fördern • führen • inspirieren

Ostbayerische Technische Hochschule
Amberg-Weiden

Die Hochschule im Dialog:

Euro Area Periphery Countries' Fiscal Policy and Monetary Policy Surprises

Oliver Hülsewig
Horst Rottmann

Weidener Diskussionspapiere Nr. 81, Mai 2021

Euro Area Periphery Countries' Fiscal Policy and Monetary Policy Surprises*

Oliver Hülsewig† Horst Rottmann‡

May 24, 2021

Abstract

In this study, we explore how fiscal policy in euro area periphery countries responds to monetary policy surprises that lower sovereign bond yields. In particular, we assess whether the disciplining effect of financial markets on public finances is undermined by the ability of monetary policy to affect the conditions of external funds. Using Jordà's (2005) local projection method we find that fiscal discipline, on average, does not wane in response to monetary policy innovations that bring down yields on sovereign bonds. The reaction of economic activity to shocks to monetary policy appears to determine the fiscal stance, rather than the adjustment of borrowing cost.

Key words: Euro area periphery countries, fiscal policy, market discipline, monetary policy shocks, local projections
JEL Codes: E52, E62, H62

*We are grateful to Peter Egger, Benjamin Born, Gerhard Illing, Stefan Pichler and Peter Zorn and the participants of the KOF research seminar and the LMU macroeconomic research seminar for valuable comments and helpful suggestions. The usual disclaimer applies.

†Corresponding author. CESifo and Munich University of Applied Sciences, Am Stadtpark 20, D-81243 Munich, Germany. Tel.: +49 (0)89 1265-2724. *Email:* <oliver.huelsewig@hm.edu>

‡CESifo and University of Applied Sciences Amberg-Weiden, Hetzenrichter Weg 15, D-92637 Weiden, Germany. *Email:* <h.rottmann@oth-aw.de>

1 Introduction

Ample research suggests that fiscal policy is disciplined by the financial markets. According to this view, governments that run excessive deficits face increasing cost of borrowing due to a rising default premium on debt, which, if the deficits persist, increases at an accelerating rate (Bayoumi et al., 1995). By contrast, ensuring compliance with fiscal discipline contributes to lowering borrowing cost (Taylor, 1995). For the United States, Bohn (1998) reports that fiscal policy reacts to the accumulation of debt by generating primary surpluses. Mauro et al. (2015) find that the tightening of fiscal policy is more forceful to a given debt increase if the cost of sovereign borrowing rises. Regarding the euro area, de Groot et al. (2015) document that fiscal policy strives to stabilise debt in response to increasing sovereign bond yields by realising primary surpluses. However, the budgetary response appears insufficient to compensate the debt increase that arises from higher borrowing cost.

In this study, we ask how fiscal policy in euro area periphery countries responds to monetary policy shocks that bring down yields on sovereign bonds. Hence, we assess whether the disciplining effect of financial markets is undermined by the ability of monetary policy to affect the conditions of external funds. Our focus is on Italy, Ireland, Portugal, and Spain, which were addressed by a number of the European Central Bank's (ECB) monetary policy measures implemented after the onset of the global financial crisis (Broner et al., 2014; Falagiarda and Reitz, 2015). For instance, the access of the countries' banking sector to liquidity was eased by the switch to open market operations with full allotment, extended maturities and reduced collateral requirements. Moreover, the countries benefitted from the sovereign bond purchases conducted under the Securities Market Programme (SMP), as well as the announcement of the Outright Monetary Transaction (OMT) programme, which both contributed to lowering government bond yields.[1] Furthermore, the countries were part of the Public Sector Purchasing Programme (PSPP) under the Extended Asset Purchasing Programme (APP) that included large-scale government bond purchases.[2] In addition, the economies faced comparable low yields on public debt between 1999 and 2008, which, among other things, can be related to the single monetary policy (Ehrmann et al., 2011).[3]

We use Jordà's (2005) local projection method for our set of euro area periphery

[1] As regards the SMP, Eser and Schwaab (2016), Ghysels et al. (2017) and Pooter et al. (2018), among others, document that the programme induced a significant fall in bond yields. Moreover, the volatility of government bond segments of the countries under the programme was reduced. Altavilla et al. (2016) and Afonso et al. (2018) observe that the OMT announcement likewise contributed to reducing sovereign bond yield spreads.

[2] According to Eser et al. (2019) the asset purchases conducted under the APP caused a significant lowering of the term premiums and flattened the yield curve.

[3] Ehrmann et al. (2011) point out that the ECB's monetary policy contributed to the lowering of government bond rates by stabilising financial market expectations about long-run inflation.

countries to analyse the reactions of selected fiscal variables to shocks to monetary policy. We consider the period 2002–2018. Since our sample is short we adopt panel techniques. We use the shock series provided by Jarociński and Karadi (2020), Leombroni et al. (2020) and Kerssenfischer (2019), who exploit the information of ECB announcements based on high frequency data to identify monetary policy surprises. In particular, they identify shocks to monetary policy that can be related to standard and non-standard monetary policy measures. We normalise the shocks so that they represent expansionary monetary policy surprises that induce a fall in the yields on sovereign bonds.

Our findings suggest that the euro area periphery countries' fiscal position improves in response to expansionary monetary policy shocks. In particular, we observe that the public budget is in surplus, that is, the government deficit/ surplus to GDP ratio rises after the shocks even though sovereign bond yields decline.[4] The improvement of the fiscal position can be related to a surplus in the primary balance ratio as well as a drop in the interest expenditures ratio. The results are robust against alternative model specifications.

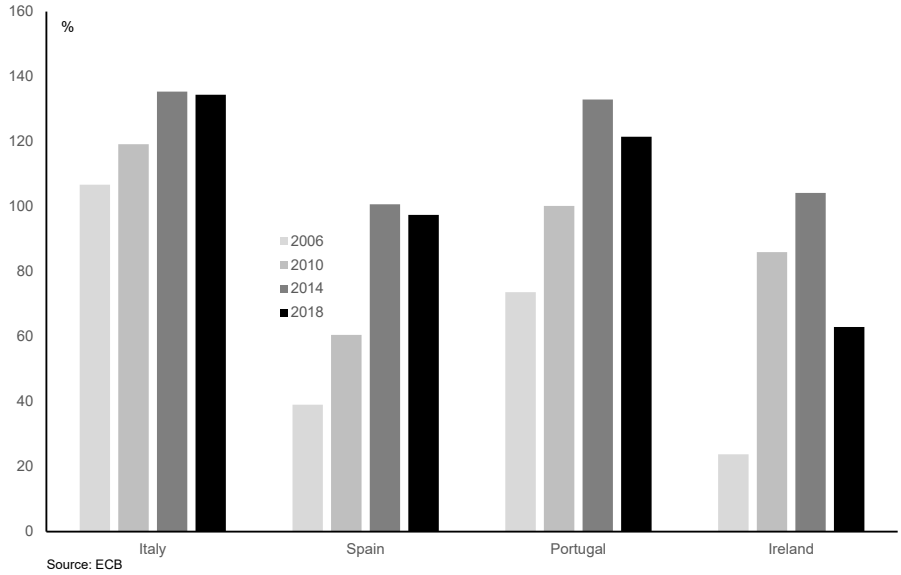
We conclude that periphery countries' fiscal discipline seems not to wane in response to expansionary shocks to monetary policy that bring down borrowing cost. Thus, although government debt rose (Figure 1) relative to GDP between 2006 and 2018 our results suggest that the increase might not have been triggered by a lax fiscal policy that took advantage of the low-interest environment induced by expansionary monetary policy measures. Rather, the rise in the countries' government debt ratio might have been due to the poor economic performance in the aftermath of the global financial crisis, which was linked to a fragile banking sector and the loss of international price competitiveness.

While no compelling inferences can be made as to the driving force of our results, they may be a consequence of increasing political pressure on the euro area periphery countries that intensified around the onset of the sovereign debt crisis (Bini Smaghi, 2013). Fiscal discipline might have been maintained in response to expansionary monetary policy shocks due to the wish to avoid implementing austerity measures. Thus, although monetary policy might have weakened the effect of market discipline by lowering borrowing cost, the strengthening of political pressure replaced market pressure at the same time. However, the maintenance of fiscal discipline after expansionary monetary policy surprises does not imply that fiscal consolidation efforts were sufficient to bring public debt on a sustainable path.

The rest of this study is organised as follows. Section 2 provides an overview of the related literature. Section 3 sets out our baseline model, introduces the data, and discusses the shock series that we take from the literature to identify exogenous

[4]Our data refer to the government deficit/ surplus as a % of GDP. An increase of the ratio reflects a surplus.

Figure 1: Euro area periphery countries' government debt as a % of GDP



monetary policy surprises. Section 4 presents our results. First, we discuss the baseline model's impulse responses to monetary policy shocks. Second, we assess the robustness of our results by considering alternative model specifications. Finally, we derive impulse response to monetary policy shocks related to the period 2012–2018, and compare them to those derived over the entire sample period. Section 5 presents the conclusion.

2 Related literature

In the euro area periphery countries, concerns about the governments' ability to satisfy future debt obligations unfolded in the aftermath of the 2007–2009 global financial crisis, which initiated the sovereign debt crisis. Increasing doubts in financial markets about the sustainability of government debt caused risk premiums on sovereign bonds to soar significantly, which widened the sovereign yield spreads (Broner et al., 2014). Thus, periphery governments' access to credit markets became increasingly limited, which reflected inter alia the market disciplining effect.

Abundant literature has investigated the disciplining effect of financial markets empirically.[5] For a number of U.S. states, Bayoumi et al. (1995) find that excessive borrowing is restrained by increasing yields. More recently, Mauro et al. (2015) document that for a large panel of countries, the primary balance is adjusted to counteract government debt increases. However, for some countries the attempt to maintain fiscal sustainability appears to have weakened after 2008. Theofilakou and

[5] Another strand of literature explores the effect of fiscal policy on sovereign risk spreads. See Akitoby and Stratmann (2008) or Laubach (2009) as examples.

Stournaras (2012), Legrenzi and Milas (2013), and de Groot et al. (2015) show that euro area governments' fiscal positions react to changes in the cost of borrowing. The debt stabilisation effort is more pronounced in low debt countries, whereas highly indebted countries seem to undertake less effort to mitigate the burden of higher borrowing cost (Theofilakou and Stournaras, 2012). De Haan and Sturm (2000) consider OECD countries with relatively high debt ratios. They conclude that higher interest rates reduce primary deficits. Dell' Erba et al. (2015) report that fiscal consolidations occur under market pressure. Bernoth et al. (2012) find that the reaction of financial markets to fiscal loosening has increased considerably after the global financial crisis, causing market discipline to strengthen. Finally, Born et al. (2018) assess, in a large panel of countries, the disciplining effect of international debt markets by enforcing government expenditure cuts. They find that government expenditures drop significantly about a year after an increase in the sovereign default premium, which is consistent with the notion of market discipline.

We contribute to this literature by raising the question of whether the ECB's monetary policy counteracted the disciplining effect of financial markets by lowering sovereign bond yields. Accordingly, the central bank's interventions might have induced distressed countries' governments on the periphery to delay fiscal consolidation by attenuating the pressure arising from increasing yields (Bini Smaghi, 2013). In fact, governments might instead of implementing structural reforms that are inevitably necessary to cure the negative consequences of unsustainable sovereign debt, rather conduct expansionary fiscal measures by raising deficit spending due to falling borrowing cost. If this is the case, we would expect a lack of fiscal discipline that is reflected by a primary deficit in response to an expansionary shock to monetary policy.

The study by Hachula et al. (2020) is the closest to our analysis. They investigate the effect of the ECB's unconventional monetary policy on the euro area economy as a whole.[6] Their findings suggest that the aggregate government budget balance improves temporarily in response to an expansionary shock to monetary policy. Moreover, they report that government spending in most of the euro area member countries increases after the disturbance, however, frequently with a notable delay. Nevertheless, the impact of monetary policy on fiscal discipline is not explicitly considered. Finally, Tkačevs and Vilerts (2019) observe that the primary balance adjusts to shocks to borrowing cost. They conclude that unconventional monetary policy might thus have an unintended negative impact on fiscal discipline by lowering sovereign bond yields. However, the conclusion is derived by intuition rather than by explicitly estimating the reaction of the fiscal stance to an expansionary monetary policy shock.

[6]In contrast to our study, Hachula et al. (2020) use euro area aggregate variables. Country heterogeneity is investigated by adding single country variables to the baseline specification.

3 Methodology, data, and monetary policy shocks

3.1 Baseline model

We use the local projection method of Jordà (2005) for estimating impulse responses. Since we employ panel techniques, the linear model is given by:[7]

$$X_{i,t+h} = \alpha_{i,h} + \theta_h \text{MP}_t + \phi_h'(L) Z_{i,t-1} + u_{i,t+h} \tag{1}$$

where $X_{i,t+h}$ is the variable of interest; subindex i denotes the country; MP_t is an exogenous monetary policy shock; $\alpha_{i,h}$ captures country-specific fixed effects; $Z_{i,t-1}$ is a vector of control variables; $\phi_h(L)$ is a polynomial in the lag operator; and $u_{i,t+h}$ denotes an error term. The vector of control variables comprises lags of real output, the inflation rate, a measure of the stance of monetary policy, the government bond rate and a measure of financial stress. Moreover, for the fiscal variables, we expand $Z_{i,t-1}$ by the lags of the respective fiscal variable of interest.[8] We impose a lag order of four for every control variable. The choice of the lag order is consistent with the notion that fiscal adjustments are subject to time lags with respect to decision making and implementation (Born et al., 2018).[9]

The response of X at time $t+h$ to a monetary policy shock at time t is given by the estimated coefficient θ_h. Thus, the impulse responses are derived by estimating a series of single regressions for each horizon $h = 0, 1, 2, 3...H$ to generate a sequence of the θ_h's. We consider three different monetary policy shocks, which are discussed below. Finally, we use the method of Driscoll and Kraay (1998) to calculate standard errors to account for the serial correlation in the error terms induced by the successive leading of the dependent variable (Ramey and Zubairy, 2018).[10] As in Tenreyro and Thwaites (2016), we set the maximum autocorrelation lag to $H + 1$.

3.2 Data

Since our sample is short, we follow Auerbach and Gorodnichenko (2013), Jordà et al. (2015), and Born et al. (2020) by adopting panel techniques. Our set of countries

[7] See Kilian and Kim (2011), among others, for a discussion of the local projection method.

[8] For instance, in the model for the primary balance ratio the set of control variables also includes lags of the primary balance to GDP ratio in addition to the baseline set of control variables.

[9] According to the information criteria, the models for the different variables of interest should be estimated with lag lengths ranging between two and four. We assess the robustness of our results by also considering a lag order of two.

[10] The covariance matrix estimator by Driscoll and Kraay (1998) does not hinge on the assumption of cross-sectional independence, which is in contrast to cluster robust standard errors (Arellano, 1987). In our case, the assumption of cross-sectional independence is questionable due to the presence of common shocks.

comprises Italy (IT), Ireland (IE), Portugal (PT), and Spain (ES).[11] The panel approach allows us to pool diverse information from the countries, while controlling for heterogeneity across the units by considering country-specific fixed effects. A main advantage of the approach is that it increases the efficiency of the statistical inference. While this comes at the cost of disregarding cross-country differences by imposing the same underlying structure for each cross-section unit, the approach allows us to uncover common dynamic relationships.

Most of our data come from the ECB's Statistical Data Warehouse, and comprise quarterly time series for the period 2002Q1–2018Q4.[12] Real output is seasonally adjusted and in logs.[13] The inflation rate is calculated as the annual rate of change of the Harmonised Consumer Price Index (HICP). The ECB's policy instrument is described by the shadow short rate derived by Krippner (2013), which takes account of both conventional and unconventional monetary policy measures. The government bond rate is a long-term yield with a ten-year maturity. Finally, the Country-Level Index of Financial Stress (CLIFS) is used as an indicator of financial stress.

Since our focus is on the reaction of the governments' fiscal position to a monetary policy shock, we base our selection of the fiscal variables on a stylised illustration of the government budget constraint (Bohn, 2005):

$$D_t = G_t - T_t + (1 + i_t)D_{t-1}, \tag{2}$$

according to which government debt D_t in period t is determined by government non-interest expenditures G_t, government revenue T_t, and government interest expenditures $i_t D_{t-1}$, where i_t denotes the interest rate. Restating terms gives:

$$\Delta D_t = -\text{PB}_t + i_t D_{t-1}. \tag{3}$$

where ΔD_t is the government's deficit, with: $\Delta D_t = D_t - D_{t-1}$, and $\text{PB}_t = T_t - G_t$

[11] We exclude Greece from our analysis, because it was severely affected by the sovereign debt crisis. In particular, the country obtained external finance merely through financial aid programmes from May 2010 onwards. External financing through capital markets did not take place, while at the same time sovereign bond rates increased tremendously. In addition, Greek government bonds were ineligible for the ECB's APP over the entire net asset purchase phase between January 2015 and December 2018.

[12] See Appendix A for a description of the data. Note that Irish fiscal policy variables are not available before 2002Q1. For that reason we decided to consider the period 2002Q1–2018Q4.

[13] Note that Irish GDP exhibits a shift of roughly 23% in 2015Q1 compared with the previous quarter. There was a shift in GDP because the country's low corporate tax rates attracted cooperation from some large multinationals to relocate their economic activity to the country. We take account of the structural break in Irish GDP by smoothing the series, that is, we keep the dynamics of the series, but adjust for the shift.

is the primary balance. Finally, we obtain:

$$\frac{\Delta D_t}{Y_t} = -\frac{\text{PB}_t}{Y_t} + \frac{i_t}{1+g_t}\frac{D_{t-1}}{Y_{t-1}}, \tag{4}$$

after dividing by nominal GDP, which is denoted by Y_t. The nominal GDP growth rate is given by: $g_t = Y_t/Y_{t-1} - 1$. Thus, in the following, we assess the response of the sovereigns' fiscal position to a monetary policy shock by focusing on the reaction of the government deficit ratio $\Delta D_t/Y_t$, the primary balance ratio PB_t/Y_t, and the interest expenditures ratio $i_t/(1+g_t) \times D_{t-1}/Y_{t-1}$.

It is important to note that in our data we use the government deficit (-) or surplus (+) as a percent of GDP, which implies that a positive value of the ratio reflects – different from our discussion in (4) – a surplus, while a negative value displays a deficit. The same applies to the primary balance ratio. Finally, we use the IRIS Macroeconomic Modeling Toolbox to adjust the fiscal data seasonally.

3.3 Exogenous monetary policy shocks

We refer to Jarociński and Karadi (2020), Leombroni et al. (2020) and Kerssenfischer (2019), who extract the information contained in the ECB's announcements to compute monetary policy shock series based on high frequency data. In particular, Jarociński and Karadi (2020) derive a pure monetary policy shock by focusing on the changes in the Euro Stoxx 50 index and the price difference between the EONIA interest swaps with a maturity of three months in 30-minute windows around press statements and 90-minute windows around press conferences. The key assumption is that the information released by the press conferences is the prime source of market reactions within this narrow time window. The monetary policy shock is identified by imposing sign restrictions. An expansionary shock is assumed to raise the stock price due to a lower discount rate and to decrease the interest swaps. Leombroni et al. (2020) calculate a risk premium shock to monetary policy by exploiting the information contained in policy announcements about the future path of credit risk and interest rates. The shock summarises the new information about additional policies, such as asset purchases, liquidity supports, or lending and refinancing operations. Finally, Kerssenfischer (2019) derives a pure monetary policy shock by focusing on press releases to compute the immediate change of the Euro Stoxx 50 index and the German government bond yield with a two year maturity 10 minutes prior to the release and compared with the change 20 minutes after the end of the ensuing press conference.[14] The shock is also identified by imposing sign restrictions on the high frequency co-movement of the stock price and the yield.

[14]The approach of Kerssenfischer (2019) is related to that of Jarociński and Karadi (2020), even though, it is based on different data and econometric methodology.

Since the fiscal variables are provided at a quarterly frequency, we aggregate all shock series to quarterly data. We do so by calculating the sum of all shocks over the three months of a respective quarter. Thus, we consider monetary policy shocks, which capture the net effect of monetary policy surprises over an entire quarter. We standardise the shocks to have a mean of zero and a standard deviation of one. Table 1 summarises the period over which the different shock series are available. For all countries, the shock series are identical. The same holds true for the shadow

Table 1: Availability of shock series

Jarociński and Karadi (2020)	2002Q1–2016Q4
Leombroni et al. (2020)	2002Q1–2018Q4
Kerssenfischer (2019)	2002Q1–2018Q4

short rate.

4 Empirical results

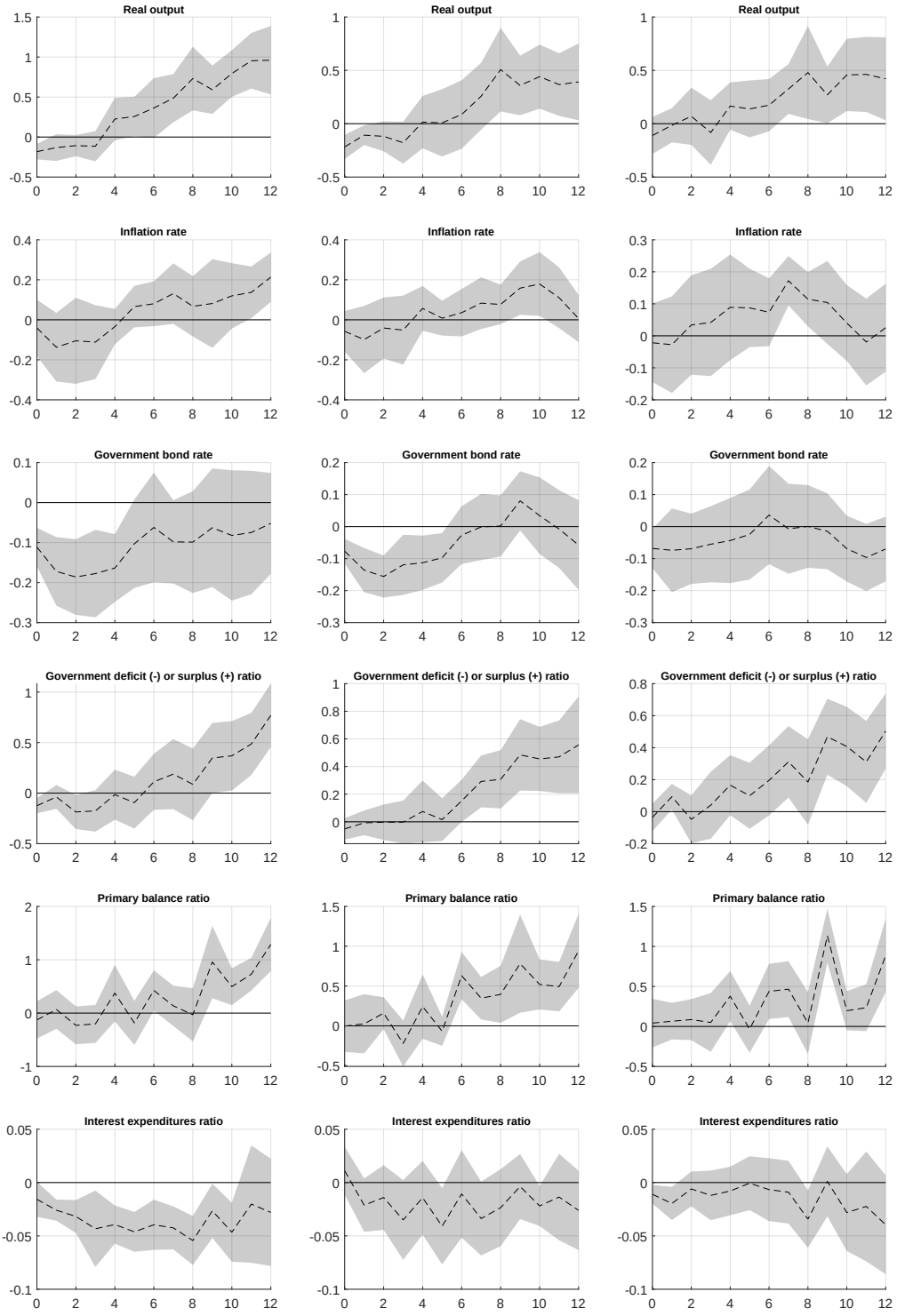
4.1 Baseline model impulse responses

We now turn to the results. Figure 2 shows the reactions of the variables of interest to the monetary policy shocks derived by Leombroni et al. (2020), Jarociński and Karadi (2020), and Kerssenfischer (2019), which are normalised to reflect a monetary loosening. The dashed lines are the estimated impulse responses. The shaded areas reflect the 90% error bands.

We see that the euro area periphery countries' economies exhibit a boom in response to the expansionary shocks to monetary policy. Real output rises after around five quarters. The inflation rate increases, but also with a delay. The government bond rate falls on impact by around 10 base points after the shocks. Moreover, the fiscal position improves, that is the government deficit/ surplus ratio shifts upwards. The surplus in the public budget is triggered by both, a surplus in the primary balance ratio and a lowering of the interest expenditures ratio. We conclude that fiscal discipline is seemingly not undermined by monetary policy surprises that induce a decline in yields on sovereign bonds.

The primary surplus suggests that government non-interest expenditures increase to a lesser degree than revenues do after the expansionary monetary policy shocks, in spite of the fall in borrowing cost. However, the reaction of government expenditures might disguise a discretionary rise in government consumption due to a cyclical fall in unemployment-related spending. The upper part of Figure 3 sheds some light on

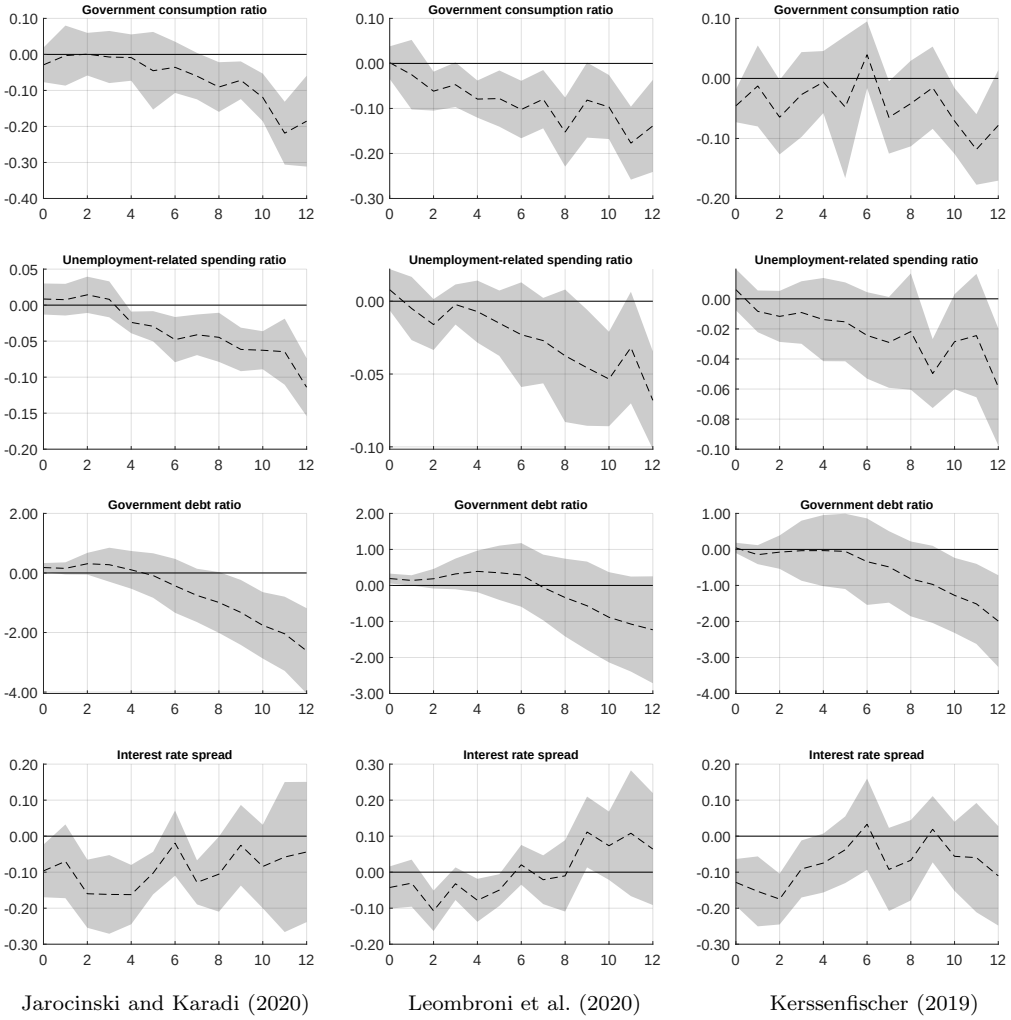
Figure 2: Baseline model impulse responses to monetary policy shocks



Notes: The figure shows impulse responses to exogenous expansionary monetary policy shocks. The dashed lines denote the estimated impulse responses. The shaded areas reflect the 90% error bands. The reaction of real output is measured in percent. The reactions of the other variables are measured in percentage points. A positive value of the government deficit/ surplus ratio and the primary balance ratio denotes a surplus, while a negative value reflects a deficit.

this issue by showing the reaction of the government consumption ratio as well as the expenditures ratio related to unemployment payments, which are both expressed in % of GDP.[15]

Figure 3: Additional variables impulse responses to monetary policy shocks



Notes: The figure shows impulse responses to exogenous expansionary monetary policy shocks. The government consumption ratio is government consumption in % of GDP. Government expenditures related to unemployment as a % of GDP is reflected by the unemployment-related spending ratio. The dashed lines denote the estimated impulse responses. The shaded areas reflect the 90% error bands. The reactions of the variables are measured in percentage points.

The government consumption ratio falls in response to the shocks, that is, government consumption rises by less compared with output or may even decline. Moreover, the expenditures ratio related to unemployment payments declines. The reaction is qualitatively in accordance with the results of Girouard and André (2005), who report elasticities of current primary expenditures with respect to the output

[15]For both ratios, we estimate model (1) by including lags of the control variables and lags of the respective government spending ratios. Each model is estimated with fixed effects and a lag order of four.

gap varying between -0.04 and -0.15.[16]

Additionally, the lower part of Figure 3 shows the responses of the government debt ratio, that is government debt as a % of GDP, as well as the interest rate spread to the monetary policy shocks.[17] The spread is calculated as the difference between the domestic government bond rates and the German yield on government bonds. The government debt ratio drops sluggishly after the shocks, which is consistent with the gradual increase in the government deficit/ surplus ratio. However, the reaction of the ratio to the shock from Leombroni et al. (2020) is insignificant. Finally, we observe that the government bond rate spread declines. This may reflect the ECB's intention to bring down periphery sovereign bond yields by means of policy interventions.

4.2 Discussion

Our results suggest that euro area periphery countries' fiscal policy does not respond to monetary policy surprises by running deficits. The reaction of economic activity to the shocks appears to determine the fiscal stance rather than the adjustment of borrowing costs. While no compelling inferences can be made as to the driving force of our findings, they may be the consequence of political pressure that increased in the aftermath of the sovereign debt crisis.

First, the ECB's interventions in the government bond markets were conditional on commitments to structural reforms (Bini Smaghi, 2013).[18] Within the SMP, the central bank imposed pressure on the distressed countries that were addressed by the sovereign bond purchases to agree on adjustment measures. Moreover, the OMT programme included compliance with a EFSF/ESM programme as a precondition for support. *Second*, fiscal rules were tightened (Dolls et al., 2016). In particular, the surveillance of the Stability and Growth Pact (SGP) was strengthened by two comprehensive legislative measures, namely the 'two pack' and the 'six pack', which also included tighter enforcement rules.[19] However, the SGP was still violated af-

[16] See Girouard and André (2005), in particular, Table 8 on page 21.

[17] The model for the government debt ratio includes lags of the following control variables: the government debt ratio, the primary balance ratio, the interest expenditures ratio as well as, the government bond rate and the financial stress indicator. In the model for the interest rate spread, the control variables are identical to those in the specification for the government bond rate, however they differ in that the yield on sovereign bonds is replaced by the interest rate spread. Both models are estimated with fixed effects and a lag order of four.

[18] According to Bini Smaghi (2013), the ECB's role changed radically in the course of the sovereign debt crisis: "The ability to push government authorities to make decisions contrary to their immediate desire gave the bank an unexpected political role" (pp. 125).

[19] While the 'two pack' requests euro area member countries to present budgetary plans relatively early within the year such that guidance can be taken into account before national budgets are adopted, the 'six pack' is intended to detect harmful macroeconomic imbalances.

terwards. *Finally*, the access to bailout funds in terms of a EFSF/ESM programme was conditional on the implementation of austerity measures (Bini Smaghi, 2013). The disbursement of financial aid was monitored by the 'Troika', that is a group of institutions including the European Commission, the ECB and the International Monetary Fund, which also developed and negotiated the programmes for structural reforms. Against this background, monetary policy may have eased market pressure by conducting expansionary policy measures to reduce sovereign bond yields, which, potentially weakened the effect of market discipline. However, these measures were implemented parallel to other policies that were put in place to replace market pressure with political pressure.

4.3 Robustness

Next, we assess the robustness of our results. First, we estimate alternative models in levels. Second, we specify the baseline model in first differences.

4.3.1 Alternative model specifications

We estimate model (1) in levels using alternative specifications. In particular, we estimate the model with fixed effects and a linear trend, with a lag order of two as well as with pooled OLS instead of fixed effects.[20] Figure 4 displays the estimated impulse responses to the exogenous monetary policy shocks. For a comparison, the shaded areas reflect the baseline 90% error bands. In line with the baseline model impulse responses, we see that the reactions of the variables of interest to the exogenous monetary policy shocks are similar.

4.3.2 First differences

Moreover, we estimate a model in first differences, which is specified as:

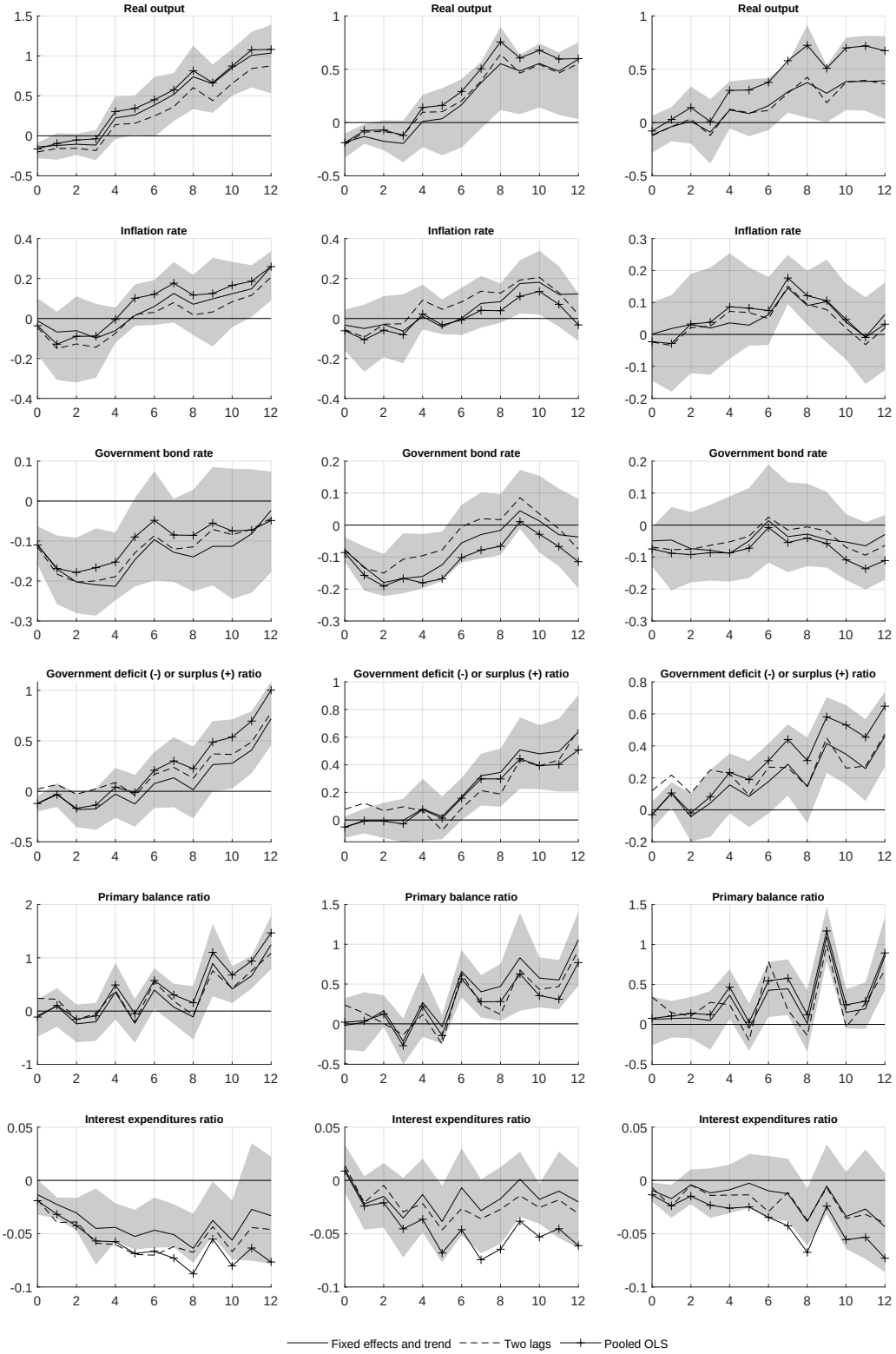
$$X_{i,t+h} - X_{i,t-1} = \alpha_{i,h} + \theta_h \text{MP}_t + \phi_h'(L) Z_{i,t-1} + u_{i,t+h}, \tag{5}$$

where the vector of control variables $Z_{i,t-1}$ comprises the log difference of real output and first differences of the other variables. We estimate (5) with fixed effects and a lag order of three.[21] Following Klein (2017) and Breitenlechner and Scharler (2020), we calculate cumulated impulse responses for the estimation in first differences that are derived by regressing the h^{th} difference of X as the dependent variable. The

[20] In addition, we estimate the model with fixed effects a trend and a quadratic trend. The results are not reported here, but are similar to those of the other robustness checks.

[21] Note that the results remain unchanged when using a lag order of four.

Figure 4: Alternative model specifications in levels



Notes: The figure shows impulse responses estimated from alternative models in levels to exogenous expansionary monetary policy shocks. The dashed lines denote the estimated impulse responses. The shaded areas reflect the 90% error band of the baseline estimation. The reaction of real output is measured in percent. The reactions of the other variables are measured in percentage points. A positive value of the government deficit/ surplus ratio and the primary balance ratio denotes a surplus, while a negative value reflects a deficit.

impulse responses are shown in Figure 5, which also displays the corresponding 90% error bands.

The responses of the variables of interest to the exogenous expansionary monetary policy shocks are similar to those reported before, although some differences can be observed. We see a rise in real output, which begins around six quarters after the shocks. The response of the inflation rate is not significant. The drop of the government bond rate occurs immediately after the shocks and is more pronounced. In addition, the fiscal position improves. We observe an increase in the primary balance ratio, which is accompanied by a significant fall in the interest expenditures ratio due to the drop in the government bond rate.

4.4 Monetary policy shocks after 2012

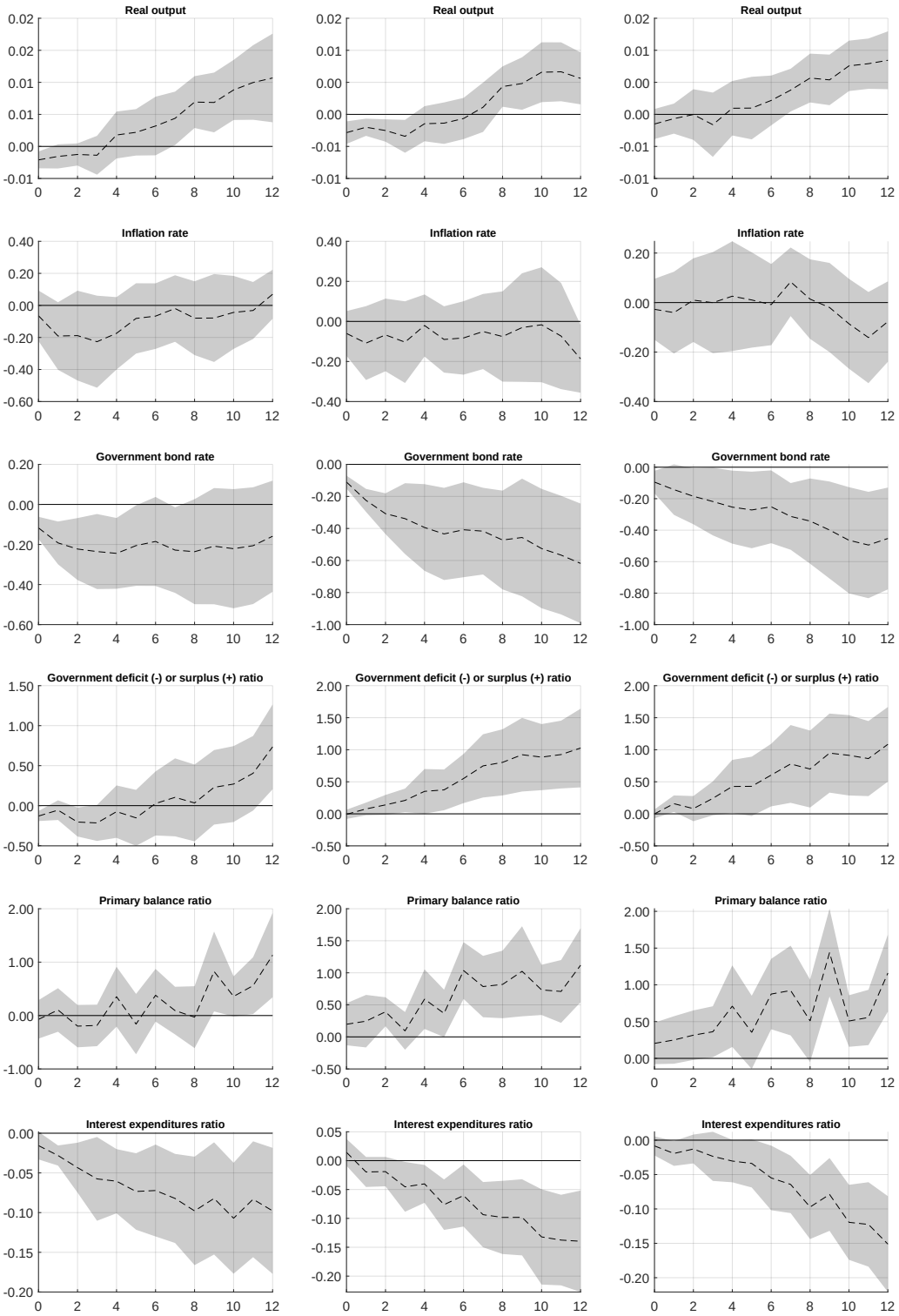
So far, our discussion suggests that the maintenance of the periphery countries' fiscal discipline after expansionary monetary policy shocks may be the result of political pressure that replaced market pressure. In the following, we investigate this idea more deeply by estimating a linear model of the form:

$$X_{i,t+h} = \alpha_{i,h} + \theta_h \mathrm{MP}_t + \gamma_h \mathrm{I} \times \mathrm{MP}_t + \phi_h'(L) Z_{i,t-1} + u_{i,t+h}, \tag{6}$$

over the entire 2002Q1–2018Q4 sample, where I is a dummy variable that is zero before 2012Q1 and one thereafter. The responses of X at time $t+h$ to a monetary policy shock at time t for the period 2012Q1–2018Q4 is given by the linear combination of the estimators θ_h and γ_h. The model is estimated in levels using fixed effects and a lag order of four.

Since the ECB started to intensify its unconventional monetary policy measures around 2012, we focus on the period 2012–2018. First, the SMP was expanded by a second wave of sovereign bond purchases between August 2011 and January 2012. Second, the OMT programme was announced in September 2012. Third, a number of Longer-Term Refinancing Operations (LTROs) were offered with extended maturities of up to 36 months. Moreover, Targeted Longer-Term Refinancing Operations (TLTROs) were introduced in June 2014, and the interest rate on the deposit facility was cut to become negative. Finally, the APP was initiated in January 2015, which included under the PSPP large-scale sovereign bond purchases. Empirical evidence suggests that these measures contributed to the lowering of periphery government bond rates in 2012, after they were rising sharply after 2008 (Eser and Schwaab, 2016; Ghysels et al., 2017; Pooter et al., 2018; Altavilla et al., 2016; Afonso et al., 2018; Eser et al., 2019, among others). At the same time, the ESM replaced the

Figure 5: Alternative model specification in first differences



Notes: The figure shows impulse responses estimated from models in first differences to exogenous expansionary monetary policy shocks. The dashed lines denote the estimated impulse responses. The shaded areas reflect the 90% error band of the baseline estimation. The reactions of the variables are measured in percent. A positive value of the government deficit/ surplus ratio and the primary balance ratio denotes a surplus, while a negative value reflects a deficit.

EFSF in 2012 and the fiscal rules were strengthened, that is, the 'six pack' came in force December 2011 and the 'two pack', May 2013.

Figure 6 reports the impulse responses of the variables of interest to the monetary policy surprises for the period 2012Q1–2018Q4, which are depicted by the '-+-' lines. For a comparison, the impulse responses derived for the entire 2002Q1–2018Q4 period and their corresponding 90% error bands are also shown.[22] Real output rises in response to the expansionary shocks to monetary policy. The inflation rate increases comparatively strongly in the first quarters after the shocks. The government bond rate initially declines also by around 10 base points. However, the drop in the yield on sovereign bonds seems, compared with the fall observed over the entire 2002–2018 period, somewhat less pronounced. The reaction of the government bond rate may be explained by the relatively low level yields on sovereign bonds reached after 2013, which was lower than the average level between 1999–2007, that is, before the global financial crisis. The decline in the government bond rate might also have been moderated by the initial rise in the inflation rate. However, the improvement of the fiscal position seems more distinctive. We observe a surplus in the public budget, that is, the government deficit/ surplus ratio rises. The increase is driven by the surplus in the primary balance ratio. By contrast, the decline in the interest expenditures ratio is comparably weak, which is in line with the moderate fall in the government bond rate.

Overall, our results support the notion that periphery countries' fiscal discipline is maintained after expansionary monetary policy surprises. Fiscal policy seems to abstain from running deficits after shocks to monetary policy that induce a decline in borrowing cost.

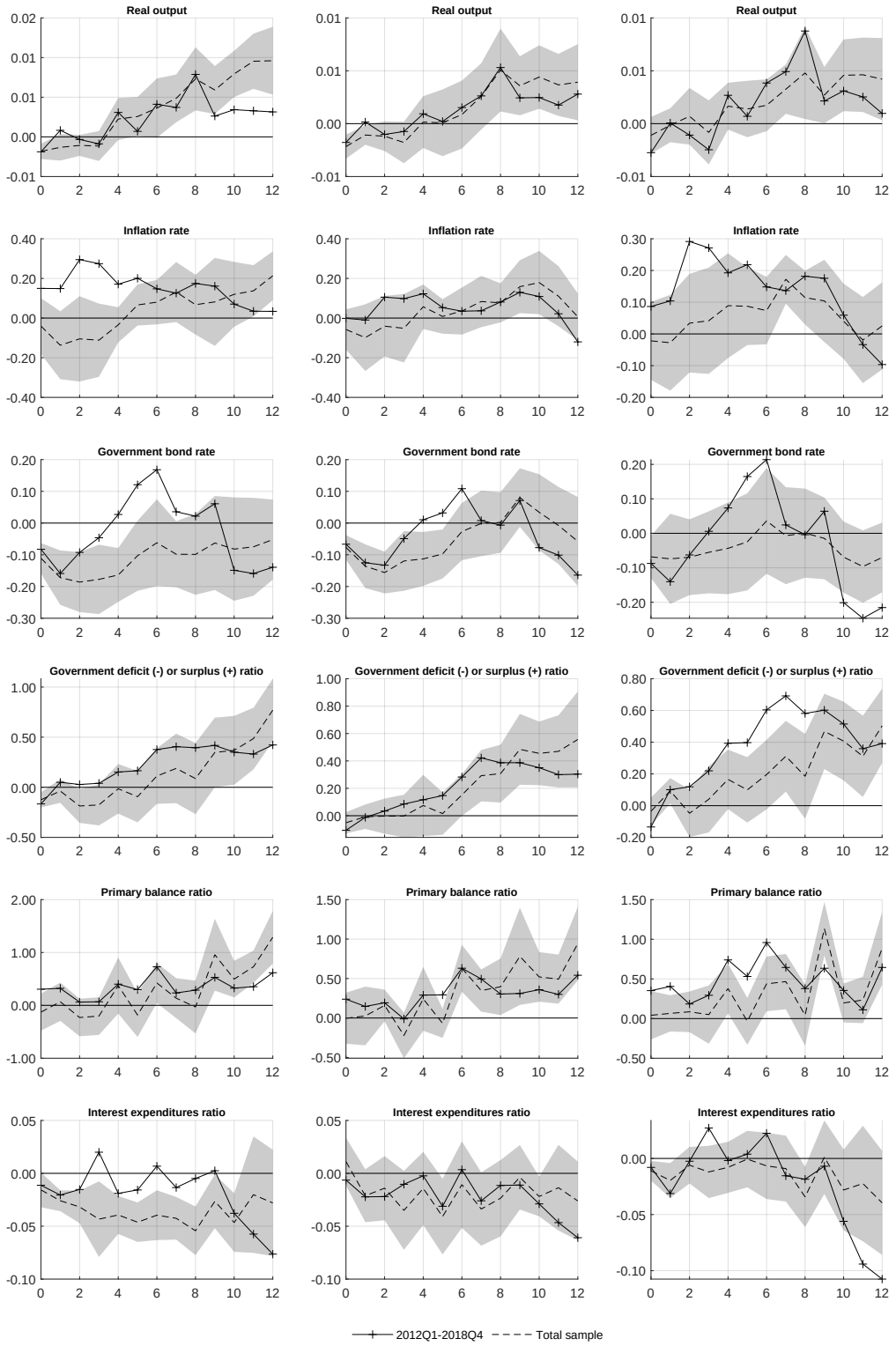
5 Conclusion

Our analysis focuses on the question of how fiscal policy in euro area periphery countries reacts to monetary policy surprises that bring down yields on sovereign bonds. In particular, we assess whether the disciplining effect of financial markets on public finances is undermined by the ability of monetary policy to affect the conditions of external funds. We consider Italy, Ireland, Portugal and Spain - the euro area periphery countries - which were addressed by a number of the ECB's monetary policy measures implemented after the onset of the global financial crisis.

Our results suggest that fiscal policy in the periphery does not respond to mon-

[22] In Appendix B, we report the impulse responses calculated from alternative model specifications with an interaction dummy as a robustness check. The results are similar. However, the impulse responses calculated from the model in first differences – similar to the findings in 4.3.2 – are in some cases quantitatively more pronounced.

Figure 6: Impulse responses to monetary policy shocks after 2012



Jarocinski and Karadi (2020) Leombroni et al. (2020) Kerssenfischer (2019)

Notes: The figure shows impulse responses to exogenous expansionary monetary policy shocks. The impulse responses of the model estimated with an intervention dummy, fixed effects and a lag length of four are depicted by the '-+-' lines. The impulse responses derived from the baseline model estimated for the entire sample 2002Q1-2018Q4 are shown by the black dashed lines. The shaded areas reflect the baseline 90% error bands. The reaction of real output is measured in percent. The reactions of the other variables are measured in percentage points. A positive value of the government deficit/ surplus ratio and the primary balance ratio denotes a surplus, while a negative value reflects a deficit.

etary policy surprises by running deficits in spite of a decline in government bond rates. During an economic boom caused by expansionary shocks to monetary policy we observe that the fiscal position improves. The surplus in the public budget is related to both a surplus in the primary balance ratio and a drop in the interest expenditures ratio.

We conclude that periphery countries' fiscal discipline seems not to wane in response to expansionary monetary policy shocks that induce a lowering of borrowing cost. Thus, although government debt rose relative to GDP between 2006 and 2018, our results suggest that the rise might not have been caused by a lax fiscal policy that took advantage of the low-interest environment induced by expansionary monetary policy measures. Rather, the increase in the countries' government debt ratio might have been a result of the poor economic performance linked to a fragile banking sector and the loss of international price competitiveness seen in the aftermath of the global financial crisis.

References

Afonso, A., Arghyrou, M.G., Gadea, M.D., Kontonikas, A., 2018. "Whatever it takes" to resolve the European sovereign debt crisis? Bond pricing regime switches and monetary policy effects. Journal of International Money and Finance 86, 1–30.

Akitoby, B., Stratmann, T., 2008. Fiscal policy and financial markets. The Economic Journal 118, 1971–1985.

Altavilla, C., Giannone, D., Lenza, M., 2016. The financial and macroeconomic effects of the OMT announcements. International Journal of Central Banking 12, 29–57.

Arellano, M., 1987. Computing robust standard errors for within-groups estimators. Oxford Bulletin of Economics and Statistics 49, 431–434.

Auerbach, A.J., Gorodnichenko, Y., 2013. Output spillovers from fiscal policy. American Economic Review 103, 141–146.

Bayoumi, T., Goldstein, M., Woglom, G., 1995. Do credit markets discipline sovereign borrowers? Evidence from the U.S. States. Journal of Money, Credit and Banking 27, 1046–1059.

Bernoth, K., von Hagen, J., Schuknecht, L., 2012. Sovereign risk premiums in the European government bond market. Journal of International Money and Finance 31, 975–995.

Bini Smaghi, L., 2013. Austerity: European Democracies against the Wall. Centre for European Policy Studies, Place du Congres 1, B-1000 Brussels.

Bohn, H., 1998. The behavior of U.S. public debt and deficits. The Quarterly Journal of Economics 113, 949–963.

Bohn, H., 2005. The sustainability of fiscal policy in the United States. CESifo Working Paper Series 1446. CESifo.

Born, B., Müller, G.J., Pfeifer, J., 2020. Does austerity pay off? Review of Economics and Statistics 102, 323–338.

Born, B., Müller, G.J., Pfeifer, J., Wellmann, S., 2018. Market discipline? Sovereign spreads, fiscal adjustments, and political turnover. mimeo.

Breitenlechner, M., Scharler, J., 2020. Private Sector Debt, Financial Constraints, and the Effects of Monetary Policy: Evidence from the US. Oxford Bulletin of Economics and Statistics 82, 889–915.

Broner, F., Erce, A., Martin, A., Ventura, J., 2014. Sovereign debt markets in turbulent times: Creditor discrimination and crowding-out effects. Journal of Monetary Economics 61, 114–142.

De Haan, J., Sturm, J.E., 2000. Do financial markets and the Maastricht Treaty discipline governments? New evidence. Applied Financial Economics 10, 221–226.

Dell' Erba, S., Mattina, T., Roitman, A., 2015. Pressure or prudence? Tales of market pressure and fiscal adjustment. Journal of International Money and Finance 51, 196–213.

Dolls, M., Fuest, C., Heinemann, F., Peichl, A., 2016. Reconciling insurance with market discipline: A blueprint for a European fiscal union. CESifo Economic Studies 62, 210–231.

Driscoll, J.C., Kraay, A.C., 1998. Consistent covariance matrix estimation with spatially dependent panel data. The Review of Economics and Statistics 80, 549–560.

Ehrmann, M., Fratzscher, M., Güürkaynak, R.S., Swanson, E.T., 2011. Convergence and anchoring of yield curves in the euro area. The Review of Economics and Statistics 93, 350–364.

Eser, F., Lemke, W., Nyholm, K., Radde, S., Vladu, A.L., 2019. Tracing the impact of the ECB's Asset Purchase Programme on the yield curve. Working Paper Series 2293. European Central Bank.

Eser, F., Schwaab, B., 2016. Evaluating the impact of unconventional monetary policy measures: Empirical evidence from the ECB's Securities Markets Programme. Journal of Financial Economics 119, 147–167.

Falagiarda, M., Reitz, S., 2015. Announcements of ECB unconventional programs: Implications for the sovereign spreads of stressed euro area countries. Journal of International Money and Finance 53, 276–295.

Ghysels, E., Idier, J., Manganelli, S., Vergote, O., 2017. A high-frequency assessment of the ECB Securities Markets Programme. Journal of the European Economic Association 53, 218–243.

Girouard, N., André, C., 2005. Measuring cyclically-adjusted budget balances for OECD countries. OECD Economics Department Working Papers 434. OECD Publishing.

de Groot, O., Holm-Hadulla, F., Leiner-Killinger, N., 2015. Cost of borrowing shocks and fiscal adjustment. Journal of International Money and Finance 59, 23 – 48.

Hachula, M., Piffer, M., Rieth, M., 2020. Unconventional monetary policy, fiscal side effects, and euro area (im)balances. Journal of the European Economic Association 18, 202–231.

Jarociński, M., Karadi, P., 2020. Deconstructing monetary policy surprises — The role of information shocks. American Economic Journal: Macroeconomics 12, 1–43.

Jordà, Ò., 2005. Estimation and inference of impulse responses by local projections. American Economic Review 95, 161–182.

Jordà, Ò., Schularick, M., Taylor, A.M., 2015. Betting the house. Journal of International Economics 96, 2–18.

Kerssenfischer, M., 2019. Information effects of euro area monetary policy: New evidence from high-frequency futures data. Discussion Papers 07/2019. Deutsche Bundesbank.

Kilian, L., Kim, Y.J., 2011. How reliable are local projection estimators of impulse responses? The Review of Economics and Statistics 93, 1460–1466.

Klein, M., 2017. Austerity and private debt. Journal of Money, Credit and Banking 49, 1555–1585.

Krippner, L., 2013. Measuring the stance of monetary policy in zero lower bound environments. Economics Letters 118, 135–138.

Laubach, T., 2009. New evidence on the interest rate effects of budget deficits and debt. Journal of the European Economic Association 7, 858–885.

Legrenzi, G., Milas, C., 2013. Modelling the fiscal reaction functions of the GIPS based on state-varying thresholds. Economics Letters 121, 384–389.

Leombroni, M., Vedolin, A., Venter, G., Whelan, P., 2020. Central bank communication and the yield curve. Journal of Financial Economics, in press.

Mauro, P., Romeu, R., Binder, A., Zaman, A., 2015. A modern history of fiscal prudence and profligacy. Journal of Monetary Economics 76, 55 – 70.

Pooter, M.D., Martin, R.F., Pruitt, S., 2018. The liquidity effects of official bond market intervention. Journal of Financial and Quantitative Analysis 53, 243–268.

Ramey, V.A., Zubairy, S., 2018. Government spending multipliers in good times and in bad: Evidence from US historical data. Journal of Political Economy 126, 850–901.

Taylor, J.B., 1995. Monetary policy implications of greater fiscal discipline. Proceedings - Economic Policy Symposium - Jackson Hole , 151–170.

Tenreyro, S., Thwaites, G., 2016. Pushing on a string: US monetary policy is less powerful in recessions. American Economic Journal: Macroeconomics 8, 43–74.

Theofilakou, N., Stournaras, Y., 2012. Government solvency and financial markets: Dynamic panel estimates for the European Monetary Union. Economics Letters 115, 130 – 133.

Tkačevs, O., Vilerts, K., 2019. The impact of government borrowing costs on fiscal discipline. Kyklos 72, 446–471.

A Data Appendix

ECB Statistical data Warehouse:

- Gross domestic product at market prices, chain linked volume
  MNA.Q.Y.XX.W2.S1.S1.B.B1GQ._Z._Z._Z.EUR.LR.N
- Harmonized index of consumer prices
  ICP.M.XX.N.000000.4.INX
  This is converted to quarterly data using monthly averages. The HICP inflation rate is calculated as the annual rate of change
- Government deficit/ surplus as a % of GDP, deficit (-)/ surplus (+)
  GFS.Q.N.XX.W0.S13.S1._Z.B.B9._Z._Z._Z.XDC_R_B1GQ_CY._Z.S.V.CY._T
- Government primary balance as % of GDP, deficit (-)/ surplus (+)
  GFS.Q.N.XX.W0.S13.S1._Z.B.B9P._Z._Z._Z.XDC_R_B1GQ._Z.S.V.N._T
- Government interest expenditures as a % of GDP
  GFS.Q.N.XX.W0.S13.S1.C.D.D41._Z._Z._T.XDC_R_B1GQ._Z.S.V.N._T
- Government bond rate
  IRS.M.XX.L.L40.CI.0000.EUR.N.Z
  This is converted to quarterly data using monthly averages
- Financial stress indicator
  CLIFS.M.XX._Z.4F.EC.CLIFS_CI.IDX
  This is converted to quarterly data using monthly averages
- Government final consumption as a % of GDP
  GFS.Q.N.XX.W0.S13.S1.N.D.P3._Z._Z._T.XDC_R_B1GQ._Z.S.V.N._T
- Government debt as a % of GDP
  GFS.Q.N.XX.W0.S13.S1.C.L.LE.GD.T._Z.XDC_R_B1GQ_CY._T.F.V.N._T

In the series' codes, XX is a placeholder for the countries' acronyms: Spain (ES), Portugal (PT), Italy (IT), and Ireland (IR). All data are seasonally adjusted by means of the IRIS Macroeconomic Modeling Toolbox.

Eurostat:

- Government unemployment-related spending is expressed as a % of GDP. Annual data are converted into quarterly data using the Chow-Lin interpolation procedure and government expenditures as a % of GDP minus government interest expenditures as a % of GDP as the reference series.

Shadow short rate:

- Leo Krippner's shadow short rate is taken from: https://www.ljkmfa.com/.

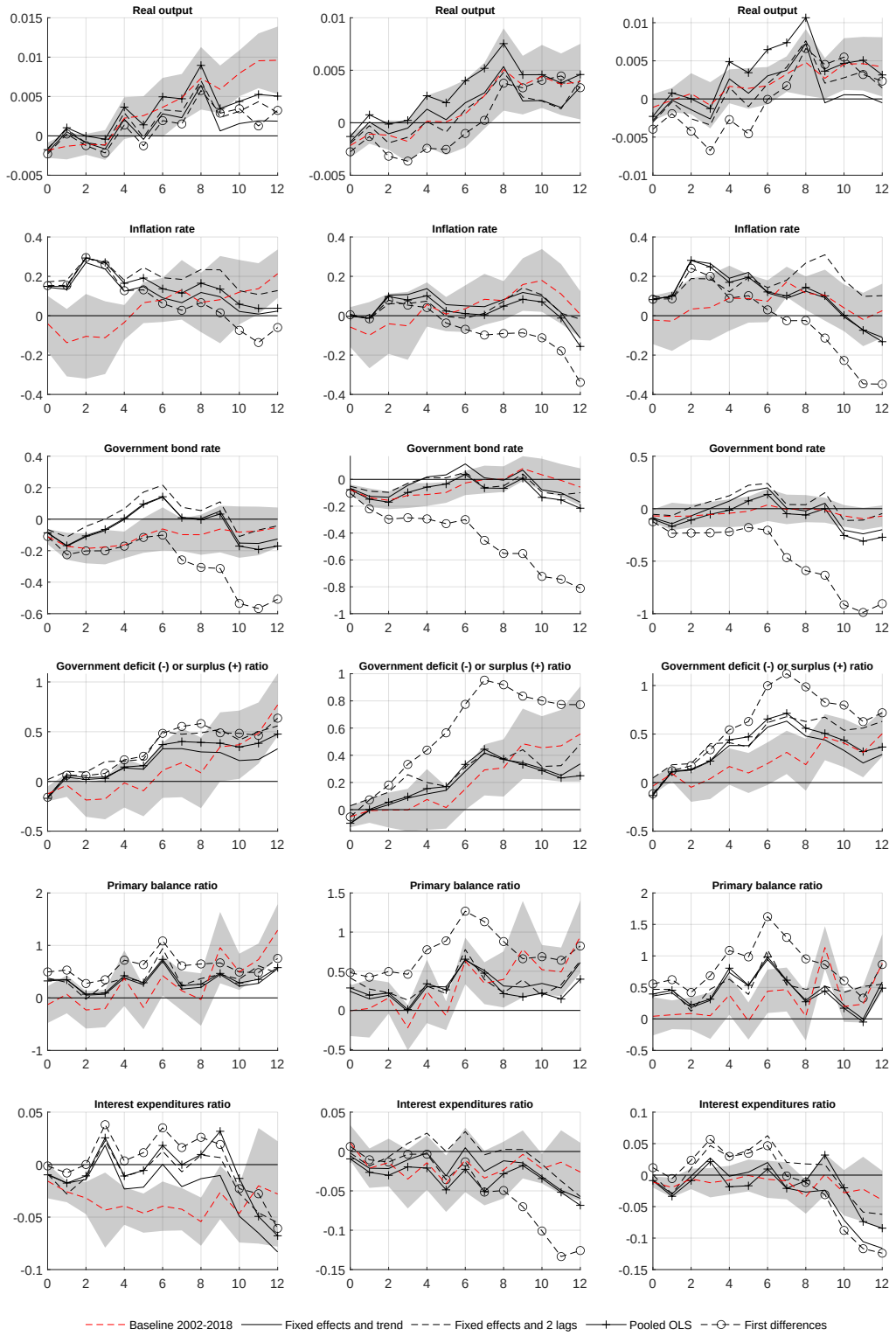
Monetary policy shock series:

- Jarociński and Karadi (2020): https://www.aeaweb.org/articles?id=10.1257/mac.20180090
- Leombroni et al. (2020): https://sites.google.com/site/gyuriventer/
- Kerssenfischer (2019): https://sites.google.com/site/markkerssenfischer

B Monetary policy shocks after 2012: Robustness checks

Figure 7 shows the impulse responses of the variables of interest to monetary policy shocks after 2012 that are calculated from alternative models, which are estimated with fixed effects and a trend, fixed effects and a lag order of two, pooled OLS and first differences.

Figure 7: Alternative impulse responses to monetary policy shocks after 2012



Notes: The figure shows impulse responses to exogenous expansionary monetary policy shocks. The impulse responses derived from the baseline specification are shown by the red dashed lines. The shaded areas reflect the baseline 90% error bands. Alternative impulse responses are derived from models estimated with fixed effects and a trend, fixed effects and a lag order of two, pooled OLS and first differences. The reaction of real output is measured in percent. The reactions of the other variables are measured in percentage points. A positive value of the government deficit/ surplus ratio and the primary balance ratio denotes a surplus, while a negative value reflects a deficit.

Bisher erschienene Weidener Diskussionspapiere

1 **„Warum gehen die Leute in die Fußballstadien? Eine empirische Analyse der Fußball-Bundesliga“**
von Horst Rottmann und Franz Seitz

2 **„Explaining the US Bond Yield Conundrum“**
von Harm Bandholz, Jörg Clostermann und Franz Seitz

3 **„Employment Effects of Innovation at the Firm Level“**
von Horst Rottmann und Stefan Lachenmaier

4 **„Financial Benefits of Business Process Management“**
von Helmut Pirzer, Christian Forstner, Wolfgang Kotschenreuther und Wolfgang Renninger

5 **„Die Performance Deutscher Aktienfonds“**
von Horst Rottmann und Thomas Franz

6 **„Bilanzzweck der öffentlichen Verwaltung im Kontext zu HGB, ISAS und IPSAS“**
von Bärbel Stein

7 **Fallstudie: „Pathologie der Organisation“ – Fehlentwicklungen in Organisationen, ihre Bedeutung und Ansätze zur Vermeidung**
von Helmut Klein

8 **„Kürzung der Vorsorgeaufwendungen nach dem Jahressteuergesetz 2008 bei betrieblicher Altersversorgung für den GGF.“**
von Thomas Dommermuth

9 **„Zur Entwicklung von E-Learning an bayerischen Fachhochschulen- Auf dem Weg zum nachhaltigen Einsatz?“**
von Heribert Popp und Wolfgang Renninger

10 **„Wie viele ausländische Euro-Münzen fließen nach Deutschland?“**
von Dietrich Stoyan und Franz Seitz

11 **Modell zur Losgrößenoptimierung am Beispiel der Blechteilindustrie für Automobilzulieferer**
von Bärbel Stein und Christian Voith

12 **Performancemessung**
Theoretische Maße und empirische Umsetzung mit VBA
von Franz Seitz und Benjamin R. Auer

13 **Sovereign Wealth Funds – Size, Economic Effects and Policy Reactions**
von Thomas Jost

14 **The Polish Investor Compensation System Versus EU – 15 Systems and Model Solutions**
von Bogna Janik

15 **Controlling in virtuellen Unternehmen -eine Studie-**
Teil 1: State of the art
von Bärbel Stein, Alexander Herzner, Matthias Riedl

16 **Modell zur Ermittlung des Erhaltungsaufwandes von Kunst- und Kulturgütern in kommunalen Bilanzen**
von Bärbel Held

17 **Arbeitsmarktinstitutionen und die langfristige Entwicklung der Arbeitslosigkeit –**
Empirische Ergebnisse für 19 OECD-Länder
von Horst Rottmann und Gebhard Flaig

18 **Controlling in virtuellen Unternehmen -eine Studie-**
Teil 2: Auswertung
von Bärbel Held, Alexander Herzner, Matthias Riedl

19 **DIAKONIE und DRG's –antagonistisch oder vereinbar?**
von Bärbel Held und Claus-Peter Held

20 **Traditionelle Budgetierung versus Beyond Budgeting-**
Darstellung und Wertung anhand eines Praxisbeispiels
von Bärbel Held

21 **Ein Factor Augmented Stepwise Probit Prognosemodell**
für den ifo-Geschäftserwartungsindex
von Jörg Clostermann, Alexander Koch, Andreas Rees und Franz Seitz

22 **Bewertungsmodell der musealen Kunstgegenstände von Kommunen**
von Bärbel Held

23 **An Empirical Study on Paths of Creating Harmonious Corporate Culture**
von Lianke Song und Bernt Mayer

24 **A Micro Data Approach to the Identification of Credit Crunches**
von Timo Wollmershäuser und Horst Rottmann

25 **Strategies and possible directions to improve Technology**
Scouting in China
von Wolfgang Renninger und Mirjam Riesemann

26 **Wohn-Riester-Konstruktion, Effizienz und Reformbedarf**
von Thomas Dommermuth

27 **Sorting on the Labour Market: A Literature Overview and Theoretical Framework**
von Stephan O. Hornig, Horst Rottmann und Rüdiger Wapler

28 **Der Beitrag der Kirche zur Demokratisierungsgestaltung der Wirtschaft**
von Bärbel Held

29 **Lebenslanges Lernen auf Basis Neurowissenschaftlicher Erkenntnisse**
-Schlussfolgerungen für Didaktik und Personalentwicklung-
von Sarah Brückner und Bernt Mayer

30 **Currency Movements Within and Outside a Currency Union: The case of Germany**

and the euro area
von Franz Seitz, Gerhard Rösl und Nikolaus Bartzsch

31 **Labour Market Institutions and Unemployment. An International Comparison**
von Horst Rottmann und Gebhard Flaig

32 **The Rule of the IMF in the European Debt Crisis**
von Franz Seitz und Thomas Jost

33 **Die Rolle monetärer Variablen für die Geldpolitik vor, während und nach der Krise: Nicht nur für die EWU geltende Überlegungen**
von Franz Seitz

34 **Managementansätze sozialer, ökologischer und ökonomischer Nachhaltigkeit: State of the Art**
von Alexander Herzner

35 **Is there a Friday the 13th effect in emerging Asian stock markets?**
von Benjamin R. Auer und Horst Rottmann

36 **Fiscal Policy During Business Cycles in Developing Countries: The Case of Africa**
von Willi Leibfritz und Horst Rottmann

37 **MONEY IN MODERN MACRO MODELS: A review of the arguments**
von Markus A. Schmidt und Franz Seitz

38 **Wie erzielen Unternehmen herausragende Serviceleistungen mit höheren Gewinnen?**
von Johann Strassl und Günter Schicker

39 **Let's Blame Germany for its Current Account Surplus!?**
von Thomas Jost

40 **Geldpolitik und Behavioural Finance**
von Franz Seitz

41 **Rechtliche Überlegungen zu den Euro-Rettungsschirmprogrammen und den jüngsten geldpolitischen Maßnahmen der EZB**
von Ralph Hirdina

42 **DO UNEMPLOYMENT BENEFITS AND EMPLOYMENT PROTECTION INFLUENCE SUICIDE MORTALITY? AN INTERNATIONAL PANEL DATA ANALYSIS**
von Horst Rottmann

43 **Die neuen europäischen Regeln zur Sanierung und Abwicklung von Kreditinstituten: Ordnungspolitisch und rechtlich angreifbar?**
von Ralph Hirdina

44 **Vermögensumverteilung in der Eurozone durch die EZB ohne rechtliche Legitimation?**
von Ralph Hirdina

45 **Die Haftung des Steuerzahlers für etwaige Verluste der EZB auf dem rechtlichen Prüfstand**
von Ralph Hirdina

46 **Die Frage nach dem Verhältnis von Nachhaltigkeit und Ökonomie**
von Alexander Herzner

47 **Giving ideas a chance - systematic development of services in manufacturing industry**
von Johann Strassl, Günter Schicker und Christian Grasser

48 **Risikoorientierte Kundenbewertung: Eine Fallstudie**
von Thorsten Hock

49 **Rechtliche Überlegungen zur Position der Sparer und institutionellen Anleger mit Blick auf die Niedrigzins- bzw. Negativzinspolitik der Europäischen Zentralbank**
von Ralph Hirdina

50 **Determinanten des Studienerfolgs: Eine empirische Untersuchung für die Studiengänge Maschinenbau, Medienproduktion und -technik sowie Umwelttechnik**
von Bernd Rager und Horst Rottmann

51 **Cash Holdings in Germany and the Demand for "German" Banknotes: What role for cashless payments**
von Nikolaus Bartzsch und Franz Seitz

52 **Europäische Union und Euro – Wie geht es weiter? – Rechtliche Überlegungen**
von Ralph Hirdina

53 **A Call for Action – Warum sich das professionelle Management des Service Portfolios in der Industrie auszahlt**
von Günter Schicker und Johann Strassl

54 **Der Studienerfolg an der OTH Amberg-Weiden – Eine empirische Analyse der Studiengänge Maschinenbau, Medienproduktion und Medientechnik sowie Umwelttechnik**
von Bernd Rager und Horst Rottmann

55 **Die Bewertung von Aktienanleihen mit Barriere – Eine Fallstudie für die Easy-Aktienanleihe der Deutschen Bank**
von Maurice Hofmann und Horst Rottmann

56 **Studie: Die Generation Y und deren organisatorische Implikationen**
von Helmut Klein

57 **Die gesetzliche Einschränkung von Bargeldzahlungen und die Abschaffung von Bargeld auf dem rechtlichen Prüfstand**
von Ralph Hirdina

58 **Besser ohne Bargeld? Gesamtwirtschaftliche Wohlfahrtsverluste der Bargeldabschaffung**
von Gerhard Rösl, Franz Seitz, Karl-Heinz Tödter

59 **Nowcasting des deutschen BIP**
von Jens Doll, Beatrice Rosenthal, Jonas Volkenand, Sandra Hamella

60 **Herausforderungen und Erfolgsfaktoren bei der Einführung Cloud-basierter Unternehmenssoftware – Erfahrungen aus der Praxis**
von Thomas Dobat, Stefanie Hertel, Wolfgang Renninger

61 **Global Recessions and Booms: What do Probit models tell us?**
von Ursel Baumann, Ramón Gómez Salvador, Franz Seitz

62 **Feste Zinsbindung versus kurzfristig variable Zinskonditionen in Deutschland**
von Jörg Clostermann und Franz Seitz

63 **Deferred-Compensation-Modelle: Ersatz für eine konventionelle betriebliche Altersversorgung nach dem Betriebsrentengesetz?**
von Thomas Dommermuth und Thomas Schiller

64 **Have capital market anomalies worldwide attenuated in the recent era of high liquidity and trading activity?**
von Benjamin R. Auer und Horst Rottmann

65 **Vorschläge des französischen Staatspräsidenten Emmanuel Macron zur Reform der Europäischen Union**
von Ralph Hirdina

66 **Von der Troika zu einem Europäischen Währungsfonds – Welche Aufgaben und Grenzen sollte ein Europäischer Währungsfonds nach den Erfahrungen mit der Troika haben?**
von Thomas Jost

67 **Does Microfinance have an impact on borrower's consumption patterns and women's empowerment?**
von Charlotte H. Feldhoff, Yi Liu und Patricia R. Feldhoff

68 **Uncertainty in the Black-Litterman Model - A Practical Note**
von Adrian Fuhrer und Thorsten Hock

69 **Produktportfolio-Management im Zeitalter der Digitalisierung**
von Günter Schicker und Johann Strassl

70 **Evaluation eines Inverted Classroom Konzepts in der makroökonomischen Lehre**
von Horst Rottmann und Christoph Voit

71 **Immobilienkredite in Deutschland und der Schweiz: Die Rolle von Zinsen und Zinsbindung**
von Jörg Clostermann und Franz Seitz

72 **Intelligente Verpackungen**
von Stephanie Abels-Schlosser

73 **Digitale Strategien entwickeln – von der Idee zur Roadmap**
von Johann Strassl und Günter Schicker

74 **Derivate im Zinsmanagement: Eine Analyse der Hedging-Qualität von Bund Future Kontrakten und deren Einsatzmöglichkeiten in Theorie und Praxis**
von Christoph Wontke und Franz Seitz

75 **Steigerung der Kundenzufriedenheit durch Gestaltung von Artikeldetailseiten am Beispiel von WITT WEIDEN**
von Laura Graser und Marco Nirschl

76 **Werkvertragsarbeitnehmerinnen und -arbeitnehmer in der Fleischindustrie**
von André Schulte und Ágnes Wörster

77 **How to avoid fracture of the locking screw in modular revision arthroplasty of the hip using the MRP Titan Revision System**
von Theresa Semmelmann, Alexander Schuh, Horst Rottmann, Reinhard Schröder, Christopher Fleischmann

78 **SARS-Cov-2 und Bargeld: Wie ein Virus die weltweite Bargeldnachfrage fördert**
von Gerhard Rösl und Franz Seitz

79 **Monte-Carlo-Evaluation von Instrumentenvariablenschätzern**
von Benjamin R. Auer und Horst Rottmann

80 **Euro area house price fluctuations and unconventional monetary policy surprises**
von Oliver Hülsewig und Horst Rottmann

81 **Euro Area Periphery Countries' Fiscal Policy and Monetary Policy Surprises**
von Oliver Hülsewig und Horst Rottmann

Ostbayerische Technische Hochschule
Amberg-Weiden

Die Weidener Diskussionspapiere erscheinen in unregelmäßigen Abständen und sollen Erkenntnisse aus Forschung und Wissenschaft an der Hochschule in Weiden insbesondere zu volks- und betriebswirtschaftlichen Themen an Wirtschaft und Gesellschaft vermitteln und den fachlichen Dialog fördern.

Herausgeber:
Ostbayerische Technische Hochschule (OTH) Amberg-Weiden
Prof. Dr. Horst Rottmann und Prof. Dr. Franz Seitz
Fakultät Betriebswirtschaft

Presserechtliche Verantwortung:
Sonja Wiesel, Hochschulkommunikation und Öffentlichkeitsarbeit
Telefon +49 (9621) 482-3135
Fax +49 (9621) 482-4135
s.wiesel@oth-aw.de

Bestellungen schriftlich erbeten an:
Ostbayerische Technische Hochschule Amberg-Weiden
Abt. Weiden, Bibliothek
Hetzenrichter Weg 15,
D – 92637 Weiden i.d.Opf.
Die Diskussionsbeiträge können elektronisch abgerufen werden unter
http://www.oth-aw.de/aktuelles/veroeffentlichungen/weidener_diskussionspapiere/

ISBN 978-3-937804-83-5

- **Abteilung Amberg:** Kaiser-Wilhelm-Ring 23, 92224 Amberg,
  Tel.: (09621) 482-0, Fax: (09621) 482-4991
- **Abteilung Weiden:** Hetzenrichter Weg 15, 92637 Weiden i. d. OPf.,
  Tel.: (0961) 382-0, Fax: (0961) 382-2991
- **E-Mail: info@oth-aw.de | Internet: http://www.oth-aw.de**