

An analysis of fiscal adjustment strategies

In terms of economic policies, one of the consequences of the financial crisis that began in 2007 was to confirm the value of fiscal policy as a counter-cyclical instrument. However, this strategy now seems subject to paradoxical injunctions.

After the implementation of major fiscal stimulus plans in 2008 and 2009, the trend is clearly leaning to deficit reduction to deal with the rise in public debt and the risk of interest rate increases. However, since 2011 and especially 2012, economists have been questioning the pace of adjustment policies given their impact on the growth perspectives.

To take the full measure of this controversy, we should take into account the specific characteristics of the current period, particularly in light of prolonged

private deleveraging. In this context, an overly swift reduction in deficits can have disadvantages. This, however, does not call into question the long-term objective of public debt reduction to notably avoid a loss of confidence in the ability of governments to control their public finances and, consequently, a rise in interest rates.

History has shown that the absorption of government debt, notably the debt spawned by World War II, was spread over at least one decade and supported by negative real interest rates and strong growth. These two levers were activated *via* several financial regulation instruments and significant public investment which could be employed in the current fiscal adjustment strategies in Europe. ■

ISSUES

The favourable growth outlook and the fear of rise in interest rates in early 2010 led policy makers to implement fiscal adjustment programmes, given the levels reached by public debt. Nevertheless, the private deleveraging process that is still underway, as well as a persistent high unemployment justify maintaining public financial support to the economy. The task of policy makers is therefore to find out how to achieve a balance between public debt reduction as a core objective and the negative impacts of making fiscal adjustments too quickly.

THE SPECIFIC ROLE OF PUBLIC DEBT IN PRIVATE DELEVERAGING EPISODES

The private deleveraging begun in 2009: a slow, long-term process

The deleveraging process undertaken by economies after the financial crisis, which is still underway today, could last a long time yet.⁽¹⁾ After the fall in asset prices, the prolonged drop in the high rates of private leverage in the countries at the heart of the financial crisis therefore impedes growth and further delays a return to more sustainable levels. The two main transmission channels of this drop are first, households (and, to a lesser degree, firms) in countries that saw their credit bubble burst: they raise their saving rate over the long term until a new equilibrium is reached, which depresses economic activity. Second, the weakened balance sheets of financial institutions restrict their ability to issue new loans for productive investments.

As indicated in Figure 1, the countries that experienced the biggest credit bubbles over the previous decade have been deleveraging since 2009 (Ireland, United Kingdom, United States) or 2010 (Spain). Although it seems difficult to define a standard for the equilibrium debt-to-GDP ratio, it must be acknowledged that the volume of loans granted to the private sector in these various countries amounts to a ratio that is still nearly double that which prevails in France and Germany, for example. Furthermore, the Bank for International Settlements⁽²⁾ calls attention to the fact that this aggregated view of debt may provide an oversimplified vision. Indeed, more detailed data for the United States suggest that the decline in debt at the aggregate level (*global deleveraging*) is not the result of efforts by agents to clean up their balance sheets with the depreciation of obviously unsustainable debts, contrary to what we might expect. This process is above all explained by a decrease in the number of households that are increasing their mortgages and a significant drop in new mortgages, hence the depressed real estate market in the U.S. But the percentage of households that believe they will likely not be able to pay back their mortgages in the



[1] Leverage refers to the proportion of debt in an institution's balance sheet, which generally rises during times of stock market euphoria [borrowing can boost profitability as long as the interest rate is lower than the expected profitability rate]. Consequently, *deleveraging* is a reduction in debt and/or an increase in equity and a lower degree of risk taking after a correction in the assets market. It should be noted that leverage can initially grow as the value of the assets shrinks, in spite of agents' efforts to reduce their debt, which is characteristic of financial deflation.

See Aglietta, M., Rebérioux, A. [2004]. *Dérives du capitalisme financier*, Albin Michel.

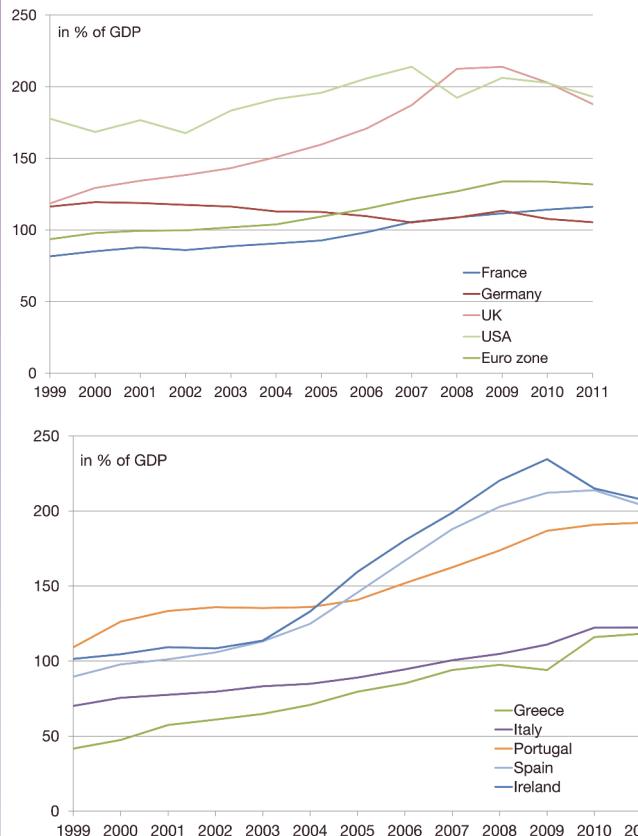
Aglietta, M., Bayik, N., Brand, T. [2011]. "Quelle évolution des dettes publiques?", Report for the Caisse des Dépôts et Consignations.

[2] Bank for International Settlements, [2012]. "Rebalancing Growth", Chapter 3, 82nd Annual Report.

coming years has fallen only a very little bit. And there are strong assumptions that the situation is similar in the other countries that experienced such bubbles.

Figure 1

Domestic credit to private sector from banks and lending institutions, 1999-2011



Source: World Bank.

Sustained high unemployment rates further confirm that the depressive trend which began in 2009 is a long-term phenomenon. The credit and housing bubbles led to a poor allocation of labour by overdeveloping certain business sectors. In this case, the adjustment cannot happen immediately and will have a lasting negative impact on employment.⁽³⁾

Beyond the deleveraging imperative faced by private sector agents, there is also the issue of the overall indebtedness of the country: public deficits, if they remain sus-

tainable, can indeed mitigate the negative effects of such a situation on the economy. Thus managing the whole (what is the optimum rate of fiscal consolidation to avoid a negative impact on growth?) proves to be particularly delicate.

Changes in public debt must be considered in light of the whole debt, both public and private

A long tradition of economic thinking sheds some light on the current concerns over debt. Irving Fisher (1933)⁽⁴⁾, for example, showed that the Great Depression was essentially due to a vicious circle in which falling prices increased the real weight of agents' debt, which led to more deflation. Later, Hyman Minsky⁽⁵⁾ established the recurrence of regimes of financial instability: periods of calm encourage a kind of complacency with regard to credit to the private sector. The rise in leverage increasingly favours a Ponzi scheme⁽⁶⁾, which then deteriorates into a financial crisis. The image used by economists to describe this process is gripping: the financial system functions like the prey-obsessed coyote in the *Road Runner* cartoons, who does not realise that the chase is leading him to a precipice; when he does realise it, he goes over the edge. The analogy also underlines the importance of the expectations and representations of agents, who may be temporarily out of touch with the fundamentals of the economy. More recently, Richard Koo⁽⁷⁾ emphasises that the 15 years of very low growth in Japan, just like the Great Depression in the 1930s, were the result of debt deflation after the bursting of a bubble. The essential characteristic of this debt deflation is that vast swaths of the economy no longer seek, as they do in normal times, to maximise profit, but rather focus on the primary goal of lowering excessive debt and, consequently, spend less. In this context, the demand for capital from agents is no longer sensitive to interest rates. This reasoning can also be applied to the current situation.

The subprime crisis and the failure of Lehman Brothers revealed that the private sector was over leveraged and prompted an abrupt change in the amount of sustainable debt to which agents could have access, which forced them to drastically curtail their spending. The pernicious effects of such a mechanism are illustrated in box 1. One



[3] Unemployment in these countries cannot be reduced to a problem of poor allocation to the extent that all business sectors are affected. As an example, Paul Krugman [*End this Depression Now!*, Wiley et Sons, 2012] points out that of the 13 million jobless Americans as of October 2011, only 1.1 million (or 8%) had previously worked in the construction industry.

[4] Fisher, I. (1933). "Debt-deflation theory of Great Depressions", *Econometrica*, vol. 1, 337-357.

[5] Minsky, H. (1986). *Stabilizing an Unstable Economy*, McGraw-Hill.

[6] The characteristic of a Ponzi scheme is that the individual no longer has sufficient cash flow to reimburse at least the interest on his borrowings. He is therefore obliged to incur debt to pay the interest and the situation becomes unsustainable.

[7] Koo, R. (2009). *The Holy Grail of Macroeconomics*, Wiley & Sons.

of the major consequences of this new constraint is the major rise in unemployment.⁽⁸⁾ The authors show empirically that the fall in demand was more pronounced in the American counties where household debt was the highest.⁽⁹⁾ They conclude that the steep decline in aggregate demand between 2007 and 2009 corresponds to 4 million additional jobless workers in the United States, or two-thirds of the whole rise in unemployment.

Box 1

A childcare co-op at the U.S. Congress: example of a demand crisis

The origins of a demand crisis can be described based on an article published in a prestigious academic journal by a couple who worked as civil servants for the U.S. Treasury.⁽¹⁰⁾ The authors were members of a childcare co-op that included approximately 150 couples, most of whom worked for the U.S. Congress. The members babysat each others' children. The sufficiently large size of the cooperative allowed them a reasonable chance of finding someone who was available to keep their child on an evening when they planned to go out. The plan was that members would receive 20 coupons when they joined the association; each coupon entitled them to one evening of babysitting (they had to return the 20 coupons when they left the co-op). The co-op unexpectedly entered a "great depression". On balance, the couples wanted to save their coupons in case they needed them later. At a given moment, the number of coupons in circulation was substantially lower than the number on reserve desired by member couples. Parents, who were anxious about their babysitting coupon reserves being too low, no longer wanted to go out at night if they had not increased their reserves by babysitting other children. But precisely because many couples no longer wanted to go out, opportunities to earn coupons became scarce. Couples who were "coupon poor" then became less inclined to go out and the babysitting volume in the co-op plummeted. The "depression" continued until the economists in the cooperative persuaded the others to increase the number of coupons.

Of course, the international economy is a far more complicated system, but it adheres to at least one characteristic revisited by Paul Krugman (2012) in his

latest book⁽¹¹⁾ : one person's spending is another's income. Inadequate overall demand is a tangible reality: when some members decide to no longer spend coupons by going out, this decision is not automatically offset by additional spending by others. Of course, spending always equals income, but nothing indicates that these people are spending enough to use up all the babysitting capacity. Therefore the economy can enter a depression, for lack of coordination. *In theory, the members of the co-op were well suited to babysitting. One lesson that Krugman draws from this example is that the cooperative came out of this "depression" in a relatively simple way: by printing more coupons. These additional coupons are the embodiment of an accommodative monetary policy. They also reflect an expansionary fiscal policy that raises demand and temporarily offsets the recessionary effects of excessive saving by agents.*

To prevent a sharp drop in production and a rise in unemployment, the central bank is going to lower its key interest rate to slowdown the rise in savings. However, if the fall in interest rates is too big in scope, the zero lower bound may be reached very quickly. The system must then compensate for the fact that the agents who experience this new constraint spend even less. In this case, the fiscal policy is fully justified as shown formally by Eggertsson and Krugman.⁽¹²⁾ The authors thus establish that not only does additional public spending not crowd out private spending, but that it causes financially constrained households to increase their spending. The relative stability of effective demand also makes it possible to anchor expectations of agents and avoid the creation of a vicious circle of debt and deflation.

Debt deflation in balances of private agents is therefore a long-term process that weighs down growth, which can be mitigated by an increase in the public debt. This gradually emerging time dimension and awareness of the long term, which is echoed in a recent study by McKinsey⁽¹³⁾ of the deleveraging phases in Sweden and Finland in the 1990s, is now fuelling criticism of fiscal adjustment policies whose speed of implementation is a key parameter.

[8] Mian, A., Sufi, A. [2011]. What explains high unemployment? The aggregate demand hypothesis, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1961223.

[9] Their study is interesting because the compared counties in principle benefited from the same fiscal and monetary policies. Their results show more specifically that job losses in sectors tied to goods that are non-tradeable overseas are especially severe in the counties where household debt was the highest. On the other hand, the rise in unemployment in tradable goods sectors was more evenly distributed across their sample. The facts they highlight, moreover, contradict a structural vision of unemployment caused by the over-development of the construction sector.

[10] Sweeney, J., Sweeney, R. [1977]. "Monetary theory and the Great Capitol Hill baby sitting co-op crisis", *Journal of Money, Credit, and Banking*, vol. 9, 86-89.

[11] Krugman P. [2012], *op. cit.*

[12] Eggertsson, G., Krugman, P. [2012]. "Debt, deleveraging, and the liquidity trap", *Quarterly Journal of Economics*, forthcoming.

[13] McKinsey Global Institute [2012], *Debt and Deleveraging: Uneven Process on the Path to Growth*, January.

HEIGHTENED EFFECTIVENESS OF FISCAL POLICIES AND DISADVANTAGES OF OVERLY SWIFT ADJUSTMENTS DURING PERIODS OF LOW ACTIVITY

In 2010, various signs of a return to growth led some economists to recommend deficit reduction as a policy to deal with the rise of public debt.⁽¹⁴⁾ However, since 2011 and especially 2012, others have been highlighting the possibility that fiscal consolidation is self-defeating⁽¹⁵⁾, or at least wondering whether austerity policies are being pursued too quickly.⁽¹⁶⁾ This assumption is addressed in papers--mostly empirical ones--which outline the negative effects of such episodes on growth.⁽¹⁷⁾ The question of the effects of a rapid fiscal adjustment are especially important in the case of the Euro zone, whose member countries have set the objective of achieving public deficits/GDP ratios under 3% in two or three years. This *Note d'analyse* gives the main empirical results of this literature as well as the mechanisms at work, based on the types of adjustments studied, using simulations performed with MARS ("Stochastic Model with Rational Expectations"), a general equilibrium model developed by the Centre d'analyse stratégique for the Euro zone (*infra*, box 2).

Fiscal policies twice as effective in recessions

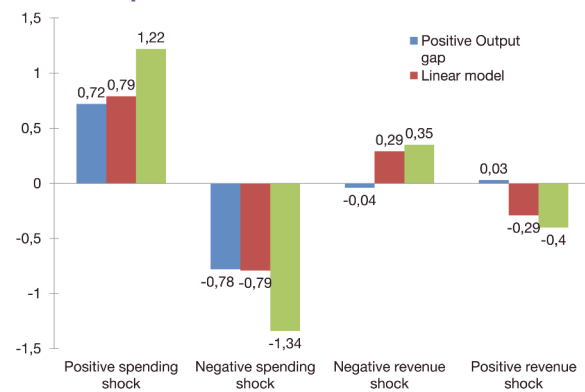
The debate over the effectiveness of fiscal policy is generally focused on the magnitude of the multiplier that corresponds to the production surplus relative to the cost of the fiscal stimulus for government (in the form of additional spending or less revenue). While they have not closed the controversy, recent studies have successfully justified different estimates depending on the time in the business cycle when the expansionary policy is carried out.

More specifically, Baum *et al.*⁽¹⁸⁾ estimate the impacts of fiscal policy on production based on the underlying state

of the economy, for the G7 countries since the beginning of the 1970s.⁽¹⁹⁾ Although the multipliers are similar to those usually estimated when the authors use a linear model, they do, however, show that the impact of fiscal policy on GDP is heavily reliant on economic activity. The average fiscal multipliers for the G7 countries are thus significantly higher (by factors of 1.3 for spending and 0.4 for revenue) when the output gap (difference between actual output and potential output) is negative⁽²⁰⁾, as indicated in Figure 2.

Figure 2

Fiscal multipliers for G7 countries



Sources: FMI (2012) and footnote 18.

Several factors explain the change in the magnitude of the multiplier depending on whether the economy is contracting or growing. First, if the economy is experiencing deflation, conventional monetary policy that aims to lower key interest rates can quickly reach the zero interest rate threshold. A vicious circle then emerges in which the drop in prices leads to an increase in the real interest rate and thus exacerbates deflation. In this context, any policy that makes it possible to boost production and inflationary expectations is more effective.⁽²¹⁾ The zero lower bound alone does not explain the variations in multipliers.⁽²²⁾



[14] Blanchard, O., Cottarelli, C. (2010). Ten commandments for fiscal adjustment in advanced economies, iMFDirect, the International Monetary Fund's global economy forum.

[15] Denes, M., Eggertsson, G., Gilbukh, S. (2012). Deficits, public debt dynamics, and tax and spending multipliers, *Federal Reserve Bank of New York Staff Report* 551, February.

[16] FMI (2012), "Balancing fiscal policy risks", *Fiscal Monitor*, April; Krugman, P. (2010). "Self-defeating austerity", *New York Times*, 7 July, was one of the first to voice this type of reservation. Others then formalised these arguments, as underlined by the debate initiated by Corsetti, G. (2012), Has austerity gone too far? A new vox debate, VoxEU.org.

[17] Guajardo, J., Leigh, D., Pescatori, A. (2010). Will It hurt? Macroeconomic effects of fiscal consolidation, In *IMF World Economic Outlook*, October. Guajardo, J., Leigh, D., Pescatori, A. (2011). Expansionary austerity: New international evidence, IMF Working Paper 11/158.

[18] Baum, A., Poplawski-Ribeiro, M., Weber, C. (2012). Fiscal multiplier and the state of the economy, IMF Working Paper. Forthcoming.

[19] Their methodology is founded on threshold vector autoregression, the various regimes of which depend on the output gap indicator. After a fiscal stimulus or adjustment, the regime may change according to the amount of this gap. The three series used for the estimates are GDP, net income of public administrations (revenue minus transfers) and public spending (public consumption and investment), deflated by the GDP deflator. Furthermore, the authors subtracted from the series those events which are not attributable to policy decisions.

[20] It is therefore not necessary, in theory, for the economy to be in a recession for fiscal policy to have a heightened effect. From now on, we shall use the terms "expansionary" or "contractionary" economy for the sake of convenience.

[21] Eggertsson, G. (2010). "What fiscal policy is effective at zero interest rates?", *NBER Macroeconomics Annual*, vol. 25, 59-112.

Christiano, L., Eichenbaum, M., Rebelo, S. (2011). "When is the government spending multiplier large?", *Journal of Political Economy*, vol. 119, 78-121.

The main results of this literature are summarised in Brand, T. (2011), "The crisis and its repercussions on the conduct of monetary and fiscal policies", *Note d'analyse* n° 238, Centre d'analyse stratégique.

[22] Most of the models that simulate the effects of a zero interest rate make this constraint bite by modifying the parameter which conveys the agents' preference for the present, which spurs them to save and triggers the recession. This selection then makes it possible to study the effects of fiscal policies in this new context. However, simulating an exogenous shock to arrive at the zero lower bound, instead of considering it as a consequence of endogenous imbalances, can cause one to neglect the specific economic conditions which largely legitimize the fiscal policy.

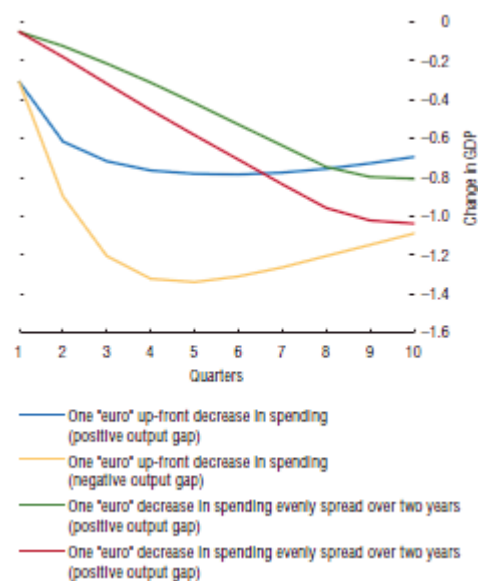
Other authors highlight the liquidity constraints that weigh more heavily on agents in times of crisis.⁽²³⁾ Mankiw⁽²⁴⁾ already emphasised the need to take into account the heterogeneity of consumers: some agents have long time horizons because of the "great concentration of wealth" and the "importance of bequests in aggregate capital accumulation"; others have short time horizons, "fail to smooth their consumption over time" and "have near zero net worth". Recent empirical studies confirm the relevance of taking this consideration into account. Based on analyses of micro data, Parker *et al.*⁽²⁵⁾ look at the differences in consumer spending by households that received tax refunds at one- or two-month intervals during the recessions of 2001 and 2008. On average, they spent between one-fourth and one-third of the amount received on non-durable expenditures. What followed is greater sensitivity of growth to the current income of agents.⁽²⁶⁾

Thus fiscal policy has a heightened effect when it tempers the rise in unemployment and the decline in wages with additional spending or when it specifically benefits, through targeted transfers, the people who experience these constraints.

Short- and long-term costs of fiscal adjustments

The preceding analysis points to the conclusion that fiscal multipliers are higher when agents are seeking to deleverage and are subject to greater borrowing constraints, when unemployment is high and/or when the key interest rates set by the central bank are near zero. Thus the implication for economic policy is that the costs related to fiscal adjustments are more significant. An order of magnitude is given at the end of the empirical study by Baum *et al.* (*op. cit.*) conducted using the expenditures made in the G7 countries: when the *output gap* is initially negative, fiscal consolidation will have a much stronger short-term impact on GDP than a more gradual adjustment, as illustrated by Figure 3.

Figure 3
Cumulative impact on GDP of 1% fiscal consolidation



Note: The *output gap* is the difference between actual output and potential output.
Sources: FMI (2012) and footnote 18.

Such results must, however, be analysed with caution. We choose to compare them with simulations performed for the Euro zone using the MARS model (box 2 and Brand, 2012).⁽²⁷⁾ Although this type of model has limitations, it offers the advantage of making it possible to evaluate the effects of a fiscal stimulus followed by a consolidation by varying the speed and composition of the adjustment.

Box 2 The MARS model used for fiscal adjustment simulations in the Euro zone

The Centre d'analyse stratégique adopted a macroeconomic simulation tool that uses DSGE (*dynamic stochastic general equilibrium*) modelling. The use of this type of model by central banks to simulate the impact of a change in key interest rates became widespread over the course of the last decade. More recently, these models have been enhanced to study the interactions between



[23] Hall, R. (2011). "The long slump", *American Economic Review*, vol.101, 431-469.

[24] Mankiw, G.N. (2000). "The savers-spenders theory of fiscal policy", *American Economic Review*, vol. 90, 120-125.

[25] Parker, J., Souleles, N., Johnson, D., McClelland, R. (2011). Consumer Spending and the Economic Stimulus Payments of 2008, NBER Working Paper 16684.

[26] The simulations performed using a computable general equilibrium model that incorporates this kind of financial constraint also highlight a doubling of the fiscal multiplier depending on whether the economy is expansionary or contractionary (see Canzoneri, M., Collard, F., Dellas, H., Diba, B. (2011). Fiscal multipliers in recessions, *Economics Letters*. Forthcoming).

Moreover, Michaillat using a model calibrated for the United States shows that when the unemployment rate rises from 5% to 8%, the multiplier doubles. The underlying idea is that the additional public spending during a recession does not crowd out the private sector's demand for labour: the fiscal stimulus enables the unemployed to find a job that they would not have had otherwise. See Michaillat, P. (2012). A theory of counter-cyclical government-consumption multiplier, CEPR, Discussion Paper Series no. 9052.

[27] Brand, T. (2012). "Politique budgétaire en équilibre général : une analyse appliquée à la zone euro", *Document de travail*, n° 2012-3, Centre d'analyse stratégique.

monetary and fiscal policies. Thus it is now possible to examine the impact of a fiscal reform on consumption, investments, wages, unemployment, current deficits, etc. The MARS model ("Stochastic Model with Rational Expectations") is calibrated for the entire Euro zone, which is considered as an open economy with an average fiscal policy. It has eight different fiscal instruments: government consumption, government spending, capital gains taxes, consumption tax, payroll contributions (employees and employers), total transfers and targeted transfers to financially constrained households. Using one of these eight instruments, one can simulate a 1% GDP stimulus, followed by the implementation of fiscal consolidation after approximately two years. This exercise provides a stylised view of what has transpired since 2008 in the Euro zone.

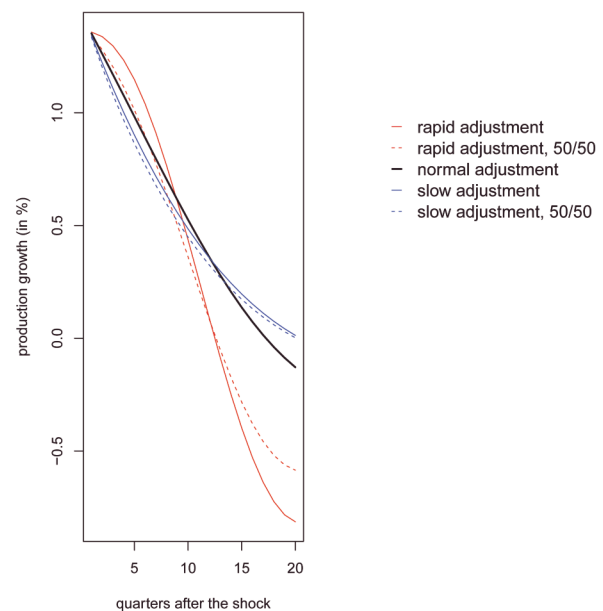
The model is initially calibrated so that the speed of fiscal consolidation matches the rate set forth in the *Fiscal Compact*^[28]: spending must decrease and revenue must rise so as to absorb the gap between the actual public debt and the target public debt (60% of GDP), at the rate of one-twentieth per year.

The last time there was fiscal consolidation in the Euro zone, between 1997 and 2001, 80% of the improvements in the primary balance came from a reduction in spending, and therefore 20% from increased revenue. We retained this proportion when we calibrated the model. So the question becomes to assess the impact on the Euro zone's GDP of a change in the speed of consolidation and in the composition of the adjustment.

According to the model simulations, an increase in public consumption of 1% of output in the Euro zone causes a 1.3-point rise in production in the short term (Figure 4). The fiscal adjustment that follows--if it is quick--can be beneficial in the short term. Indeed, the central bank anticipates negative inflation in the medium term and therefore adjusts interest rates downward, which stimulates consumption and investment in the short term. On the other hand, a rapid adjustment has highly negative effects on medium-term growth, *because of* a decline in overall demand which drags down the labour market, compressing wages and household consumption. These pernicious effects highlighted by the model simulations, which occur regardless of the type of stimulus (Brand, 2012), thus confirm the empirical estimates of Baum *et al.* (2012).

The new information is that the negative impact on production caused by an acceleration in fiscal consolidation can be alleviated, according to Figure 4, if the Euro zone consolidation consists of an increase in revenue that is higher than in the average composition. Here again, these results generally apply to all types of stimulus. In other words, for a given speed of overall adjustment, the additional costs of a faster rise in taxes are lower than what is gained by reducing spending more slowly. Moreover, the composition of the adjustment exerts a far less determining influence on growth when the fiscal adjustment is gradual.^[29]

Figure 4
Production growth after a stimulus in the form of government consumption based on the speed and composition of the fiscal adjustment



Note: *Normal* adjustment means that one-twentieth of the gap between the actual debt and the equilibrium level is absorbed in one year and that 80% of the improvements in the primary balance come from reductions in public spending. *Rapid* adjustment means that one-tenth of the gap between the actual debt and the equilibrium level is absorbed in one year, while *slow* adjustment means one-fortieth is absorbed in one year. A *50/50* adjustment is one in which the improvements in the primary balance are achieved in equal measure through revenue and spending initiatives. The x-axis indicates time in quarters starting with the shock. The shock amounts to 1% of equilibrium production.

Sources: Centre d'analyse stratégique simulation and Brand (2012).



[28] Treaty on Stability, Coordination and Governance (TSCG), signed by the Member States of the European Union (except for the Czech Republic and the United Kingdom) in March 2012.

[29] Contrary to the assertions of Alesina, A., Giavazzi, F. [2012], In: The austerity question: 'How' is as important as 'how much', VoxEU.org, 3 April, the composition of fiscal adjustments is therefore not a determining factor in itself. It only becomes decisive when governments engage in rapid consolidation policies.

Furthermore, a fiscal consolidation that entails a reduction in public spending can cause short-term public debt, expressed as a percentage of GDP, that is higher than the pre-adjustment value for as long as two years.⁽³⁰⁾ The increase in the ratio is essentially due to the reduction in the tax base, and therefore the government's revenue, which has a positive effect on the numerator, and the negative growth in output which lowers the denominator. These results are corroborated by the empirical study of Cafiso and Cellini.⁽³¹⁾ They show, for example, for Euro zone countries, that fiscal adjustments are more likely associated with an increase in the government debt ratio, in GDP points, in the two years following such a policy.

The results of these simulations do not call into question the long-term objective of public debt reduction, which makes it possible to decrease interest rates, as shown, for example, by Clinton *et al.*⁽³²⁾ The idea is that in the long term, an excessive public debt will supplant private capital. Similarly, these simulations do not take into account the possible long-term negative impact of overly high tax rates on economic activity.

The beneficial effects of the consolidation must, however, be put in perspective relative to the cost to potential growth of a persistently high unemployment rate if the economic support measures are eliminated too quickly. DeLong and Summers⁽³³⁾ introduce unemployment hysteresis into the calculation of the costs/advantages of consolidation; their result is that a prolonged period of high unemployment—even if it is cyclical—inevitably undermines potential growth in the medium term. Indeed, the human capital of people removed from employment can depreciate and they will have greater difficulty finding jobs even when growth is stronger. The result is that even for a low hysteresis parameter, the interest rates on debt must be very high to justify a really fast fiscal consolidation.

However, several countries in the Euro zone are suffering—or are likely to suffer—from interest rates that justify fiscal consolidation policies. In this case, one of the avenues would be to postpone such policies in the countries where the government is not subject to the same financing constraints. Just as the governments succeeded

in coordinating their efforts when the stimulus plans were implemented in 2008, a similar coordination of consolidation policies could be considered, at a minimum.⁽³⁴⁾ Given the lessons learned from the study of past public deficit reductions, other possibilities could also be examined which minimise the negative impact on growth.

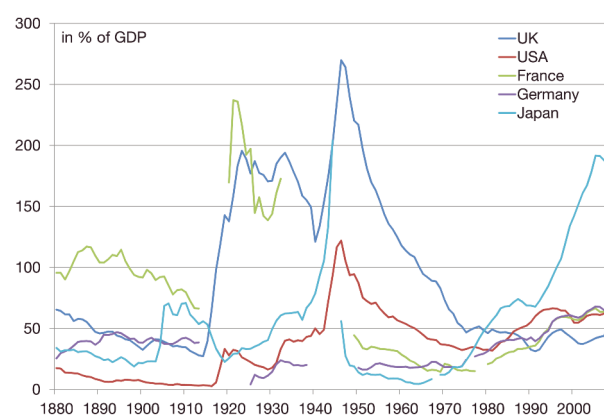
COMPLEMENTARY CHANNELS TO REDUCE PUBLIC DEBTS

If the dynamics of the public debt-to-GDP ratio are broken down into accounting elements, the reduction in the primary deficit on which we have insisted until now appears to be one factor among others, such as growth rates and actual interest rates on the debt, the last of which, moreover, played an important role in past cases of public debt reduction. While not being beyond criticism, they can be further taken into account in the current fiscal adjustment strategies.

Reducing public debts is not merely reducing primary deficits

The steep increases in public debt that we are witnessing today have already taken place in the past, as indicated in Figure 5. They were the result of wars, but also of banking and financial crises that historically stress public finances, or even cause public debt crises.⁽³⁵⁾

Figure 5
Public debt over the period 1880-2011



[30] The exercise is limited to fiscal instruments which have the biggest impact on output (government consumption, government investment and targeted transfers to financially constrained households). As highlighted in box 2, most fiscal consolidations in the Euro zone consist in this type of spending. Consolidation via revenue has a weaker short-term effect on the public debt. For a study of consolidations carried out using other fiscal instruments, see Brand [2012].

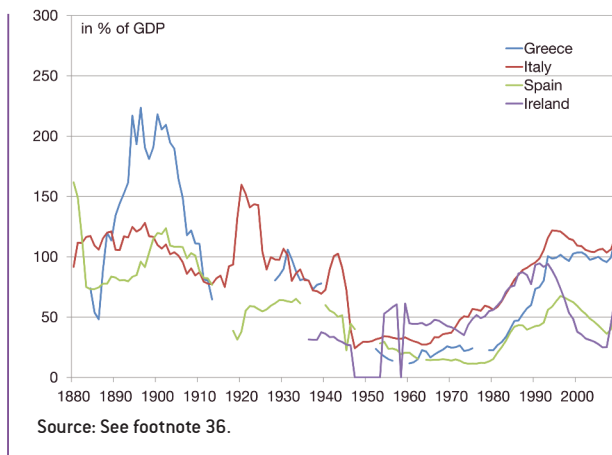
[31] Cafiso, G., Cellini, R. [2012]. Evidence on fiscal consolidations and the evolution of public debt in Europe, March, <http://www.voxeu.org/article/fiscal-consolidations-debt-gdp-containment>.

[32] Clinton, K., Kumhof, M., Laxton, D., Mursula, S. [2011]. "Deficit reduction: Short-term pain for long-term gain", *European Economic Review*, vol. 55, 118-139.

[33] DeLong, B. and Summers, L. [2012]. "Fiscal Policy in a Depressed Economy", *Brookings Paper on Economic Activity*, March.

[34] The IMF [2010] had underlined the importance of coordinating fiscal stimulus plans, with a doubling of the beneficial effects in this case (see footnote 17).

[35] Reinhart, C., Rogoff, K. [2011]. "From financial crash to debt crisis", *American Economic Review*, vol. 101, 1676-1706.



Analysing episodes of public debt reduction over an initial sample covering 174 countries since the end of the 19th century, Abbas *et al.*⁽³⁶⁾ estimate the weight of different factors in public debt reduction based on geographic areas and sub-periods (box 3). For an average public debt reduction of 37 points in GDP, approximately half is attributable to the improved primary surplus and the other half to a favourable difference between the growth rate and the actual interest rate on debt. An additional breakdown underlines that the growth rate was approximately twice as high as the effective interest rates.⁽³⁷⁾ These results are even clearer if we observe the growth rate over the period 1945-1970, which corresponds to the reconstruction of European economies and their convergence with the United States. They confirm the results of Reinhart and Sbrancia⁽³⁸⁾, for whom the "financial repression" enabled, over this latest period, a "liquidation" of public debts in substantial proportions within industrialised countries, which is to be examined further.

Box 3 Public debt dynamics

The overall dynamics of public debt can be summed up in the following formula:

$$d_t - d_{t-1} = \frac{i_t - \gamma_t}{1 + \gamma_t} d_{t-1} - sp_t + sf_t.$$

This establishes that the change in the government debt-to-GDP ratio d_t between $t-1$ and t is the sum of:

- (i) the product of the debt ratio in $t-1$ and the difference between the effective interest rate on debt i_t and the GDP growth rate γ_t ;
- (ii) the primary balance sp_t , as a percentage of GDP;
- (iii) the residual stock flow adjustment sf_t , which incorporates costing effects as well as errors and omissions, as a percentage of GDP.⁽³⁹⁾

The public regulation—implicit or explicit—of real interest rates on debt

The term "financial repression" used by Reinhart and Sbrancia (*op. cit.*) can be understood as the opposite of the financial liberalization movement of the late 1970s. For the authors, such a process refers more precisely to the influence over private savings exercised by public authorities (to grant direct loans to the governments, for example); an implicit or explicit cap on interest rates; a limit on capital flows; prudential ratios that favour government securities and perhaps the nationalisation of banks.

Between 1945 and 1980, these different factors thus enabled the United States to have negative real interest rates on its public debt for nearly half the period (Reinhart and Sbrancia, *op. cit.*). The symbolic agreement that enabled such financing terms was signed between the Fed and the U.S. Treasury in April 1942 after the United States went to war. The Fed thus publicly agreed to maintain the interest rates on short-term government debt securities at 3/8%. In practice, it established a *de facto* cap of 2.5% on the interest rates on long-term debt. At the end of the war, the priority objective was to prevent another Great Depression and an increase in unemployment. But when inflationary tensions emerged, notably because of preparations for the Korean War, the Fed-Treasury agreement signed in March 1951 released the U.S. central bank from this obligation. As indicated in Figure 6, it now seems that the Fed is once again managing the U.S. public debt with Treasury bonds that amount to a substantial portion of its assets.⁽⁴⁰⁾ If we include the acquisition of the debt of quasi-public mortgage lenders Freddie Mac and Fannie Mae, virtually all the Fed's assets are government securities, in the broad sense.

[36] Abbas, A., Belhocine, N., ElGanainy A.A., Horton, M. [2010]. A historical public debt database, IMF Working Paper 10/245, November.

[37] By restricting the sample to only European countries, the authors show that if the average magnitude of debt reduction was identical, the positive difference between growth and interest rate no longer accounted for more than one-third.

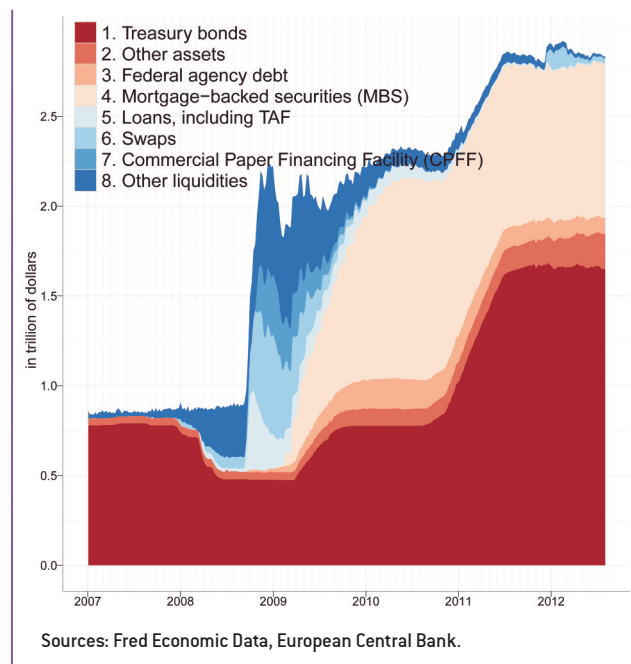
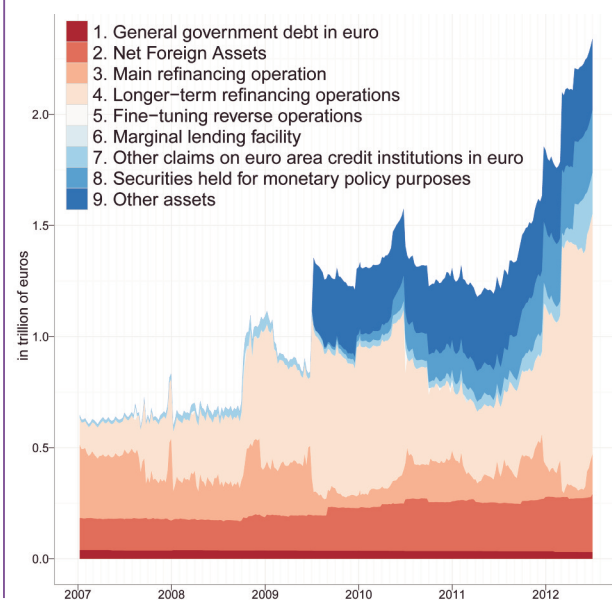
[38] Reinhart, C., Sbrancia, M. [2011]. The liquidation of government debt, NBER Working Paper no. 16893, March.

[39] Escolano, J. [2010], "A practical guide to public debt dynamics, fiscal sustainability, and cyclical adjustment of budgetary aggregates", *IMF Technical Notes*.

[40] The total public debt of the United States surged from 10 trillion dollars in July 2008 to 15.6 trillion in the first quarter of 2012. Over the same period, the amount of American Treasury bonds held by the Fed burgeoned from 500 billion dollars to 1.6 trillion. Thus the equivalent of one-fifth of the government securities issued were acquired by the Fed during this period.

In perspective, such management by the European Central Bank (ECB) appears very residual (Figure 6). And yet, the Fed's holding a bigger share of the U.S. public debt is not in itself a cure-all. The very steep rise in central bank money, in exchange for the purchase of securities, essentially feeds bank reserves with the Fed (which surged from about 100 billion dollars in August 2008 to more than 1,600 billion in July 2012), without anyone being able to determine their long-term impact. In fact, several analysts have expressed concerns in light of this rise in liquidity which could spark new bubbles. However, the short-term advantages, with regard to interest rates, are acknowledged and moreover justified the creation of the European Stability Mechanism (ESM). This mechanism creates among the signatory States a special-purpose vehicle that can raise money in the financial markets in amounts ranging as high as 500 billion Euros to help a failing State under predefined conditions.⁽⁴¹⁾ With the same objective of minimising the effective interest rates on public debt, the member countries of the Euro zone could favour the other adjustment mechanisms mentioned above to guarantee low interest rates, such as explicitly directing some saving actions toward government securities.

Figure 6
Composition of assets of the ECB and the Federal Reserve, 2007-2012



Stimulating potential growth through public investments

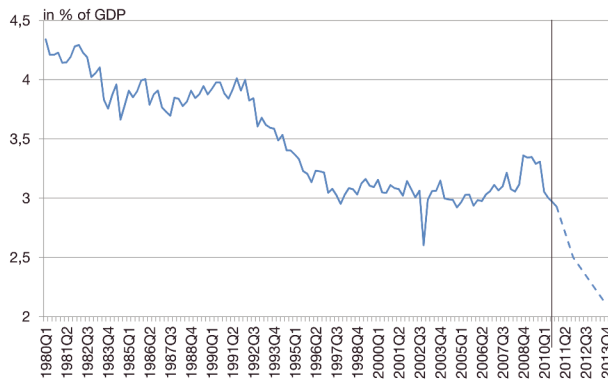
The other key feature of the public debt reduction strategy is output growth. While growth strategies in Europe extend well beyond the framework of this analysis and do not depend wholly on the government policies, it must be acknowledged that today public investment, a powerful generator of growth externalities, is suffering from the effects of fiscal consolidations. Indeed, the decline in public investment by more than one point of GDP when deficit reductions were carried out to comply with the Maastricht Treaty (Figure 7), seems to be at work again in the projected adjustment plans of the Euro zone countries: according to the forecasts of the European Commission⁽⁴²⁾, in 2013 the government spending-to-GDP ratio is expected to fall to 2.1% in the Euro zone. And yet public spending is doubly effective in low growth situations to the extent that it makes it possible to simultaneously drive global demand and increase productivity in the medium term.



[41] It should replace the European Financial Stability Facility (EFSF), which was put in place temporarily following the sovereign debt crisis in May 2010 to prevent Greece from defaulting on its payments.
[42] European Commission [2012]. *Report on Public Finances in EMU*, July.

Figure 7

Public investment in the Euro zone, 1980-2010



Sources: Footnotes 42, 43^[43] and 44^[44], Centre d'analyse stratégique calculations.

One of the ways to avoid the pernicious effects of reductions in public investment is to implement such expenditures on a European scale. The Growth Pact adopted at the European Summit of 28 and 29 June 2012, in the amount of 120 billion Euros (or a little more than 1% of the Euro zone GDP), should offset the reductions decided upon at the national level and thus make it possible to shelter some public investment expenditures.^[45] At a time when the European Commission is forecasting negative growth for the Euro zone in 2012 (-0.3%), the timeline for implementing such a pact will naturally be a determining factor.

CONCLUSION

The continuing private deleveraging process, tied to the slow strengthening of bank balance sheets and high unemployment rates, creates conditions under which the pace of fiscal adjustment must be carefully calibrated. Furthermore, European fiscal adjustments must favour other channels besides a reduction in public investment, which are a source of growth externalities and are themselves crucial for debt reduction.

► **Keywords:** Fiscal policy; fiscal stimulus; fiscal multiplier; adjustment; neokeynesian model.



Thomas Brand, Economy Finance department



[43] Paredes, J., Pedregal, D., Pérez, P. [2009]. A quarterly fiscal database for the Euro area based on intra-annual fiscal information, ECB Working Paper n°1132.

[44] Giannone, D., Henry, J., Lalik, M., Modugno, M. [2010]. An area-wide real-time database for the Euro area, ECB Working Paper n°1145.

[45] For details on the measures, see the speech by Herman Von Rompuy http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/131358.pdf

THE CENTRE'S
PUBLICATIONS

www.strategie.gouv.fr/en

Notes d'analyse :

No 285 ■ Growth in major emerging countries: Convergence and tensions
(september 2012)

No 286 ■ European Economic Convergence: Twenty Years Later
(september 2012)



Note d'analyse n° 287 -
September 2012 is a publication
of the Centre d'analyse stratégique
Director of Publication:
Vincent Chriqui, Director General
Chief Editor:
Hervé Monange,
Deputy Director general
Copy Editors:
Delphine Gorges
Printer:
Centre d'analyse stratégique
Copyright: September 2012
N° ISSN: 1760 -5733

Press office:
Jean-Michel Roullé,
Communication manager
+33 [0]1 42 75 61 37 / 06 46 55 38 38
jean-michel.roulle@strategie.gouv.fr

The Centre d'analyse stratégique is a research and advisory institution under the authority of the Prime Minister. The Centre's mission is to advise the Government on economic, social, environmental and technologic policy issues. The Centre provides the Prime Minister with briefs and forecasts concerning major national reforms. It also conducts independent research initiatives as a part of its annual working program. The Centre draws upon an 11 member Steering Committee that includes two Members of the Parliament, two Senators and a member of the Economic, Social and Environmental Council. It works in coordination with the main Councils of experts reporting to the Prime Minister : Conseil d'analyse économique, Conseil d'analyse de la société, Conseil d'orientation pour l'emploi, Conseil d'orientation des retraites, Haut Conseil à l'intégration.



www.strategie.gouv.fr