

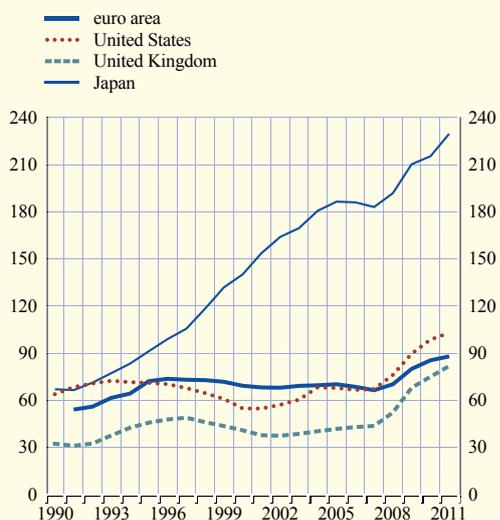
Box 6

**GROWTH EFFECTS OF HIGH GOVERNMENT DEBT**

Government indebtedness in advanced economies has risen to levels rarely seen during times of peace (see Chart A). At the same time, concerns over long-term growth in these economies have increased (see Chart B). Public debt-to-GDP ratios have soared following the financial and economic crisis and are likely to remain at elevated levels in the medium term. Furthermore, in view of sizeable implicit liabilities related to the cost of demographic ageing, markets have become increasingly concerned over long-term fiscal sustainability in advanced economies. One aggravating

**Chart A Gross government debt**

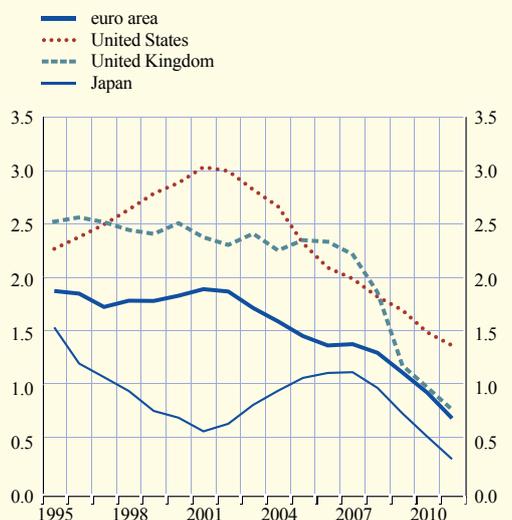
(as a percentage of GDP)



Source: IMF World Economic Outlook, October 2012.

**Chart B Five-year average growth rate of potential output**

(annual percentage changes)



Source: IMF World Economic Outlook, October 2012.

factor highlighted by recent empirical research is the adverse effect that high public debt may have on long-term growth, particularly once the debt ratio has crossed certain thresholds. This box reviews the growing literature analysing the impact of public debt on growth.

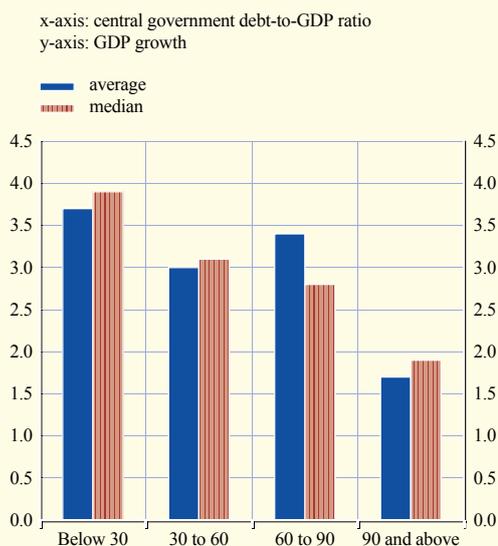
The theoretical literature is divided over whether public debt has a negative impact on the level or growth rate of GDP per capita.<sup>1</sup> The early literature<sup>2</sup> argued that the national debt would be a burden for future generations, which would reveal itself in the form of a reduced flow of income from a lower stock of private capital (as higher public indebtedness crowds out private investment). The “debt-overhang” hypothesis<sup>3</sup> predicts a negative impact of debt on economic growth, i.e. beyond a certain point the debt overhang will start to exert negative pressure on investors’ willingness to provide capital. Some endogenous growth models show that a positive impact of public debt on growth may be possible depending on the type of public goods financed out of debt, or up to certain limits when debt is used to finance productive public capital.<sup>4</sup>

Until recently, empirical research on the relationship between debt and growth had been scarce, but since the beginning of the crisis this topic has attracted growing attention. Several studies<sup>5</sup> find a negative relationship between government debt and (per capita) real GDP growth, especially beyond a certain threshold (see also Chart C for simple statistics related to real GDP growth rates for various public debt ranges over a very long time span (1790-2009), as presented in Reinhart and Rogoff, 2010).

Among these, research conducted across 12 euro area countries<sup>6</sup> finds evidence for a non-linear impact of the initial public debt ratio on subsequent per capita GDP growth over the period 1970-2008. Beyond a threshold of about 90-100% of GDP, public debt has, on average,

**Chart C Real GDP growth and central government debt, selected advanced economies, 1790-2009**

(as a percentage of GDP; annual percentage changes)



Sources: Reinhart and Rogoff (2010).

1 Exogenous growth models allow only for level, not long-term growth effects of changes in fiscal policy variables, while endogenous growth models predict effects on the growth rate, at least along the transition path to the steady state.

2 See Modigliani, F., “Long-Run Implications of Alternative Fiscal Policies and the Burden of the National Debt”, *Economic Journal*, No 71 (284), 1961, pp. 730-755.

3 The term “debt overhang” was coined by Krugman (1988) with regard to external debt and was extended to public debt in endogenous growth models. See Krugman, P., “Financing vs. Forgiving a Debt Overhang”, *NBER Working Paper*, No 2486, 1988.

4 See Aizenman, J., Kletzer, K. and Pinto B., “Economic Growth with Constraints on Tax Revenues and Public Debt: Implications for Fiscal Policy and Cross-Country Differences”, *NBER Working Paper*, No 12750, 2007; Aschauer, D.A., “Do States Optimize? Public Capital and Economic Growth”, *Annals of Regional Science*, No 34, 2000, pp. 343-363; and Kamps, C., “Is there a lack of public capital in the European Union?”, *EIB Papers*, 10/1, 2005, pp. 72-93.

5 See Reinhart, C.M. and Rogoff, K.S., “Growth in a Time of Debt”, *NBER Working Paper*, No 15639, 2010; Kumar, M. and Woo, J., “Public Debt and Growth”, *IMF Working Paper*, No 10/174, 2010; and Cecchetti, S.G., Mohanty, M.S. and Zampolli, F., “The Real Effects of Debt”, *BIS Working Papers*, No 352, 2011.

6 Checherita, C. and Rother P., “The impact of high and growing government debt on economic growth: an empirical investigation in the euro area”, *Working Paper Series*, No 1237, ECB, Frankfurt am Main, August 2010, published in the *European Economic Review*, No 56, 2012, pp. 1392-1405.

a negative effect on long-term growth. For a more recent period (1990-2010), across the same euro area countries, further research<sup>7</sup> on the topic provides evidence that public debt ratios up to around the Maastricht reference value do not seem to have a detrimental short-term impact on real GDP growth, whereas for high debt ratios (above 95% of GDP) – in line with previous results – additional debt is found to have, on average, a negative, statistically significant effect on short-term growth.

From a general policy perspective, this evidence reinforces the importance of reducing public debt to restore fiscal sustainability and, at the same time, to support longer-term economic growth prospects. The evidence also points to the degree of prudence built into the Maastricht debt reference value of 60% of GDP. EU member countries should aim at bringing debt ratios down to this or even below this level, in order to provide a sufficient safety margin in case of renewed crises. In the current economic environment, ambitious strategies for debt reduction are of the essence. If governments instead choose to postpone fiscal adjustment, this will undermine growth prospects and put an additional burden on fiscal sustainability.

<sup>7</sup> Baum, A., Checherita-Westphal, C. and Rother P., “Debt and growth: new evidence for the euro area”, *Working Paper Series*, No 1450, ECB, Frankfurt am Main, July 2012, published in the *Journal of International Money and Finance*, No 32, 2013, pp. 809-821.