

The Impact of the Financial Crisis on the Real Economy

The cost of the financial crisis to the real economy has so far remained underexamined, probably because of the difficulty in making such an assessment. The crisis was precipitated by an unsustainable bubble that artificially inflated economic figures, so what should be used as a benchmark for measuring the effects of the crisis on the real economy? How reliable are current estimates of the output gap? Could overestimating this indicator lead to underestimating the current risk of inflation? Finally, what effect will the crisis have on the declining long-term productivity gains in Europe and the USA, and what does this mean for potential output?

Daniel Gros and Cinzia Alcidi

The Crisis and the Real Economy

The present crisis was caused by a combination of asset price bubbles, mainly in the real estate sector, and a credit bubble that led to excessive leverage. This is by now well accepted. We also showed in a previous contribution¹ that Europe (and in particular the euro area) was affected by both “bubble” symptoms as much as the USA. House prices increased as much in Europe as in the USA, and on most indicators of leverage or excessive credit expansion the euro area also did worse than the USA (in particular the corporate and financial sectors show a higher degree of leverage in Europe than in the USA, and the increase was higher in Europe as well). From this perspective, it is not surprising that Europe also experienced a deep crisis.

The crisis became truly global because of two main transmission mechanisms: the sudden rise in risk aversion (and financial market volatility) was transmitted worldwide because financial markets are highly integrated at the global level. Moreover, the sudden drop in demand, especially for capital intensive goods, was transmitted rapidly along the global supply chain. Within Europe, the integration of financial markets and supply chains is even stronger than it is at the global level, and consequently, the crisis affected all member countries, even those that had not shown any bubble symptoms (i.e. those that had had stable housing prices and no increase in leverage). It is thus not

surprising that all member countries were affected by the crisis, even those without a bubble (e.g. Germany, where housing prices and leverage had not increased).

How to Measure the Impact of the Crisis on the Real Economy

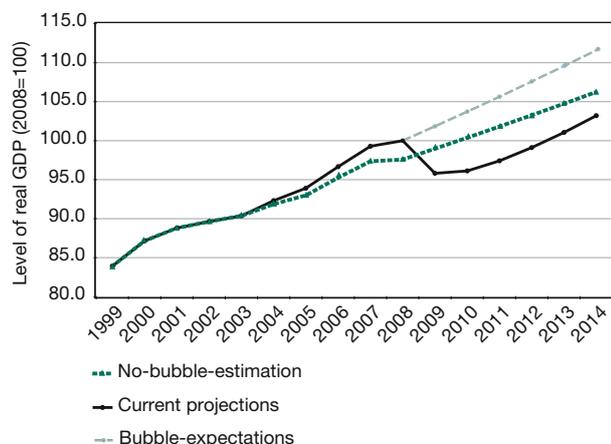
The Impact of the Crisis on Output

We start by briefly discussing the impact of the crisis on growth (GDP). The first crucial point to emphasise is that since the crisis emerged from the bursting of a bubble, an assessment of it requires setting the excess growth during the bubble against the loss of output during the crisis. Figure 1 shows an attempt to measure the impact of the entire boom-bust cycle on the real economy. The dark solid line shows the level of real GDP as currently projected by the IMF (projections available through 2014), whereas the light dashed line shows the expected levels based on the average growth rates of the pre-crisis years. The light dashed line thus shows what might have been expected close to the peak of the bubble when it was not widely recognised as such. Yet the central question is: what would the path for output have been if there had been no bubble (and no crisis)?

This requires an estimate of the potential growth of the European economy without the bubble. We estimated this in the following way: the latest data from the European Commission (issued at the end of 2009) show that

¹ C. Alcidi, D. Gros: Why Europe Will Suffer More, in: *Intereconomics*, Vol. 44, No. 4, July/August 2009.

Figure 1
Long-term Effect of the Crisis on GDP in the Euro Area



Sources: IMF: World Economic Outlook, October 2009, and own calculations.

in 2007, the output gap was at 2.5% (one year ago, the Commission thought that the output gap had been close to zero in 2007). If we assume that this is the effect of a bubble, we can conclude that the bubble has increased the observed growth rate by 0.5% a year between 2004 and 2008. Hence the “no-bubble” GDP level, plausibly, should have followed the green dotted line in the chart. Without a bubble, the level of real GDP would have been below the actual rates between 2004 and 2008 but from 2009 onwards well above. The figure also illustrates that, at least according to the current IMF projections for 2014, the European economy has not yet returned to the likely no-bubble path of GDP, suggesting a considerable overshooting: the crisis caused additional losses in output.

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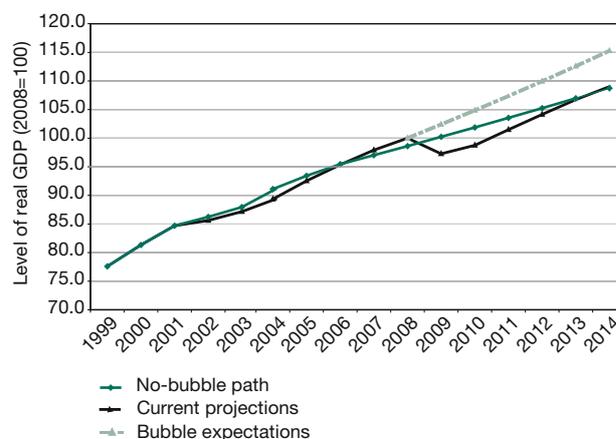
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Figure 2
Long-term Effect of the Crisis on GDP in the USA



Sources: See Figure 1.

By contrast, one could argue that there has been no additional loss of output from the bust for the USA, as the “no-bubble” path would have brought the economy to a very similar position as the actual path now predicted (see Figure 2).

Table 1 provides two alternative estimates of the cost of the crisis in terms of GDP. The first column reports the percentage difference between the IMF’s current prediction of 2014 real GDP levels in its World Economic Outlook (WEO) of October 2009 and the 2014 GDP levels expected at the peak of the bubble under the assumption that it would not burst. The second column shows the percentage difference between the estimated levels of output expected for 2014 if there had never been a bubble (or a burst) and the 2014 GDP if the bubble had lasted. This latter calculation, by using an estimation of the “normal” path of the economy as a benchmark, is likely to be a better indicator of the cost in terms of lost output from the crisis. This column suggests that the cost of the bubble burst is quite similar across the Atlantic, though larger in the USA, and that within Europe the euro area has suffered somewhat less than the UK and the new member countries. By contrast, the first column suggests that the cost of the crisis (if compared to “bubble expectations”) is much higher in the EU.

The Crisis and (the Loss of) Happiness

Although the crisis went global, it is still hitting different countries in quite different ways. It has become a popular pastime to rank countries by the fall they experience in GDP and then pass judgement accordingly on their “eco-

Table 1
Long-term Implications of the Crisis

	Percentage difference between:	
	current projections and "bubble expectations" for 2014	no-bubble path and "bubble expectations" for 2014
EU	-9.6	-5.5
Euro Area	-8.4	-5.4
USA	-6.3	-6.5

Note: The no-bubble path is based on the assumption that the "excess growth" driven by the bubble is 0.5% each year over the period 2004-2008 for Europe and 2003-2007 for the USA.

Source: IMF: World Economic Outlook, October 2009; own calculations.

conomic model". But even apart from the argument made above, one has to ask the question: is the fall in GDP the appropriate measure for a cross-country comparison of the real world impact of the crisis, particularly for this crisis? GDP refers to the amount of goods and services produced in a given economy. However, the GDP statistics have little real meaning for the wider public whose lives are affected much more by the amount of money that can be spent on consumption and by job stability. Movement in consumption and employment levels should represent a better indicator of the impact of the crisis than changes in GDP.

These considerations apply in particular to the EU, given that economic policy is still determined primarily at the national level and a large heterogeneity of effects has emerged. A comparison of Germany with the USA and Spain provides a good example of the degree of heterogeneity in the consequences of the crisis.

A key factor behind cross-country heterogeneity is the existence of different growth models in each country. It is apparent that Germany's huge current account surplus has provided a cushion and allowed consumption to remain constant. In 2009, Germany's GDP fell by about 5%, but consumption remained roughly unchanged. The discrepancy between consumption and production is due to two factors: the current account surplus has declined by about 3 percentage points of GDP and investment has fallen by about 2 percentage points of GDP (this represents a fall in investment of about 10%). These two factors account for the 5 percentage points difference between the growth rate of GDP (-5%) and consumption (0).

In the USA, the current account swing is in the other direction. As a consequence, even though US GDP declined by less (about 3-4%, according to the IMF and the Commission) than in Germany, US consumption had to fall. Despite

an improvement of about 2 percentage points of GDP in 2009 in the US current account deficit, domestic absorption fell by about 5% (a 3% decline in production plus a 2% decline in net resource transfer from abroad). This is a much more painful adjustment than in Germany. Part of this overall decline in domestic absorption has fallen on investment.² Yet since consumption accounts for roughly 70% of GDP, consumption had to fall significantly as well. In the USA, consumption had been increasing trend-wise by about 2.5 to 3% in recent years. US consumers will thus have to accept a swing in the growth rate of consumption from plus 3% to minus 1-2%; a change of over 4 percentage points. By contrast, in Germany consumption had in any event been stagnant since about 2001 with little change brought about by the crisis.

The wide difference in terms of the current account in the starting positions of Germany (+6% of GDP) and the USA (-6% of GDP) implies that in Germany stable consumption is sustainable in the longer run even if GDP does not recover,³ while in the USA, consumption has to fall even if there is to be a sustained recovery.

But why do German consumers continue to spend? The best answer is: why not? German consumers did not rely on credit or inflated house prices to finance their expenditures. By contrast, consumers in the USA (or Spain) had little choice but to spend less when the value of their houses tumbled and access to credit became more difficult.

Another reason why German consumption remains stable is the performance of the labour market: so far, employment has not fallen noticeably in Germany.

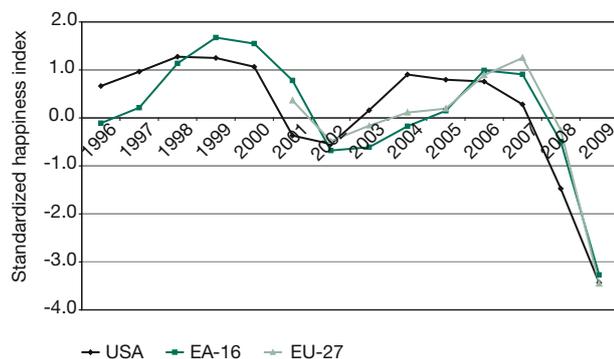
This leads to the second indicator of how much the crisis really hurts: the unemployment rate. Here again there are wide differences across countries. In Germany unemployment has so far increased only marginally (by 0.3 percentage points, from 7.2% in October 2007 to 7.5% in October 2009), compared to increases of 4.4 percentage points over the same time period in the USA (from 5.8% to 10.2%) and over 8 percentage points in Spain (from 11.4% to 19.3%).

What is the reason for these differences? German enterprises have invested greatly in the skills of their labour force and therefore hold on to their skilled workers even if some of them are temporarily not needed. Generous provisions

² In 2009, US investment fell by more than 15% (year-on-year change).

³ Many commentators have recently argued that Germany should rethink its export-led growth model because this model did not prevent a fall in its GDP, which was even larger than in the USA or France, for example. However, is this model so bad if it allows Germany to carry on consuming in the midst of the most severe recession in 70 years while consumers elsewhere have to tighten their belts considerably?

Figure 3
Standardised “Happiness Index”: the USA and Europe



Sources: Data for growth in consumption extracted from Eurostat, December 2009, and for rates of unemployment from AMECO (database of DG Ecofin, European Commission), December 2009.

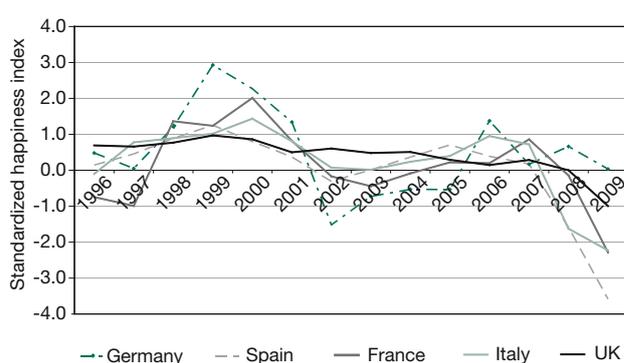
for the financing of temporary part-time work also help to stabilise employment. But other European countries have similar labour market rules. The key difference here is that in Spain most of the increase in employment over the last decade was in low-skilled workers in the construction and tourism industries. Since these sectors are contracting, Spanish enterprises see no reason to retain these workers, who do not possess the highly specialised skills necessary for globally competitive manufacturing. Moreover, these workers were usually hired on the flexible fringe of the Spanish labour market, using temporary or other atypical contracts.

Putting consumption and unemployment together in one index, one obtains a quite different picture from the one revealed by looking solely at GDP. Figure 3 shows a transatlantic comparison of the “happiness index”. This is simply the combination of the growth rate of real consumption and the increase in the unemployment rate with a negative sign. In order to make these two series comparable, they have first been “standardised”⁴ so that a value of minus four means that the index has fallen four standard deviations below its average – which should be an extremely rare occurrence.

Standardising the variables in this way has the advantage of taking into account the expectations of what constitutes a “normal” or acceptable economic performance, which is usually based on actual data over recent years. The “misery” index based on standardised variables thus represents the element of surprise in the combination of negative growth and unemployment experienced by the economies under consideration.

4 In the usual way, that is, by subtracting the mean and dividing by the standard deviation. Mean and standard deviation are computed using observed data over the period 2004–2009.

Figure 4
Standardised “Happiness Index” for Major EU Countries



Sources: See Figure 3.

On this account, Europe does only slightly better than the USA. The difference is small because unemployment is usually much more stable in Europe. Although unemployment increased much less in the euro area than in the USA, this translates into a similar deterioration because, with the lower variance in Europe, such an event is equally exceptional.

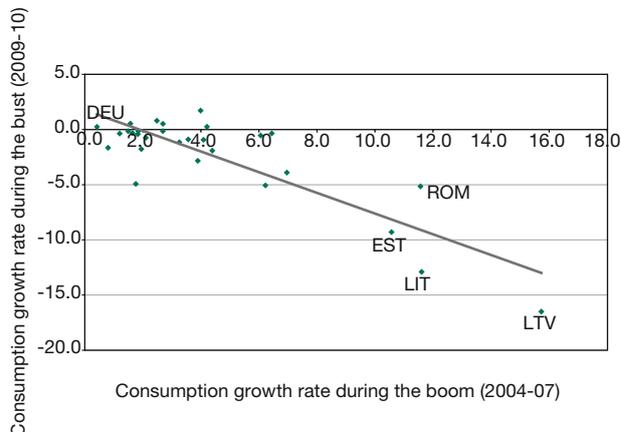
As already discussed above, the euro area data average out both bubble-led (e.g. Spain) and export-led economies, such as Germany. As shown in Figure 4, strong differences exist within the euro area, with a clear hierarchy: Germany is better off than all the others, with little deterioration in its index, while Spain is at the other extreme. Its value of -3.6 implies that the current combination of consumption growth and unemployment is 3.6 standard deviations below the average – which should be an extremely rare event if disturbances are normally distributed. Italy and France are between these two extremes.

Boom and Bust: What Goes Up Must Come Down

The previous section argued that a combination of consumption growth and (un)employment is a better indicator than GDP for measuring the impact of the crisis on the real economy. However, it may be misleading to look at changes in these variables only since the outbreak of the crisis, the reason being that those years do not constitute an appropriate benchmark.

This is obviously true for the availability of credit. By common consent, credit was excessively available during the boom in many countries on the periphery of Europe. Consumption and investment were largely financed by capital flows which, with hindsight, were only forthcoming because risk aversion (and risk recognition) was distorted by the credit boom.

Figure 5
Financial Crisis: Consumption During Boom and Bust in EU Countries



Sources: See Figure 3.

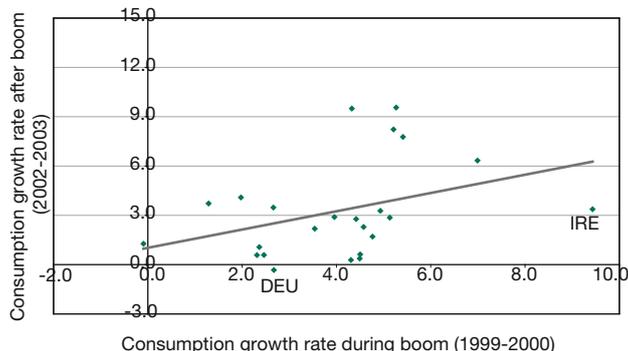
Evidence of this is provided by the consumption paths. Across member countries there is strong negative correlation between the change in consumption over the period 2009-10 and the last two years before the bubble burst: consumption is now falling the most in those countries where it had increased the most during the boom. The Baltic States represent the most extreme case: consumption increased at double digit rates until 2007 and is now also falling at double digit rates. By contrast, consumption is essentially stable in Germany, where it did not increase noticeably even during the bubble years.

Figure 5 plots the data for all EU member countries. The horizontal axis shows the average annual increase in consumption in 2005-2007 (the peak of the bubble), and the vertical axis shows the corresponding values now that the bubble has burst (2009 actual data and forecasts for 2010 by the European Commission).

The present crisis is clearly different from the aftermath of the dot-com bubble, since the correlation between pre- and post-bubble growth of consumption is negative. Figure 6 shows, by comparison, the same data (average annual growth of consumption) for the dot-com boom and bust years. Not only is the correlation positive, there is also much lower cross-country variability during the dot-com episode than now.

As shown in Table 2, data on imports and investment (in equipment) confirm the trend shown by consumption but with deeper swings before and after the crisis. Across EU countries, correlation in import growth rates pre- and post-financial crisis is highly negative and much larger than what was observed at the time of the dot-com bubble,

Figure 6
Dot-com Crisis: Consumption During Boom and Bust in EU Countries



Sources: See Figure 3.

though negative in both cases. In the case of investment growth rates, despite the large positive average before the crisis and the negative one in the years following the bust, correlation is very weak (close to zero) and lower than what was observed at the time of the dot-com bubble. Data simply suggest a generalised fall in investment across all countries during the bust period with all growth rates indistinctly negative and a fall after the bust far larger (in absolute terms) than the increase during the boom. Such behaviour cannot be ascribed to sector-specific effects or adjustments to overinvestment in the previous period (as is likely to be the case in the construction sector), but rather the consequence of global factors, namely the dramatic increase in risk aversion and the dire outlook for the whole economy as a result of the financial crisis.

There is thus clear evidence that in many respects this crisis represented a return to more stable, “normal” conditions. It is always difficult to measure what rate of growth

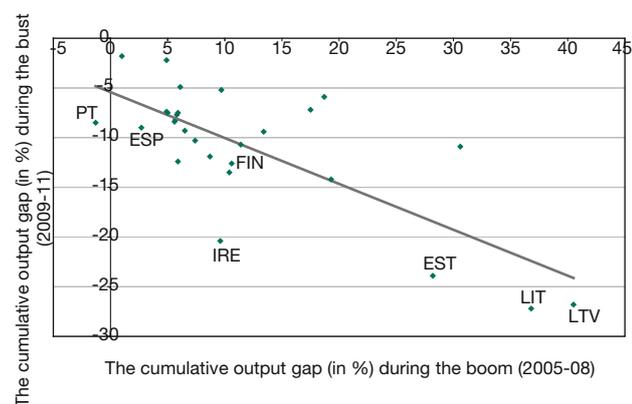
Table 2
Financial Crisis: Imports and Investment in Equipment During Boom and Bust

	Imports		Investment in equipment	
	Boom: 2005-2008	Bust: 2009-2011	Boom: 2005-2008	Bust: 2009-2011
EU	7.0	-6.1	6.4	-10.8
Euro area	6.6	-5.7	6.2	-9.7

Note: EU is the average of the EU27 for imports and of the EU15 for investment. Euro area is the EA16 in the case of imports and the EA12 in the case of investment.

Sources: AMECO and own computations.

Figure 7
Cumulative Output Gap During the Boom and the Bust



Source: European Commission Economic Forecast, 22 October 2009, output gap relative to potential GDP (deviation of actual output from potential output as % of potential GDP 1992-2001).

of consumption (and GDP) would be sustainable. However, there is one variable that gives some information about the extent to which the economy is operating at a “normal” level of activity. This is the output gap. Of course, there are many different measures of the output gap. Here we use the most recent data from the Commission (ECFIN). The data in this respect (shown in Figure 7) portray a similar pattern for consumption: the countries with the strongest boom (highest output gap) also have (and are expected to have) the greatest fall (highest negative output gap).

Of course, a crisis implies adjustment but, by itself, does not just lead to a return to normal conditions. As the boom supported “above normal” levels of activity for some time, large negative output gaps are expected to persist for a while. Table 3 shows the cumulative output gain during the boom represented by the sum of the output gap during the boom years (2005-2008) compared to the loss of output for the first three years of the bust, while Table 4 reports similar (end of period rather than cumulative) data for unemployment.

The key message of this table is that in terms of the output gap, the new members are still in positive territory (overall they benefitted from the “package” boom and bust), whereas “old” member states (and of course the euro area) show a “net loss”.

In terms of unemployment, the crisis seems destined to leave a net negative legacy everywhere with forecasted rates higher than pre-boom levels. Yet as of 2009, new member states, on average, still exhibit a net gain in the

Table 3
Cumulated Output Gap by Country Groups

	Boom: 2005-2008	Bust: 2009-2011	Boom plus bust
Old Members	6.2	-9.6	-3.4
New Members	20.7	-13.0	7.6
EU	6.5	-9.0	-2.5
Euro area	5.6	-8.4	-2.8

Sources: Own computations based on EC Economic Forecast.

Table 4
Unemployment Rate During the Boom and the Bust

	Before the boom 2004	Peak of the boom 2007	2009	Forecast 2011
Old Members	7.1	6.0	8.0	9.2
New Members	10.4	6.4	10.1	11.1
EU	9.0	7.1	9.1	10.2
Euro area	9.0	7.5	9.5	10.9

Sources: AMECO and own computations.

sense that their unemployment rates were still (at 10.1%) somewhat below their values before the boom (2004), when they stood at 10.4%.

As far as financial market indicators are concerned, risk aversion increased dramatically during 2008/9. This explains the sharp contraction in investment and consumption in 2009, but with financial market indicators rapidly returning to average or even better than average pre-crisis values, one would also expect a rapid recovery. However, this is not materialising. One reason can be summarised under the heading “balance sheet constraints”: overly indebted consumers and firms cannot maintain their levels of consumption and investment if they have not worked off their debt beforehand. However, this can only be a partial explanation, because the debt data by sectors⁵ suggest that while firms might have problems, the household sector in the euro area does not appear to be overly indebted (at least not on average).

Another reason is that the credit bubble has been going on for so long that households (and firms) have accumulated an overhang of durable consumer goods (e.g. in some of the new member countries) and of fixed capital (especially housing in Spain and Ireland).⁶

5 See C. Alcidi, D. Gros: Why Europe Will Suffer More ..., op. cit.

6 See D. Gros: Bubbles in real estate? A Longer-Term Comparative Analysis of Housing Prices in Europe and the US, CEPS Working Document No. 239, Brussels 2007, for estimates of the huge housing overhang in Spain and Ireland.

This is a key point: in analysing the impact of the crisis on the real economy, one must start by understanding the build-up of the bubble that preceded the crisis. In fact, it might turn out to be erroneous to expect that once the recovery starts, the global economy will go back to pre-crisis levels. Those growth rates were to some extent fake and will be attainable again only if new bubbles are fuelled.

That the bubble distorted the view of what is “normal” can also be seen by the fact that the official estimates of the output gap have changed considerably over the last year. For example, the Commission estimated as late as early 2008 that in the preceding year, 2007, the euro area had not substantially exceeded its potential level, as it estimated the output gap for 2007 to be only 0.2% (i.e. the excess of actual output over potential). One year later, after the crisis had broken, the estimate of the output gap for 2007 was revised upwards to 2.5%. This shows how bubbles can distort the view of what is “normal”. The dot-com bubble had a similar effect. In early 2000, it was thought that the euro area economy still had a lot of slack because the output gap was estimated at -2%; today this value has been revised to +1.2% (implying that there was no slack in the euro area economy already in 1999, because actual output was already above potential).

As an aside, we should keep in mind that this overestimation of potential output was at least partially responsible for the overly optimistic targets set in the Lisbon Strategy.

Concluding Remarks

A recurrent theme of this paper is that we should see the present crisis in light of the bubble that preceded it. It is thus inappropriate to look simply at the fall in GDP to measure the severity of the crisis. The current situation should be compared to a pre-bubble period if we are to use a proper benchmark.

Viewing this crisis as a violent adjustment from an unsustainable bubble thus leads to a different perspective. It implies that the recovery will depend not only on financial markets returning to normal, but also on the amount of excess capacity that was created during the bubble. As there might now be significant excess capacity in several sectors (housing, durable consumption etc.) investment might remain sluggish for some time to come. The legacy left by the bubble, more than official “stimulus” programmes, will be decisive for the speed and durability of the recovery.