Box 1.2. *World Economic Outlook* Downside Scenarios

The scenarios presented here use the IMF's Global Integrated Monetary and Fiscal Model (GIMF) to consider the possible implications for the world outlook if potential output in some regions of the world is overestimated in the baseline forecast. Although there is general consensus that potential output is now lower than projected before the recent financial crisis, there is a risk that the downward revisions were not large enough. The scenarios consider plausible misperceptions of the current level of potential output and its growth over the WEO forecast horizon in the United States, emerging Asia, and some other emerging economies. The results illustrate how these misperceptions could lead to notably higher inflation in the near term and sharply lower growth and increasing external imbalances once policymakers and markets recognize the error.

Two alternative scenarios are considered. In the first, the implications of the policy errors associated with the overestimation of potential output are simply greater macroeconomic volatility as the economies affected converge to the true level of potential output. In the second, the policy errors are more costly. The initial acceleration in inflation becomes more entrenched in expectations, and a more prolonged period of below-potential growth is required to re-anchor inflation expectations.

Estimating sustainable economic output from historical data is difficult in the best of times. However, it is even more challenging when the most recent data contain a boom-bust episode like the one the global economy just endured. Estimates of the current level of potential output for many economies may not have fully accounted for the extent of capital destruction wrought by the financial crisis or its impact on structural unemployment. Projected potential output growth rates may be overly optimistic, assuming that too much of the growth momentum over the past decade reflected underlying fundamentals rather than being symptomatic of the financial excesses that eventually led to the crisis.

In these scenarios it is assumed that the baseline forecast overestimates the level of potential output in 2015 by roughly 6 percent in China, 4 percent in emerging Asia excluding China, 3 percent in the United States, and 2.5 percent in the remaining countries.[1] Estimates of potential output in the euro area and Japan are assumed to be broadly correct. Where applicable, both the initial starting points and the rates of growth over the WEO forecast horizon contain errors. It is assumed that starting point errors at end-2010 are approximately 1.5 percent in the United States and the remaining countries and 2 percent in China and emerging Asia excluding China. The remaining errors arise from overestimating potential output growth for each year of the forecast horizon. This implies errors in the annual growth rate of potential output of roughly ¾ percentage point in China, ½ percentage point in other emerging Asian economies, and ¼ percentage point in the United States and the remaining countries. It is assumed that no one recognizes the error until 2013.[2]

In the first scenario, once policymakers recognize the error, monetary policy must be tightened sharply to return inflation to target. Markets also respond and drive lending rates up by an additional amount that is roughly proportional to the magnitude of the misperception about supply capacity. Essentially, the realization that monetary conditions have been excessively loose for an extended period raises concerns about underlying asset quality. Consequently, the scenario incorporates temporary but persistent increases in private market interest rates of an additional 150 basis points in China, 100 basis points in the United States and emerging Asia excluding China, and 50 basis points in the euro area and the remaining countries (Figure 1.2.1).

In the first two years, real GDP grows according to the baseline forecast. However, given the misperception of supply capacity, demand pressures emerge in many regions of the world, and inflation

The main author of this box is Benjamin Hunt. Mika Kortelainen and Stephen Snudden contributed.

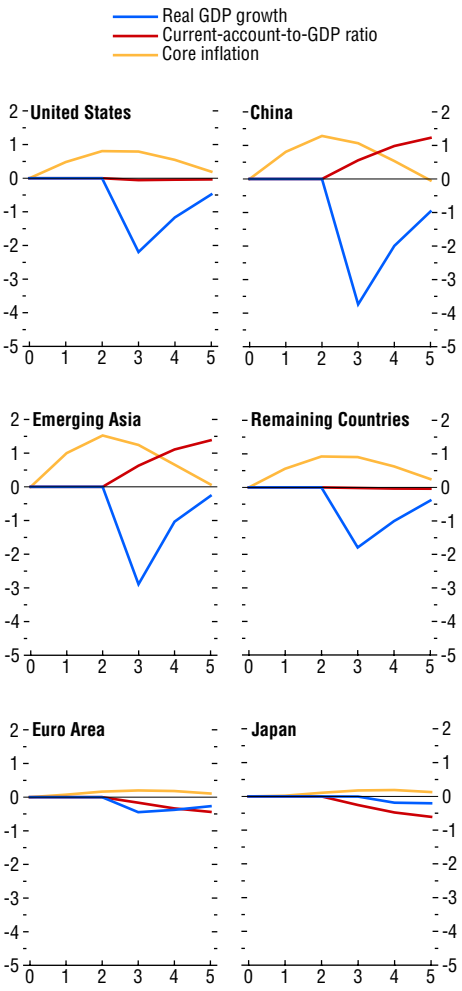
[1]The block of remaining countries includes all the world economies except the United States, the euro area, Japan, China, and emerging Asia.

[2]An alternative approach would be to have policymakers learn gradually about their misperceptions regarding the level of potential output and start to tighten policy prior to 2013. If this were the case, then real GDP would turn out to be below the baseline prior to 2013, and the subsequent macroeconomic volatility would be reduced.

Box 1.2 *(continued)*

Figure 1.2.1. WEO Downside Scenario 1: Implications of Overestimating Potential Output

(Percentage point difference from baseline)



Source: Global Integrated Monetary and Fiscal Model simulations.

rises above the baseline forecast. It rises most sharply in China and other emerging Asian economies, but it also rises in the United States and the remaining countries. Although not explicit in the analysis, it is likely that the demand and inflation pressures would be most acute in the emerging market economies contained within the block of remaining countries, notably those heavily dependent on commodity exports. Even though rising inflation would signal the potential output error to the Federal Reserve, slow recovery in the labor market coupled with an overly optimistic view of the level for structural unemployment could prevent a timely adjustment in monetary conditions. Competitiveness concerns in other regions of the world could lead to conditions remaining too loose there also, despite high inflation.

Policymakers and markets do not recognize the true level of potential output and its future path until 2013. This leads to tightening in monetary policy rates and additional increases in private market interest rates. Higher interest rates, recognition of weaker future income growth, and the consequent fiscal adjustment would all contribute to a sharp slowdown in private consumption and investment growth. Real GDP growth declines in 2013 by almost 4 percent in China, 3 percent in other emerging Asian economies, and roughly 2 percent in the United States and the remaining countries. The declines in growth are much milder in the euro area and Japan. Growth remains notably below the WEO baseline in 2014, but returns close to the baseline by 2015. The sharp slowdown in growth is sufficient to return inflation close to the baseline by 2015.

Under this scenario, global imbalances would widen further. Economies that already have high surpluses (China and other emerging Asian economies) experience an improvement in their current account balances because aggregate demand adjustment is largest in those regions. As consumption and investment demand slow rapidly, import growth falls sharply, leading to a rising trade balance. In the United States and the remaining countries, current accounts are largely unchanged as weaker import growth broadly matches the pace of slowing export growth. For the euro area and Japan, with no required adjustment in domestic demand, weaker trading partner growth translates to slower export growth, and their current accounts deteriorate.

In the second scenario, the initial burst in inflation becomes more entrenched in expectations, which is conceivable in a global environment where high and rising commodity prices are likely to be fueling

Box 1.2 *(continued)*

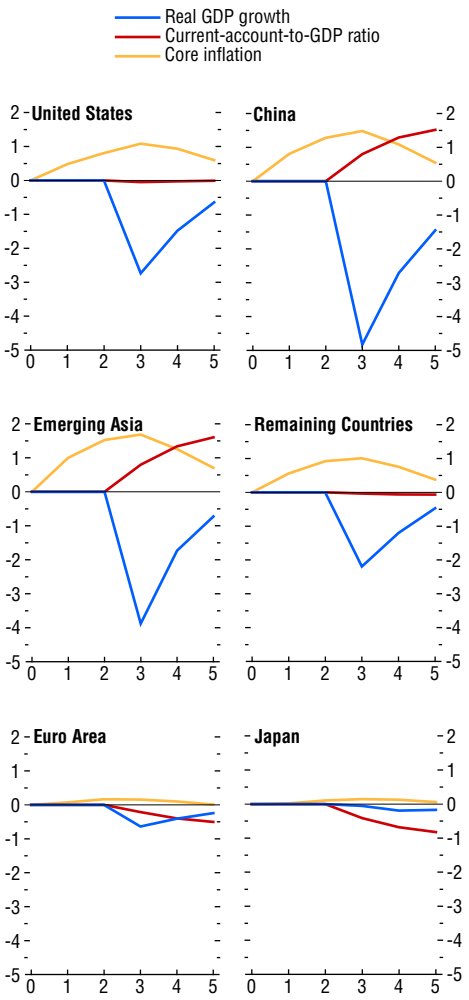
headline rates well above recent historical experience. In addition to more persistent high inflation, it is assumed that market concerns over asset quality following the boom are more acute. Consequently, once policymakers recognize the error and tighten policy rates, markets drive lending rates up further than in the first scenario. Market interest rates rise above policy rates by an additional 300 basis points in China, 200 basis points in the United States and emerging Asia excluding China, and 100 basis points in the euro area and remaining countries (Figure 1.2.2).

Again the scenario assumes that in the first two years GDP growth rates match those in the baseline, but with potential output lower than expected, excess demand pressures drive inflation above the paths in the baseline. Once monetary policymakers and markets recognize the error in 2013, the larger response in interest rates leads to a sharper slowdown in growth. The slowdown is most dramatic in China, where GDP growth falls by roughly 5 percentage points, followed by emerging Asia, where growth declines by almost 4 percentage points. Growth falls by close to 3 percentage points in the United States and by just over 2 percentage points in the remaining countries. The greater persistence in inflation means that interest rates must remain higher for longer to keep GDP growth rates considerably below baseline in 2014 and 2015. Despite substantial excess supply opening up in these economies, inflation has not returned to target by the end of the WEO forecast horizon, implying that growth would need to be maintained below its potential rate beyond 2015. Not surprisingly, with real activity more adversely affected by the misperception of the level of potential output in this scenario, global imbalances widen even further.

For policymakers, these scenarios illustrate how plausible errors in estimating potential output can lead to considerable volatility in growth and inflation and a widening of global imbalances if the error is only slowly recognized. Further, should high inflation become entrenched in expectations, significant permanent losses in real GDP would be required to reestablish low and stable inflation. Policymakers should look carefully to core inflation outcomes to inform their estimates about underlying potential output and structural unemployment and should be prepared to revise those estimates regularly. For emerging economies already exhibiting signs of overheating, competitiveness concerns should be of secondary importance. Containing inflation pressures early could substantially reduce future economic volatility.

Figure 1.2.2. WEO Downside Scenario 2: Implications of Overestimating Potential Output with Sticky Inflation

(Percentage point difference from baseline)



Source: Global Integrated Monetary and Fiscal Model simulations.