7. FISCAL POLICY WHEN INTEREST RATES ARE ZERO

Ángel Ubide, Citadel LLC [1,2]

It is now widely recognized that even if a country has a perfectly benevolent central bank (one that attempts to maximize the social welfare function) it may suffer from an inflation rate which is systematically too high (Rogoff, 1985)

7.1. ABSTRACT

The fiscal policy frameworks in use today, including the Stability and Growth Pact, 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 able to ignore cyclical stabilization. That was the world of Rogoff (1985) "conservative central bankers", where the focus was always to lower inflation: "Society can sometimes make itself better off by appointing a central banker who does not share the social objective function, but instead places "too large" a weight on inflation-rate stabilization relative to employment stabilization".

The world has changed. With interest rates at zero in many countries and expected to remain so for a long time, and the main risk being too low inflation, the focus of economic policy has to change towards increasing both growth and inflation, and fiscal policy must be active and contribute to cyclical stabilization. Fiscal frameworks, and fiscal rules, must therefore change, especially in the euro area.

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[1] Head of Economic Research, Global Fixed Income, Citadel LLC.

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This paper discusses how inertia and behavioral biases are the main impediment against a more active fiscal policy. It analyzes the desired relationship between monetary and fiscal policy in different configurations of interest rates and inflation. It concludes that, when interest rates are zero and inflation is well below target, fiscal policy must be the leading instrument to boost growth and inflation, while monetary policy must support fiscal policy with forward guidance and asset purchases. It also discusses the concept of fiscal space at the zero lower bound, and in environments of high risk aversion and low inflation, arguing that fiscal space is a flow, not a stock concept, and that therefore debt and deficit ratios are not good indicators of fiscal space at the zero lower bound. In a world characterized by a persistent increase in the demand for bonds, the implication is that there is more fiscal space than it is commonly assumed. Finally, it proposes a series of principles to guide fiscal policy when interest rates are zero. The application of these principles to the euro area suggest that fiscal policy in the euro area is too tight, and that a large, multi-year public investment program financed by debt would be appropriate to support growth and help increase inflation to the target.

Keywords: Fiscal policy; monetary policy; inflation; euro area; debt sustainability

7.2. INTRODUCTION

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 able to ignore cyclical stabilization. That was the world of Rogoff (1985) "conservative central bankers", where the focus was always to lower inflation: "Society can sometimes make itself better off by appointing a central banker who does not share the social objective function, but instead places "too large" a weight on inflation-rate stabilization relative to employment stabilization".

The world has changed. With interest rates at zero and expected to remain so for a long time, and the main risk being too low inflation, the focus of economic policy has to change towards supporting growth and inflation, and fiscal policy must be active and contribute to cyclical stabilization. Fiscal rules must therefore change, especially in the euro area. This paper argues that inertia and behavioral biases are the main impediment against a more active fiscal policy. It analyzes the desired relationship between monetary and fiscal policy in different configurations of interest rates and inflation, discusses the concept of fiscal space at the zero lower bound, and proposes a series of principles to guide fiscal policy when interest rates are zero.

7.2.1. THE SECULAR DECLINE IN LONG TERM NOMINAL INTEREST RATES

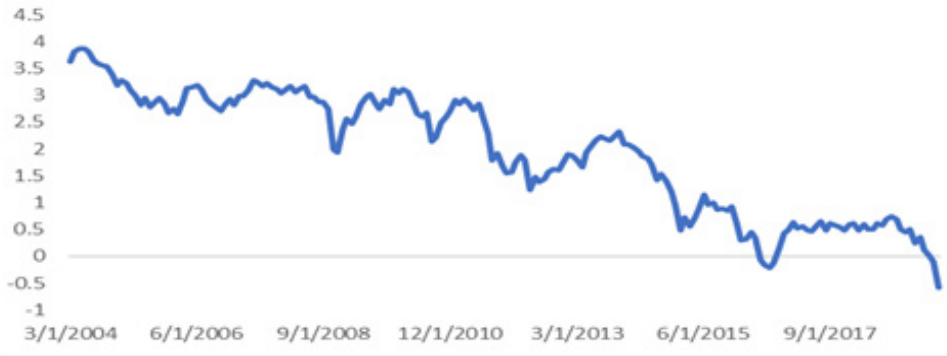
Since Ken Rogoff published his seminal paper on the need for conservative central bankers in 1985, interest rates have been on a secular downward trend, and they have recently reached all-time lows. In August 2019, German 10-year rates reached a record

low of -0.71% and Germany issued, for the first time, a 30-year bond at 0% interest rates. The record low interest rates were not limited to AAA bonds. Portuguese 10-year rates reached 0.07% and Spanish 10-year rates 0.03%. Markets also expect interest rate to remain very low for a very long time. For example, markets expect German 10-year rates to still be negative in 5 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 policy markers' warnings that higher interest rates were around the corner.

Very low interest rates could look extraordinary, and perhaps an aberration of markets. However, an examination of the two components of long-term nominal rates, real interest rates and inflation expectations, suggest that nominal long-term interest rates structurally lower and unlikely to increase in the foreseeable future.

1. Real interest rates in developed countries have declined over the last two decades, as shown in Figure 1, which displays the 10-year interest rate, 10 years forward, extracted from interest rate swaps for a basket of major currencies. This decline has been driven by an array of structural factors, including demographics; the change in the nature of investment and the decline in the price of capital goods; the dearth of public investment; a steady decline in the supply of safe assets; and an increase in risk aversion (see, among others, Gagnon, Johansen and Lopez Salido (2016) or del Negro et al (2017)). 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 (see Holston, Laubach and Williams (2017)) or even negative (see Kiley (2019).

Figure 1. 10y10y real swap rate
(Average of USD, EUR, GBP, JPY, CAD)



2. Attitudes towards inflation have also changed. Before 2007, all the focus was on upside inflation risks. Wage growth was robust, commodity prices were on a secular upward trend, realized inflation had averaged 2% 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, realized inflation has been below 2% for a decade, and inflation expectations are below target. As a result, the focus is 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 look like a great outcome, but they are not. There can be too much of a good thing. Excessively low nominal interest rates reduce welfare, as they limit the monetary policy space to cushion recessions and manage the business cycle. In other words, when interest rates and inflation are too low, the expected future output gap increases.

7.2.2. THE "PARADOX OF RISK" IN FISCAL POLICY

The "paradox of risk" describes situations where policy makers, in their quest to be conservative and prudent, mistakenly are not aggressive enough and make the outlook riskier (see Ubide (2017)). This concept described well the debates among central bankers during the Great Financial Crisis (GFC), when worries about "keeping the powder dry", disciplining governments, or minimizing the potential losses in central bank balance sheets precluded more timely and aggressive policy easing. In the end, by delaying their actions and acting without conviction, central bankers ended up having to do more of what they didn't want to do initially – keeping interest rates lower for longer, buying more bonds - and made the recovery weaker and inflation lower.

The paradox of risk happens because of the inertia inherent to policy frameworks and the behavioral biases that afflict policy makers, which prevent agile and nimble policymaking[3]. 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 realize that the main risk was not that inflation may spiral up, as had been the case for two decades, but that it may never increase enough. Loss aversion (excessive aversion to realizing 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 QE. The endowment effect (excessively valuing things that we already own) blinded policy makers into keeping for too long policy frameworks that were failing, such as the asymmetry of inflation targets.

The paradox of risk has affected fiscal policy as well. Excessive fear of debt and deficits during the crisis 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 rather than improving the fiscal outlook. Policy inertia and behavioral biases were in play again. The inertia of decades of considering monetary policy as the only instrument for cyclical stabilization created the false belief that fiscal austerity is the

[3] For an in depth discussion of behavioral biases such as loss aversion, the endowment effect, or anchoring, see Kahneman (2011)

right policy at all times, and delayed excessively 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 Pact unchanged, even if today's world is diametrically opposite to the world when the SGP was created.

a. Fiscal policy is the leading economic policy at the zero lower bound (ZLB).

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 use 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. As I recommended in Ubide (2017), 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. Fed Chair Powell apparently agrees: "Perhaps it is time to retire the term "unconventional" when referring to tools that were used in the crisis"[4]. As a result, central banks are embracing this reality and have embarked in a review of their monetary policy frameworks.

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, despite higher debts and deficits, interest rates have fallen. The review of fiscal frameworks must start by embracing the "unconventional" idea that, at times, monetary and fiscal policy must be explicitly 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 stylized framework to understand this relationship.

TABLE 1. THE OPTIMAL RELATIONSHIP BETWEEN MONETARY AND FISCAL POLICY.

	Monetary	Fiscal	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 ≤0	Easy	Easy, leads	Japan, eurozone today

There are four different cases:

[4] See Federal Reserve Board (2019)

1. Case 1: When inflation is clearly above target, monetary policy leads and fiscal policy explicitly cooperates. This is the legacy of the experience of the 1970s, which ushered the literature on time inconsistency (Kydland and Prescott (1977)) and the need for independent and conservative central bankers (Rogoff (1985)). 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, the historical episodes when inflation has been tough to contain have been episodes when fiscal policy has been unduly expansionary and has not cooperated with monetary policy (for example, in the early years of Volcker's tenure at the Fed).

2. 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 stabilizers to operate. The definition of long-term sustainability may vary across societies, as preferences needn't 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, where the only distortion affecting the economy is nominal rigidities and monetary policy, taking fiscal policy as given, can fully offset the distortion and achieve its inflation target. Importantly, this assumes that inflation expectations are well anchored at the target. This is the economic background where expansionary fiscal contractions could be effective.

3. 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 of, for example Australia today (see the discussion in Lowe (2019)).

4. 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 is costless and has large multiplier effects (see Blanchard (2019) and Cohen-Setton, et al. (2019))

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 ZLB has several advantages (see Ubide (2016)):

Increase neutral interest rates by reducing public savings, increasing the effectiveness of monetary policy and limiting the constraining effect of the ZLB.

Increase potential growth, in two main ways: by sustaining demand, reducing slack and avoiding hysteresis effects, thus facilitating the return to the labor market of the long-term unemployed[5]; and by increasing public investment.

Help reduce inequality and other side effects of monetary policy by reducing the need for, and the 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 favors higher income asset holders and harms lower income pensioners.

Help reduce financial stability risks derived from a prolonged period of very low interest rates. This risk is more evident for insurers and pension funds that provide products with guaranteed returns (see, i.e. Berdin and Grundl (2015)).

The key question for policy makers when the economy is in Case 4 is this: would they prefer an economy with a bit higher growth and inflation, a bit higher interest rates, and a bit higher deficits? The answer should be an unambiguous yes.

b. 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 behavioral biases are playing a role.

The anchoring effect is behind the arbitrary 3% deficit limit and 60% debt/GDP target of the Maastricht Treaty: they were chosen simply because 60% was the average debt level at the time - and a 3% deficit, assuming 5% nominal GDP growth, would stabilize debt around those levels. The 90% threshold popularized during the GFC has been shown to have no empirical basis, but created a powerful loss aversion bias among policy makers after the crisis – finance ministers prioritized adopting policies to reduce debt at all cost, at the expense of growth. Japan is a prime example of the 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 between reducing deficits or default is a political choice about the allocation of the cost of adjustment between taxpayers and creditors. Typically, governments decide to reduce deficits: Ostry et al (2010) show that as debt levels increase, governments are more prone to have higher primary surpluses to stabilize their debt ratios. Using the past behavior of governments, they calculate the debt ratio "limit", defined as the debt/GDP ratio above which debt grows without bound, given a country's historical primary balance behavior. Their estimates of the debt limit range are 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

[5] The US experience is very positive in this regard, see Krueger (2018).

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 from 180% to 60% there is a long distance.

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, and these crises are, mostly, a factor of the credibility and design of economic policies[6]. Recognizing this flow concept, the IMF has expanded its definition of debt sustainability "with high probability" by combining a level assessment – debt/GDP ratio - with a flow assessment - the gross financing needs as a share of GDP (see IMF 2013). From a flow standpoint, the IMF reckons that the debt is sustainable if gross financing needs as a share of GDP are 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/GDP of 180%.

The debt dynamics equation illustrates the flow concept of fiscal space. Equation 1 below shows that the debt/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):

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

Operating, the change in the debt is a function of the level of debt, the primary balance and (r-g), the difference between GDP growth and the interest rate.

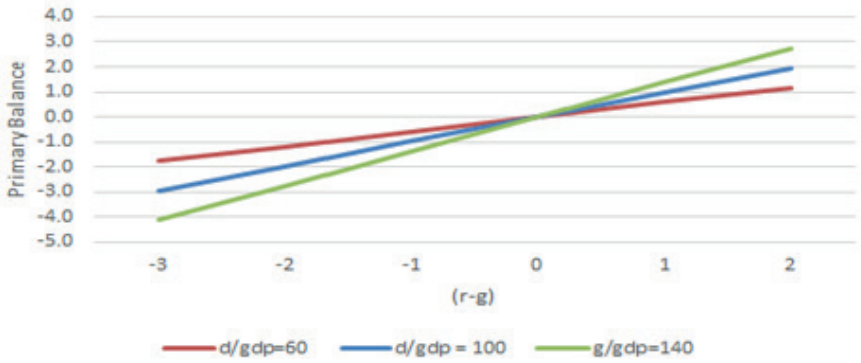
$$\Delta\frac{d}{y} = \left(\frac{(r-g)}{(1+g)}\right) * \frac{d}{y}(t-1) - pb(t)$$

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 increase fiscal space. At the ZLB, where interest rates are very low and where (r-g) is negative, public investment financed with debt improves the debt path.

[6] See, e.g. Giavazzi and Pagano (1989) or Cole and Kehoe (1996)

An interesting property of this equation is that, when the debt/GDP ratio is elevated, the evolution of the debt/GDP ratio is more dependent on (r-g) than on the primary balance. Figure 2 shows the relationship between changes in (r-g) and changes in the primary balance that keep the debt/GDP constant, for different initial levels of debt/GDP. At 60% debt/GDP, the main driver is the primary balance: the line is flatter, which means that (r-g) has to decline by 2pp to achieve the same effect as a 1pp improvement in the primary balance. At 140%, however, the main driver is (r-g): the line is steeper, which means that an improvement in (r-g) of less than 1pp is equivalent to a 1pp improvement in the primary balance. At high levels of debt, the quality of policies, which drives the interest rate and the GDP growth rate, become more important than the size of the primary balance in determining the evolution of d/y and thus the available fiscal space.

Figure 2. Debt Stabilizing Primary Balance



Of course, this dynamic applies symmetrically: bad policies can quickly erode fiscal space if it leads to markets demanding a higher risk premium on the debt. The recent experience in Italy during 2018-19 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, thus increasing the probability of a default on its debt. When the parliamentary majority shifted and the Lega went to the opposition, bond yields declined sharply, as the redenomination risk all but disappeared. The change in government policies created fiscal space, facilitating a more expansionary fiscal policy. At the ZLB, it is the quality, more than the quantity of debt and deficits, the main determinant of fiscal space.

c. Fiscal space under high risk aversion and low inflation

The traditional discussion of fiscal space has always had, as background, inflationary risks and misbehaving governments, and therefore has always focused on exploring the

odds of higher inflation and/or default. But the situation today is different, inflation is too low and, if anything, governments are being too austere. And that requires a further reconsideration of the concept of fiscal space.

Fiscal space, at its core, describes the probability that a government will be able to roll over its debt. It therefore depends on the interplay between the supply of and demand for government bonds. However, the discussion of fiscal space always relies on models of debt sustainability that focus only on the supply of bonds: models analyze the evolution and relationships between debt and deficits – the expected supply of bonds – and look for conditions that may lead to an explosive debt path. In other words, these models assume a fixed, time invariant demand for bonds. In these models, the interest rate on the debt is just a positive function of the supply of bonds, a function that could become, at some point, non-linear (see, for example, IMF (2011) or D'Erasmo, Mendoza and Zhang (2016)).

However, the assumption of stability of the demand for bonds is not necessarily true in reality, and it has not been true in particular in recent years. The demand for bonds is not fixed. Bonds are purchased in order to earn a return as part of a portfolio. As such, their demand depends on their expected return, and on their relative value and risk characteristics vs. other assets. And these considerations may change over time.

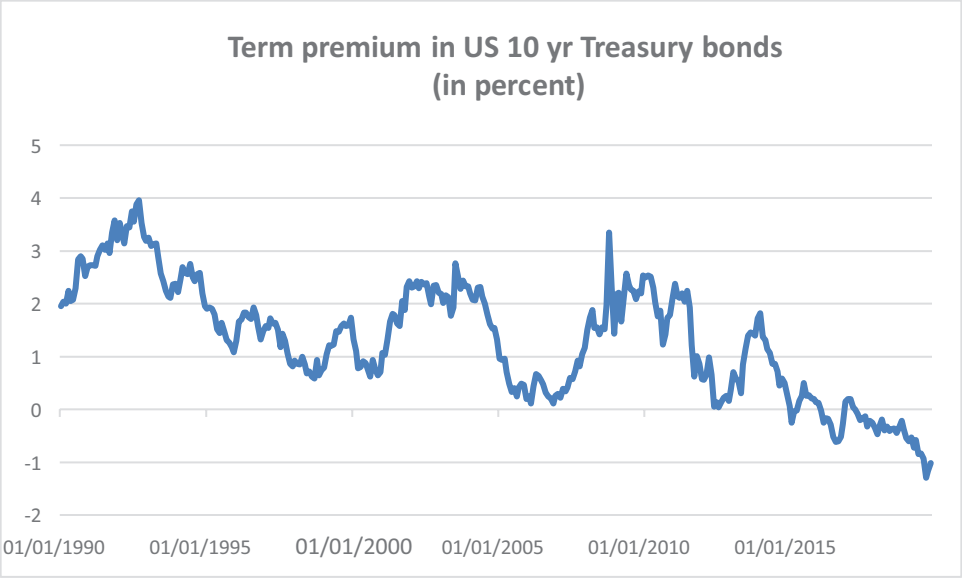
Analytically, the yield on government bonds depends on two factors: the future expected path of short-term interest rates, and a risk premium that investors demand for holding long-term securities. This risk premium is time varying, and can be affected by three main factors: (1) inflation, which erodes the real value of the principal, which is fixed in nominal terms; (2) default risk, which would reduce the nominal value of the principal at expiry; and (3) shifts in the relative demand for bonds vs. other assets, which would affect the price of bonds over time.

When the risk premium is low and stable, the main determinant of bonds price is the future expected short-term rates. In those cases, the yields on long-term bonds are positively correlated with economic activity: lower growth would lead to lower interest rates. What this means is that, assuming automatic stabilizers work and therefore deficits increase during recessions, higher deficits would be accompanied by lower, not higher, long-term interest rates. Since bond prices increase when interest rates decline, this makes government bonds a good hedging instrument in a portfolio.

When the risk premium is elevated, volatile, or displays a secular trend, it may become more relevant than the expected path of short-term rates for the pricing of bonds. The time varying nature of the risk premium is a good proxy for the time varying element of the demand for bonds (see the discussion in Cohen, Hordahl and Xia (2018)). The higher the demand for bonds, the lower the term premium, and vice versa. Depending on the direction and volatility of the term premium, the correlation between bond yields and economic activity may change.

Traditionally, the time varying nature of the term premium has been seen as a potential source of upside risk to government bond yields: inflationary risk, and fiscal risks, would put upward pressure on the term premium. The concept of expansionary fiscal contractions was based on this assumption: a well-designed fiscal consolidation would reduce the

term premium, reduce long term interest rates, and boost growth. This was possible because the term premium has typically been positive. However, the term premium has declined steadily in recent years and has become persistently negative (see Figure 3, which shows the term premium estimated in 10-year US treasury yields, using the methodology of Adrian, Crump and Moench (2013)). This steady decline in the term premium suggests that the demand for bonds has increased steadily over the last several years – and, as a result, the fiscal space has increased.



Why has the term premium declined? As discussed above, the term premium can be explained as a combination of inflation risk premium (higher if the inflation risk is elevated), default risk premium (higher if the fiscal risk is elevated), and equity risk premium (higher if the relative demand of equities vs bond is elevated).

The inflation risk premium has declined as realized inflation has been persistently below target and the pass through from wage growth into inflation has been muted, which has been reflected in the decline in inflation breakevens. With inflation muted, there is little need to hedge against higher inflation and bonds become even more attractive as an instrument to hedge against growth weakness, especially in an environment where central banks are expected to use asset purchases as a policy instrument – and thus where the demand for bonds is almost guaranteed to increase in a downturn. This attractiveness of bonds as a hedging mechanism is amplified by the central banks' strategy of communicating in advance their reaction function at the zero lower bound, which will likely include asset purchases and keeping rates at zero for a long time, as a way to enhance the effectiveness of their policies.

The default risk premium has also declined, despite the surge in debts and deficits after the crisis that increased the financing needs and thus the supply of bonds.

The statement that higher deficits lead to higher interest rates remains valid. For example, Rachel and Summers (2019) and Tedeschi (2019) both show that higher public debt has led, *ceteris paribus*, to higher interest rates. However, the *ceteris paribus* clause is critical, as there have been several compensating factors that, on net, have reduced default risk and increased the attractiveness of government bonds. For example, central banks' asset purchases have increased the demand for bonds and exerted downside pressure on interest rates. In addition, policies targeted at reducing the uncertainty about the future path of interest rates, such as forward guidance, have also contributed to dampen the response of interest rates to higher bond supply, creating additional fiscal space. Furthermore, the relentless focus of governments to reduce debts and deficits in an environment of subdued growth and low inflation has further reduced the sensitivity of interest rates to the levels of debt and deficits and shifted the focus to the quality of fiscal policy, as the events in Italy showed.

The equity risk premium has remained elevated, supporting the demand for bonds (for a discussion of potential underlying drivers of the persistently high equity risk premium, see Caballero, Farhi and Gourinchas (2017) and references therein). The relative demand for bonds as an investment asset is a critical and often overlooked element in the discussion of fiscal space. An environment of high risk aversion increases the demand for bonds – what has been characterized as a shortage of safe assets – and with it the fiscal space for a given level of debts and deficits.

Of course, these trends in the demand for bonds can change and the term premium may increase again. But the reasons that could lead to such an increase, such as higher inflation or a decline in the equity risk premium, would be fiscally benign. Only in the case that a country decided to worsen the quality of its fiscal policy, or hinted at strategic default, such as Italy in 2018-19, the increase in the term premium would be problematic, and deservedly so.

d. This is not Modern Monetary Theory

A standard criticism of this supportive view for a more active use of fiscal policy is that this is an argument in support of the Modern Monetary Theory (MMT). The answer is no. And it is worth explaining in some detail why.

To start, MMT is a combination of ideas with no clear framework. At its core, it argues that countries that issue debt in their own currencies can never "run out of money" the way households or businesses can because, according to MMT, governments create money whenever they spend. In this narrative, taxation plays two roles: it gives citizens in the country a reason to use the government-issued currency; and taxes are a tool governments can use to control inflation. Finally, a jobs guarantee – a government job at the minimum wage – would ensure that the economy always runs at full employment. Therefore, MMT posits that governments can use their budgetary policies to both promote their policy objectives and to manage the business cycle – and thus inflation – via changes in taxes. Interest rates are not a relevant variable to manage the economy, and most MMT advocate zero interest rates.

There are many caveats to this story. For example, it assumes perfect intertemporal credibility of government policies, no strategic behaviors, and no crises. The employment guarantee as an instrument to manage demand has a wide range of distributional and efficiency issues. In fact, what MMT describes is a very special case of the standard macro model when interest rates are zero, inflation is low, and inflation expectations are fully credible. And here lies the critical difference: the quest for a more active fiscal policy at the zero lower bound is precisely a strategy to be able to abandon the zero lower bound and return the economy to Cases 2 and 3, where monetary policy can manage the business cycle and fiscal policy can focus on redistribution and long term sustainability. The call for a more active role for fiscal policy at the zero lower bound is precisely a strategy to avoid an economic situation like the one MMT advocates.

7.2.3. EURO AREA FISCAL POLICY AT THE ZERO LOWER BOUND

The application of the previous discussion to the euro area suggest that the euro-area fiscal framework does not work at the zero lower bound, because 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. In the framework of Table 1, the SPG 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 reasonably well until 2007, when the economy was in Case 2 and fiscal policy could focus on debt sustainability. Despite its shortcomings and rigidities, the numerical targets were 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, limited, de facto, the room for large policy mistakes.

However, the same reasons that made the SGP a useful instrument until 2007 have made it a problem since 2007. The anchoring effect of the SGP targets has 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 with a tighter bias. It does not work well in Case 4, when fiscal policy needs to be active and with an easier bias. Despite successive reforms to enhance its flexibility, the SGP retains an asymmetric tightening bias and there is no mechanism to "force" a member state to ease fiscal policy against its will and achieve the optimal fiscal policy stance at the euro area level. 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 – different from the US - to interpret large shocks as permanent shocks to potential output. Lane (2019) 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 behavior of inflation in the euro area, which suggest an output gap of about -3.5% of GDP in 2019 (see also Brooks (2019)). This mismeasurement of the output gap has made euro-area fiscal policy unduly restrictive and created a significant headwind for growth and inflation.

a. What if the output gap is a misleading concept? The plucking theory of the business cycle

In addition to being mis-measured, there is an additional shortcoming in using the output gap as an anchor for the stance of fiscal policy: the concept may not be well defined. The output gap derives from a view of economic fluctuations that assumes output as a combination of a steady growing trend and a cycle around it. In this view, output would spend a similar amount of time above and below trend, so that, on average, output gaps would be zero over time.

However, the reality seems to contradict this view. It seems that, based on the available techniques for the estimation of the trend-cycle decomposition of activity, economies have been spending more time below trend than above it. In other words, average output gaps have been negative (for example, the IMF estimates of the output gap since 1990, for both the US and the euro area, has averaged about -0.5%). There are two ways to rationalize this empirical result:

1. Economic policy has had a persistent tightening bias, as it was aiming over the last few decades to reduce trend inflation, in an "opportunistic disinflation" approach. This may have been the right approach after the 1970s inflation, but it would require a symmetrical approach now that inflation and inflation expectations are below target – namely, economic policy should be aiming at creating a positive output gap on average over the next few business cycles.
2. The "plucking theory" of the business cycle, whereby economies never generate positive output gaps, they just return back to potential output after negative shocks. This theory was developed by Friedman (1964) and posits that negative shocks lead to higher unemployment while positive shocks lead to higher wage growth. The result arises from asymmetric nominal rigidities, as nominal wages are rigid to the downside but flexible to the upside. This theory has the empirical implication, which is largely confirmed by the data (see IMF 2019, box 1.4), that increases in unemployment during a contraction forecast the amplitude of the subsequent decline in unemployment during the expansion, but the decline in unemployment during an expansion has no forecasting power for the subsequent increase at the next recession. Under this theory, especially when the economy is in Case 4, policy makers should avoid preemptive tightening and always test the limits of growth, to ensure that the output gap closes.

Regardless of which of the two is the right explanation, the conclusion is that relying on estimates of the output gap as a driver of fiscal policy in the current environment could lead to excessively tight economic policies. That is a low cost mistake when the economy is in Cases 2 or 3 (interest rates are positive and inflation is at target), but it is a high cost mistake when the economy is in Case 4.

Thus, fiscal policy should be redesigned to eliminate its dependence on output gaps.

b. Principles for fiscal policy in the euro area at the ZLB

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 the inertia and behavioral biases that make the policy frameworks inefficient, we follow best practices in behavioral science. This implies pretending the current euro area fiscal policy framework does not exist and pose 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[7]? We arrive at four principles:

1. Bygones are bygones with respect to debt/GDP. Large increases in debt/GDP typically happen after a large crisis. The policy mix after the crisis must focus on the need to restore demand growth and inflation, and close the output gap as fast as possible, not on returning the debt/GDP ratio to some arbitrary level (conditional, of course, on a non-explosive debt outlook post- recession). Of course, while doing so countries can always adopt policies that improve the long-term sustainability of their public finances and do not focus on the current debt/GDP ratio, especially pension reforms.
2. A Golden Rule: net 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 it is not solved with a nominal spending rule. Public investment should be carefully defined and include 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 via higher future growth. Given the ample scope for misuse of the Golden Rule, independent fiscal councils should determine what is included in the investment budget. An obvious area where the Golden Rule can be applied immediately is public investment to fight climate change – a "Green Golden Rule".
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 5-year forward basis (or longer, depending on the size of the recession). Independent fiscal councils must score new fiscal proposals before adoption. A PAYGO rule introduces discipline to allow the Golden Rule to operate while maintaining markets confidence, and the 5-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 quality of the public finances and reduce waste. If fiscal

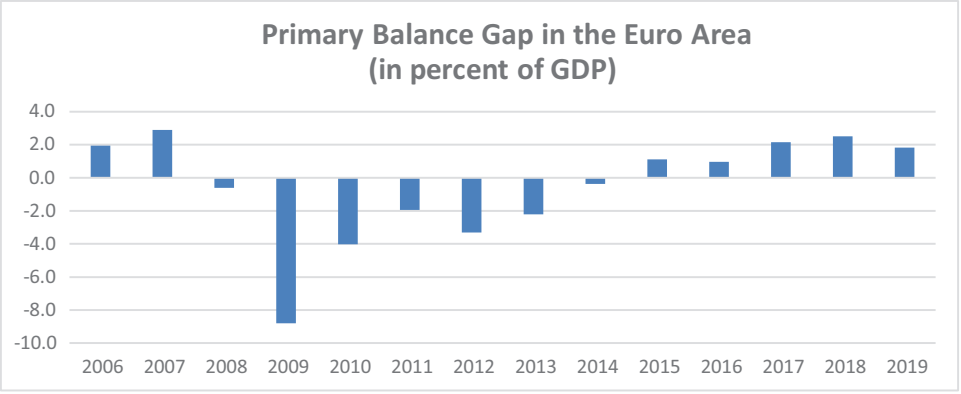
[7] Blanchard, Leandro and Zettelmeyer (2020) adopt a similar approach, suggesting replacing the fiscal rules with qualitative fiscal standards.

policy is to be used more actively, it must be scrutinized more closely. Spending better to be able to spend more should be at the core of any fiscal framework. Therefore, the creation of independent fiscal councils should be a precondition for the application of these principles.

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-stabilizing 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; allows countries to reduce their debt when actual (r-g) turns out to be better than expected; provides incentives to improve the efficiency of fiscal policy and adopt a policy mix that keeps interest rates low; and it doesn't rely on any unobservable variable like the output gap. Of course, this rule applies to periods of positive growth. If the economy falls into recession while in Case 4, fiscal policy must be expansionary and countercyclical.

Under this rule, there is a large amount of fiscal space currently in the euro area. Figure 4 shows the evolution of the primary balance gap. It shows that, *ex post*, fiscal policy has actively contributed to reducing the debt/GDP ratio in the last few years. Based on the rule described above, this debt reduction strategy must end, providing the euro area with at least 2 percentage points of GDP of fiscal space. Note that these calculations are conservative, as the primary balance gap is calculated using the current cost of debt which, in this environment of very low interest rates, is likely to continue to decline over coming years.



7.4. CONCLUSION

When interest rates are zero, and inflation is too low, fiscal policy must support the efforts of monetary policy to increase inflation towards the target. This note has proposed four principles to guide fiscal policy at the ZLB that could serve as building blocks for a reform the Stability and Growth Pact. These four principles are: bygones are bygones as far as debt/GDP; 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 would not be projected, *ex-ante*, to decline.

Of course, interest rates may suddenly increase. But, as discussed in Blanchard and Ubide (2019), 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 help deliver an optimal policy mix.

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