FISCAL OUTCOMES IN THE EU IN A RULES-BASED FRAMEWORK – NEW EVIDENCE

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Contents

Summary (in English) 4

Summary (in Russian) 6

1. Introduction 9

2. Have EU fiscal rules been associated with more sustainable public finances? 11
   2.1. Introduction 11
   2.2. Public debt developments in the EU, comparison with the two largest OECD economies 12
   2.3. Debt development in EU Member States since the Great Recession of 2008 13
   2.4. Have EU fiscal rules been associated with improved fiscal policy orientation in the EU? 15
   2.5. Conclusions 18

3. Have EU fiscal rules mitigated procyclicality? 19
   3.1. Introduction 19
   3.2. Key challenges 20
   3.3. Estimation strategy 22
   3.4. Main findings 23
   3.5. Conclusions 27

4. Conclusions 29

References 30

Annexes 35
SUMMARY (IN ENGLISH)

During the Great Recession (of 2008) and the years that followed, public finances of most EU countries have been under particularly high stress. In addition, the EU economy is currently entering a period of heightened uncertainty, which has also implications for fiscal policy.

To make the EU economies more resilient and further mitigate uncertainty, the European Union needs to ensure that the EU’s fiscal governance framework strikes the right balance between fiscal sustainability and stabilisation.

This analysis provides a nuanced picture of the possible impact of fiscal rules on fiscal outcomes in the EU, which may help reconcile often polarised views. On the positive side, the surge in public debt-to-GDP ratios has been significantly smaller in the EU than in the US and Japan since the launch of the Stability and Growth Pact. This can be largely explained by a more prudent use of discretionary fiscal policy. Member States, even those with fragile fiscal positions, have made significant progress towards more sustainable fiscal policies. More than half of them have already reached a sound fiscal position. For the EU on average, the analysis suggests that the respect of fiscal rules reduces procyclicality. On the less positive side, discretionary fiscal policy in the EU on average remains procyclical, particularly in good times. Moreover, public debt ratios remain high in several Member States.

In details, this article analyses fiscal outcomes in the EU in the presence of fiscal rules, and takes two complementary – albeit non-exhaustive – angles. It assesses the fiscal rules’ ability to i) contribute to sustainable public finances, and ii) mitigate procyclicality. The analysis is factual, backward looking and based on quantitative or econometric analysis.

First, the main goal of the EU fiscal rules is to ensure sustainable public finances and notably to avoid excessive public deficits and debt. Indeed, high public debt can hamper economic growth, jeopardise financial stability and distort the effective functioning of monetary policy. However, to find out whether the EU fiscal rules have contributed to sustainable public finances in the EU is challenging.

Against that background, after a general introduction (Part I), Part II provides elements to the discussion whether EU fiscal rules have contributed to sustainable public finances in the EU. The Part II is structured as follows. Section 2.2. compares the gross public debt developments in the EU since 1985 with other large advanced economies, namely the US and Japan. Section 2.3. describes the debt developments at EU Member States’ level since the Great Recession in greater detail. Section 2.4. provides some tentative assessment if the EU fiscal rules have promoted sustainable fiscal positions. Finally, Section 2.5. concludes.

We find that the EU’s fiscal governance framework appears to have contributed to sustainable fiscal positions, to some extent. Public debt-to-GDP ratios in the EU have increased far less than in the US and Japan over the past two decades thanks to more prudent fiscal policies. Member States with the most fragile fiscal
positions improved their fiscal positions following the introduction and subsequent reforms of the fiscal governance framework. This suggests that the EU’s fiscal governance framework has contributed to more prudent fiscal policies in individual Member States over the last two decades, although causality is difficult to establish. Still, public debt ratios remain high and fiscal buffers remain small in several Member States.

Second, the stabilisation objective was given more weight in the EU fiscal rules over time. Fiscal policy can play an important role in stabilising the domestic economy, in particular in the context of the euro area. While the EU fiscal governance framework aims at ensuring sustainable public finances in the long-term, it offers space for counter-cyclical stabilisation in the short-term. However, the empirical evidence on the cyclicity of fiscal policy in the EU is inconclusive, and the role of the reinforced EU fiscal rules on cyclicity has only scarcely been investigated.

Against this background, Part III provides new empirical evidence on the cyclicity of the fiscal effort, with a special focus on the impact of EU fiscal rules. The assessment focuses on the discretionary component of fiscal policy (the fiscal effort), using a panel data approach. Section 3.2. presents the main challenges by analysing the cyclicity of the fiscal effort. Section 3.3. describes the empirical specification. Section 3.4. presents the main findings regarding the cyclicity of fiscal policy focusing, in particular, on the role of EU fiscal rules. Finally, Section 3.5. concludes.

We find that the respect of EU fiscal rules seems to mitigate the procyclicality of fiscal policy in EU countries. In the EU on average, we find evidence of a procyclical fiscal effort since 2000, implying that discretionary fiscal policy tightens in bad times and loosens in good times. The cost of such policy can be high, as discretionary fiscal policy measures counteract the functioning of automatic stabilisers. The empirical findings show that discretionary fiscal policy tends to be most procyclical in good times. In addition, the respect of fiscal rules seems to have mitigated the procyclicality of fiscal policy in the EU. First, Member States that met the requirements of the preventive arm of the Stability and Growth Pact (SGP) have a lower procyclicality of their fiscal effort. Second, avoiding high headline deficits and debt levels appears to reduce the procyclicality.

Finally, Part IV provides an overall conclusion of this analysis.

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SUMMARY (IN RUSSIAN)

Резюме

Во время Великой рецессии (2008 г.) и в последующие годы, государственные бюджеты большинства стран ЕС испытывали особенно сильный стресс. Кроме того, экономика ЕС в настоящее время вступает в период повышенной неопределенности, что также имеет последствия для бюджетной политики.

Чтобы сделать экономики стран ЕС более устойчивыми и смягчить неопределенность, Европейский Союз должен предпринять меры, чтобы бюджетное управление ЕС достигло равновесия между устойчивостью бюджета и стабилизацией.

Данный анализ дает детальную картину возможного влияния бюджетных правил на бюджетные результаты в ЕС и может помочь примирить часто расходящиеся взгляды. Положительный аспект состоит в том, что с момента запуска Пакта стабильности и роста Европейского союза, рост соотношения государственного долга к ВВП был значительно меньше в ЕС, чем в США и Японии. Это может быть в значительной степени объяснено более разумным использованием дискреционной бюджетной политики. Государства-члены, даже те, кто имеет нестабильное состояние бюджета, добились значительного прогресса в направлении к более устойчивой бюджетной политике. Более половины из них уже достигли прочности в государственном бюджете. В среднем по ЕС, анализ показывает, что соблюдение бюджетных правил снижает процикличность. Менее положительный аспект состоит в том, что дискреционная бюджетная политика в ЕС, в среднем, остается процикличной, особенно в хорошие времена. Кроме того, коэффициент государственного долга остается высоким в нескольких государствах-членах.

Подробно, данная статья анализирует бюджетные результаты в ЕС в условиях наличия бюджетных правил и показывает два дополняющие друг друга - хотя и не исчерпывающих - подхода. Статья оценивает способность бюджетных правил: i) способствовать устойчивости государственного бюджета и ii) смягчать процикличность. Анализ является фактическим, ориентированным на прошлое и основанным на количественном или эконометрическом анализе.

Во-первых, главная цель бюджетных правил ЕС - обеспечить устойчивость государственного бюджета и, в частности, избежать чрезмерного государственного дефицита и задолженности. Действительно, высокий государственный долг может препятствовать экономическому росту, ставить под угрозу финансовую стабильность и нарушать эффективное функционирование денежно-кредитной политики. Однако выяснить, способствовали ли бюджетные правила ЕС устойчивости государственного бюджета в ЕС, непросто.

На этом фоне, после общего введения (часть I), часть II содержит элементы для обсуждения вопроса о том, способствовали ли бюджетные правила ЕС устойчивости государственного бюджетов ЕС. Структура части II следующая. Раздел 2.2. сравнивает валовую сумму государственного долга, изменяющуюся в ЕС с 1985 года, с другими крупными странами с развитой экономикой, а
именно, США и Японией. Раздел 2.3. более подробно описывает изменение долга на уровне государств-членов ЕС после Великой рецессии. Раздел 2.4. дает некоторую предварительную оценку следующему факту: способствовали ли бюджетные правила ЕС устойчивости государственного бюджета. Наконец, в разделе 2.5. делается заключение.

Мы находим, что структура бюджетного управления в ЕС, по-видимому, в некоторой степени способствовала устойчивости государственного бюджета. Благодаря более осторожной бюджетной политике, за последние два десятилетия соотношение государственного долга к ВВП в ЕС увеличилось гораздо меньше, чем в США и Японии. Государства-члены с наиболее хрупкими бюджетами улучшили их после проведения реформ бюджетного управления. Это говорит о том, что структура бюджетного управления ЕС способствовала более осмотрительной бюджетной политике в отдельных государствах-членах за последние два десятилетия, хотя причинно-следственную связь установить сложно. Тем не менее, в нескольких государствах-членах, показатели государственного долга остаются высокими, а бюджетные резервы небольшими.

Во-вторых, цель стабилизации с течением времени получила больший вес в бюджетных правилах ЕС. Бюджетная политика может сыграть важную роль в стабилизации внутренней экономики, особенно в контексте Еврозоны. В то время как бюджетное управление ЕС направлено на обеспечение устойчивости государственного бюджета в долгосрочной перспективе, оно способствует антицикличной стабилизации в краткосрочной перспективе. Тем не менее, эмпирическое доказательство цикличности бюджетной политики в ЕС неубедительно, и роль усиленных бюджетных правил ЕС в отношении цикличности практически не исследована.

На этом фоне, часть III предоставляет новое эмпирическое доказательство цикличности бюджетных усилий, уделяя особое внимание влиянию, которое оказывают бюджетные правила ЕС. Анализ фокусируется на дискретном компоненте бюджетной политики («бюджетные усилия») с использованием подхода групповых данных. Раздел 3.2. представляет основные проблемы путем анализа цикличности «бюджетных усилий». Раздел 3.3. описывает эмпирическую спецификацию. В разделе 3.4. представлены основные выводы относительно цикличности бюджетной политики, в частности, о роли бюджетных правил ЕС. Наконец, раздел 3.5. дает заключение.

Данный анализ показал, что соблюдение бюджетных правил ЕС, по-видимому, смягчает процикличность бюджетной политики в странах ЕС. В среднем по ЕС обнаружены свидетельства проциклических бюджетных усилий с 2000 года, подразумевая, что дискретная бюджетная политика ужесточается в плохие времена и ослабляется в хорошие времена. Стоимость такой политики может быть высокой, поскольку меры дискретной бюджетной политики препятствуют функционированию автоматических стабилизаторов. Эмпирические результаты показывают, что дискретная бюджетная политика в хорошие времена имеет тенденцию быть наиболее проциклической. Кроме того, соблюдение бюджетных правил, похоже, смягчило процикличность бюджетной политики в ЕС. Во-первых, государства-члены, которые выполняли превентивного требования Пакта стабильности и роста, имеют меньшую процикличность своих бюджетных усилий. Во-вторых, избегание высокого дефицита и задолженности, по-видимому, снижает процикличность.
Наконец, в части IV приводится общее заключение этого анализа.

1. INTRODUCTION

The Maastricht Treaty signed in 1992 provides a clear division of responsibilities between monetary and fiscal policy. It confers competence as regards monetary policy to an independent European Central Bank (ECB) to tackle the time-inconsistency problem and to foster credibility in fulfilling its primary mandate to ensure price stability. (1) At the same time, it leaves fiscal policy under the responsibility of Member States, subject to respecting two main criteria, namely public deficit- and debt-to-GDP ratios must not exceed 3% and 60% of GDP respectively. The Stability and Growth Pact (SGP), agreed in 1997 was primarily designed to enforce those deficit and debt limits.

This "Maastricht assignment" can reinforce the deficit bias and therefore requires common EU fiscal rules. (2) The deficit bias and its consequences can be reinforced by the creation of a currency union, mainly for two reasons. First, externalities arising across Member States from fiscal policy can lead to sizable negative spillover effects. For instance, a banking or debt crisis in one region can spill over to other regions. An extreme amplification of spillover effects can lead to "contagion" effects. (3) Second, a common currency gives rise to adverse incentives. In a monetary union, the country relaxing its budgetary policy can put upward pressure on interest rates in the whole euro area. The cost of borrowing is therefore partly passed on to other Member States. (4)

Insights from the initial years of the European Economic and Monetary Union (EMU) and the experiences of the Great Recession (from 2008) revealed some shortcomings of the architecture. (5) We describe in the following the key improvements in the fiscal area (Graph 1.1), although the governance framework was also strengthened in terms of its economic and financial dimension.

First, the fiscal governance framework was reinforced to foster fiscal sustainability. The favourable macroeconomic conditions in the years prior to the Great Recession were not sufficiently used to build up fiscal buffers. (6) High debt ratios did not decline substantially, which slowed down economic growth and lengthened the recovery from the severe recession. (7) In addition, both rule design problems and governance failures contributed to poor enforcement of the SGP. (8) Therefore, the 2011 reform, in the form of the so-called "six-pack", aimed at promoting fiscal adjustment in good times (through the introduction of an expenditure benchmark and the "significant deviation" procedure). In addition, a debt reduction benchmark was introduced to support debt reduction, and the system of sanctions was made more gradual and more automatic. Finally, the 2013 reform, in the form of the so-called "two-pack", introduced the obligation for euro-area Member States to submit their draft budgets to the Commission and the Eurogroup before the adoption of those budgets by national parliaments.

Second, the stabilisation objective was given more weight. The Maastricht assignment put a clear emphasis on the sustainability of public finances, reflecting the then prevailing consensus that automatic stabilisers should be the primary tool for countercyclical policy, while discretionary fiscal policy was essentially regarded with suspicion, in particular due to challenges in an effective implementation. (9) However, the macroeconomic role of fiscal policy has received greater attention in recent years. It was recognised that the automatic stabilisers did not play out fully in practice throughout the cycle. In addition, there was greater acceptance for discretionary support under well-defined circumstances, for instance in deep economic shocks and/or if monetary policy is constrained, as spillovers can be larger and multipliers higher. (10) As a consequence, a collective "escape clause" was introduced in the

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(1) Kydland and Prescott (1977); Barro and Gordon (1983); Rogoff (1985).
(2) The deficit bias refers to the tendency of governments to allow deficit and public debt levels to increase (see for instance, Alesina and Perotti, 1995 or Issing, 2000.
(5) Deroose and Mohl (2016). Buti (2019). In this paper, the terms “Great Recession” refers to the economic and financial crisis from 2008.
(6) Schuknecht et al. (2011).
(7) Chudik et al. (2017) and Jordà et al. (2016).
(9) Chudik et al. (2017) and Jordà et al. (2016).
EU fiscal governance framework, allowing (but not prescribing) a suspension of the rules in case of a "severe economic downturn" in the EU or the euro area as a whole. The 2013 reform of the Two-Pack directed more attention to the role of an appropriate fiscal policy stance for the euro area as a whole. Finally, in 2015 the framework was improved without changing the rules by better modulating the required fiscal effort across the economic cycle and providing incentives for to implement structural reforms and foster investment. (11)

Third, national ownership of the EU fiscal framework was strengthened, notably thanks to several legal requirements put forward at the EU level (analysis not presented in this paper, for a quantitative analysis on this point, see European Commission, 2018(12)).

Against this background, this article analyses the fiscal outcomes in the EU from the two of the three non-exhaustive objectives underlined above. Part 2. explores if EU fiscal rules have contributed to sustainable public finances. Part 3. analyses if EU fiscal rules the fostered stabilisation properties. Finally, Part 4. concludes. The analysis is factual, backward-looking and conducted on the basis of quantitative analyses.

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(12) Findings from panel regressions indicate a positive and significant impact of both national fiscal rules and medium-term budgetary frameworks on the cyclically-adjusted primary balance.
2. HAVE EU FISCAL RULES BEEN ASSOCIATED WITH MORE SUSTAINABLE PUBLIC FINANCES?

2.1. INTRODUCTION

High public debt can hamper economic growth, jeopardise financial stability and distort the effective functioning of monetary policy. Large public debt can have detrimental effects on the economy via three channels. First, high public debt can reduce economic growth. In particular, growth-friendly investment can be held back in highly-indebted countries either because private investors are worried about the country’s creditworthiness or policymakers are constrained by a high interest burden. Second, large public debt can jeopardise financial stability. Concerns about a country’s fiscal sustainability can devalue bank portfolios, which can require help from the government to ensure the banks’ solvency. The increasing borrowing pressure on the already stressed sovereign further reduces the value of the bonds. This “doom loop” between sovereigns and banks even threatened the sustainability of the euro area project as a whole. Third, high government debt can hamper the smooth functioning of monetary policy. In particular, it can put pressure on monetary policy to prevent the government from bankruptcy, which can conflict with the key mandate of the central bank, for instance to keep prices stable over the medium term.

The main goal of the EU fiscal rules is to ensure sustainable public finances and notably to avoid excessive public deficits and debt. The Maastricht Treaty signed in 1992 obliges Member States to pursue sound fiscal policies by respecting two main criteria, namely public deficit- and debt-to-GDP ratios must not exceed 3% and 60% of GDP respectively. The Stability and Growth Pact (the Pact) agreed in 1997 was primarily designed to enforce those deficit and debt limits. The SGP’s focus on sustainability was strengthened repeatedly in the past decade. The 2011 reform (so-called “six-pack”) aimed at promoting fiscal adjustment in good times (through the introduction of an expenditure benchmark and the “significant deviation” procedure). In addition, a debt benchmark was introduced to support the debt reduction, and the system of sanctions was made more gradual and automatic. The 2013 reform (so-called “two-pack”) introduced the obligation for euro-area Member States to submit their draft budgetary plans to the European Commission and the Eurogroup before the adoption of draft budget laws by national parliaments.

To find out whether the EU fiscal rules have contributed to sustainable public finances in the EU is challenging. Looking at the developments of public debt in the EU may suggest that debt ratios declined in the years after the various reform steps of the EU fiscal governance framework (Graph 2.1). This is also consistent with empirical studies showing that countries with sound fiscal rules have, on average, lower debt ratios compared to countries without rules. Nevertheless, the EU fiscal rules have not prevented debt ratios from increasing to very high ratios. In addition, it is difficult to disentangle the impact of the institutional changes from the economic cycle, since periods of debt reduction have frequently coincided with good economic conditions (see dark blue bars in Graph 2.1). Moreover, causality is difficult to establish for endogeneity reasons. Having or adopting a fiscal rule indeed depends on a range of factors that can correlate with fiscal performance. For instance, countries with fiscal rules may have a preference for a prudent conduct of fiscal policy whether or not a rule is in place.

(15) While there is clear evidence that countries with high public debt grow substantially slower (Reinhart and Rogoff, 2010, Woo and Kumar, 2015, Cecchetti et al., 2011, Chudik et al., 2017), there is controversy over the precise threshold level of debt to GDP beyond which growth slows down significantly. The influential study by Reinhart and Rogoff (2010) suggests that public debt in excess of 90% of GDP is harmful to growth in advanced countries.

(16) The reference values were defined in the Protocol on the EDP annexed to the Maastricht Treaty.

(17) While Member States agreed in 1997 on the Pact, the preventive/corrective arm of the Pact entered into force in 1998/1999.

Similarly, countries may consolidate in the face of high public debt irrespective of the presence of a fiscal rule, simply to keep sovereign interest rates in check.

Against that background, this Part provides some further input to the discussion whether EU fiscal rules have contributed to sustainable public finances in the EU. The Part is structured as follows. Section 2.2, compares the public debt developments in the EU since 1985 with other large advanced economies, namely the US and Japan. Section 2.3, describes the debt developments at EU Member States’ level since the Great Recession in greater detail. Section 2.4, provides some tentative assessment if the EU fiscal rules have promoted sustainable fiscal positions. Finally, Section 2.5, concludes.

2.2. PUBLIC DEBT DEVELOPMENTS IN THE EU, COMPARISON WITH THE TWO LARGEST OECD ECONOMIES

Public debt ratios have increased much less in the EU than in the US and Japan since 1985 (Graph 2.2). Between 1985 and 2007, gross public debt-to-GDP ratios evolved similarly in the EU and the US. In both countries public debt climbed by about 10 pps. of GDP to around 60% of GDP (EU) and 65% of GDP (US). In Japan the public debt ratio rose over the same period sharply by almost 120 pps. of GDP to around 185% of GDP in 2007. Following the Great Recession, gross public debt went up substantially in all three countries. In the EU, it peaked at 88% of GDP in 2014, before mildly declining to 83% of GDP in 2017. In the US, public debt increased significantly reaching an all-time high of almost 110% of GDP in 2017. In Japan public debt soared to around 240% of GDP in 2014, before decreasing slightly to 236% in 2017. Overall, the debt increase over the past three decades was significantly smaller in the EU (35 pps. of GDP) compared with the US (49 pps. of GDP) and Japan (164 pps. of GDP). The differences are even more pronounced since the entry into force of the SGP in 1998 (EU: 19 pps. of GDP, US: 42, Japan: 129).

The change in the debt-to-GDP ratio can be broken down into three factors: (21)

- The government primary balance (i.e. the headline balance excluding interest payments) captures the key contribution of fiscal policy to

(19) Similarly, countries may consolidate in the face of high public debt irrespective of the presence of a fiscal rule, simply to keep sovereign interest rates in check.

(20) This Part focuses on debt developments expressed in gross terms. Gross public debt excludes any financial assets held by governments that could be used to liquidate debt.

(21) The following simple accounting framework shows the impact of these three factors on the change in the debt-to-GDP ratio (b) 21 = − pb + (bct−1 + SFA) where − pb = − CAPBt − cyclical budget component, pb is the primary balance, CAPB stands for the cyclically-adjusted primary balance, i is the nominal interest rate, g is the nominal growth rate and SFA refers to the stock-flow adjustment.

(22) Source: European Commission services’ calculations based on Commission 2018 spring forecast, OECD and IMF data.
debt dynamics. It can be broken down into two determinants: the impact of discretionary fiscal policy (measured by the cyclically-adjusted primary balance) and the effect of automatic stabilisers, which follows at unchanged policies from the cyclical conditions of the economy (measured by the cyclical budget component). (22)

- The **snowball effect** records the impact of the difference between the nominal interest rate and the nominal economic growth rate on the debt-to-GDP ratio. The higher the interest-growth differential, the larger the snowball effect and the higher the detrimental effect on the debt-to-GDP ratio.

- The **stock-flow adjustment** (SFA) relates to those financial transactions or statistical factors that affect the outstanding debt stock but are not recorded as part of the primary balance. Prominent examples are privatisation receipts (which reduce public debt) and measures to recapitalise banks or state-owned companies at market conditions (which have a debt-increasing impact).

Different factors are at play driving the public debt surge in the EU, US and Japan over the last three decades (Graph 2.3 and Table A.1 in Annex):

- First and foremost, the government primary balance--and in particular its discretionary part--had a debt-reducing impact in the EU, whereas it contributed to rising debt ratios in the US and Japan. In the EU, a cumulated primary surplus lowered public debt (7 pps. of GDP). This effect was driven by tighter discretionary fiscal policy, which more than offset the slight debt-increasing impact from automatic stabilisers. By contrast, loose discretionary fiscal policy, in particular, contributed to a sizeable debt-increasing impact from primary balances in the US (19 pps. of GDP) and Japan (60 pps. of GDP). The differences across the three economies are even stronger since introduction of the SGP in 1998.

- The **snowball effect** had a sizeable adverse impact on debt in all three economies. It led to a cumulated debt-increase of similar size in the EU and US (around 32 pps. of GDP). The decline in interest rates limited a higher contribution from the snowball effect in the EU and US. In Japan, the impact of the snowball effect was higher (40 pps. of GDP), mostly due to weaker economic growth. (23)

- The **stock flow adjustment increased debt in the EU and Japan, but not in the US**. Bank recapitalisation measures following the Great Recession had a sizeable debt-increasing impact in the stock flow adjustment in the EU (10 pps. of GDP). The stock flow adjustment was very high in Japan (64 pps. of GDP). The US benefitted from a small debt-reducing contribution from the stock flow adjustment.

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Graph 2.3: Key contributions to change in public debt in EU, US and Japan (in pps. of GDP, 1988-2017)

- The contribution from the primary government balance is split into discretionary fiscal policy (measured by the cyclically-adjusted primary balance) and the automatic stabilisers (measured by the cyclical component of the budget balance). For data availability reasons, data for the EU refer to EU15.

Source: European Commission services’ calculations based on Commission 2018 spring forecast, OECD and IMF data.

2.3. **DEBT DEVELOPMENT IN EU MEMBER STATES SINCE THE GREAT RECESSION OF 2008**

Despite a recent decrease in the EU debt ratio, public debt is still close to the historic peak in

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(22) For a recent assessment of the functioning of automatic stabilisers see European Commission (2017).

(23) In the last decade (2008-2017), the snowball effect contributed to a higher debt increase in the EU than in the US and Japan, notably due to relatively higher real interest rates and lower growth.
many Member States. (25) Public debt increased substantially in both the EU (26 pps. of GDP) and euro area (24 pps. of GDP) since the Great Recession (Graph 2.4). It peaked in 2014 before declining moderately thereafter. Despite relatively robust growth in recent years, public debt remains close to the peak in the majority of Member States and in particular in some large and highly indebted Member States such as Italy, Spain, France and the UK.

At the same time, debt developments and their drivers have proved to be highly country-specific during the last decade, making it difficult to categorise Member States. In addition to large differences in debt ratios across the EU, Member States with similar debt ratios before the Great Recession have experienced divergent debt developments over the last decade (e.g. FR, DE, ES and SE or PL and the UK, see Graph A.1 in Annex). Indeed, the underlying debt drivers (primary deficits, snowball effects and stock-flow adjustments) have also proven to be largely country-specific (Graph A.2 in Annex). Some stylised facts can however be highlighted.

The accumulation of primary deficits has been a key driver of rising debt ratios in many Member States (Graph 2.5). Over the last decade, a number of Member States recorded significant primary deficits that contributed to an increase in their debt ratio. This includes, in particular, Member States severely affected by the crisis such as Greece, Spain, Portugal, Slovenia, and Ireland, but also countries experiencing better economic conditions such as the UK, France, Poland, Slovakia or Romania.

The countries with the highest debt ratios already experienced a very high debt legacy before the crisis. Indeed, most Member States with the highest (resp. lowest) debt on the onset of the Great Recession remained those with the highest (resp. lowest) debt in 2017 (Graph 2.6). In a majority of Member States, interest payments were lower over the last decade than in the decade before the Great Recession, due to lower interest rates. However, high interest payments in some Member States were mostly the result of their high debt ratios. (25) For instance, over the last decade cumulative interest payments amounted to more than 40 pps. of GDP in highly-indebted Member States such as Greece, Italy and Portugal, and more than 33 pps. in Belgium (Graph A.2 in Annex). In contrast, cumulated interest payments represented less than 10 pps. of GDP for low-debt countries such as Estonia, Luxembourg or Bulgaria.

Divergent public debt dynamics during the Great Recession also reflected significant differences in economic conditions across Member States. In general, the weakness in economic activity affected primary deficits, snowball effects and stock-flow adjustments. (25)

(25) In contrast, in previous decades (and notably the 1988-1997 decade) the contribution of interest payments to increases in debt ratios mainly reflected higher real interest rates.

(25) Via either nominal effects on the denominator of the debt-to-GDP ratio, or growth effects on the fiscal balance. However, the contribution from the snowball effect has declined in recent years reflecting the pick-up in economic activity and highly accommodative financial conditions.

(25) The start period under consideration is 1985.
However, some Member States benefitted from stronger real growth and/or inflation than their peers (Graph A.2 in Annex). In addition, stock-flow adjustments contributed to debt increases in almost all Member States (27) but to a different extent, often reflecting significant support extended to the banking sector. (28)

Great Recession period (in Graph 2.7, the orange area shows, for each year, where the deficits of the 25% of the Member States with the highest deficits stood). Before the launch of the Pact in 1998, several Member States had deficits exceeding 5% of GDP. The deficits then decreased slowly until the outbreak of the Great Recession, so that only three Member States displayed deficits exceeding 3% of GDP in 2007. It is true that in the aftermath of the crisis, Member States’ deficits soared again significantly: 24 out of the then 27 Member States exhibited deficits exceeding 3% of GDP (Graph 2.8) and entered the excessive deficit procedure (EDP). (29) However, in 2018 only one Member State (Spain) was still in EDP. Overall, the developments suggest that the 3% of GDP deficit criterion contributed to better fiscal outcomes than before the introduction of the Pact, in Member States characterised by high public deficits. At the same time, the deficit criterion seems to have acted as a target rather than a lower limit, since several Member States with a record of high deficits still have public deficits close to 3% of GDP.

Graph 2.7: Headline balances in EU Member States (% of GDP)

Note: For a given year, the "bad performers" (orange area) represent the range where the deficits of the 25% of the Member States with the highest deficits stood. The "good performers" (green area) represent the range where the deficits of the 25% of the Member States with the highest surpluses/lowest deficits stood. Headline deficit of the general government sector is based on ESA 2010 from 1995 while previous figures are backcasted according to the observed change in the ratio as from the series based on ESA 1995. For Germany, West Germany is considered up to 1990. Similar results can be obtained when considering EU28 deficit ratio. Source: European Commission services’ calculations based on Commission 2018 spring forecast.

2.4. HAVE EU FISCAL RULES BEEN ASSOCIATED WITH IMPROVED FISCAL POLICY ORIENTATION IN THE EU?

To allow for a tentative assessment of the impact of EU rules, we compare the developments of key fiscal outcome variables before and after the introduction of the rule. The Section presents some tentative findings on the effect of rules, as causality between fiscal rules and fiscal outcomes is difficult to establish. It focuses on the most important fiscal rules used in fiscal surveillance.

3% deficit criterion

Member States with large headline deficits just before the launch of the Pact reduced their deficits significantly, with the exception of the

(27) In contrast, stock flow adjustment contributed to a decline in the debt ratio in Poland, Czech Republic, Slovakia and, in particular, Greece reflecting significant privatisation receipts.

(28) Indeed, bailouts to the private sector seem to be correlated to growth slowdowns and previous spending booms as highlighted by Bova et al. (2016), IMF (2016), Jaramillo et al. (2017).

By contrast, there seems to be no clear-cut impact of the 3% deficit criterion on Member States with headline surpluses or low deficits

(29) Finland was put in EDP for planned breach, although the deficit eventually stayed below 3% of GDP.
before the introduction of the Pact (in Graph 2.7, the green area depicts, for each year, the range where the fiscal balance of the 25% of the Member States with the highest surpluses/lowest deficits stood). The 3% deficit criterion appears to have not played a decisive role in Member States that already followed prudent fiscal policy before the launch of the Pact. The group of good performers had on average already public surpluses since the launch of the Pact in 1998 with the exception of the years following the Great Recession. The results also hold if the composition of the groups of good and bad performers is fixed over time, e.g. based on the fiscal outcomes of 2017 (Graph A.3 in Annex). At the same time, we do not find evidence of a downward convergence of the good performers towards the 3% of GDP deficit criterion as recently argued in policy papers. (30)

Graph 2.8: Number of Member States breaching the 3% limit and slack in the economy

Source: European Commission services’ calculations based on Commission 2018 spring forecast.

Structural deficits converging towards sound medium-term budgetary positions (MTO)

Member States made significant progress in coming closer to a balanced budget position. Since 2011, Member States with a large distance to their MTO made significant progress in closing their gap towards the MTO (Graph 2.9, the red area depicts balances between the minimum and the 25% percentile across countries). This is consistent with a possible effect of the six-pack on the structural balances. A comparison with the pre-crisis period, using cyclically-adjusted balances, would lead to the same results. (31) Nevertheless, a significant gap towards the MTO of around 2 pps. remains. Structural balances also improved for the group of good performers (see Graph 2.9, where the green area depicts balances between the 75% percentile and the maximum across countries, the results of this Section also hold if the composition of the groups of “good performers” and of “bad performers” is fixed, considering fiscal outcomes in 2017, see Graph A.5 in Annex).

Expenditure benchmark

Expenditure dynamics seem to have been better controlled since the introduction of the expenditure benchmark in 2011. Under the expenditure benchmark, increases in primary spending net of discretionary revenues measures that go beyond a country's medium-term potential growth rate must be matched by additional discretionary revenue measures. The pre-crisis period showed that in most Member States primary expenditure grew much faster than the average potential growth rate. In ten Member States, exceeding 4% of GDP occurred relatively often before 2011, and less after.

(31) For a longer time perspective, see Graph A.4 in Annex, which shows that large cyclically-adjusted deficits
mostly those that joined the EU in 2004, spending increased more than 1 percentage points faster than potential growth (Graph 2.10). (32) Since the introduction of the expenditure benchmark, most Member States show primary expenditure growth below or close to potential growth. On the top of this, discretionary revenue measures have increased over the period 2011-2017 in almost all Member States, contributing to further improvements in the expenditure benchmark.

Debt reduction benchmark and position of gross debt compared to 60% of GDP

The debt reduction benchmark (often called "debt rule") was introduced to operationalise the appropriate pace of public debt reduction. The debt reduction benchmark was introduced in 2011 with the six-pack reform of the Pact with the aim to put a stronger focus on fiscal sustainability. The debt reduction benchmark operationalises the appropriate pace of debt reduction over the long term. It requires Member States to reduce the differential of the government debt-to-GDP ratio with respect to the 60% of GDP by one twentieth on average over a period of three years. (33) With this specification, the debt rule aims to ensure that Member States with higher debt make greater efforts in debt reduction.

Graph 2.10: Controlling primary expenditure dynamics

Note: The chart shows total expenditure growth netted out of interest. As the 2008-2010 period triggered exceptionally strong expenditure swings also related to the financial crisis, we compare the situation after the introduction of the expenditure benchmark criteria in 2011 with the pre-crisis period between 2000 and 2007.
Source: European Commission services' calculations based on Commission 2018 spring forecast.

Graph 2.11: Compliance with the debt reduction benchmark at face value

Note: This chart shows the number of countries compliant with the debt reduction benchmark (both in transition period and after) since its introduction. See for more details on compliance with the debt reduction benchmark European Commission (2017b), pp.70-74.
Source: European Commission services' calculations based on real-time data (each year's Commission spring forecast).

While an increasing number of Member States comply with the debt reduction benchmark, a few Member States still do not comply at face value. As most Member States exited the deficit-based EDP opened following the Great Recession, those with a public debt higher than 60% of GDP became subject to the debt reduction benchmark (or the MLSA during the three-year transition period), in the 2010s. Most of them managed to be compliant with the provisions of the debt reduction benchmark (Graph 2.11), but since 2014 two Member States (Italy and Belgium) have not

(32) Note that this group includes several Member States who joined the EU in 2004.
(33) For Member States exiting the deficit-based EDP after 2011, there is initially a 3-year transition period during which a Minimal Linear Structural Adjustment (MLSA) is required instead of an adjustment in the debt-to-GDP ratio.
fulfilled those provisions at face value (i.e. before considering the relevant factors). The relevant factors considered include unfavourable economic conditions, notably low inflation and real growth, which made the respect of the debt reduction benchmark more demanding, notably for Member States with very high debt ratios. (34)

While many Member States witness a public debt lower than or close to 60% of GDP, some Member States show much higher debt ratios, and in particular some large Member States combine high debt with relatively high structural deficits (Graph 2.12). On the one hand, many Member States show debt ratios below or close to 60% of GDP. Some of them have also balanced budget in structural terms, reaching or exceeding their MTOs. This includes Germany, the Netherlands, Luxembourg, the Czech Republic, Bulgaria, Sweden and Malta. Some catching-up Member States, enjoying relatively high growth and/or inflation, also show low debt despite sizable structural deficits (e.g. Poland, Romania, Slovakia and the Baltics). On the other hand, several Member States witness debt much in excess of 60% of GDP, and among those, several large Member States also still have high structural deficits. This includes Italy, France, UK, Portugal and Belgium.

Graph 2.12: Debt ratios and structural balances across Member States, weighted by country size

Source: European Commission services’ calculations based on Commission 2018 spring forecast.

2.5. CONCLUSIONS

Public debt ratios increased much less in the EU compared with the US and Japan over the past three decades, in particular due to a more prudent conduct of fiscal policy. The massive increase in public debt in the EU since the 1980s seems to be a common feature amongst most advanced economies. However, compared with the US and Japan, debt ratios increased less in the EU. In fact, the EU showed a higher primary balance than the US and Japan over the last two and three decades.

Member States with the most fragile fiscal positions before the launch of the Pact improved their fiscal balances significantly thereafter and following the subsequent reform steps of the fiscal governance framework. Member States with large headline deficits before the launch of the Pact reduced their deficits significantly. Member States also made significant progress in coming closer to a balanced budget position in structural terms. In addition, public expenditures dynamics are today better in check than before the Great Recession. This suggests that the EU fiscal governance framework contributed to more prudent fiscal policy, thereby enhancing fiscal sustainability. At the same time, this assessment is only preliminary and more analysis would be required to assess a causal relationship.

Nevertheless, there is still unfinished business, in particular regarding the high public debt ratios in several Member States. The deficit criterion seems to have acted more as a target rather than a lower limit: several Member States still have public deficits close to 3% of GDP. Moreover, some Member States still show a significant gap towards a sound medium-term budgetary position, as captured by their distance to MTO.

(34) In the context of very low nominal GDP growth, the Commission has considered respect of the preventive arm requirements a key relevant factor when assessing compliance with the debt criterion.
3. HAVE EU FISCAL RULES MITIGATED PROCYCLICALITY?

3.1. INTRODUCTION

Fiscal policy can play an important role in stabilising the domestic economy, in particular in the context of the European Economic and Monetary Union (EMU). The European Central Bank (ECB) can only react to shocks affecting the currency union as a whole and it has been constrained by the zero lower bound in the aftermath of the crisis. Moreover, the size of the shock from the recent economic and financial crisis has been exceptionally large. Therefore, fiscal policy has gained importance at the national level to smooth economic fluctuations at the national level.

While the EU fiscal governance framework aims at ensuring sustainable public finances in the long-term, it offers space for counter-cyclical stabilisation in the short-term. The main goal of the Stability and Growth Pact (SGP) is to achieve sound budgetary positions (the so-called medium-term budgetary objectives (MTO)) and to prevent the build-up of excessive deficits and debt. This allows in principle Member States to deal with normal cyclical fluctuations by letting automatic stabilisers operate freely. As such, during downturns (upturns), total government spending as a share of GDP should go up (down), while government revenues as a share of GDP should go slightly down (up) or remain broadly stable, which results in a declining (increasing) budget balance as a share of GDP. In the case of very large shocks or constrained monetary policy, automatic stabilisers alone may not be sufficient to smooth income and demand and may need to be complemented by discretionary fiscal policy, i.e. the component of fiscal policy that depends on the decisions of policymakers. However, discretionary fiscal policy interventions can have drawbacks (e.g. imprecise design, implementation lags, objectives unrelated to stabilisation) and should only be used in the case of a clear need and sufficient fiscal space to prevent risks for the sustainability of public finances (see Table A in the Annex for an overview of the literature).

The empirical evidence on the cyclicity of fiscal policy in the EU is inconclusive. While there is strong evidence on procyclical fiscal policy in developing countries, the findings for the EU are not clear-cut: they are particularly sensitive to the time period covered and the indicators used to measure fiscal policy and the economic cycle. In the run-up to EMU, studies find evidence for a procyclical fiscal tightening. In the first decade of EMU, the findings range from acyclical to (especially in good times) procyclical fiscal policy. More recent studies show that fiscal reaction has become more prudent since the Great Recession, resulting in acyclical or countercyclical fiscal policy. Overall, the evidence seems to be in particular inconclusive regarding the cyclicality of discretionary fiscal policy, whereas the overall fiscal policy (i.e. including automatic stabilisers) tends to be rather acyclical or countercyclical. The indicator used to measure the economic cycle seems also to drive the results: the findings appear less conclusive

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(37) Abstracting from revenue windfalls, revenues as a percent of GDP slightly decrease or remain broadly stable during recessions: they follow on average in monetary units the cyclical fluctuations of output, while the denominator, GDP, slightly declines (i.e. the revenue-to-GDP ratio has an elasticity of close to 0). By contrast, expenditure as a percent of GDP increases significantly during downturns: expenditure remains rather rigid while output drops (i.e. the expenditure-to-GDP ratio has a negative elasticity of around -0.5). The fiscal balance as a percentage of GDP has an elasticity of about 0.5.
The role of the reinforced EU fiscal rules on cyclical policy has only scarcely been investigated. Before the introduction of the euro, several scholars were concerned that the Maastricht Treaty could weaken the stabilisation properties of fiscal policy. (45) Early evidence, however, shows that the SGP has not mitigated the stabilisation function of fiscal policy. (46) One recent study concludes that high public debt can hamper stabilisation properties in EMU. (47)

There are several reasons for procyclical fiscal policy in the EU. (48) From a political-economy perspective, policymakers may attach less weight to stabilisation of output than other objectives. (49) These considerations can lead to excessive spending in good times, eroding fiscal buffers and necessitating procyclical fiscal tightening in downturns. (50) The existence of a few powerful groups can aggravate this effect, with each group attempting to gain a greater share of the "common pool" by demanding more transfers. (51) Moreover, procyclicality may result from a wrong assessment of the economic cycle in real time or an imprecise or delayed implementation of discretionary fiscal policy. (52)

Against this background, this Part provides new empirical evidence on the cyclicality of the fiscal effort, with a special focus on the impact of EU fiscal rules. The assessment focuses on the discretionary component of fiscal policy (the fiscal effort). Section 3.2. presents the main challenges by analysing the cyclicality of the fiscal effort. Section 3.3. describes the empirical specification. Section 3.4. presents the main findings regarding the cyclicality of fiscal policy focusing, in particular, on the role of EU fiscal rules. Finally, Section 3.5. concludes.

3.2. KEY CHALLENGES

Challenge 1: How to measure the fiscal effort?

The fiscal effort can be measured "top-down" by identifying the change in the budget balance attributable to government policy (Chart 3.1). The change in the general government budget balance does not reveal the discretionary fiscal policy effort of policymakers due to the impact of automatic stabilisers. Therefore, a frequently used "top-down" measure is the change in the cyclically-adjusted budget balance, i.e. the government budget balance netting out the impact of the economic cycle. An important "top-down" indicator for the fiscal effort in the SGP is the change in the structural balance. Apart from the cycle, it corrects the budget balance for certain one-off measures, since the latter have only a temporary effect and thus cannot lead to a sustained improvement or deterioration in the government's fiscal position. In the academic literature, many authors also exclude interest payments from the structural or cyclically-adjusted balance, since they are not under the control of policymakers in the short-run. (53) While "top-down" measures are well-established and widely-known, they may imperfectly measure the fiscal effort, in particular due to the irregular response of tax revenues and unemployment spending with respect to output.

The fiscal effort can also be measured using a "bottom-up" approach. In its pure form, the "bottom-up" approach measures the fiscal effort as the estimated impact of individual government revenue and expenditure measures. (54) In the preventive arm of the SGP, a quasi "bottom-up" indicator for the fiscal effort is used as a complement to the structural balance, i.e. the so-called expenditure benchmark. This indicator compares the primary expenditure growth net of discretionary revenue measures against an appropriate benchmark, namely the ten-year average potential growth rate. (55) While "bottom-

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(48) For developing economies the phenomenon is usually explained by the lack of access to international credit markets (Gavin and Perotti, 1997) or poor institutions (Alesina et al., 2008).
(49) Deroose et al. (2008).
(50) Turrini (2008).
(51) Tornell and Lane (1999).
(52) Tanzi (2005).
(53) See for instance Debrun et al. (2008).
(55) To be more precise, the expenditure benchmark is based on total expenditure netting out interest payments, government expenditure on EU programmes which is fully matched by EU funds revenues, cyclical unemployment benefit expenditure, discretionary revenue measures and one-offs.
“Top-down” measures as approaches may offer a more direct quantification of the fiscal effort, they face challenges in terms of data availability and measurement (e.g. accuracy may depend on government information, indirect effects are difficult to capture). In addition, it is challenging to design the appropriate benchmark (i.e. counterfactual scenario) against which spending developments should be compared. (56)

Challenge 2: How to measure the economic cycle?

The output gap is a frequently used indicator that synthetically assesses the economy's position in the cycle. It measures the gap between potential and actual output, thus gives an estimate of whether the economy is booming or lagging behind compared to its potential. For fiscal surveillance in the EU, the output gap has been estimated since 2002 using a commonly agreed methodology based on a production function approach. (57) While empirical analyses of fiscal policy usually measure cyclical conditions by the output gap either in level or in change, the length can also provide an important information to assess the stabilisation needs of an economy. The European Commission developed a methodology to use three aspects of the shape of the economic cycle, namely the length, the depth and the speed of change or momentum (Graph 3.2). (58)

Graph 3.2: How to measure the economic cycle?

<table>
<thead>
<tr>
<th>Key SGP indicator</th>
<th>“Top-down” measure</th>
<th>“Bottom-up” measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros</td>
<td>Well-established and widely-known</td>
<td>More direct assessment of fiscal effort</td>
</tr>
<tr>
<td>Cons</td>
<td>Large fluctuations of tax revenues and unemp. spending w.r.t. output gap</td>
<td>Measurement challenging, data availability limited</td>
</tr>
</tbody>
</table>

Source: European Commission services

(56) Instead of using the ten-year potential growth rate, the spending developments could be compared to a price index (e.g. HICP), so that neutral spending policy is defined as spending that is constant in real terms (ECB, 2014).

(57) This approach was adopted by the ECOFIN Council following approval from the Economic Policy Committee (EPC). The EPC has a dedicated working group (the Output Gap Working Group - OGWG) which meets regularly to discuss the operational effectiveness and relevance of the existing production function methodology (Havik et al., 2014).

(58) The use of the output gap has several merits, but it also faces challenges. On the positive side, the output gap is a clear economic concept and a widely used indicator to disentangle the trend and the cycle of GDP growth, although with different
methodologies to estimate potential output. Evidence shows that the Commission methodology performed better than estimates by the OECD and IMF with respect to its ability to track the euro area’s business cycle. (9) On the negative side, the output gap is based on non-observables as it requires an estimate of potential output, which makes it sensitive to the methodology used. In addition, it is difficult to assess the position in the economic cycle, especially in real time and in level terms. (60)

**Challenge 3: How to control for other factors that explain the fiscal effort?**

Controlling for additional variables driving the fiscal effort is important for achieving valid estimation results. A large part of the literature explains the fiscal budget balance or effort almost exclusively with a measure of the economic cycle. However, this approach omits other relevant transmission channels.

We control for relevant explanatory variables in line with the previous literature. The following list gives the key independent variables used to prevent omitted variable bias. The expected sign with respect to the fiscal effort is shown in brackets, while + /- corresponds to a fiscal tightening/loosening: (61)

- Persistence (+): lagged dependent variable (e.g. structural balance)
- Economic cycle (−/+/+): output gap
- Public debt (+): gross debt of the general government
- Macroeconomic conditions: current account balance (+), openness (+)
- Demographic factors (−/+): share of persons above 65 years in the total population
- Political economy channel: election year (-)

(9) Mc Morrow et al. (2015).
(60) Therefore, a tool based on several cyclical indicators was developed at the European Commission to assess the plausibility of the production function-based output gap estimates (Hristov et al., 2017).
(61) Note that most papers assess the impact of the explanatory variables on the level of the cyclically-adjusted budget effort (i.e., the change in the cyclically-adjusted budget balance); see in particular Checherita-Westphal and Zdarek (2017), Golinelli and Momigliano (2006).

- Great Recession (-): (62) dummy = 1 for the years 2008 to 2009

### 3.3. Estimation Strategy

The cyclicity of the fiscal effort is investigated using a panel data approach. The analysis concentrates on up to 28 EU Member States (i) and 17 years (t), covering the time period 2000 to 2018. We primarily use real-time data from past Commission autumn forecast vintages, but also analyse the findings with ex-post data using the Commission 2018 autumn forecast.

As a first step, the key drivers of the fiscal effort are determined in a baseline specification. The specification follows a fiscal reaction function approach, which has been used extensively in the literature for assessing the behaviour of fiscal variables over the economic cycle. (63)

\[
\text{effort}_{i,t} = \beta_1 \text{effort}_{i,t-1} + \beta_2 \text{cycle }_{i,t} + \beta_3 \text{debt}_{i,t-1} + \beta_4 \text{X }_{i,t-1} + \theta_t + \vartheta_i + u_{i,t} \quad (1)
\]

We use both "top-down" and "bottom-up" indicators to measure the fiscal effort. The change in the structural primary balance is our preferred "top-down" measure for the fiscal effort, since it best captures the intended effort of policymakers by netting out the impact of the economic cycle, interest payments and certain one-offs from the budget balance. In addition, we use the difference between the net expenditure and the 10-year potential growth rate as the preferred "bottom-up" indicator. In contrast to the vast majority of the literature, which uses a specification in levels, we prefer this specification in changes, since it allows comparing bottom-up and top-down measures. Please note, however, that our main findings still hold when using a specification in levels. The specification includes

(62) Controlling for the economic and financial crisis is debatable. On the one hand, you could argue that you should not control for it, since it represents the major cyclical episode within the sample, for which the test on cyclicity should be conducted. On the other hand, you could argue that controlling for it is important, since the period of the Great Recession represents a very atypical cyclical episode, namely the deepest crisis since World War II. While we report in the following the specifications including a dummy for the economic and financial crisis, the results are broadly unchanged when excluding it.
(63) Lane (2003).
the lagged fiscal effort on the right hand side of equation (1) to test for its potential persistence.

**As our main indicator for the economic cycle, we use the change in the output gap.** We do so for at least three reasons. First, the change of the output gap is typically less affected by revisions than its level. (6) Second, the output gap is typically computed by utilising information from periods ahead (e.g. mechanical assumptions on its speed of closure). This has a significant impact for our study when using the ex-post dataset from the Commission’s 2018 autumn forecast, since the estimates of the output gap in the pre-crisis period are severely affected by the subsequent downturn. Using the change rather than the level of the output gap, mitigates this problem to some extent.

**We control for relevant independent variables.** $X$ is a vector of control variables derived from the literature (see above). Since the impact of these control variables tends to occur only gradually, they are included with a lag of one year. Furthermore, the specification includes year- (3) and country-fixed effects (0) to capture systematic differences across countries and time, while $\varepsilon$ represents an error term. The source of the variables and the summary statistics as well as the correlation matrix are presented in Table A.2 in the Annex.

As a second step, the baseline specification is augmented to analyse the impact of EU fiscal rules on the fiscal effort:

$$effort_{i,t} = \beta_1 effort_{i,t-1} + \beta_2 cycle_{i,t} + \beta_3 deb\text{t}_{i,t-1} + \beta_4 X_{i,t-1} + \beta_5 dummy_{dummy,i,t} \cdot cycle_{i,t} + \beta_6 dummy_{dummy,i,t} + \theta_i + \varepsilon_{i,t}$$ (2)

We assess the impact of EU rules on the cyclicality of the fiscal effort indirectly by adding a dummy variable. The dummy measures several fiscal dimensions of the EU governance framework, such as public expenditure in line with productivity growth, debt levels above or below the Maastricht reference values or Member States under an EDP or EU/IMF macroeconomic adjustment programme. For instance, to account for the potential non-linear effect of public debt on the fiscal effort, the dummy variable is equal to one for Member States with a public debt above 60% of GDP. (6) To find out if these elements of performance with respect to the fiscal governance framework had an impact on the cyclicity of the fiscal effort, the dummy variable is interacted with the change of the output gap. From equation (2) we can derive the marginal effect, which measures how a marginal change of the output gap impacts the fiscal effort (the change in the structural primary balance), as follows:

$$\frac{\partial effort}{\partial cycle} = \beta_2 + \beta_5 dummy_{dummy,i,t}$$ (3)

Equation (3) shows that the marginal effect depends on the value of the conditioning dummy variable. The marginal effect is defined as $\beta_2 + \beta_5$ if the dummy variable is equal to 1 (e.g. debt above 60% of GDP), whereas it simplifies to $\beta_2$ if the dummy variable is 0 (e.g. debt below 60% of GDP). (6) Furthermore, the standard errors for both events can be calculated based on the variance-covariance matrix.

### 3.4. MAIN FINDINGS

**Has the fiscal effort been procyclical in the EU?**

Our empirical findings point to a mild procyclical pattern of the fiscal effort in the EU on average since 2000, i.e. implying a fiscal tightening (loosening) in bad (good) times (Table 3.1). We start the analysis using our preferred "top-down" measure for the fiscal effort, namely the change in the structural primary balance. The results point to a procyclical pattern of the fiscal effort, as shown by the significant and negative coefficient of the change in the output gap. This means that an improvement in economic conditions (i.e. a positive change in the output gap), results in a fiscal loosening (i.e. a negative impact on the structural primary balance). The results turn out to be broadly robust to changes of the set of control variables (columns 1-4), estimation techniques (columns 5-7) and datasets (columns 8-9).

\[\text{(6) Mc Morrow et al. (2015).}\]

\[\text{(*) While there is clear evidence that countries with high public debt grow substantially slower, there is controversy over the precise threshold level of debt to GDP beyond which growth slows down significantly (Reinhart and Rogoff, 2010).}\]

\[\text{(** For the specification and interpretation of interaction terms see Brambor et al. (2006), Braumoeller (2004).}\]
The main control variables mostly confirm the findings of the previous literature (Table 3.1). The results show a strongly persistent pattern of the fiscal effort, as demonstrated by the highly significant lagged dependent variable. Higher debt ratios seem to trigger a fiscal tightening to improve the budgetary position. An increase in the current account balance appears to lead to an increased fiscal loosening, supporting the twin deficit hypothesis. Public expenditure growth and ten-year EU programmes are not significant in all specifications. Finally, we find evidence that the (initial) years of the Great Recession (2008-09) resulted in a fiscal loosening.

The procyclical pattern is also evident when using a "bottom-up" measure for the fiscal effort, namely the expenditure benchmark (Table 3.2). Since the results of the previous literature tend to be sensitive to the indicators used to measure fiscal policy, we re-run the analysis using a "bottom-up" measure for the fiscal effort, namely the difference between net expenditure growth and ten-year potential GDP growth rate. (68) In this case, the expected impact of the

(68) It refers to the net expenditure concept used for the expenditure benchmark and defined in European Commission (2018a, p. 52). Note that some expenditure components are not available (in real time) over the entire sample period. This includes government expenditure on EU programmes, which is fully matched by EU funds revenues (only available in real time since Commission 2017 spring forecast for a period of date since 2000), cyclical unemployment benefits, discretionary revenue measures (since Commission 2009 autumn forecast, Commission 2016 autumn forecast used to fill the gaps before). We have not excluded one-offs (since Commission 2008 autumn forecast, assumed to be zero before) due to data availability. The findings are robust to two alternative definitions of the expenditure growth rate, (i) total expenditure net of interest payments and (ii) total expenditure net of interest payments and unemployment benefits.
Table 3.2: Empirical findings on cyclicality - "bottom-up" measure for fiscal effort

<table>
<thead>
<tr>
<th>Dependent variable: EB-based fiscal effort</th>
<th>Baseline specifications</th>
<th>Robustness Estimators</th>
<th>Datasets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Real-time AF</td>
<td>Real-time AF</td>
<td>Real-time AF</td>
</tr>
<tr>
<td>Dataset</td>
<td>SYS-GMM</td>
<td>SYS-GMM</td>
<td>SYS-GMM</td>
</tr>
<tr>
<td>EB-based fiscal effort (t-1)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>0.288**</td>
<td>0.307**</td>
<td>0.309***</td>
</tr>
<tr>
<td>Δ Output gap (t)</td>
<td>(2.978)</td>
<td>(2.357)</td>
<td>(2.355)</td>
</tr>
<tr>
<td></td>
<td>(2.765)</td>
<td>(2.908)</td>
<td>(2.847)</td>
</tr>
<tr>
<td>Public debt (t-1)</td>
<td>-0.019**</td>
<td>-0.036***</td>
<td>-0.036***</td>
</tr>
<tr>
<td></td>
<td>(-2.485)</td>
<td>(-2.874)</td>
<td>(-2.754)</td>
</tr>
<tr>
<td>Current account (t-1)</td>
<td>-0.198*</td>
<td>-0.198*</td>
<td>-0.087*</td>
</tr>
<tr>
<td></td>
<td>(-1.265)</td>
<td>(-1.252)</td>
<td>(-1.973)</td>
</tr>
<tr>
<td>Age dependency ratio (t-1)</td>
<td>0.244</td>
<td>0.249</td>
<td>0.211**</td>
</tr>
<tr>
<td></td>
<td>(1.664)</td>
<td>(1.702)</td>
<td>(2.139)</td>
</tr>
<tr>
<td>Election year (t-1)</td>
<td>0.011**</td>
<td>0.014**</td>
<td>0.012***</td>
</tr>
<tr>
<td></td>
<td>(2.436)</td>
<td>(3.388)</td>
<td>(4.198)</td>
</tr>
<tr>
<td>Crisis dummy 2008-09</td>
<td>1.396*</td>
<td>1.473***</td>
<td>1.912**</td>
</tr>
<tr>
<td></td>
<td>(1.948)</td>
<td>(4.519)</td>
<td>(2.208)</td>
</tr>
<tr>
<td># countries</td>
<td>27</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wald test time/country dummies</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>AR(1) (p-value)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>AR(2) (p-value)</td>
<td>0.84</td>
<td>0.84</td>
<td>0.83</td>
</tr>
<tr>
<td>Hansen (p-value)</td>
<td>0.52</td>
<td>0.58</td>
<td>0.57</td>
</tr>
<tr>
<td># instruments</td>
<td>22</td>
<td>26</td>
<td>27</td>
</tr>
</tbody>
</table>

Note: The dependent variable used is defined as the difference between the expenditure net of interest payments, unemployment benefits and discretionary revenue measures and the 10-year potential GDP growth rate. In terms of sample and estimation techniques, see Table 3.1 for further details. ***, ** and * denote respectively statistical significance at 1, 5 and 10%.

Source: European Commission services.

Explanatory variables (see list above) change their sign. As a result, the positive and significant indicator of the change in the output gap points to a procyclical pattern of fiscal policy. The findings of the other control variables are broadly in line with the previous specification and the main results are robust to changes to the set of independent variables (columns 1-4), estimation techniques (5-7) and datasets (columns 8-9).

Finally, the findings on procyclicality appear to be weaker when using an indicator that measures the depth of the economic cycle, i.e. the level of output gap (Graph 3.3). We assess the sensitivity of the findings using three sets of measures for the economic cycle, namely the depth, length and momentum or speed of closure. (*) We check their impact using different estimation techniques, sets of independent variables and datasets. These result in more than thirteen thousand specifications. (**) Overall, the findings show rather strong evidence for procyclicality based on a "top-down" approach for the fiscal effort (70% of the specification point to a procyclical pattern of the fiscal effort) (Table A.3 in the Annex). The results also show rather strong evidence for procyclicality based on the momentum (85%) and the length (76%) of the cycle, but less clear-cut results when based on a measure for the depth of the economic cycle (only 53%). The bottom-up measures show on average even stronger evidence for procyclicality (84%). While the type of indicator used for the economic cycle matters less than in case of the "top-down" approach, the evidence for procyclicality is still strongest when based on the momentum (93%).

(*) The indicators for the economic cycle are defined as follows: depth (level of output gap), length (number of consecutive years with positive/negative (change in) output gap) and speed of closure (change of output gap). In addition, we use the difference between the unemployment rate and the non-accelerating wage rate of unemployment (nawru) as a proxy for the economic cycle.

(**) We use different measures for the economic cycle (speed of closure, depth and length), additional top-down and bottom-up measures for the fiscal effort, different types of datasets (real-time spring, autumn and ex post), specifications (different sets of control variables) and estimations techniques (LSDV, LSDVc, first difference and system-GMM estimator using different sets of internal instruments).
followed by the length (84%) and the depth of the economic cycle (75%).

Has procyclicality been seen throughout the economic cycle?

Our findings show that procyclicality happens in particular in good times (Table 3.3). An important question is whether procyclicality occurs throughout the cycle or only during an upturn or downturn. The analysis reveals that good times are characterised by a procyclical pattern, whereas bad times exhibit an acyclical pattern.

Table 3.3: Cyclicality of the fiscal effort in good vs. bad times

<table>
<thead>
<tr>
<th>Economic situation</th>
<th>Qualitative findings</th>
<th>Quantitative findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good times (ΔOG &gt; 0)</td>
<td>procyclical</td>
<td>197</td>
</tr>
<tr>
<td>Bad times (ΔOG &lt; 0)</td>
<td>acyclical</td>
<td>176</td>
</tr>
</tbody>
</table>

Note: The findings are based on estimations of the interaction model from equation (3) based on a sample of 28 EU countries covering the period 2000-18 using real-time data from Commission autumn forecast reports. Total number of observations amounts to 373. All estimations include the set of independent variables shown in Tables 3.1 and 3.2 including time and country dummies. The specifications are estimated using the two-step system GMM (SYS-GMM) estimator following Blundell and Bond (1998), controlling for endogeneity of the lagged dependent variable, output gap and current account. Due to the small sample size the set of internal instrumental variables is restricted by “collapsing” the matrix of instruments and restricting its lags up to 2. The standard errors are corrected following Windmeijer (2005). All (1,2) and Hansen tests confirm the validity of the system GMM specifications. ***, ** and * denote respectively statistical significance at 1, 5 and 10%.

Source: European Commission services.
Have EU fiscal rules mitigated procyclicality?

Importantly, the analysis shows that the respect of fiscal rules seems to have mitigated the procyclicality in the EU (Graph 3.4). This analysis is solely based on the preferred specification using the top-down measure for the fiscal effort and the change in the output gap. The findings can be summarised as follows:

First, Member States that met the requirements of the preventive arm of the SGP benefited from reduced procyclicality of the fiscal effort. We assess procyclicality for Member States that conducted fiscal policy in line with the structural balance and expenditure benchmark requirement. For this purpose, we use real-time data from past Commission forecast vintages to test if the current requirements of the preventive arm of the SGP have been met since 2000. (71) The positive coefficients shown in Graph 3.4 imply that Member States who met the requirements of the preventive arm exhibited on average a lower procyclical fiscal effort.

Second, avoiding high headline deficits appear to reduce procyclicality of the fiscal effort. The empirical findings show that Member States with general government deficits exceeding 3% exhibit a more procyclical pattern than Member States with public deficits below 3% of GDP. This can be explained by the fact that Member States who need to correct gross policy errors are typically requested to conduct a fiscal tightening in bad economic times. We find evidence for such an intensified procyclical pattern for Member States under an EDP or EU/IMF economic adjustment programme. In addition, our findings show that Member States under an EDP who face good economic conditions tend to relax their fiscal effort and rely on meeting the nominal target of the headline balance.

Finally, keeping public debt below 60% of GDP mitigates the procyclical pattern of the fiscal effort. We find that Member States with public debt ratios below 60% of GDP show on average a smaller procyclical fiscal effort than Member States with a debt ratio above 60% of GDP. In addition, we find evidence that procyclicality becomes even stronger for Member States with debt ratios above 80% and 100% of GDP. Finally, Member States that achieved the debt benchmark showed on average a less procyclical pattern of discretionary fiscal policy.

3.5. CONCLUSIONS

This Part provides new evidence on the cyclicality of the fiscal effort. While the academic literature finds rather clear-cut evidence for a procyclical pattern of fiscal policy in developing countries, the findings for the EU are less conclusive.

For the EU on average, we find evidence that discretionary fiscal policy has not been counter-but procyclical since 2000. The findings are robust to using a measure for the speed of closure (change in the output gap) or length of the economic cycle, but somewhat weaker when using a measure of the depth of the economic cycle (the level of the output gap).
Procyclicality appears to be evident in particular in good times. This asymmetric fiscal policy reaction can partly explain the debt accumulation over the past decades.

Our findings show that respecting the EU fiscal rules help mitigate the procyclicality. First, Member States that met the requirements of the preventive arm of the SGP benefits from reduced procyclicality of the fiscal effort. Second, avoiding high headline deficits appear to reduce the procyclicality of discretionary fiscal policy. Third, keeping public debt at a reasonable level mitigates the procyclical pattern of the fiscal effort.

Some caveats remain. In particular, like for every cross-country panel approach, the results reveal relationships which are valid only on average across countries, but may differ from one country to another.
4. CONCLUSIONS

This part analyses the fiscal outcomes in the EU's fiscal rules-based framework from two non-exhaustive angles. It investigates the fiscal rules' ability to strengthen fiscal sustainability and foster stabilisation. The analysis is factual, backward looking and conducted primarily based on quantitative analysis.

Our main findings can be summarised as follows:

First, while significant progress towards more sustainable fiscal positions has been achieved, public debt remains very high and fiscal buffers small in several Member States. Public debt-to-GDP ratios in the EU have increased far less than in most other advanced economies such as the US and Japan over the past three decades thanks to a more prudent conduct of fiscal policy. Member States with the most fragile fiscal positions improved their fiscal positions following the introduction and subsequent reforms of the fiscal governance framework. This suggests that the EU's fiscal governance framework has contributed to more prudent fiscal policies in individual Member States over the last two decades, although causality is difficult to establish. Nevertheless, there is still unfinished business, as public debt ratios remain high and fiscal buffers remain small in several Member States.

Second, our analysis shows that the respect of fiscal rules seems to have mitigated the procyclicality of fiscal policy in the EU. In the EU on average we find evidence of a procyclical fiscal effort since 2000, implying that discretionary fiscal policy tightens in bad times and loosens in good times. The findings show that discretionary fiscal policy tends to be most procyclical in good times. The respect of fiscal rules seems to have mitigated the procyclicality of fiscal policy in the EU. Overall, the cost of procyclical fiscal efforts can be high, as discretionary fiscal policy measures counteract the functioning of automatic stabilisers and prevent them from operating freely.
REFERENCES


Blanchard, O., Dell'Ariccia, G., Mauro, P., 2013. Rethinking macroeconomic policy II: Getting granular. IMF Staff Discussion Note 13/03, 15 April.


ANNEXES
Table A.1: Contributions to change in public debt in the EU, the US and Japan over the last three decades (pp. of GDP)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in gross</td>
<td>16.7 6.3</td>
<td>-8.4 0.9</td>
<td>27.1 43.1</td>
</tr>
<tr>
<td>Drivers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>primary balance</td>
<td>-3.6 -11.0</td>
<td>-13.0 -9.1</td>
<td>9.8 39.3</td>
</tr>
<tr>
<td>p.m. CAPB</td>
<td>-3.5 -11.8</td>
<td>-7.9 -5.4</td>
<td>0.7 34.7</td>
</tr>
<tr>
<td>snowball effect</td>
<td>16.5 18.7</td>
<td>3.6 6.0</td>
<td>11.9 7.1</td>
</tr>
<tr>
<td>p.m. r-g differential</td>
<td>24.4 24.3</td>
<td>3.6 7.6</td>
<td>17.7 9.4</td>
</tr>
<tr>
<td>p.m. real GDP growth</td>
<td>24.2 31.1</td>
<td>25.8 30.4</td>
<td>7.2 14.2</td>
</tr>
<tr>
<td>p.m. real IR</td>
<td>48.9 55.9</td>
<td>29.3 38.1</td>
<td>24.4 23.3</td>
</tr>
<tr>
<td>p.m. nominal IR</td>
<td>82.3 84.2</td>
<td>50.9 61.3</td>
<td>32.6 39.1</td>
</tr>
<tr>
<td>p.m. inflation (GDP deflator)</td>
<td>32.1 26.8</td>
<td>21.1 22.4</td>
<td>8.2 15.4</td>
</tr>
<tr>
<td>Stock flow adjustment</td>
<td>3.8 -1.3</td>
<td>1.1 2.2</td>
<td>5.4 -3.3</td>
</tr>
</tbody>
</table>

Note: The contribution from the primary government balance is split into discretionary fiscal policy (measured by the cyclically-adjusted primary balance) and the automatic stabilisers (measured by the cyclical component of the budget balance). For data availability reasons, data for the EU refer to EU15.

Source: European Commission services' calculations based on Commission 2018 autumn forecast, OECD and IMF data.

Graph A.1: Debt developments for selected Member States

Source: European Commission services' calculations based on Commission 2018 spring forecast.
Graph A.2: Drivers of public debt developments since the crisis in high debt Member States (cumulated effect over 2008-2017, pps. of GDP)

Note: Member States with debt ratio above 60% of GDP in 2017 are considered. EL is not shown in order to not distort the scale, given the higher magnitude of contributions to debt developments. The fiscal contribution for IE mainly comes from the bank support, which affected the fiscal balance in IE, whereas it affected the SFA in other countries.

Source: European Commission services' calculations based on Commission 2018 spring forecast.

Graph A.3: Average headline balance for selected Member States (% of GDP)

Note: Fixed composition over time for "bad performers". and "good performers" lead to similar results. "Bad performers": ES, FR, IT, HU, PL, PT, UK. "Good performers": DE, CY, LU, NL, SE.

Source: European Commission services' calculations based on Commission 2018 spring forecast.
Graph A.4: Cyclically-adjusted balances (% of potential GDP)

Note: Cyclically-adjusted balances (UBLGAP). Compared with the Structural Balances (UBLGAPS) considered by the fiscal surveillance process of the EU, one-off measures are not excluded. The definition of the latter has evolved over time, which makes comparison with structural balances before 2010 more difficult. Therefore, cyclically-adjusted balances are shown.
Source: Authors’ calculations based on Commission 2018 spring forecast.

Graph A.5: Distance between the structural balance and the MTO (% of potential GDP)

Note: The composition of the groups is the following:
- Member States at or above MTO in 2017: BG, CZ, CY, DE, DK, EL, FI, HR, IE, LT, LU, MT, NL, SE.
- Member States close to MTO in 2017: AT, LV, SK.
- Member States far away from MTO in 2017: BE, EE, ES, FR, HU, IT, PL, PT, RO, SI, UK.
Source: European Commission services’ calculations based on Commission 2018 spring forecast.
### Table A: Overview: Key findings on cyclicity of fiscal policy

<table>
<thead>
<tr>
<th>Key findings</th>
<th>Before Maastricht</th>
<th>Run-up to the EMU</th>
<th>EMU before Great Recession</th>
<th>EMU after Great Recession</th>
</tr>
</thead>
</table>

Note: Cells highlighted in blue/red/green show the focus of the study, namely concentrating on total fiscal policy/fiscal effort/automatic stabilisers. The precise fiscal and business-cycle indicators are shown in brackets. Abbreviations of fiscal variables: CA(P)B: cyclically-adjusted (primary) balance, PB: primary balance, HB: headline balance, SB: structural balance; AS: automatic stabilisers. Abbreviations of business-cycle indicators: OG: output gap, ΔOG: change in output gap, GDP growth: real GDP growth.

Source: European Commission services.