journal: Macroeconomics*, Vol. 3, Issue 1, pp. 1-35.

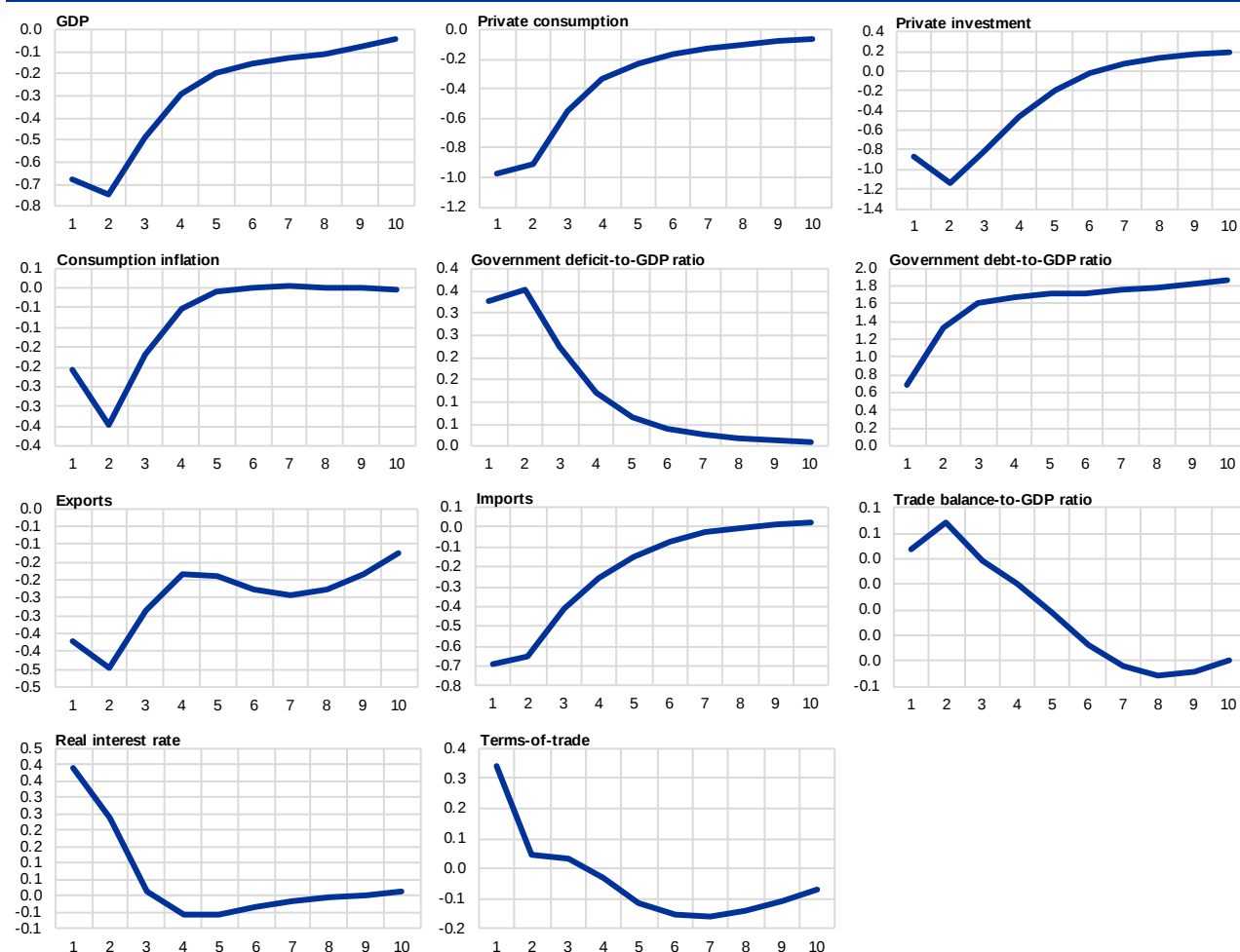
Annex

Impulse response functions of EAGLE simulations

This annex presents the impulse response functions of the EAGLE simulations for main macroeconomic variables of Germany and the rest of the euro area. The following simulations are included: the adverse scenario discussed in Section 5.3 (Chart A1.1 and A1.2); a fiscal stimulus in Germany with different shares of liquidity constrained households (Chart A2.1 and A2.2) and with different monetary policy regimes (Chart A3.1 and A3.2).

Chart A1.1

Adverse scenario, Germany

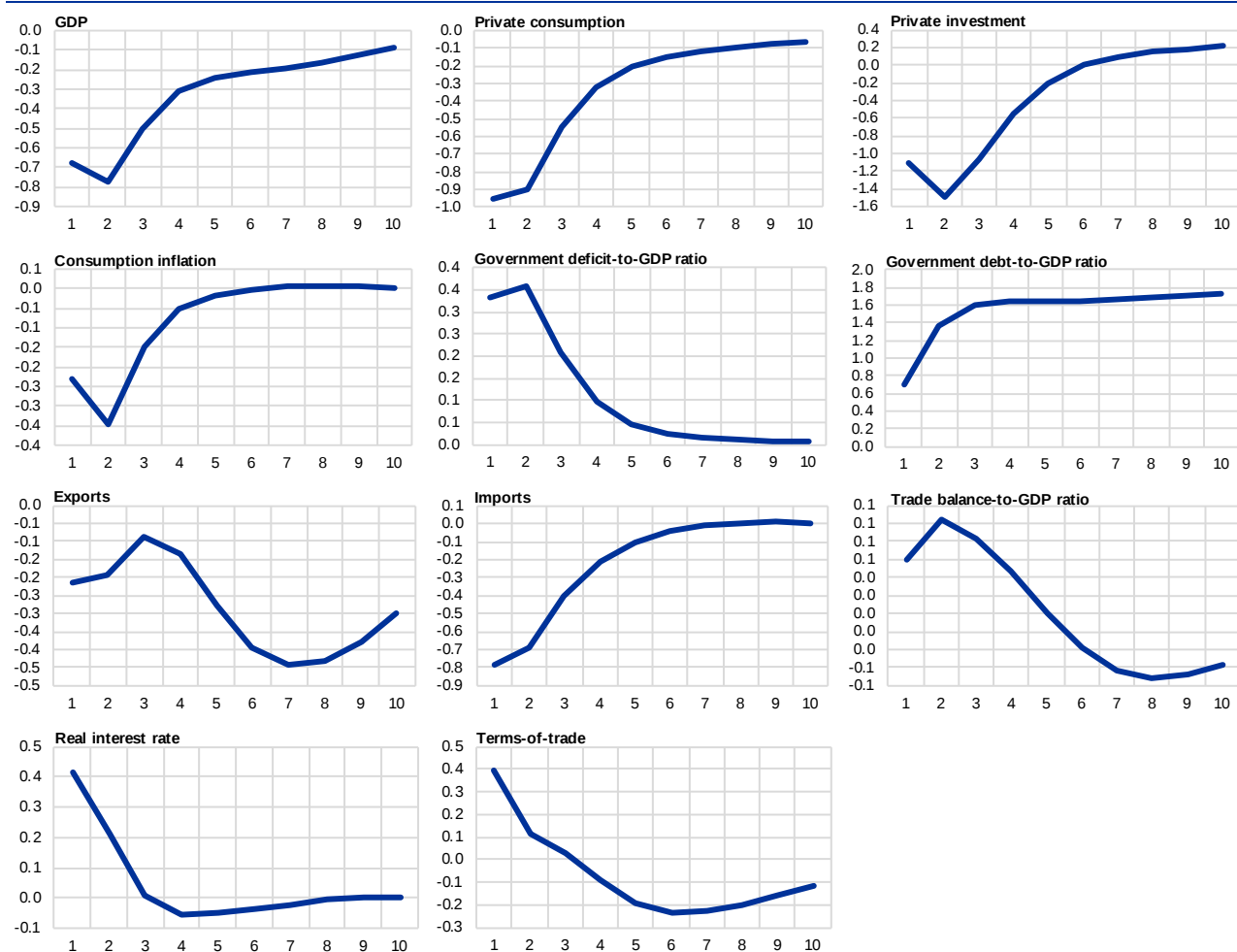


Source: Own calculations using EAGLE model.

Notes: The impulse response functions are expressed in percentage deviations from the steady-state values, except for inflation, interest rate and GDP ratios, which are expressed in percentage point deviations. The simulation is based on preference and private investment shocks in both Germany and the rest of the euro area. Monetary policy reaction is switched off for eight quarters.

Chart A1.2

Adverse scenario, rest of the euro area

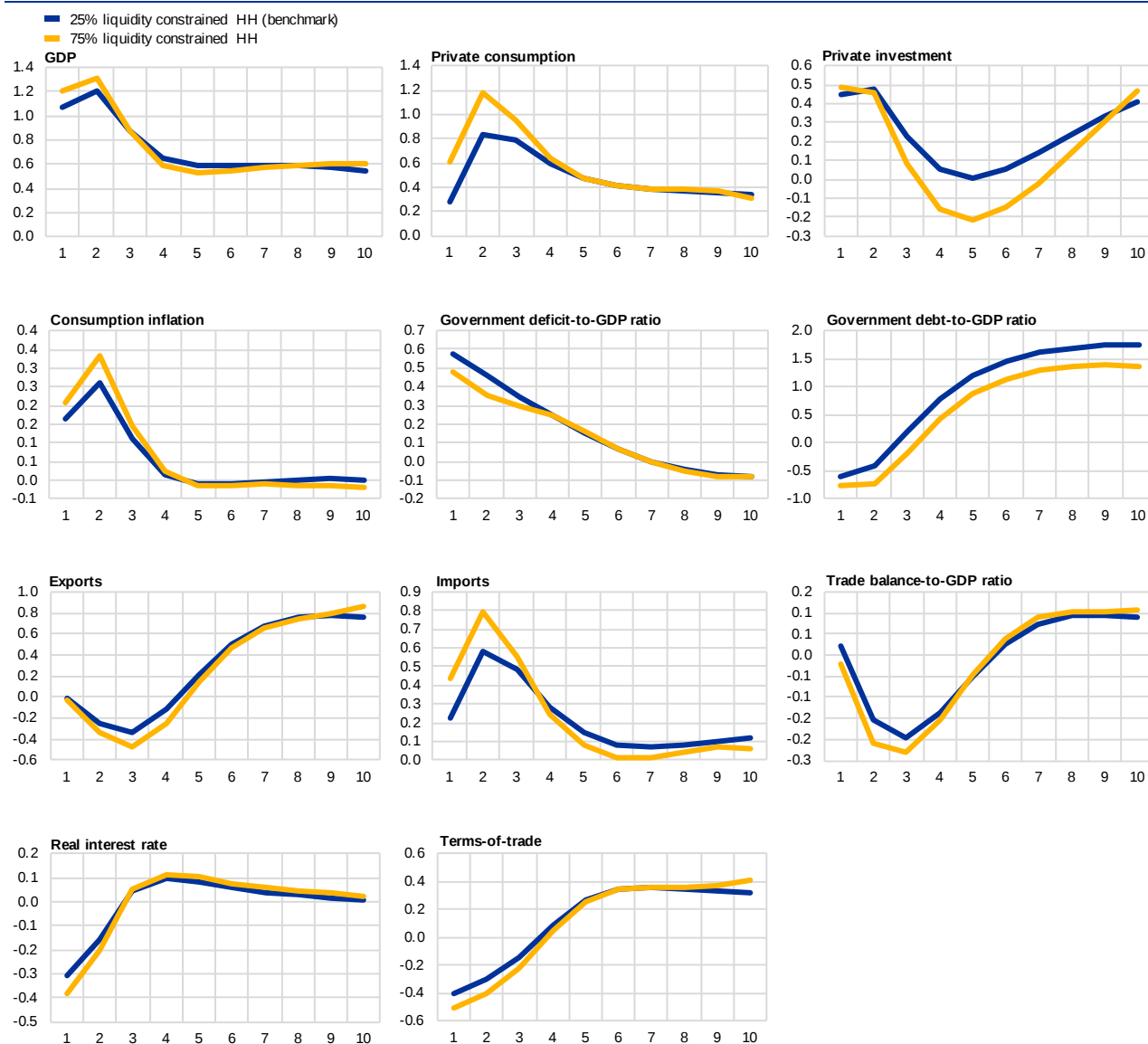


Source: Own calculations using EAGLE model.

Notes: The impulse response functions are expressed in percentage deviations from the steady-state values, except for inflation, interest rate and GDP ratios, which are expressed in percentage point deviations. The simulation is based on preference and private investment shocks in both Germany and the rest of the euro area. Monetary policy reaction is switched off for eight quarters.

Chart A2.1

Fiscal stimulus in Germany, Germany

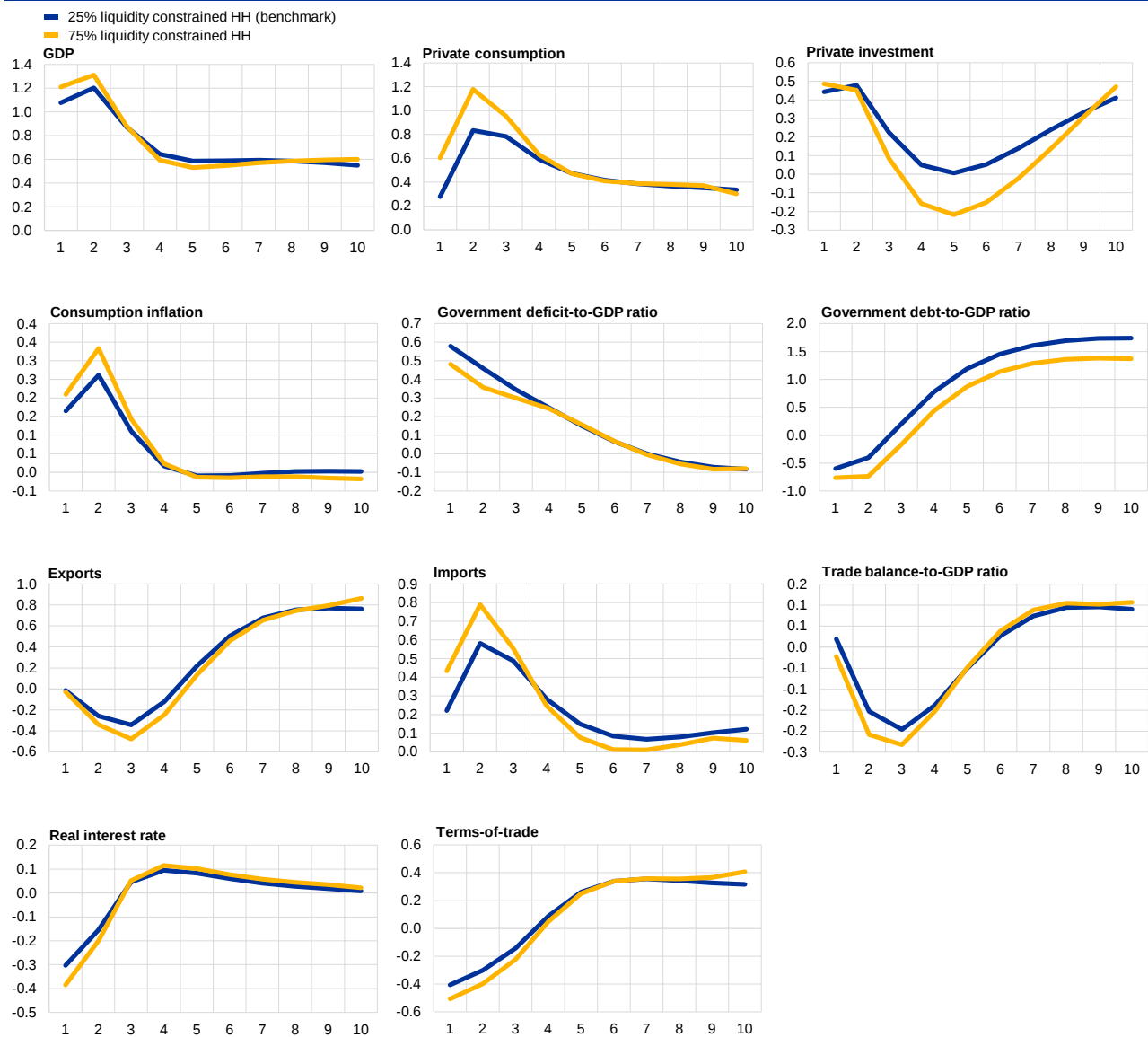


Source: Own calculations using EAGLE model.

Notes: The impulse response functions are expressed in percentage deviations from the steady-state values, except for inflation, interest rate and GDP ratios, which are expressed in percentage point deviations. The simulation is based on 1/2% of GDP public investment and 1/2% of GDP public consumption shocks lasting for seven quarters and fading out gradually afterwards. Monetary policy reaction is switched off for seven quarters. The fiscal rule is inactivated for ten years so that the fiscal expansion remains debt-financed for the period under investigation.

Chart A2.2

Fiscal stimulus in Germany, rest of the euro area

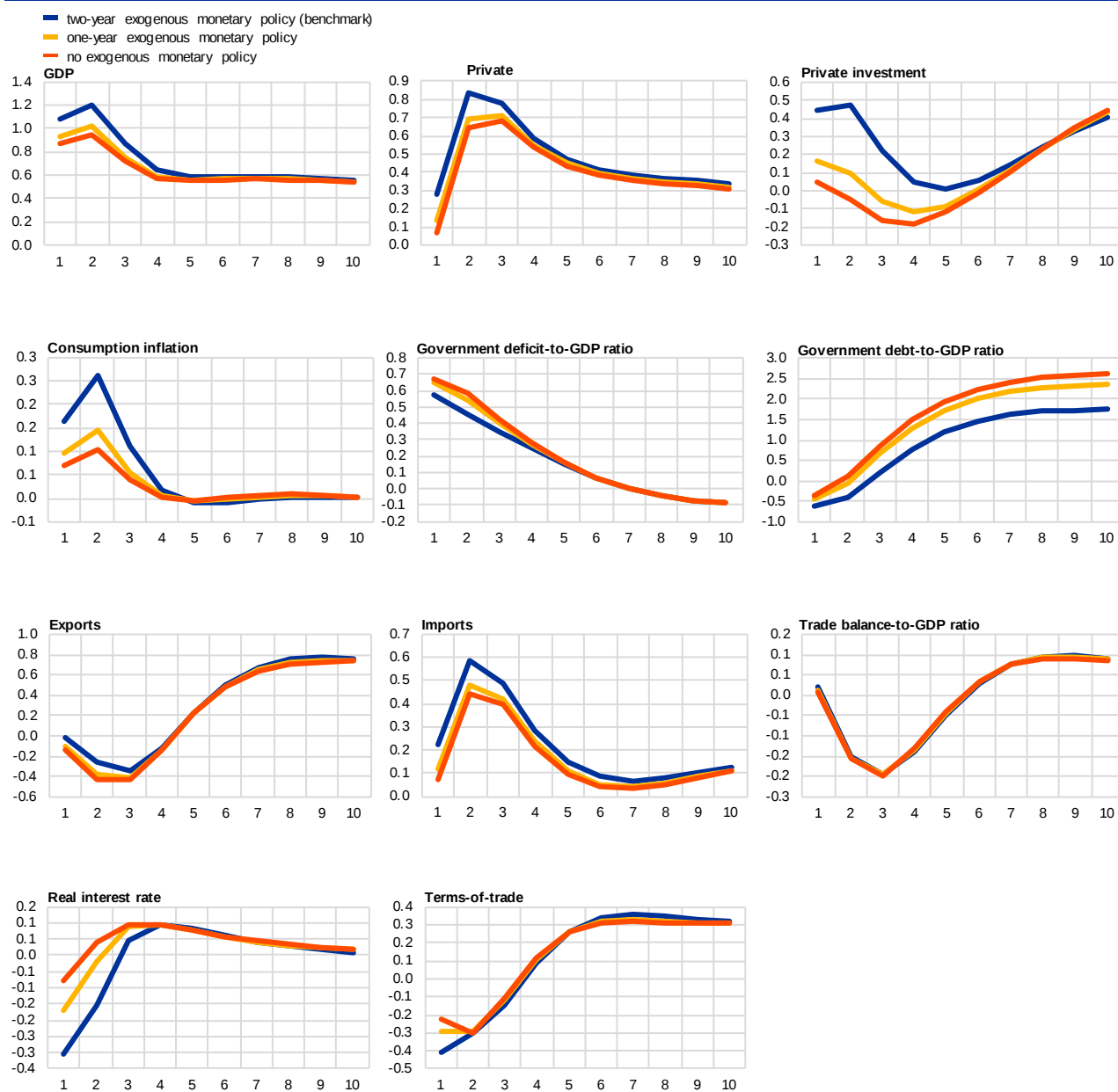


Source: Own calculations using EAGLE model.

Notes: The impulse response functions are expressed in percentage deviations from the steady-state values, except for inflation, interest rate and GDP ratios, which are expressed in percentage point deviations. The simulation is based on 1/2% of GDP public investment and 1/2% of GDP public consumption shocks lasting for seven quarters and fading out gradually afterwards. Monetary policy reaction is switched off for seven quarters. The fiscal rule is inactivated for ten years so that the fiscal expansion remains debt-financed for the period under investigation.

Chart A3.1

Fiscal stimulus in Germany, Germany

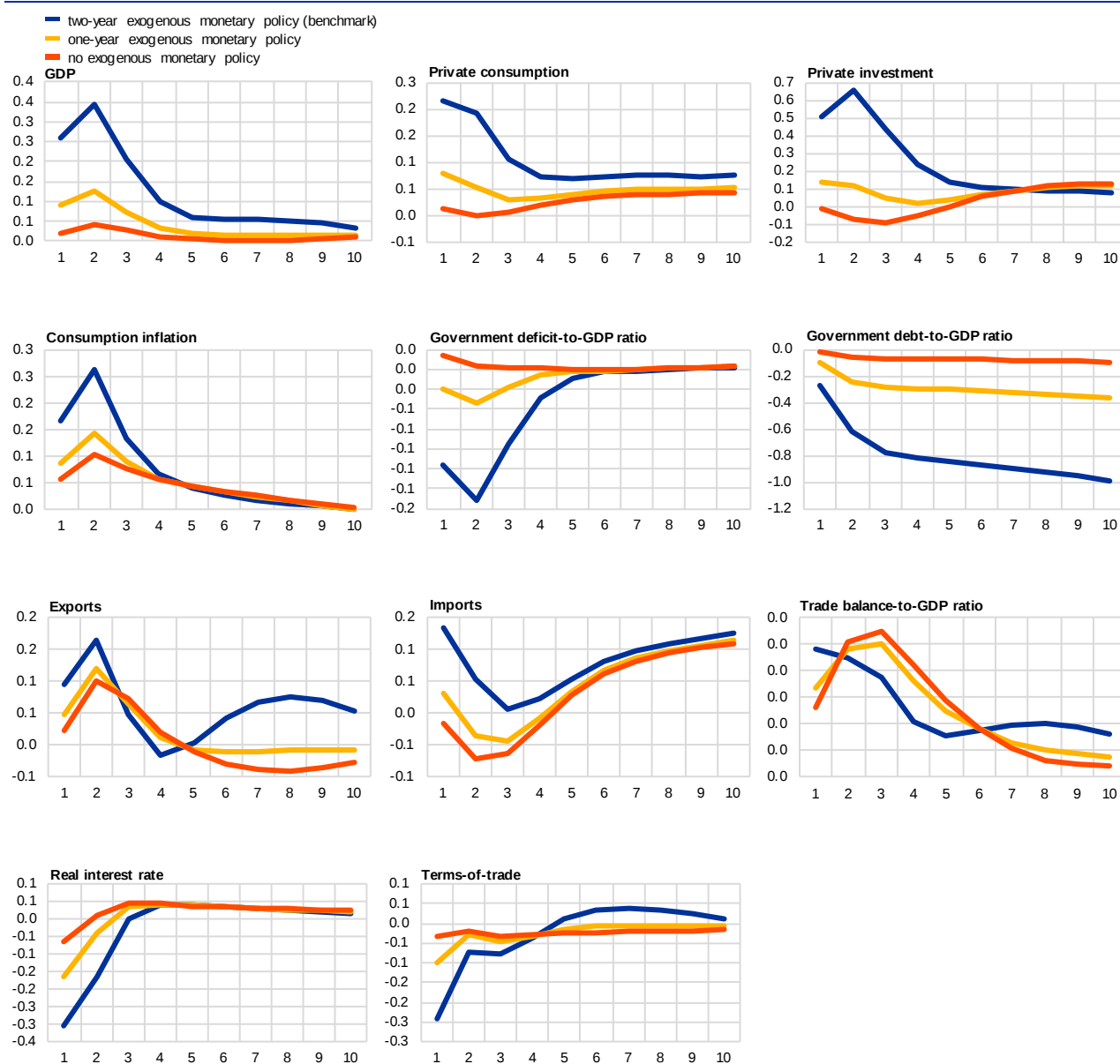


Source: Own calculations using EAGLE model.

Notes: The impulse response functions are expressed in percentage deviations from the steady-state values, except for inflation, interest rate and GDP ratios, which are expressed in percentage-point deviations. The simulation is based on ½% of GDP public investment and 1/2% of GDP public consumption shocks lasting for seven quarters and fading out gradually afterwards. The fiscal rule is inactivated for ten years so that the fiscal expansion remains debt-financed for the period under investigation.

Chart A3.2

Fiscal stimulus in Germany, rest of the euro area



Source: Own calculations using EAGLE model.

Notes: The impulse response functions are expressed in percentage deviations from the steady-state values, except for inflation, interest rate and GDP ratios, which are expressed in percentage-point deviations. The simulation is based on $\frac{1}{2}\%$ of GDP public investment and $\frac{1}{2}\%$ of GDP public consumption shocks lasting for seven quarters and fading out gradually afterwards. The fiscal rule is inactivated for ten years so that the fiscal expansion remains debt-financed for the period under investigation.

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