

# *Kiel* Policy Brief

## Growth Patterns after the Crisis: This Time is not Different

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No. 22 | December 2010



The recovery of the world economy is evolving with a considerable degree of heterogeneity across countries. While the recovery in emerging countries, in particular in Eastern Asia, was very pronounced, it was disappointingly slow in most advanced economies. For example, the upturn was quite strong only during the winter 2009/2010 in the United States and in Japan, and it has lost momentum since then. In other countries that had been hit by a banking crisis and/or a housing crisis, such as the United Kingdom, Spain, or Ireland, the recovery has been sluggish until recently. In this paper, we analyze whether the developments so far are surprising in the light of experience with previous crises. In other words: Is there any indication that “this time is different”?<sup>1</sup> In particular, we will argue that it is crucial to distinguish between normal recessions and recessions which are associated with a crisis to classify the current recovery in the historical context appropriately.

### **The reference: What should be expected after the Great Recession?**

The empirical business cycle literature frequently finds that the speed of recovery is positively correlated with the depth of the preceding recession. Consequently, real GDP returns to its pre-recession level relatively fast; in addition, the long-term growth path is not dampened permanently by the recession. Evidence for this business cycle pattern was found for the United States (Beaudry and Koop 1993, Sichel 1994, Kim et al. 2005, Morley 2009), for Germany (Boss et al. 2009), and for Italy (Bradley and Jansen 1997). According to this literature, one should have expected a particularly strong rebound of economic activity in many countries after the Great Recession of 2008/2009 because it was, in most cases, the deepest since World War II.

However, this pattern seems to apply only to “normal” recessions. A number of more recent studies show that if recessions are associated with severe (banking and/or housing) crises, the regularities may change: Not only are these recessions deeper than “normal” recessions, they also last longer, i.e., the following recovery is very sluggish (e.g., Claessens et al. 2008, IMF 2009a, Jannsen 2010, Reinhart and Rogoff 2008). In general, real GDP does not even reach its old growth path after such recessions, i.e., there are permanent output losses (e.g. Boyd et al. 2005, Cerra and Saxena 2008, Furceri et al. 2009, IMF 2009b). Given these findings, one should have expected particularly weak recoveries, because the recession in 2008/2009 was in many countries indeed associated with banking and/or housing crises.

Differentiating for recessions that are associated with severe crises and ordinary recessions that are not unifies these—seemingly—conflicting results (Boysen-Hogrefe et al. 2010). Figure 1 shows the typical path of real GDP during a recovery following an ordinary recession and alternatively following a recession associated with severe economic crises, based on a panel analysis of 16 industrial countries in the period 1970–2006. A recovery following an ordinary recession is usually strong enough to bring real GDP back close to its

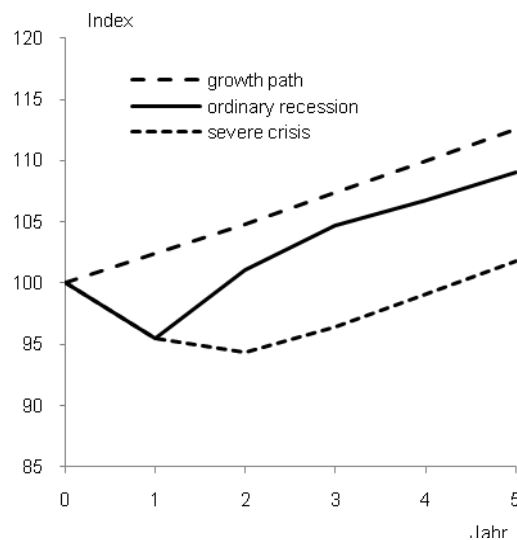
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<sup>1</sup> This refers to the title of the famous book by Reinhart and Rogoff (2009).

growth path as estimated prior to the recession.<sup>2</sup> In contrast, a recovery after a crisis is generally very sluggish; in addition, although the rate of growth is roughly equivalent to that prior to the recession, the level of GDP remains well below the growth path for many years, implying a decline of steady-state output. This is a pattern that can be found for many countries (IMF 2009b: 122). One of the main reasons for this relatively poor performance is that a substantial restructuring has to take place after the crisis because, for example, the housing sector and/or the banking sector needs to shrink. Furthermore, the normalization of firm and household debt that typically increases drastically in the preceding boom and often leads to bubbles takes time.

*Figure 1:*

Recovery following an ordinary recession and following a recession associated with a severe crisis

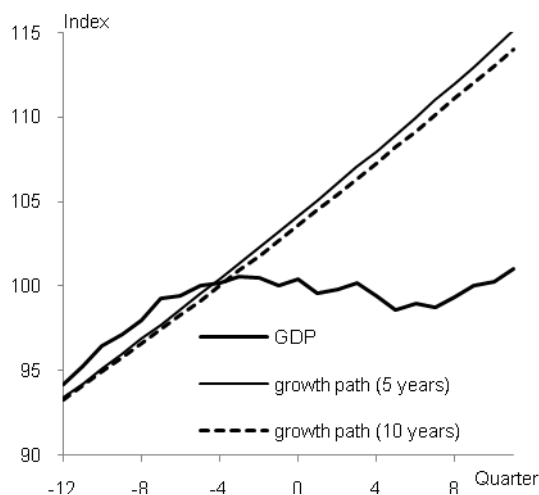


Yearly data, real; GDP as index (year 0 = 100); recovery following a decline of GDP of 5 percent in year 1; according to Boysen-Hogrefe et al. (2010).

The analysis by Reinhart and Rogoff (2008) for the so-called Big Five, i.e., the crises in the 20<sup>th</sup> century that can be considered very severe, is used as another historical benchmark (Figure 2). In those cases, the gap between trend output and actual GDP even becomes bigger for several years instead of remaining roughly constant as in the previous example shown in Figure 1.

<sup>2</sup> According to Figure 1, ordinary recessions also seem to have small permanent effects on GDP. One reason may be that “normal” recessions are often associated with negative supply side effects, such as the oil crises of 1973/74 and 1979/80. Therefore, this result provides no conclusive evidence for permanent effects of ordinary recessions in general.

**Figure 2:**  
Real GDP and the growth path after the “Big Five” crises



Quarterly data, real GDP: quarter 0 = 100; show the average development during the banking crises in Spain (1977), Norway (1987), Finland (1991), Sweden (1991), and Japan (1992).

### Some caveats concerning the comparison and the trend calculation

To be sure, it may be too early to compare the current recovery with those in previous periods because the trough of the Great Recession was just six quarters ago. So we do not have sufficient data to make a final comparison with previous recoveries following a crisis. Nevertheless, we can check whether the first part of the recovery is in line with experience.

Another caveat concerns the calculation of the growth path prior to the crisis. As is well known, the trend growth (or potential growth) of an economy is unobservable and thus has to be estimated. There are many possible methods. For the historical comparison, it would be of little use to estimate the trend with the common filter methods such as the HP filter because this is subject to the end-point problem, i.e., forecasts would be required or one would have to use the actual data following the crisis, which would lead to a very low (or even a negative) growth rate, which would not allow a useful comparison with historical data.

Therefore, we use a log-linear trend estimate based on particular number of years before the recession occurred. Since the growth path of an economy can change rapidly, notably in strongly growing emerging economies, and since there is a certain amount of uncertainty with any estimate, we calculate the trend for two different samples: the first is based on the five years before the recession occurred, and the second is based on the ten years before the recession. A linear trend obviously can only be a very rough measure of the growth path of an economy. Moreover, in particular the linear trend based only on the five years before the recession occurred might be biased when a recession associated with a severe crisis was preceded by a boom that pushed GDP to a non-sustainable level which had to be corrected anyway. However, the countries directly affected by a severe crisis and

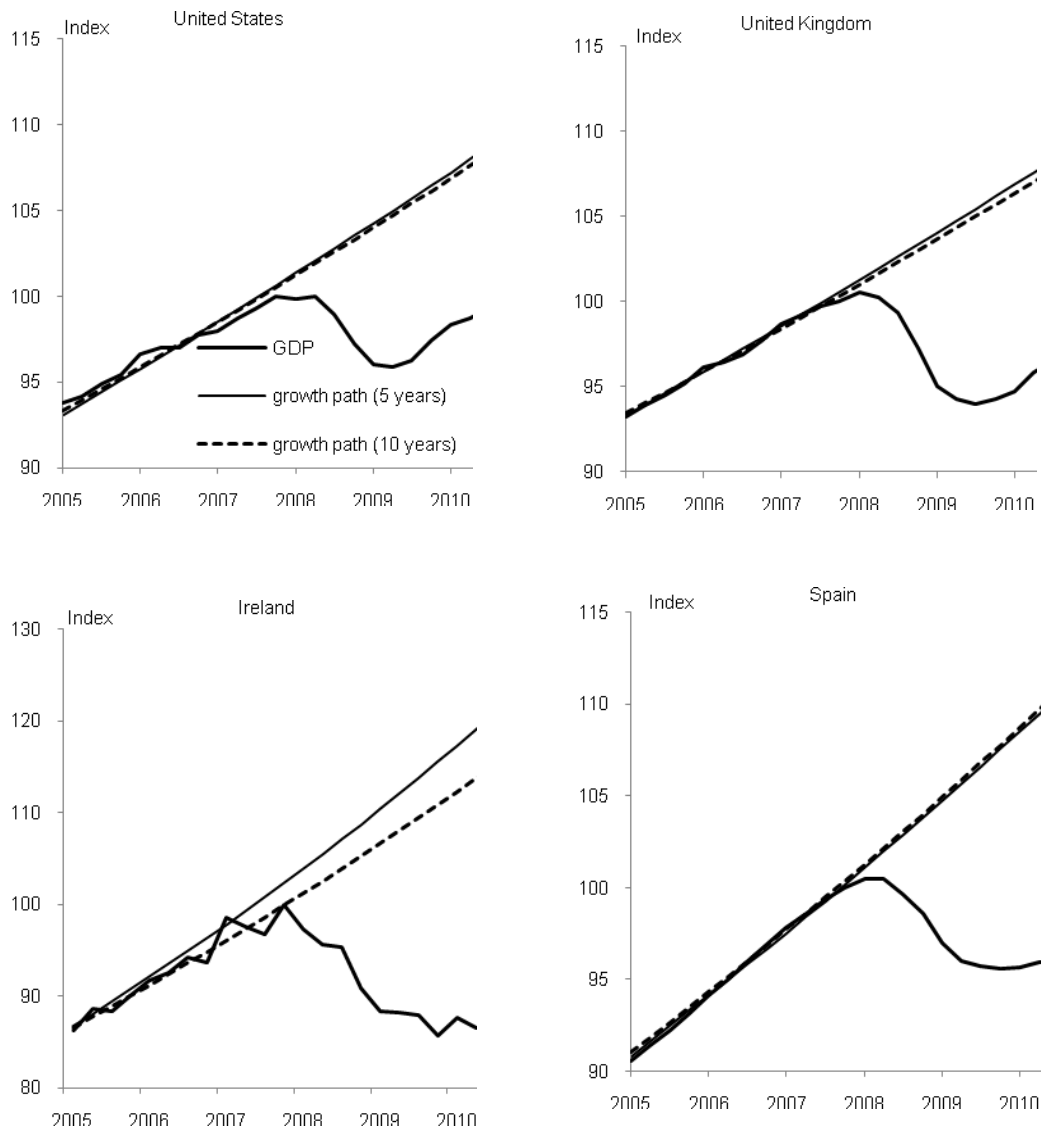
investigated here apparently did not experience a phase of exceptionally strong GDP growth in the years preceding the crisis compared to their long-run growth. For example, GDP growth in the United States between 2002 and 2006 amounts to 2.7 percent on average and therefore was even below the long-run average. For the calculation of the various growth paths, the first quarter of the recession is set to the fourth quarter of 2007 for all countries.

To be able to compare whether the current recovery following the Great Recession of 2008/2009 is in line with the typical historical pattern, first of all we have to classify the type of recessions by which countries were hit. This classification seems to be obvious for some countries that were directly affected by a severe crisis, such as the United States, the United Kingdom, and Spain. Also for some other countries that were obviously not affected by a severe crisis as the Asian emerging economies the classification seems to be obvious. However, for several countries this classification is ambiguous. For example, in Germany the banking sector was strongly affected by the financial crisis, however, the typical pattern (boom-and-bust cycle with excessive bank lending and bubbles in the real economy that need to be corrected) could not be observed. Nevertheless, economies that are strongly dependent on the export sector, such as Germany, may suffer a permanent loss in GDP when the decline of demand from countries directly affected by a severe crisis is strong and permanent. Therefore, such countries may not be able to return to their old growth paths even though they did not experience a “homemade” crisis.

### **Countries that were hit by a crisis recover very slowly**

Figure 3 shows the development of GDP in the recent past for three countries that were directly affected by a banking crisis and a housing crisis, namely the United States, the United Kingdom, Spain, and Ireland. These four countries have not returned to their respective growth paths so far. In the United States and the United Kingdom, GDP grew recently at roughly the same pace as before the crisis, albeit on a much lower level. In Spain and particularly in Ireland, GDP growth is still below the average GDP growth that was observed before the recession, so that GDP is even diverging from its old growth path. So Spain and Ireland are obviously close to the pattern of the Big Five shown above. All in all, the recovery so far is comparable with historical recessions associated with severe crises. Given the forecasts available until the end of 2011, which imply only modest growth for most of the advanced economies, one can conclude that real GDP is not likely to reach its old growth path in the near future and that at least some of the losses in GDP will be permanent.

**Figure 3:**  
GDP and growth path during the historical and current crises 2005–2010



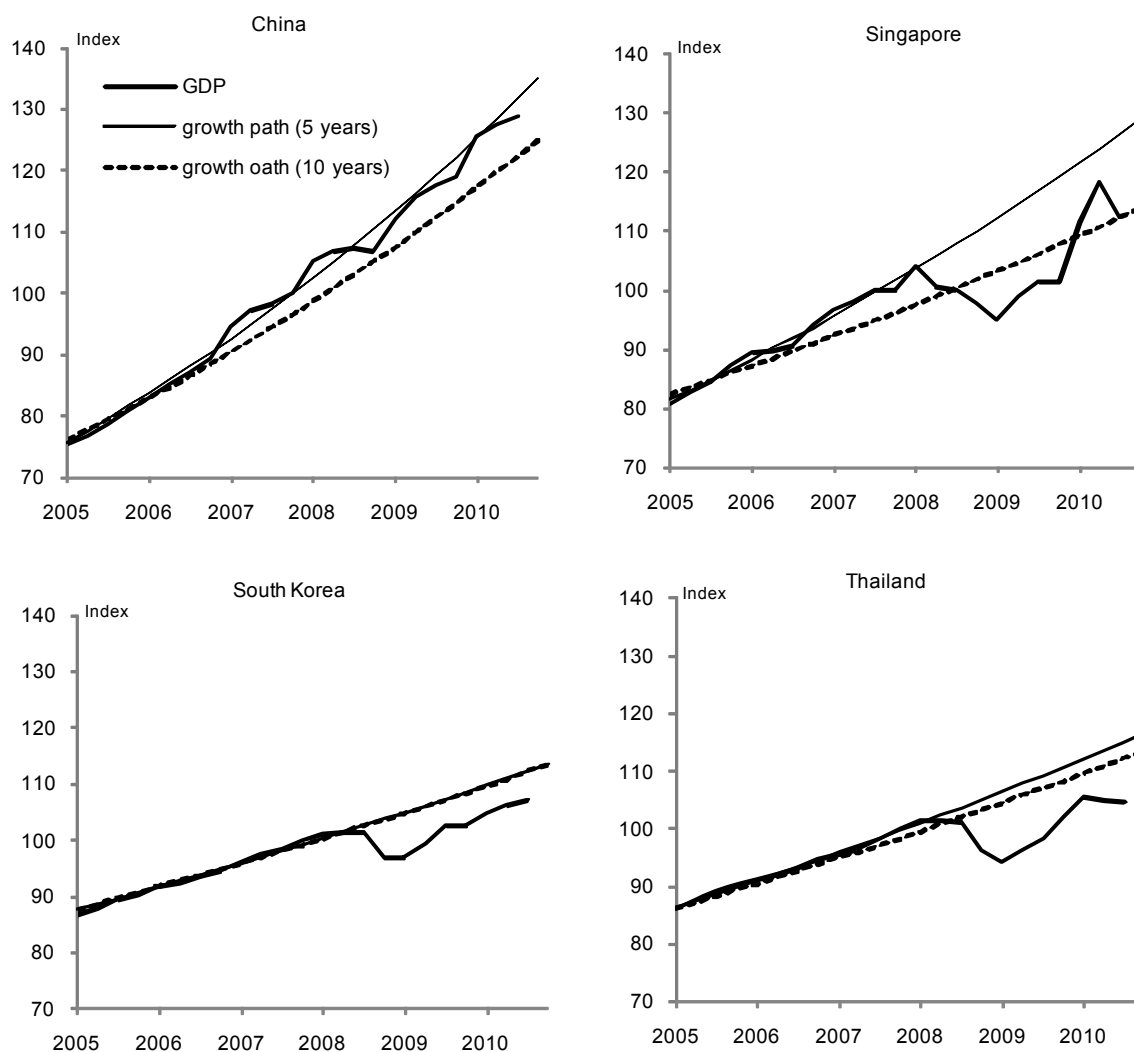
Quarterly data, real GDP: fourth quarter 2007 = 100; growth paths were estimated based on a log-linear trend for the five years before the crisis and—alternatively—for the 10 years before the crisis.

### Countries in Asia are already back to normal

In contrast to many advanced countries, real GDP in the emerging economies of Asia have converged very quickly to their respective growth path (Figure 4). It appears that the growth path estimated based on the five years before the recessions is considerably above the ten-year growth path for some countries, with South Korea being an exception, because trend growth has increased considerably in the recent past in these countries. It seems that the Asian countries will not experience a permanent output loss due to the Great Recession. In particular, it seems that economic development in China has not been affected much by the

Great Recession, although, like most other countries, its exports and imports fell drastically in the wake of the collapse in world trade in the winter of 2008/2009.

*Figure 4:*  
GDP and growth path in Asian emerging economies 2005–2010



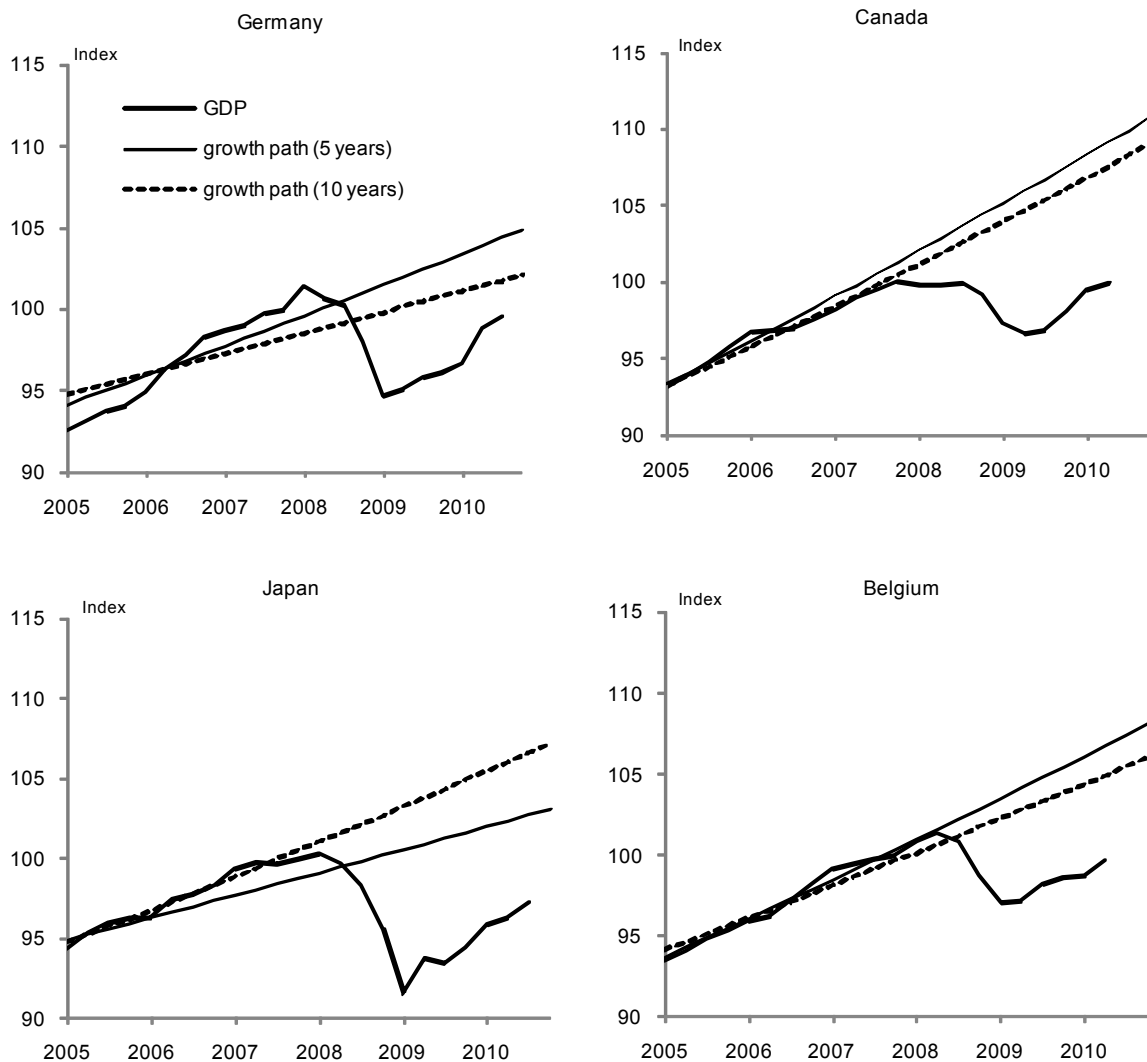
Quarterly data, real GDP: fourth quarter 2007 = 100; growth paths were estimated based on a log-linear trend for the five years before the crisis and—alternatively—for the 10 years before the crisis.

### Mixed picture for Germany and other advanced economies

A more differentiated situation can be found for countries that were not directly affected by a severe crisis, but that exhibit considerably slower growth dynamics than the Asian emerging economies and that are additionally relatively dependent on the export sector. In Germany, Japan, and Belgium, the growth path during the five years before the crisis accelerated. After the crisis, real GDP in Germany seems to be converging at least to some extent to the estimated growth path. However, much of the recent convergence is due to the exceptionally

strong GDP growth in the second quarter of 2010. In Canada, real GDP growth in recent quarters has been slightly above the average growth observed before the crisis. Therefore, GDP in Canada also seems to be slowly converging to its estimated growth path. Nevertheless, given the current pace of the recovery, it would take GDP in Canada many years to actually reach its old growth path. A similar picture can be observed for Japan. Real GDP in Belgium, a typical example of a small and extremely export-dependent economy, will, given the current pace of the recovery, stay permanently below its old growth path. All in all, among the advanced countries analyzed here, Germany seems to be a positive exception in terms of its economic performance.

Figure 5:  
GDP and growth path in industrial countries not directly affected by a severe crisis 2005–2010



Quarterly data, real GDP: fourth quarter 2007 = 100; growth paths were estimated based on a log-linear trend for the five years before the crisis and—alternatively—for the 10 years before the crisis.



Overall, the current recovery fits well into the historical comparison presented in figures 1 and 2 for the group of countries directly affected by a severe crisis and for the group of Asian emerging economies: the countries with a homemade crisis have so far had a sluggish recovery and GDP seems to be following a lower growth path, while the Asian emerging economies as a consequence of a rapid recovery seem to be reaching their old growth paths again. The industrial countries that were not directly affected but that are dependent on exports cannot be classified directly in one of these two groups. On the one hand, real GDP in some of these countries seems to converge to the old growth path, even though at a much slower pace than the Asian emerging economies. On the other hand, if the scenario of a permanent lower growth path for the countries directly affected by a severe crisis becomes true and translates into permanent lower export demand, GDP in these countries may also shift to a growth path that is lower than the path estimated before the crisis.

### **Implications for economic policy**

The similarity between the historical pattern of recoveries and the current recovery is striking. While there is probably no such thing as a “law of nature” that necessarily implies a sluggish recovery after a crisis, there may be many reasons why this is the case. The adjustments in the real economy after the exaggerations and bubbles obviously take some time, and there may also be a permanent damage in terms of potential output. This may be true although economic policy often reacted massively and even though countries often experienced a massive depreciation of their currency in previous crises.

An assessment whether the long-term growth path of an economy remains unchanged during a recession or whether there is a downward shift of potential output is essential for economic policy. The estimate of the output gap plays an important role for monetary policy because the central bank usually sets interest rates by following a kind of Taylor rule, and for fiscal policy because the cyclically adjusted budget deficit is of central importance for budget consolidation.

While the estimation of the growth path with a log-linear trend as it is used here cannot be a substitute for more sophisticated methods for estimating potential output, it is obvious that any available method will provide—according to the historical experience illustrated in figures 1 and 2—an estimate in the medium-term that is considerably lower in the scenario of a recession associated with a severe recession than in the scenario of an ordinary recession. If this is also true for the current situation—and the evidence presented above is certainly in favor of this—the implications for macroeconomic policy are straightforward. If policy makers in particular in those countries affected by a recession associated with a severe crisis ignore historical experience and therefore overestimate the size of the (negative) output gap, there is a risk that the stance of monetary and fiscal policy could be too expansionary, even though it may appear that the speed of the recovery is disappointingly slow.

Recent events show that this risk is relevant. For example, the US Fed is apparently disappointed by the weak performance of the US economy and the stubbornly high unemployment associated with it. Therefore, it decided to extend the measures of the so-called quan-

titative easing further.<sup>3</sup> Also, the administration shows little determination to bring down the still high budget deficit and continues to implement its policy because of the slow speed of the recovery. But this reaction may be misguided if—as is often the case—the recent crisis has led to a permanent reduction of output. In this case, the weakness of the US recovery is most likely due to the necessary adjustments in the real economy. Therefore, an even more expansionary monetary or fiscal policy is not an appropriate response to these problems.

## References

- Beaudry, Paul, and Gary Koop (1993). "Do Recessions Permanently Change Output?" *Journal of Monetary Economics* 31, 149–163.
- Boysen-Hogrefe, J. N. Jannsen and C.-P. Meier (2010a). *The Ugly and the Bad: Banking and Housing Crisis Strangle Output Permanently, Ordinary Recessions Do Not*. Kiel Working Papers 1586. Kiel Institute for the World Economy, Kiel.
- Boss, A., J. Boysen-Hogrefe, J. Dovern, D. Groll, C.-P. Meier, B. van Roye and J. Scheide (2009). *Die deutsche Wirtschaft im Sog der Weltrezession*. Institut für Weltwirtschaft (Hrsg.), In *Weltkonjunktur und deutsche Konjunktur im Frühjahr 2009*. Kiel Discussion Papers 463. Kiel Institute for the World Economy, Kiel.
- Boyd, John H., Sungkyu Kwak, and Bruce D. Smith (2005). "The Real Output Losses Associated with Modern Banking Crises." *Journal of Money, Credit, and Banking* 37, 6, 977–999.
- Bradley, M.D., and D.W. Jansen (1997). Nonlinear Business Cycle Dynamics: Cross-Country Evidence on the Persistence of Aggregate Shocks. *Economic Inquiry* 35 (July): 495–509.
- Cerra, Valerie, and Sweta C. Saxena (2008). "Growth Dynamics: The Myth of Economic Recovery." *American Economic Review* 98, 1, 439–457.
- Claessens, Stijn, M. Ayhan Kose, and Marco E. Terrones (2008). "What Happens During Recessions, Crunches and Busts?" IMF Working Paper 08/274, International Monetary Fund, December 2008.
- Furceri, Davide, and Annabelle Mourougane (2009). "The Effect of Financial Crises on Potential Output." OECD Economics Department Working Papers 699, Organization for Economic Cooperation and Development, May 2009.
- IMF (International Monetary Fund) (2009a). "From Recession to Recovery: How Soon and How Strong?" *World Economic Outlook*, April 2009.
- IMF (International Monetary Fund) (2009b). "What's The Damage? Medium-Term Output Dynamics After Financial Crises." *World Economic Outlook*, October 2009.
- Jannsen, N. (2010), National and International Business Cycle Effects of Housing Crises. *Applied Economics Quarterly* 56 (2): 175–206.
- Jannsen, N and J. Scheide (2010). *Nochmalige quantitative Lockerung in den USA: Ein Ritt auf dem Tiger*. IfW Fokus 85. Kiel Institute for the World Economy, Kiel.
- Kim, Chang-Jin, James Morley, and Jeremy Piger (2005). "Nonlinearity and the Permanent Effects of Recessions." *Journal of Applied Econometrics* 20, 2, 291–309.
- Morley, J. (2009). *The Shape of the Things to Come*. Macroeconomic Advisers' Macro Focus 4 (6). Via Internet (1. Juni 2009) <<http://artsci.wustl.edu/~morley/shapes.pdf>>.
- Reinhart, Carmen M., and Kenneth S. Rogoff (2008). "Is the 2007 US Subprime Crises so Different? An International Historical Comparison." *American Economic Review* 98, 2. 339–344.
- Reinhart, Carmen M., and Kenneth S. Rogoff (2009). *This Time is Different: Eight Centuries of Financial Folly*. Princeton.
- Sichel, Daniel E. (1994). "Inventories and the Three Phases of the Business Cycle." *Journal of Business and Economic Statistics* 12, 3, 269–278.

<sup>3</sup> For an assessment of the Fed's move see Jannsen and Scheide (2010).

## Imprint

Publisher: Kiel Institute for the World Economy  
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Sales tax identification number DE 811268087.

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Supervisory authority: Schleswig-Holstein Ministry of Science,  
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