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End of previous Forum article

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Fiscal Policy at the Zero Lower Bound

The fiscal policy frameworks in use today, including the Stability and Growth Pact (SGP), were created for a world that no longer exits: a world where interest rates were positive, the main risk was higher inflation, and fiscal policy had the luxury of being passive and ignoring cyclical stabilisation. With interest rates at zero, where they are expected to remain for a long time, and with the main risk being that inflation is too low, fiscal policy must be active and contribute to cyclical stabilisation. This contribution argues that inertia and behavioural biases are the main impediments to a more active fiscal policy, analyses the desired relationship between monetary and fiscal policy in different configurations of interest rates and inflation, and proposes a series of principles to guide fiscal policy in the euro area at the zero lower bound.

The secular decline in long-term nominal interest rates

Interest rates are at all-time lows. In August 2019, German 10-year rates reached a record low of -0.71% and Germany issued, for the first time, a 30-year bond at 0% interest. The record low interest rates were not limited to AAA bonds. Portuguese 10-year rates reached 0.07% and Spanish 10-year rates fell to 0.03%. Markets also expect the interest rate to remain very low for a very long time. For example, markets expect German 10-year rates to still be negative in five years. Of course, markets can be wrong. But they can also be right. Over the last decade, market expectations of low or lower interest rates have proved to be more accurate than economists' and policymakers' warnings that higher interest rates were around the corner.

Very low interest rates could appear exceptional and perhaps even be an aberration of markets. However, an ex-

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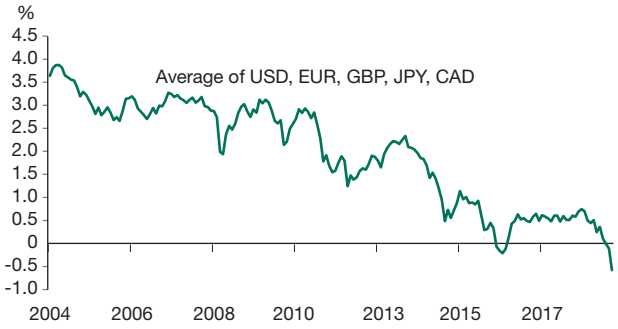
Figure 1
The decline of real interest rates
10y10y real swap rate



Source: Bloomberg, 2019.

amination of the two components of long-term nominal rates, i.e. real interest rates and inflation expectations, suggests that nominal long-term interest rates are structurally lower and unlikely to increase in the foreseeable future.

Real interest rates have declined over the last two decades (see Figure 1). This decline has been driven by structural factors such as demographics, the change in the nature of investment and the decline in the price of capital goods, the dearth of public investment, and a steady decline in the supply of safe assets.[1] This has led to a decline in the neutral real interest rate, which is now estimated to be close to zero in most developed countries.[2]

Attitudes towards inflation have also changed. Before 2007, the focus was on upside inflation risks. Wage growth was robust, commodity prices were on a secular upward trend, realised inflation had averaged two percent in most developed countries and inflation expectations were well anchored at targets (outside Japan). The fact that interest rates were positive – and thus provided plenty of room to ease policy – likely helped anchor inflation expectations. Today the situation is very different. Wage growth is weak, commodity prices are stable, realised inflation has been below two percent for a decade, and inflation expectations are below target. As a result, the focus is now on downside inflation risks, and inflation risk premia have become negative. For example, markets expect euro area inflation to be below 1.5% for the next decade.

Very low real interest rates and inflation may appear to be a great outcome, but they are not. Excessively low nominal rates reduce welfare, as they limit the policy scope to cushion recessions and the business cycle – in other words, the expected future output gap increases.

The 'paradox of risk' in fiscal policy

The 'paradox of risk' describes situations where policymakers, in their quest to be conservative and prudent, mistakenly are not aggressive enough and thereby make the outlook riskier.[3] This concept is a good description of the debates among central bankers during the global financial crisis, when worries about keeping the powder dry, disciplining governments, and minimising the potential losses in central bank balance sheets precluded more timely and aggressive policy easing. In the end, by hesitating and acting without conviction, central bankers ended up having to do more of what they did not want to do initially – keeping rates lower for longer and buying more bonds – and made the recovery weaker and inflation lower.

The paradox of risk happens because of the inertia inherent in policy frameworks and the behavioural biases that afflict policymakers, which prevent agile and nimble policymaking.[4] Inertia was the result of applying otherwise sound economic policy concepts to the wrong economic situation: for example, it led to central bankers taking too long to realise that the main risk was not that inflation may spiral up, as was the case for the last two decades, but that it may never increase sufficiently. Loss aversion (excessive aversion to realising a loss that leads to suboptimal decisions) led to an excessive focus on the possible downside of policy actions, such as the fiscal 'cost' of quantitative easing. The endowment effect (excessively valuing things that we already own) convinced policymakers to maintain policy frameworks that were failing for far too long, such as the asymmetry of inflation targets.

The paradox of risk has affected fiscal policy as well. Excessive fear of debt and deficits led to contractionary fiscal policies that depressed growth and inflation at the wrong time, creating a very powerful headwind for monetary policy and, in turn, worsening the fiscal outlook. Policy inertia and behavioural biases were at play again.

1 See, among others, E. Gagnon, B.K. Johannsen, J.D. Lopez-Salido: Understanding the New Normal: The Role of Demographics, Finance and Economics Discussion Series, No. 2016-080, Washington DC 2016, Board of Governors of the Federal Reserve System; and M. Del Negro, D. Giannone, M.P. Giannoni, A. Tambalotti: Safety, liquidity, and the natural rate of interest, Brookings Papers on Economic Activity, Spring 2017, pp. 235-294.

2 See K. Holston, T. Laubach, J. Williams: Measuring the Natural Rate of Interest: International Trends and Determinants, in: Journal of International Economics, Vol. 108, Supplement 1, pp. S39-S75.

3 See Á. Ubide: The Paradox of Risk, Washington DC 2017, Peterson Institute for International Economics.

4 For an in-depth discussion of behavioural biases such as loss aversion, the endowment effect or anchoring, see D. Kahneman: Thinking Fast and Slow, New York 2011, Farrar, Strauss and Giroux.

The inertia of decades of considering monetary policy the only instrument for cyclical stabilisation has excessively delayed the necessary easing of fiscal policy. The anchoring effect (giving excessive importance to an initial observation) of the Greek crisis created a powerful incentive for governments to blindly tighten policy first and ask questions later. The endowment effect has led European governments to keep the main principles of the SGP, even if today's world is the diametric opposite of the world that existed when the SGP was created.

Fiscal policy is the leading economic policy at the zero lower bound

A critical mental bias that continues to hamper economic policy is the concept of "unconventional" policies. In monetary policy, *unconventional* applied initially to the use of forward guidance (because central bankers used to operate under the principle of never pre-committing to a policy) and of asset purchases (because central bankers worried about the moral hazard consequences of buying government bonds). The term unconventional carries stigma, denotes a temporary nature and highlights a desire to exit as soon as feasible, leading to policies that are too tight. The concept of unconventional should be abandoned, as all monetary policy tools within the legal framework of a central bank are legitimate and central bankers should just talk about policy easing or tightening.[5] As Fed Chair Jerome Powell said, "Perhaps it is time to retire the term 'unconventional' when referring to tools that were used in the crisis".[6] As a result, central banks are embracing this reality and have embarked on a review of their monetary policy frameworks.

The unconventional problem also afflicts fiscal policy. The hypothesis of the inflationary bias of governments, combined with the Great Moderation, led to the consensus that coordination of monetary and fiscal policies would create time inconsistent policies. This, in turn, resulted in the conventional view of a strict division of labour between monetary and fiscal policies, with monetary policy managing the business cycle and fiscal policy focusing solely on long-term sustainability (and distributional aspects). The outcome is that fiscal policy rules have focused, in an asymmetric manner, on reducing debt and deficits, almost regardless of the cyclical position of the economy.

Table 1
The optimal relationship between monetary and fiscal policy

	Monetary policy	Fiscal policy	Example
$\pi >> \pi^*$	Tight, leads	Tight	1970-80s
$\pi \approx \pi^*$ and $r > 0$	Manage cycle	Focus on sustainability	Great Moderation
$\pi \approx \pi^*$ and $r = 0$	Manage cycle	Neutral	
$\pi << \pi^*$ and $r \leq 0$	Easy	Easy, leads	Japan, euro-zone today

Source: Author's elaboration.

The world has changed and fiscal frameworks must be reviewed as well. Despite very low interest rates and large bond purchases, inflation is too low – not too high – and fiscal policy has been too tight. Contrary to expectations, interest rates have fallen despite higher debts and deficits. The review of fiscal frameworks must start by embracing the unconventional idea that, at times, monetary and fiscal policy must be coordinated. In fact, the relationship between monetary and fiscal policy depends on the level of inflation (π) with respect to the inflation target (π^*) and on the level of interest rates (r), in a strictly symmetric fashion. Table 1 shows a stylised framework to understand this relationship.

There are four different cases:

Case 1: When inflation is clearly above target, monetary policy leads and fiscal policy explicitly cooperates. This is the legacy of the 1970s, which ushered in the literature on time inconsistency and the need for independent and conservative central bankers.[7] Monetary policy has to be tight to reduce inflation and inflation expectations, and fiscal policy must cooperate with fiscal adjustments to facilitate this process. In fact, during previous periods when inflation has been tough to contain, fiscal policy did not cooperate with monetary policy (for example, in the early years of Volcker's tenure at the Fed).

Case 2: When inflation is anchored at target and interest rates are positive, as in the Great Moderation, monetary and fiscal policy can decouple. Monetary policy has enough room to ease policy to manage economic fluctuations, and fiscal policy can focus on long-term sustainability while allowing automatic stabilisers to operate. The definition of long-term sustainability may vary across

5 Á. Ubide, op. cit.

6 J. Powell: Opening remarks at the "Conference on Monetary Policy Strategy, Tools, and Communications Practices", Federal Reserve Bank of Chicago, Chicago, Illinois, 4 June 2019, available at https://www.federalreserve.gov/newsevents/speech/powell20190604a.htm.

7 F. Kydland, E.C. Prescott: Rules Rather than Discretion: The Inconsistency of Optimal Plans, in: The Journal of Political Economy, Vol. 85, No. 3, 1977, pp. 473-492.

societies, as preferences need not be homogeneous regarding the size of the government and the levels of debts and deficits. This is the environment of the benchmark New Keynesian model with inflation targeting, in which monetary policy takes fiscal policy as given and sets interest rates in order to achieve its inflation target. This is the economic background where expansionary fiscal contractions could be effective.

Case 3: When inflation is anchored at target but interest rates are very low, this framework starts to fail. In those cases, fiscal policy should be in 'first do no harm' mode, with an easy or, at most, cyclically neutral stance to avoid becoming a disinflationary force that, with very low interest rates, becomes difficult for monetary policy to manage. This is the case, for example, in Australia today.[8]

Case 4: When inflation and inflation expectations are below target and interest rates are already zero or negative, fiscal policy must lead with an expansionary stance and monetary policy must explicitly cooperate by guaranteeing low interest rates for as long as needed. This is the mirror image of the 1970s (Case 1): unless both monetary and fiscal policy cooperate in an active manner, the economy will fail to restore price stability and sustainable growth. This is the case of Japan over the last few years, where the government has adopted an expansionary fiscal stance and the Bank of Japan is cooperating with its Yield Curve Control framework. This also describes very well the current situation in the euro area. An expansionary fiscal policy when interest rates are very low pays for itself and has a large multiplier effect.[9]

Case 4 is the relevant case to the current economic situation. In addition to boosting growth and inflation, an active and well-designed expansionary fiscal policy at the zero lower bound (ZLB):[10]

1. Increases neutral interest rates by reducing public savings, thereby increasing the effectiveness of monetary policy and limiting the constraining effect of the ZLB.
2. Increases potential growth in two ways: by sustaining demand and avoiding hysteresis effects (thus facilitating the return to the labour market of the long-term unemployed[11]) and by increasing public investment.
3. Helps reduce inequality and other side effects of monetary policy by reducing the need for and extent of very low interest rates. To be clear: the main source of inequality is unemployment, and therefore an easy monetary policy that reduces the unemployment rate reduces inequality. But, *ceteris paribus*, a combination of easy monetary policy and tight fiscal policy that leads to very low interest rates for a long time favours higher income asset holders and harms lower income pensioners.
4. Helps reduce financial stability risks derived from a prolonged period of very low interest rates.

The key question for policymakers when the economy is in Case 4 is: Would they prefer an economy with slightly higher growth and inflation, slightly higher interest rates and slightly higher deficits? The answer should be an unambiguous yes.

The concept of fiscal space at the zero lower bound

A standard criticism of the idea of a more active use of fiscal policy to support demand at the ZLB is that there is no fiscal space because debts and deficits are already too high. Here, too, inertia and behavioural biases are playing a role.

The anchoring effect is behind the arbitrary three percent deficit limit and 60% debt-to-GDP ratio target of the Maastricht Treaty, which were chosen simply because 60% was the average debt level at the time – and a three percent deficit, assuming five percent nominal GDP growth, would stabilise debt around those levels. The 90% threshold popularised during the global financial crisis has been shown to have no empirical basis, but it created a powerful loss aversion bias among policymakers after the crisis – finance ministers prioritised adopting policies to reduce debt at all cost – at the expense of growth. Japan is a prime example of the complete irrelevance of these limits.

Fiscal space is a function of the willingness of governments to adjust during bad times. Faced with a problematic fiscal outlook, the decision to reduce deficits or de-

8 See the discussion in P. Lowe: Remarks at Jackson Hole Economic Policy Symposium "Challenges for Monetary Policy", 24 August 2019, Reserve Bank of Australia.

9 See O. Blanchard, Á. Ubide: Why Critics of a More Relaxed Attitude on Public Debt Are Wrong, PIIE Real Time Economic Issues Watch, 15 July 2019, available at https://www.piie.com/blogs/real-time-economic-issues-watch/why-critics-more-relaxed-attitude-public-debt-are-wrong; and J. Cohen-Setton, E. Gornostay, C. Ladreit de Lacharrière: Aggregate Effects of Budget Stimulus: Evidence from the Large Fiscal Expansions Database, PIIE Working Paper No. 12, 2019.

10 See Á. Ubide: The case for a more active fiscal policy, VoxEU, 11 October 2016, available at https://voxeu.org/article/case-active-fiscal-policy.

11 The US experience is very positive in this regard, see A.B. Krueger: Reflections on Dwindling Worker Bargaining Power and Monetary Policy, Luncheon Address at the Jackson Hole Economic Policy Symposium "Changing Market Structures and Implications for Monetary Policy", 24 August 2018, Federal Reserve Bank of Kansas City.

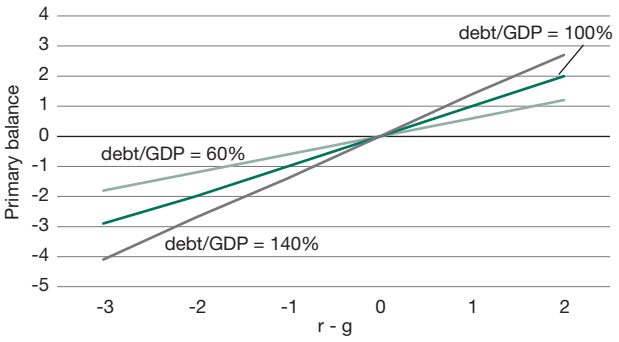
fault is a political choice about the allocation of the cost of adjustment between creditors and taxpayers. Typically, governments decide to reduce deficits: Ostry et al. show that as debt levels increase, governments are more prone to have higher primary surpluses to stabilise their debt ratios.[12] Using the past behaviour of governments, they calculate the debt ratio limit, defined as the debt-to-GDP ratio above which debt grows without bound given a country's historical primary balance behaviour. Their estimates of the debt limit range between 150% and 200% of GDP, with a median of 180%. Of course, the authors recommend that countries stay well below the debt limit, as unexpected shocks could push the country above that boundary, or governments could radically change their preferences with respect to willingness to adjust and make the debt unsustainable. But there is a long distance between 180% and 60%.

Fiscal space, like debt sustainability, is at its core a flow concept, not a stock concept. Economic theory has treated defaults as the result of liquidity and rollover crises, but these crises are, mostly, a factor of the credibility and design of economic policies.[13] Recognising this reality, the International Monetary Fund (IMF) has expanded its definition of debt sustainability "with high probability" by combining a level assessment (debt-to-GDP ratio) with a flow assessment (the gross financing needs as a share of GDP).[14] The IMF assesses that the debt is sustainable if debt service as a share of GDP is below 15% for developed countries and below 10% for emerging markets. This flow criterion becomes more relevant in an environment of very low interest rates. For example, it underpinned the assessment of Greece's debt outlook as sustainable with high probability despite a debt-to-GDP ratio of 180%.

The debt dynamics equation illustrates the flow concept of fiscal space. Equation 1 below shows that the debt-to-GDP ratio (d/y) is a function of the past debt ratio, the primary balance (pb), and the relationship between the rate of growth of GDP (g) and the interest rate cost of the debt (r):

$$\frac{d}{y}(t) = \left(\frac{1+r}{1+g}\right) * \frac{d}{y}(t-1) - pb(t).$$

Figure 2
The debt stabilising primary balance



Source: Author's elaboration.

The change in the debt is a function of the primary balance and (r - g), the difference between GDP growth and the interest rate. The debt path can improve if the primary balance improves, if GDP growth improves, or if the interest cost of the debt declines. Therefore, policies that increase potential growth, such as public investment, improve the debt path. Polices that reduce interest rates and commit to keeping them low for a long time, such as central banks' forward guidance, improve the debt path. Both policies increase fiscal space. At the ZLB, where interest rates are very low and where (r - g) is negative, public investment financed with debt can improve the debt path.

An interesting property of this equation is that, when the debt-to-GDP ratio is elevated, the evolution of the debt-to-GDP ratio is more dependent on (r - g) than on the primary deficit. Figure 2 shows the relationship between changes in (r - g) and changes in the primary deficit that keep the debt-to-GDP ratio constant, for different initial levels of the debt-to-GDP ratio. With the debt level at 60% of GDP, the main driver is primary deficits. At 140%, the main driver is (r - g) – thus, the quality of policies, which drives the interest rate and the GDP growth rate, becomes more important than the size of the primary balance in determining fiscal space.

Of course, this dynamic applies symmetrically: bad policies can erode fiscal space if markets price higher risk premium on the debt. The recent experience in Italy provides a real-life experiment. The arrival of the Lega-M5S government led to a sharp increase in Italian bond yields, mostly due to the so-called redenomination risk: the fear, based on the statements by Lega officials, that the Italian government could decide to leave the euro. When the parliamentary majority shifted and the Lega went to the opposition, yields declined sharply, as the redenomination risk all but disappeared. The change in government

12 J. Ostry, A.R. Ghosh, J.I. Kim, M.S. Qureshi: Fiscal Space, IMF Staff Position Note No. 11, 2010.
13 See, e.g. F. Giavazzi, M. Pagano: Confidence Crises and Public Debt Management, NBER Working Paper No. 2926, Cambridge 1989; or H. Cole, T. Kehoe: A self-fulfilling model of Mexico's 1994-1995 debt crisis, in: Journal of International Economics, Vol. 41, No. 3-4, 1996, pp. 309-330.
14 See International Monetary Fund: Staff Guidance Note for Public Debt Sustainability Analysis in Market-access Countries, 2013.

created fiscal space, facilitating a more expansionary fiscal policy. At the ZLB, it is the quality, more than the quantity of debt and deficits, that is the main determinant of fiscal space.

The pitfalls of the Stability and Growth Pact

The SGP was created for a world that no longer exists. It was a world where the main risk was excessive inflation and the deficit bias in economic policies. It was a world with still untested inflation targets and with doubts over the credibility of the not yet born European Central Bank (ECB). In the framework of Table 1, the SGP was created with Cases 1 and 2 in mind. But the euro area is now in Case 4, and likely to be in Case 4 for the foreseeable future.

The SGP served the euro area well until 2007. Despite the many criticisms, the numerical targets have been a credible anchor for fiscal policy. The political stigma – and the associated focus on markets and rating agencies – of entering a conflict with the European Commission has, de facto, limited the room for policy mistakes.

However, the SGP has become a problem since 2007. The SGP targets have introduced a pernicious and very damaging asymmetry in euro area fiscal policy. The SGP works well in Cases 1 and 2, when fiscal policy needs to be passive and tighter. It does not work well in Case 4, when fiscal policy needs to be active and easier. Despite successive reforms, the SGP retains an asymmetric tightening bias. And there is no mechanism to force a member state to ease fiscal policy against its will. The German debt brake and the German government's 'black zero' strategy have compounded this tightening bias.

In addition to being asymmetric, the SGP framework is unreliable because its recommendations depend critically on an unobservable variable, the output gap, which tends to make fiscal policy procyclical after a large shock, as there is a tendency in Europe to interpret large shocks as permanent shocks to potential output. Lane shows the stark difference between the IMF and European Commission measures of the euro area output gap, which suggest a closed output gap in 2019, and those of a model based on the behaviour of inflation in the euro area, which suggest an output gap of about -3.5% of GDP in 2019.[15] This mismeasurement of the output gap has made euro area fiscal policy unduly restrictive and created a significant headwind for growth and inflation.

15 P. Lane: The Phillips Curve at the ECB, Speech at the 50th Anniversary Conference of the Money, Macro & Finance Research Group, 4 September 2019, London School of Economics.

Principles for fiscal policy in the euro area at the zero lower bound

The euro area fiscal policy framework must change to eliminate its asymmetry, complexity and procyclicality, be effective at the ZLB and help monetary policy restore growth and inflation. In order to avoid inertia and behavioural biases, we follow best practices in behavioural science. This implies ignoring the current euro area fiscal policy framework and poses the following question: If euro area fiscal policy were to be designed from scratch for the current environment of Case 4, what should it look like? We arrive at four principles:

1. Bygones are bygones with respect to the debt-to-GDP ratio. Large increases in the debt-to-GDP ratio typically happen after a large crisis. The adjustment after the crisis must focus on the need to restore the growth of demand and inflation, and close the output gap as fast as possible, not on returning the debt-to-GDP ratio to some arbitrary level (conditional, of course, on a non-explosive debt outlook). Of course, countries can always adopt policies that improve the long-term sustainability of their public finances and do not focus on the current debt-to-GDP ratio, especially pension reforms.

2. A Golden Rule: public investment should be financed with debt. A Golden Rule helps increase potential growth and prevents the very damaging cuts to public investment that governments implement during recessions – something that is not solved with a nominal spending rule. Public investment should be defined as programs that increase potential growth – which could include infrastructure, investment in pre-school education or whatever each country may need to address its growth bottlenecks. At the ZLB, a multi-year, well-designed, public investment program pays for itself.

3. A PAYGO rule for the current (non-investment) budget: increases in current spending or tax cuts should be paid for (offset with lower spending or higher taxes) on a five-year forward basis. Independent fiscal councils must score new fiscal proposals before adoption. A PAYGO rule introduces discipline to allow the Golden Rule to operate while maintaining market confidence, and the five-year forward period allows for gradualism in the adjustment to accommodate cyclical fluctuations. In addition, the process of finding offsetting measures typically leads to improvements in efficiency.

4. A mandatory annual spending review, performed by independent national fiscal councils, to ensure the quali-

ty of the public finances and reduce waste. If fiscal policy is to be used more actively, it must be scrutinised more closely. Spending better to be able to spend more should be at the core of any fiscal framework.

These principles could be complemented with a simple fiscal rule: for as long as the economy is in Case 4 – interest rates are at the ZLB and inflation is below target – countries must design their budget each year so that, considering the expected level of GDP growth and interest rates, the primary balance does not lead, *ex ante*, to a decline in the debt ratio. In other words, for as long as interest rates are at the ZLB and the country's inflation is below target, the primary balance gap (the difference between the planned primary balance and the debt-stabilising primary balance) must be at most zero.

This simple rule has four desirable characteristics: it keeps fiscal policy expansionary while inflation is below target, helping monetary policy; it allows countries to reduce their debt when actual (r - g) turns out to be better than expected; it provides incentives to improve the efficiency of fiscal policy and adopt a policy mix that keeps interest rates low; and it does not rely on any unobservable variable like the output gap.

A call for a more active fiscal policy

Fiscal policy in the euro area must support the efforts of monetary policy to increase inflation towards the target. This article has proposed four principles to guide fiscal policy at the ZLB that could serve as building blocks for a reform of the Stability and Growth Pact. These four principles are: bygones are bygones with regard to the debt-to-GDP ratio; a Golden Rule for the investment budget; a PAYGO rule for the non-investment budget; and mandatory annual spending reviews performed by independent fiscal councils.

These four principles would be complemented by a primary balance rule: For as long as interest rates are zero and inflation is below target, budgets should be designed such that the primary balance gap is at most zero so that debt ratios are not projected, *ex ante*, to decline.

Of course, interest rates may suddenly increase. But, as discussed in Blanchard and Ubide,[16] the plausible scenarios that could lead to an increase in interest rates in coming years – a decline of the equity risk premium, an increase in productivity growth or an increase in inflation – are all fiscally benign. And, if this were to shift the economy from Case 4 to Cases 2 or 3, then the policy mix should shift again and fiscal policy could focus again on reducing deficits and debt. This is not a call for fiscal irresponsibility. It is a call for fiscal policy to take the lead when needed and deliver optimal policymaking.

16 O. Blanchard, Á. Ubide, op. cit.