

Box 1.2: Growth differences between the US and the euro area

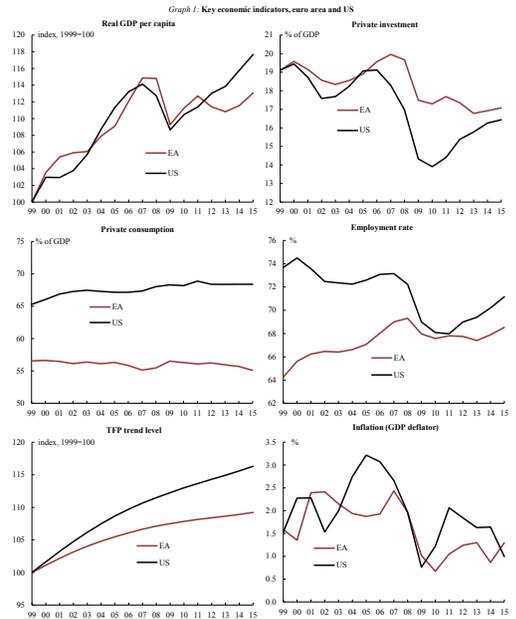
The purpose of this box is to document the main drivers of economic activity in the euro area and the US since the beginning of the 2008-09 financial crisis. In particular, it focuses on explaining the striking divergence in the recovery paths of these two regions, with the euro area having recovered at a much slower pace than the US.

Crisis and recovery: the story of two regions

The global financial crisis led to a sharp contraction in real activity in both the euro area and the US followed by a slump that was long by historical standards. However, comparison of a later adjustment in the euro area and the US, especially since 2011, shows striking differences. In particular, the slump in the euro area has been considerably more protracted (Graph 1). Euro area per capita real GDP still remains below its pre-crisis peak. US per capita GDP recovered to its pre-crisis peak in 2014 but its current trend remains markedly below its pre-crisis trend. Private (corporate and housing) investment contracted less (as a share of GDP) in the euro area than in the US, during the 2008-09 crisis but in the 2010-14 period, investment in the euro area continued to decline as a percentage of GDP, while the investment rate in the US began to recover in 2011. The rebound in employment in the US, observed since 2011, has similarly been stronger. Inflation has been lower in the euro area than in the US since 2009, providing some more evidence of the weakness of the euro area economy.

There is heated debate about the causes of these developments and differences: some commentators argue that the protracted slump in the euro area reflects weak aggregate demand, driven by factors including overly restrictive fiscal policy,⁽¹⁾ particularly in the context of the sovereign debt crisis. Other analysts stress that structural weaknesses in the euro area economy, visible in product and labour market rigidities, may have hampered the economic rebound by slowing down sectoral redeployment and the adoption of new technologies and resulting in weak productivity (see graph 1, south-western-most panel) and GDP

growth.⁽²⁾ Several commentators have linked the persistent slump, especially in the euro area, to post-crisis household deleveraging pressures.⁽³⁾ Others point out that financial constraints may have been more severe in the euro area because of the relative weakness of its banking sector and the sovereign debt crisis which erupted in 2010/2011.⁽⁴⁾ The latter factors may have been compounded by lengthier decision-making processes in the euro area and the greater complexity of its monetary policy architecture.



- (2) Compare Cetto, G., J. Fernald, B. Mojon (2015). 'The pre-global-financial-crisis slowdown in productivity.' Working Paper.
- (3) See Rogoff, K. (2015). 'Debt supercycle, not secular stagnation.' *VOX CEPR Policy Portal*, April 22.
- (4) According to an OECD study, the supply of credit to the private sector may have been disrupted more persistently in the euro area than in the US, due to the continuing poorer health of euro area banks (OECD, 2014. *Economic Surveys: euro area*). For evidence that euro-area banks rebuilt their capital much more gradually than US banks after the crisis and, in addition, euro-area bank balance sheets were weakened by the sovereign debt crisis that erupted in 2010-11, see Acharya, V., I. Drechsler and P. Schnabl, (2015). 'A pyrrhic victory? Bank bailouts and sovereign credit risk.' *Journal of Finance* 69, pp. 2689-39; Kalemli-Özcan, S., L. Laeven and D. Moreno (2015). 'Debt overhang in Europe: Evidence from firm-bank-sovereign linkages'. Working Paper, University of Maryland.

(1) See, e.g., International Monetary Fund (IMF) (2012). *World Economic Outlook: Coping with high debt and sluggish growth*. Washington, DC, October; De Grauwe, P. (2014). 'Stop structural reforms and start public investment.' *Social Europe*, September 22; Stiglitz, J. (2015). 'Les dégâts induits par la crise sont durables.' *Le Soir (Bruxelles)*, September 2, pp.14-15.

A recent paper by Kollmann et al. (2016)⁽⁵⁾ attempts to clarify the relative importance of these factors in explaining the differences between the US and the euro area using an estimated dynamic stochastic general equilibrium (DSGE) model. The use of an estimated model allows the authors to analyse the shocks that have driven the euro area and US economies and infer which shocks and transmission mechanisms mattered most and when.

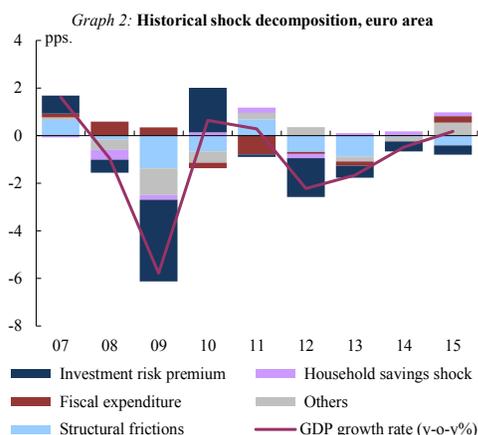
To quantify the role of different shocks as drivers of economic growth in the period 2000-15, the estimated contributions of these shocks to the historical time series of the annual growth rate of real GDP are plotted in the Graph 2 (euro area) and 3 (US). The graphs plot historical series from which the sample averages have been subtracted. The coloured parts of the bars show the contribution of different types of shocks to plotted series: structural shocks (productivity (TFP), wage, and price mark-up shocks), fiscal shocks, saving shocks and investment risk-premium shocks. The grey parts of the bars capture other shocks, which are not in the focus of this box (monetary policy shocks, trade shocks, oil shocks etc.). Bars above the horizontal axis represent positive shock contributions, while bars below the horizontal axis show negative contributions.

Main drivers of the crisis and the subsequent (slow) recovery

The historical shock decompositions in Graphs 2 and 3 suggest that in the euro area (and also in the US), the pre-crisis boom was largely driven by an excessive loosening of credit conditions, which helped fuel stock market and housing bubbles in both regions. In the model, such loosening on the credit market, not driven by the fundamentals, is captured by negative shocks to investment risk premia that is, to the spread between the risk-free rate and the required return on investment. As can be seen on the graphs, beginning in 2008, risk premia increased abruptly, provoking tightening of credit conditions and a collapse of the bubbles. This finding lends strong support to the hypothesis that financial frictions were the single most important factor behind the crisis. However, the financial turmoil was accompanied by several additional adverse shocks. Overall, the model's estimates suggest that the slowdown in the euro area's growth in 2009 was largely due to: (i) an increase in the investment risk premium; (ii) a

decline in TFP growth that represents a permanent level shift coupled with other structural frictions related to price and wage mark-up movements; (iii) to a comparably lesser degree, an increase in saving presumably due to household deleveraging.⁽⁶⁾ The temporary recovery in 2010 is explained in our model mainly by a short-lived fall in risk premia across the euro area. However, in 2011 and even more so in 2012, the euro area was hit by a further rise in the investment risk premium, which had an adverse effect on investment and GDP. We interpret this second rise in the investment risk premium as a consequence of the sovereign debt crisis that weakened euro area bank balance sheets, reducing the supply of credit to the corporate sector and to households, thus lowering corporate investment and housing investment.⁽⁷⁾

The recovery phase after 2013 has been characterized by flattening of risk premia and (likely temporary) abatement of household deleveraging pressures. However, productivity and structural factors are slowing down the full recovery.



Investment risk premia shocks appear as important an explanation for the 2008-09 output contraction in the US as they do in the euro area. The additional factors were household deleveraging (mostly at the beginning of the crisis) and structural factors (in particular, price mark-ups increased during the first phase of the crisis in the US). Importantly, the adverse investment risk premium shock was much more short-lived in the US

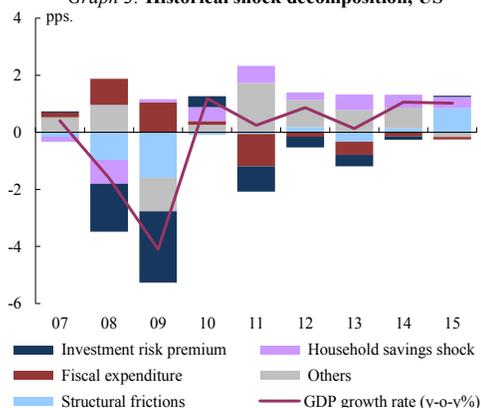
⁽⁵⁾ See Kollmann, R., B. Pataracchia, R. Raciborski, M. Ratto, W. Roeger and L. Vogel (2016). 'The post-crisis slump in the euro area and the US: Evidence from an estimated three-region DSGE model.' *CEPR Discussion Papers Series* DP11121.

⁽⁶⁾ The stagnant, but not falling, consumption-to-GDP ratio in the euro area, visible on graph 1, provides an intuitive illustration for the thesis that household deleveraging is not an important factor behind the slow recovery in this region.

⁽⁷⁾ Importantly, the estimated risk premia turn out strongly correlated with several indicators of financial distress, *ibidem*.

compared to the euro area. Since 2010, US growth has also been sustained by stronger consumption growth and healthier structural factors (the negative impact from rising mark-ups has abated, while productivity growth has been relatively strong).

Graph 3: Historical shock decomposition, US



Fiscal shocks

Graphs 2 and 3 also show the contribution of fiscal shocks to GDP growth during the crisis. These contributions were calculated taking into account the fact that monetary policy was constrained by the zero lower bound during much of this period, with the effect that the fiscal multipliers used in the calculations are higher than in ‘normal’ times.⁽⁸⁾ As can be seen on the graphs, fiscal policy shocks in both regions had a stimulating impact during the first phase of the Great Recession. In particular in 2008, fiscal policy added about 0.6 pps. to GDP growth in the euro area (and a further 0.4 pps. in 2009) and as much as 0.9 pps. and 1.1 pps. in 2008 and 2009 in the US, due to a large fiscal stimulus package. However, starting from 2010 in the euro area and 2011 in the US, there was a turnaround in fiscal policy, as governments started the painful process of fiscal consolidation. In the euro area, consolidation measures subtracted 0.8 pps. from

⁽⁸⁾ The calculation of the fiscal shock contribution, taking into account the occurrence of the ZLB phenomenon during the period, is explained in Ratto, M. (2016). ‘Latent variables and shocks contribution in DSGE models with occasionally binding constraints.’, mimeo.

GDP growth in 2011, and still about 0.2 pps. in 2013. In the US, the negative impact on GDP growth was even stronger (1.1 pps. in 2011 and 0.5 pps. in 2013).⁽⁹⁾ Interestingly, the period of massive fiscal consolidation in the euro area seems to have ended around the year 2014, while contributions from fiscal policy have so far remained negative in the US.

Overall, fiscal ‘austerity’ has not been the main factor behind the slow recovery in the euro area or the US. However, fiscal policy has had an effect on the speed at which the US and euro area economies have developed in recent years, first by stimulating the economy, then by putting a brake on the speed of the recovery, an effect that was particularly strong in 2011.

Conclusion

This box documents the main drivers behind the eruption of the last financial and economic crisis and a latter slow recovery, with the emphasis on the factors that led to a much slower recovery in the euro area, compared to the US. At the current juncture, the US is profiting from buoyant sentiment among consumers, translating into stronger private consumption growth than in the euro area. However, two other factors contribute more significantly to the slow recovery in the euro area. One is related to its structural problems, as gauged, in particular, by very slow growth of total factor productivity. The other is related to financial frictions, which seem to be abating much more slowly in the euro area than in the US. This provides more evidence for the view that cleaning up bank balance sheets and generally improving the performance of capital markets is one of the most important challenges facing the euro area. It also suggests that larger and more integrated capital markets as well as more timely and concerted policy responses (not only along this dimension) might have helped to smoothen the recovery.

⁽⁹⁾ The larger negative contributions of fiscal policy to growth in the second phase of the crisis in the US are consistent with the fact that the US fiscal multipliers tend to be larger.