

Shifting Patterns in Recessions and Recoveries

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The topic of recession and recovery is a very important one. The focus on recovery in the wake of the crisis is understandable, and today, seven years later, there's still widespread debate about why we didn't do better.

But it's worth recalling the mood some six years ago, in April 2009, at the G20 conference in London. The talk was all about Depression.

That same month ECRI predicted that the U.S. recession would end by the summer of 2009, and, expecting widespread disbelief, we recalled Pigou's 1920 observation that "The error of optimism dies in the crisis but in dying it 'gives birth to an error of pessimism. This new error is

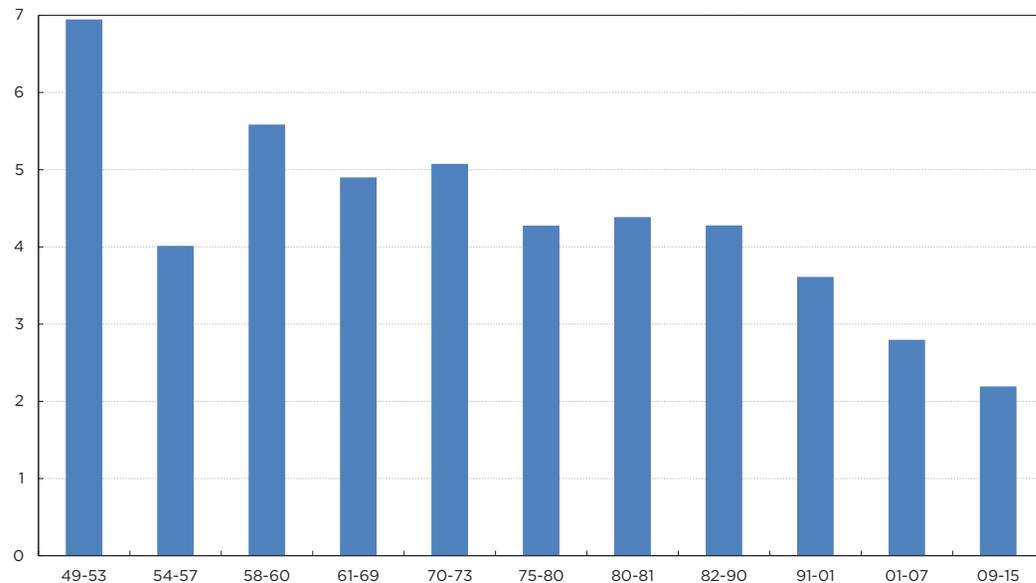
born, not an infant, but a giant; for (the) boom has necessarily been a period of strong emotional excitement, and an excited man passes from one form of excitement to another more rapidly than he passes to quiescence."

And so it was, until about a year later: at that point, following such a deep recession, the reality of the new expansion had begun to engender expectations of a *V-shaped* recovery. Yet, those hopes have repeatedly been dashed. So today, there's plenty of debate about what's wrong with the economy, and what recovery prospects should look like. A good part of that unease is rooted in the suspicion that something

fundamental has changed.

While a big bust cannot be ruled out, ECRI believes that minimally we're returning to a period of more frequent recessions, as we saw in much of the twentieth century. But the reasons are different than most might expect. ■

Falling U.S. GDP Growth (%) During Expansions



As students of the business cycle, we have a unique perspective. In particular, our focus on the business cycle helps us separate shorter-term *cyclical*, and longer-term *secular*, patterns.

In the summer of 2008, *before* Lehman Brothers failed, we were looking at a version of this chart, which shows the pace of growth during post-World War II economic expansions, deliberately excluding the recessions. What jumped out at us then is this pattern of falling U.S. GDP growth during expansions. Going back at least to the 1970s, growth has been stair-stepping down during each successive expansion.

We concluded the next economic expansion would be “feeble.” As evident from the last bar, that is what has happened. But remember, the year after the recession ended, the expectation was that of a V-shaped recovery, because the conventional wisdom was that “big recessions are followed by robust recoveries.”

Actually, while expectations of a strong rebound following deep recessions persist today, this is not what the historical evidence suggests. Basically, the strength of revival in the *first year* of recovery is correlated with the depth of the recession, but the strength of the *rest* of the recovery is not. In other words, the belief

that robust recoveries follow deep recessions is a longstanding misunderstanding, and the business cycle doesn’t owe us anything more. My colleague, Anirvan Banerji, and I have published a [paper](#) on this topic.

Most people were disappointed that we didn’t have a more sustained V-shaped recovery. For example, as Fed Chairman Bernanke put it at his farewell press conference in 2013, “we have been disappointed in the pace of growth, and we don’t fully understand why.”

Some have argued that this is because of private sector deleveraging, which is typical following financial crises. But with growth still failing to take off so many years later, the notion of “secular stagnation” came back into vogue, and a debate between these two camps has ensued.

Let’s be clear: ECRI doesn’t belong to either of these two camps, having recognized well before either camp came into existence that there was a pattern of falling trend growth going back several decades – so the weak recovery was no surprise to us. But, sticking to the data, what can it tell us about what’s been happening, and where we go from here? ■

Growth in Labor Productivity and Potential Labor Force (%)



Shaded areas represent U.S. business cycle recessions.

Simple math shows that recoveries have been getting weaker because of developments in the growth of output per hour, which is productivity growth, and growth in hours worked. Taken together, they add up to real GDP growth.

For the past four years, productivity growth (green line) has averaged *just ½% per year* (red line), which may be why Fed Vice-Chairman Stanley Fisher recently lamented that productivity growth “has stayed way, way down.” Given the latest data one could say that the U.S. is in a “productivity recession,” having seen the largest back-to-back quarterly productivity *declines* in 22 years.

Now, it is often assumed that productivity growth will rebound to its post-World War II average, around 2¼% a year (gold line). But you know what they say about assumptions, and to quote Fisher again, “productivity is extremely difficult to predict,” and “will *perhaps eventually* return” to its earlier pace. In other words, there is no strong reason why the ½% a year average pace of the last four years should increase anytime soon. In fact, since the end of 2013, productivity growth has averaged *minus 0.7%* a year.

Potential labor force growth (blue line) should reflect the long-term trend in growth in hours worked. But the Congressional Budget

Office says it will stay at ½% *per year* at least for the next decade. This is pretty much set in stone, given the demographics.

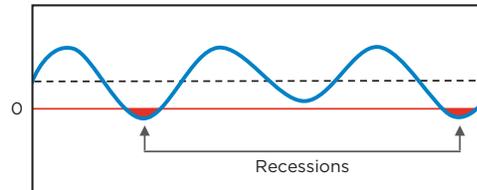
Adding up the likely growth of these two measures, ½% for productivity, plus ½% for potential labor force growth, gives us just 1% longer-term real GDP growth.

So unless there is a good reason to believe that productivity growth will revive over the next few years, trend GDP growth may very well stay in the 1% range for years to come.

What we’ve covered so far suggests that this is not really about a “sub-par” *cyclical* recovery. Rather, given the *secular* backdrop, the business cycle owes us nothing more.

And, this is not just about the U.S. It is happening around the world, and global phenomena need global explanations. But, first, we need to look at how slowdowns can turn into recessions. ■

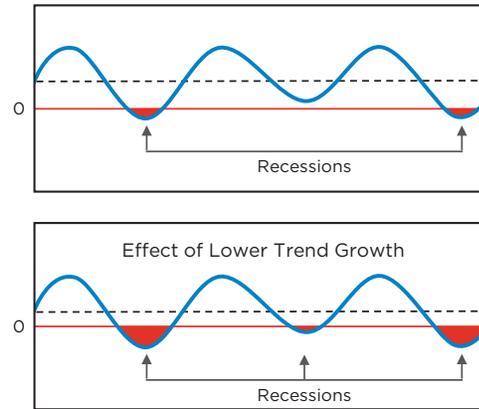
A Stylized View of Recession



For starters, please consider the business cycle in the abstract. The blue line depicts real economic growth cycling up and down like a sine curve. Every time it dips below zero you get negative growth marked off by those red areas which are recessions. The horizontal dashed line shows the long-term trend growth rate, with economic growth cycling above and below.

Suppose all this stayed the same except... ■

A Stylized View of Recession

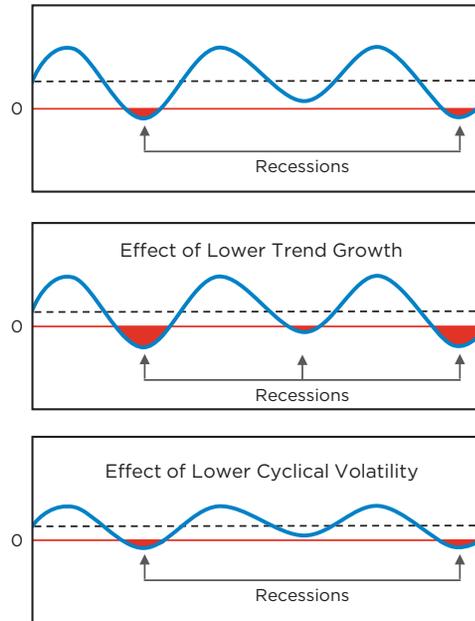


...that *trend growth was shifted down*.

Now please consider the blue line in the second panel – it dips below zero more often, resulting in more frequent and deeper recessions. This is what we've seen in Japan, which has experienced four recessions, just since 2008.

Next, let's suppose... ■

A Stylized View of Recession



...the *only* thing that changes is that we *tamp down the cycle volatility*. Economic growth now dips below zero *less* often, and we get less frequent and milder recessions.

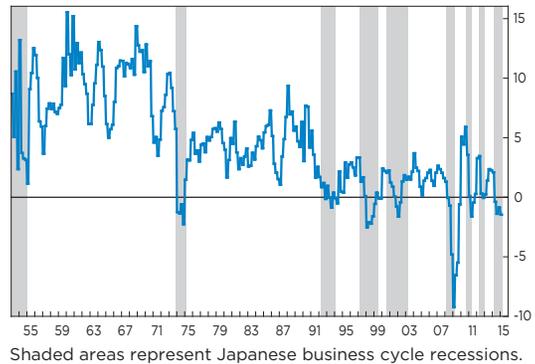
So, lower trend growth gets you more frequent recessions. But lower cycle volatility can offset this tendency. That's what happened in the U.S. from the mid-80s through 2007, the so-called Great Moderation of the business cycle, during which we had long expansions.

Volatility returned with a vengeance during the Global Financial Crisis (GFC), but then, as we'll discuss in a moment, for somewhat unexpected reasons, we got what we call the

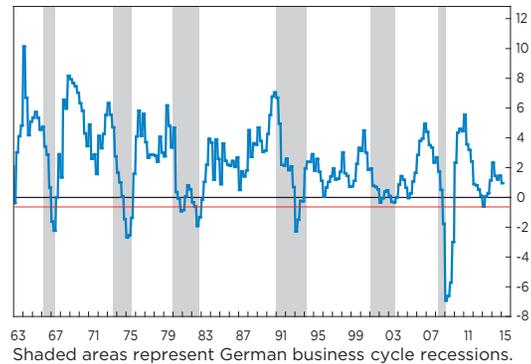
Greater Moderation, with even lower cycle volatility.

Let's turn from these stylized concepts to real data. ■

Japanese GDP, Growth Rate (%)



German GDP, Growth Rate (%)



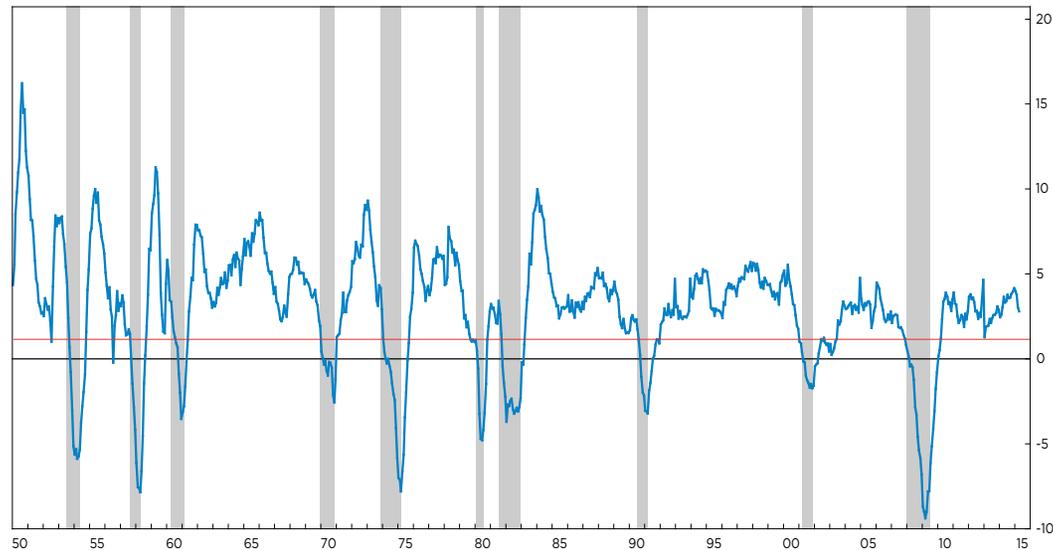
First, let's look at Japan on the left side, which has had 1% average real GDP growth since the early 1990s. During that time Japan experienced seven recessions shown by the gray vertical shading, including four recessions since 2008. That's what very low trend growth can do: the economy tends to "yo-yo" in and out of recession, with almost every cyclical turn in growth.

How about Germany, on the right hand side, which is considered to be a much stronger economy? Germany did not have a classical business cycle recession in the years after the GFC. But the red horizontal line shows the latest low point in year-over-year (yoy) real GDP

growth, where it did drop to -0.6% a couple of years ago, as seen only around past recessions. More specifically, while employment didn't actually decline, Germany did see two back-to-back negative GDP quarters in Q4 2012 and Q1 2013. In that sense, it experienced its worst *non-recession* ever.

What about the United States? ■

U.S. Coincident Index Growth (%)



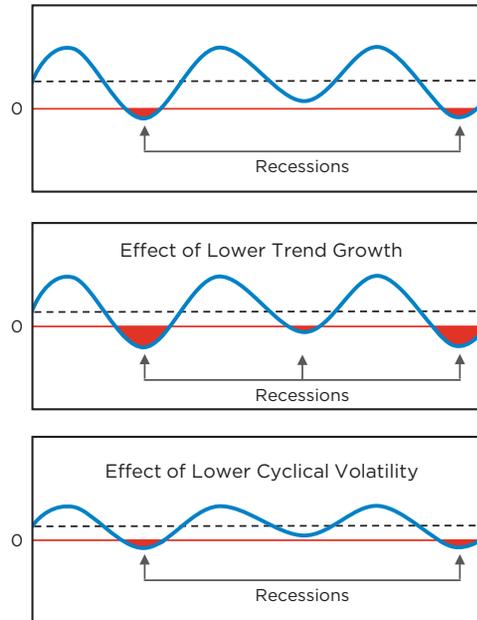
Shaded areas represent U.S. business cycle recessions.

Here we have the growth rate of ECRI's U.S. Coincident Index from 1950 onwards. This index includes the key measures of output (including GDP), employment, income and sales that are used to determine official U.S. recession dates.

As with Germany, the red line shows how far it fell in the late 2012/early 2013 period, to a low never seen away from recession, except during the 1952 and 1956 steel strikes. In other words, that was the worst *non-recession* in over half a century, but it was not the recession that *we* had expected.

But how – given the weak trend growth shown earlier – did that slowdown not become a recession? ■

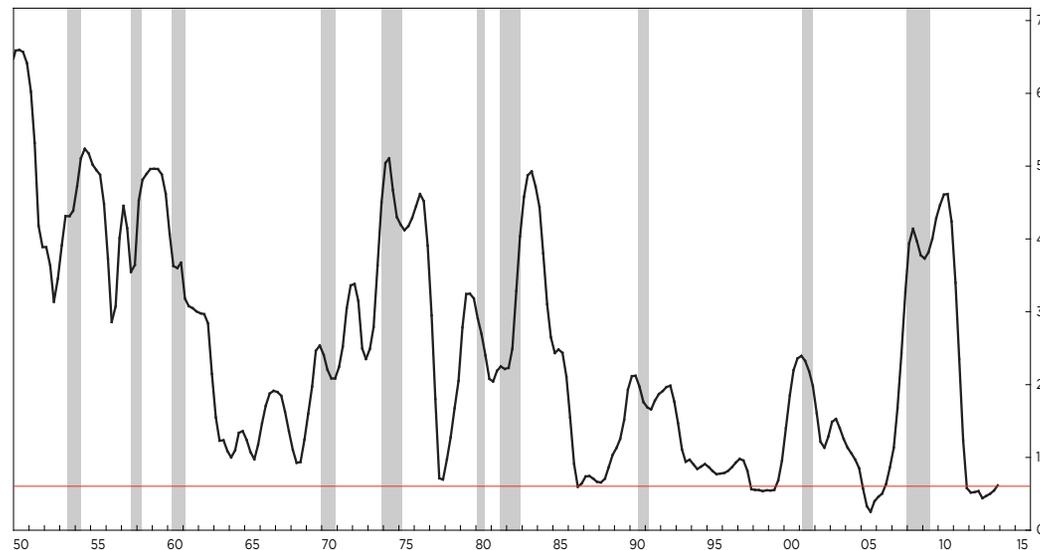
A Stylized View of Recession



Please recall, this middle panel shows how lower trend growth gets you more frequent recessions, but the bottom panel shows how lower cycle volatility can offset this tendency.

As we'll now see, we got a *Greater Moderation* in cycle volatility that was even lower than during the Great Moderation preceding the GFC. ■

Volatility of U.S. Economic Growth (%)

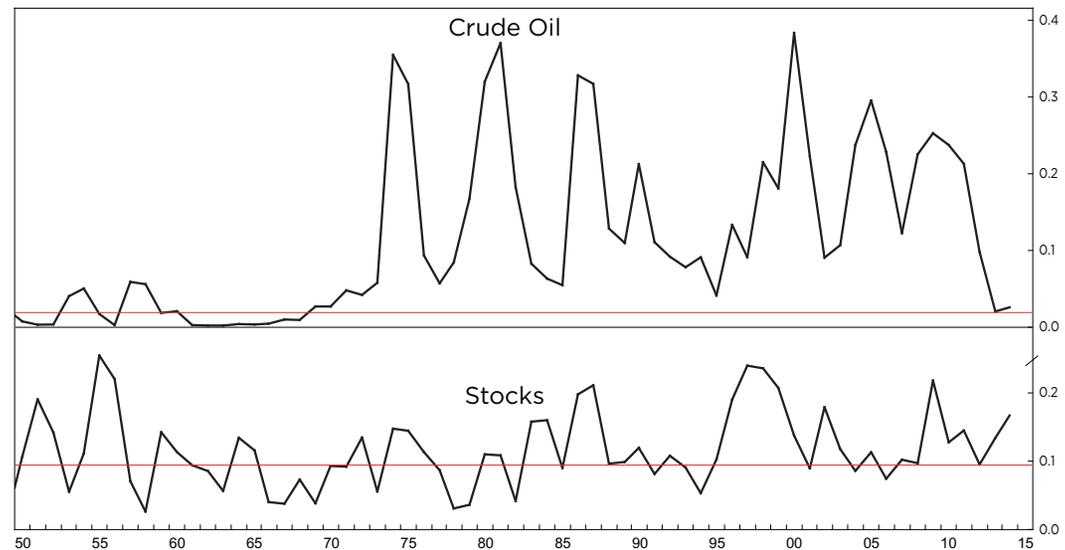


Shaded areas represent U.S. business cycle recessions.

Unexpectedly, the cyclical volatility of U.S. economic growth – as measured by the three-year centered standard deviation of yoy growth in our Coincident Index – plummeted below 0.6 by late 2011 (red line), from a three-decade high the previous year. Furthermore, it stayed below that threshold for two years, the *longest stretch on record*.

This is going way beyond a return to the Great Moderation, to what one might call the *Greater Moderation*. It's important to understand why that happened. ■

Volatility of Crude Oil and Stock Price Growth (%)



The critical clue comes from crude oil price volatility, which, as the top line shows, had collapsed by 2013. As the former head of BP’s global economics team noted a year ago, just before oil prices started plunging, “the oil price has been above \$100 for three years in a row, the highest ... such period ever, but extremely stable, the lowest three-year volatility since 1970,” *when prices were fixed*.

While there were supply disruptions, he said, “[t]he cumulative level of these disruptions over the last three years is balanced almost one by one, almost barrel by barrel, by the increase in tight oil production in the U.S. So it’s an absolute

fair statement to say [that] if we had only had the disruptions ... you would have seen oil prices shooting up.”

Thus, despite a fairly normal pattern of supply disruptions, oil price volatility fell to a *four-decade* low, marked off by the top horizontal red line. This happened, in large part, because of what’s been called the fastest ramp-up in oil production in history, creating an unusual period *devoid of oil shocks*. Of course, oil shocks have helped trigger almost every U.S. recession since the 1970s.

Meanwhile, with the trillions in international quantitative easing (QE) amounting to not just

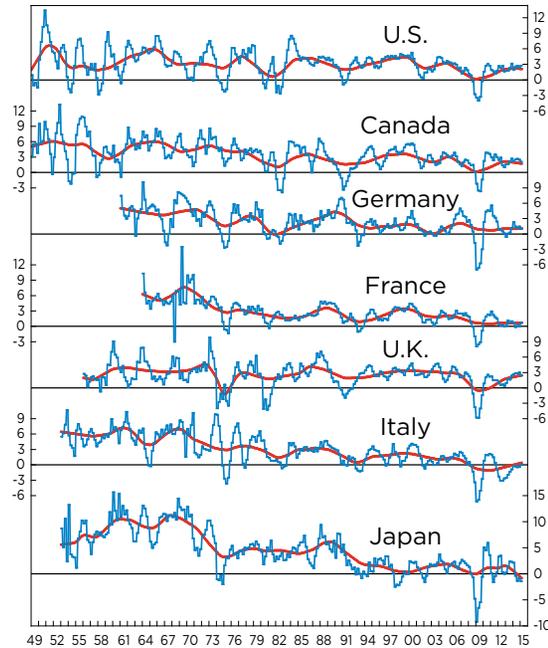
a “Fed put,” but a “global central bank put,” for equities, stock price volatility (lower panel), hit just a *six-year* low in 2012 (lower horizontal red line). Primarily due to the singular absence of oil shocks, abetted secondarily by the drop in stock price volatility, economic cycle volatility plunged, and stayed at extreme lows for the longest period on record.

Looking ahead, can oil shocks still be kept at bay in the coming months and years? History doesn’t encourage such a belief.

The point is that, with really low trend growth, unless we are lucky enough to keep enjoying super-low economic volatility, we are really skating on thin ice.

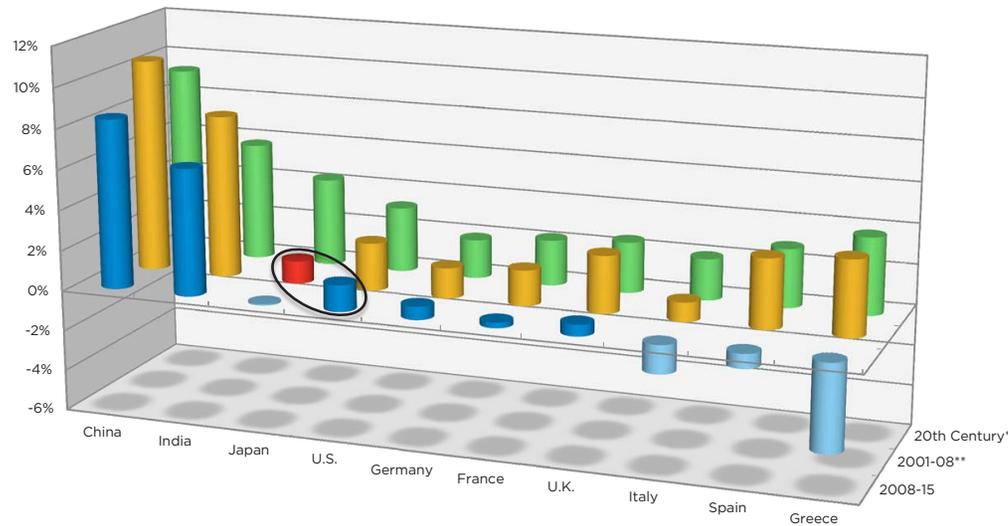
A decade ago, many people, especially central bankers, thought they’d engineered the Great Moderation. Today, the lack of volatility is again being widely attributed to the central banks, and again the expectation is that they can keep volatility down indefinitely. Knowing this, one could argue that today a central banker’s nightmare is a rise in economic cycle *volatility*, even more so than weak growth. ■

G7 Real GDP Growth (%), Actual and Trend



The recent drop in volatility shouldn't obscure the basic point that, not only in the U.S., but in every G7 economy, trend GDP growth is in a long-term downtrend (smooth red lines). For a slightly different perspective, including some major emerging markets... ■

Patterns in GDP Growth



*Data for Japan starts in 1980 and ends in 1992, prior to its “lost decades.”

**Data for Japan corresponds to its “lost decades” before the GFC, i.e., 1992-2008.

...we have this bar chart. The rear row of green bars shows average GDP growth in each economy from 1980 to the end of the 20th century. For Japan the green bar shows average GDP growth prior to the start of its “lost decades.”

The middle row of yellow bars shows the major downshifts in growth in the developed economies from 2001 to 2008, before the GFC. The red bar nestled in there depicts Japan’s lost decades through 2008.

Notably, the middle row of bars is lower than the back row of bars for almost all the G7 economies, including the U.S. This pattern extends into the blue bars, where about the

same, or even slower, growth is shown for all major developed economies from 2008 to 2015.

A case in point is circled here, where U.S. GDP growth since 2008 has averaged 1.3%, compared to 1.1% for Japan in the lost decades shown by the red bar. As dismal as that sounds, it’s better than the 0.6% average since 2008 for the U.K. and Germany, or the 0.3% for France. Italy, Spain and Greece, of course, are negative.

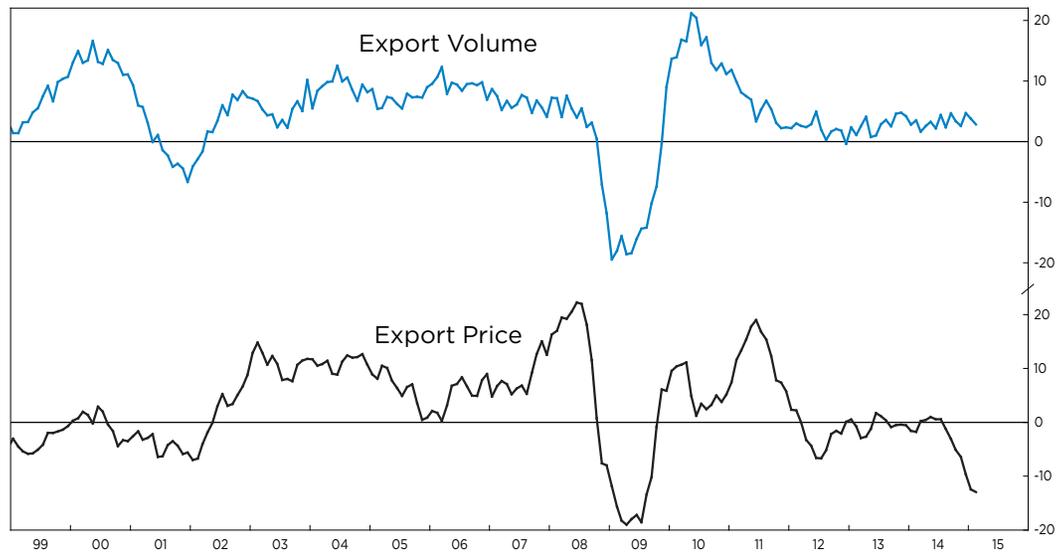
The chart makes the critical point that all the *big* developed economies have seen average GDP growth step down from the late 20th century to the first seven years of the 21st century, and then again since 2008. *The decline in trend growth is undeniable.*

For China and India trend GDP growth first took a step up into the early 21st century, but has stepped back down to some extent in recent years. Bottom line: this decline in trend growth has already resulted in weaker recoveries and more frequent recessions than most had expected when the 21st century began.

The response, following Japan’s example, has been more and more QE, which has been unable to break this pattern of long-term declines in trend growth. And to those betting on a return to much stronger trend growth based on accommodative policy, it is understandably awkward to recognize that the downshifts in growth are global in nature, and predated the GFC.

Regarding policy – 11 trillion dollars – that’s how much of so-called QE the world’s central banks have done since 2008. To put that in perspective, with 11 trillion dollars you could pay off pretty much all U.S. household debt – all mortgages, all car and student loans, credit cards – you name it. So did all that QE boost global growth? ■

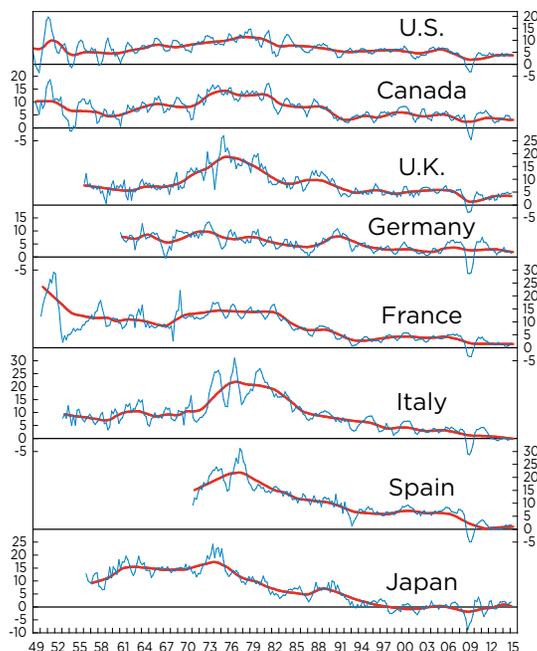
World Export Volume and Price, Growth Rates (%)



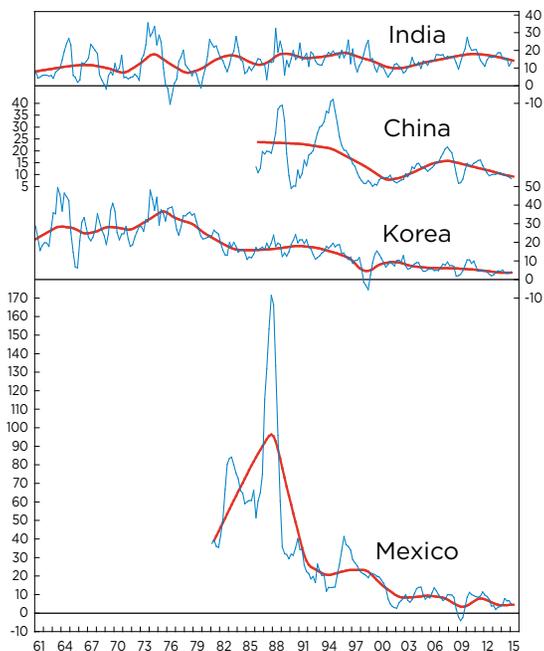
Following a post-recession pop, world trade growth collapsed (upper blue line). And that's even with prices falling over the past four years or so, (lower black line), where the more recent plunge shows accelerating deflation in export prices. And it's not just oil.

Having just talked about trend real GDP growth, let's unify that with what's happening to prices by looking at... ■

Actual and Trend Nominal GDP Growth (%) in Advanced Economies



Actual and Trend Nominal GDP Growth (%) in Emerging Economies



...trend *nominal* GDP (NGDP) growth: for the advanced economies on the left, and emerging ones on the right. The blue lines are actual, and the red lines are trend. Near the top of the left-hand chart we see that, after decades-long declines, the longer-term trend in NGDP growth has fallen to just 3.7% in the U.S., 3.5% in the U.K. and 3% in Canada.

In Germany, which has worse demographics, it's under 2%, and in France it's under 1½%. In Spain it's below 1% and in Italy it is negative. In Japan it's barely above zero.

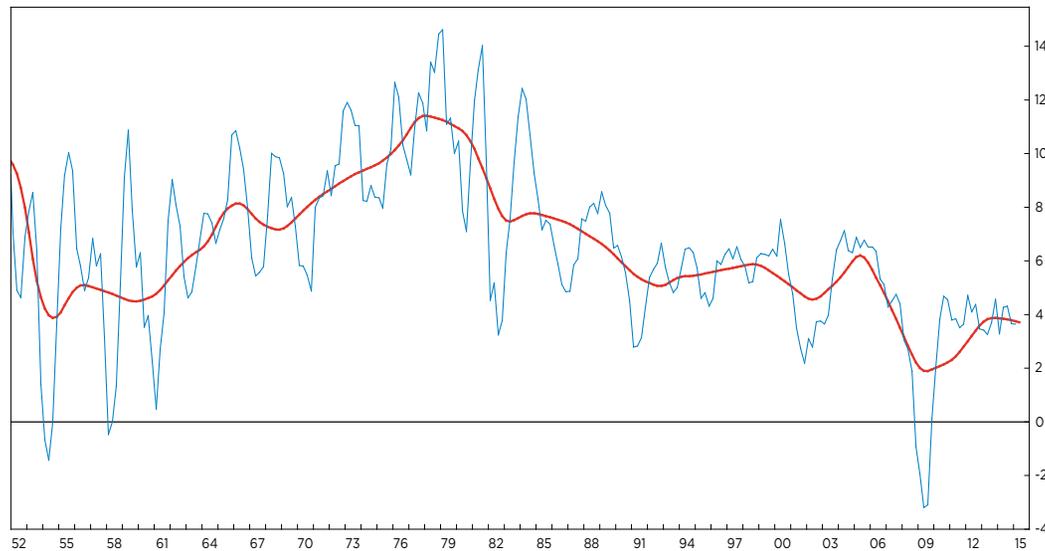
Policy makers in these economies, when asked about growth prospects, often congregate

around plans to export more, particularly to emerging markets. Please note that for Korea, in the middle of the right-hand chart, trend growth for NGDP has already dropped to 3⅔%, less than the U.S.

And China has slipped to 9% and Mexico is now below 4½%. Only in India is it a bit different, slipping to 14%, though partly due to a desirable decline in inflation.

The main point to take away from this slide is that the long decline in trend NGDP growth is truly global. Now let's zoom in on the U.S... ■

Actual and Trend U.S. Nominal GDP Growth (%)



Now back to trend *real* GDP growth, which is in a long-term downtrend, for all of these economies. Let's quickly recall this chart... ■

...where trend growth is down to 3.7%, which is a lot less than the 5% NGDP growth target that's often mentioned in policy circles – 3% real GDP growth plus 2% inflation.

We have mentioned ½% productivity growth in recent years, plus ½% potential labor force growth in the coming decade, adding up to something closer to 1% trend *real* GDP growth. On the inflation side, can we arrive at the Fed's 2% target and stay there?

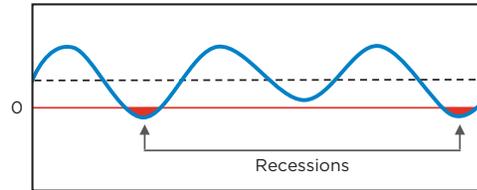
With so much global oversupply, that's not at all clear, but even if we do get to 2% inflation, looking at the possibility of trend *real* GDP growth moving towards 1%, *nominal* GDP

growth – where the trend is already down to 3.7% – is apt to fall further.

We all know there's more debt in the world today than ever before in human history. In theory, the debt can be paid off with the help of real growth, or inflation, which are brought together in these NGDP measures. So we may want to consider the implications.

On this point, the IMF's latest answer is that the major economies should not worry about paying down debt, because that would let them grow faster, essentially taking care of the problem in the long run. Looking at the long-term NGDP growth rates, that's far from certain.

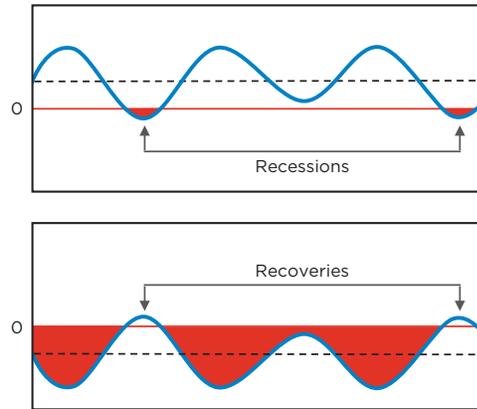
A Stylized View of Recession



...where the horizontal dashed line shows long-term trend growth, and every time the blue line dips below zero you get recessions.

Now with long-term trend growth declining, and in some cases turning negative, what does this picture look like... ■

A Stylized View of Recession

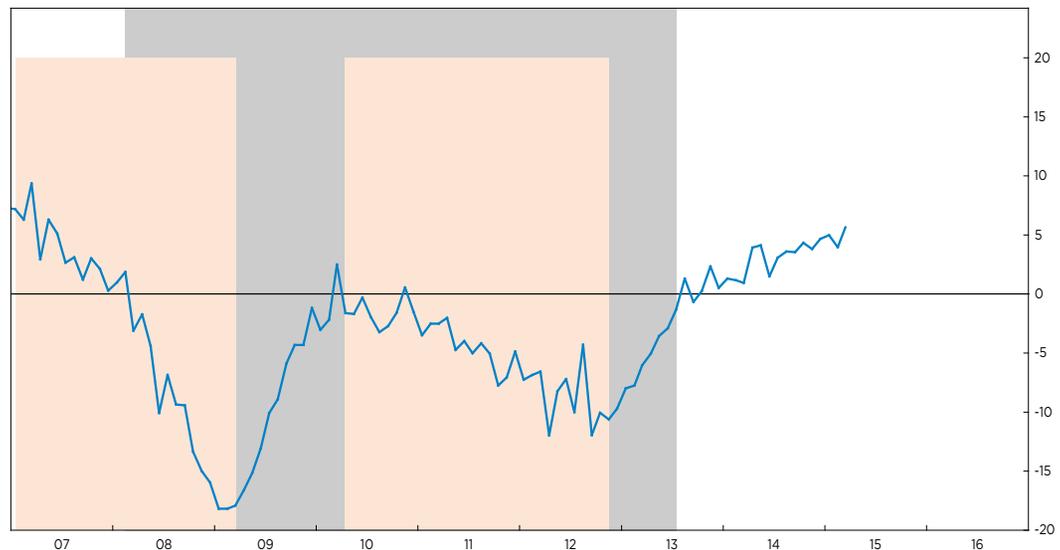


...with trend growth shifted down *below* zero?

Please consider the blue line in the second panel: it may not always rise *above* zero during growth rate cycle upturns.

Let us look at a real-life example. ■

Spanish Coincident Index Growth (%)



Gray-shaded area represents Spanish business cycle recession and orange-shaded areas represent Spanish growth rate cycle downturns.

Here we see the growth rate of ECRI's Spanish Coincident Index, which includes the key measures of output (including GDP), employment, income and sales.

This is a ten-year time frame starting in 2007. The dark shading shows the period of the 2008-13 Spanish recession, and the orange-shaded areas mark off the growth rate cycle downturns.

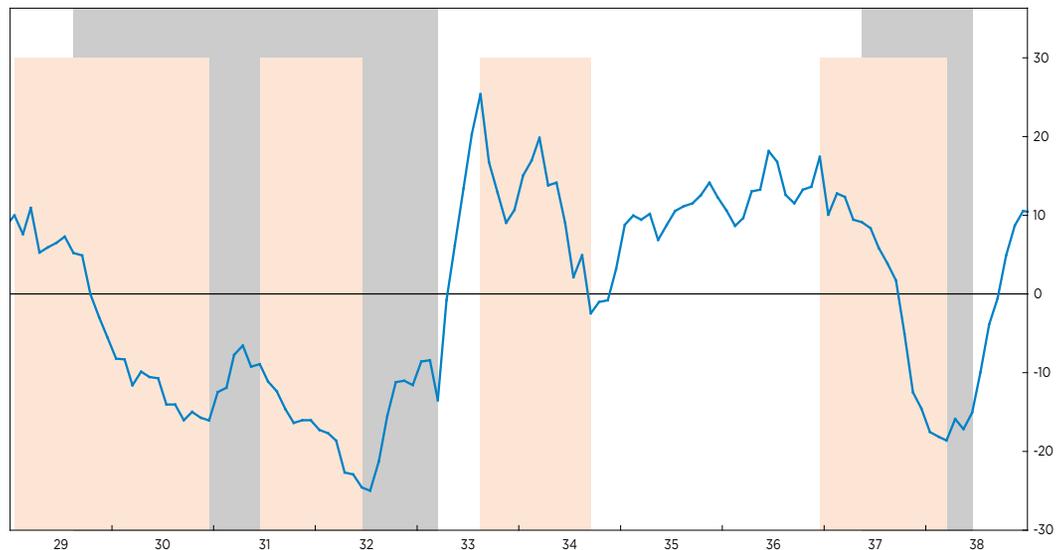
Please note that in 2009-10 there was a clear revival in growth, with quarterly annualized GDP growth rising from under -6% to over +1%, which is a seven-and-a-half-percentage-point swing. But that didn't end the recession and growth relapsed, becoming progressively more

negative until 2012, when the next growth rate cycle upturn took hold, eventually ending the recession.

Abortive growth rate cycle upturns, like the one in 2009-10, are highly unusual. What it tells us, recalling the earlier stylized chart, is that Spanish trend growth must have been well below zero at the time.

The other example of such behavior that comes to mind is from the U.S... ■

U.S. Coincident Index Growth (%)



Gray-shaded areas represent U.S. business cycle recessions and orange-shaded areas represent U.S. growth rate cycle downturns.

...during its Great Depression.

Just like the previous chart on Spain, we are looking at a ten-year period of Coincident Index growth, this time from 1929-38. Dark shaded areas are recessions, and the orange-shaded areas are growth rate cycle downturns.

So here again, in 1930-31 there was a clear revival in growth with quarterly annualized GNP growth, which is part of the Coincident Index, rising from -17% to +2%, which is a 19-percentage-point swing; only to relapse and becoming progressively more negative until 1932, when the next growth rate cycle upturn took hold, eventually ending the recession.

What followed is quite interesting, but not widely known. Growth skyrocketed in 1933, only to soon fall back. But in the 1933-37 period, between the two dark shaded areas, real GNP growth *averaged over 10%* per year. Even so, the U.S. fell back into a deep recession in 1937-38, prolonging the Great Depression.

The moral of the story is that, just because it looks like a nice cyclical rebound from a deep recession, it does not necessarily follow that the structural problems have been resolved. So it's important not to confuse cyclical recoveries with what's happening with long-term secular trend growth, and extrapolate those recoveries years

into the future.

The good news for Spain is that, at this time, it's still rebounding from a severe recession, which should support Spanish growth for the time being in the context of a global cyclical upturn and the cheaper euro. And our leading indexes also predict CPI growth turning positive as deflation takes hold.

But given sub 1% *trend* GDP growth in Spain, it's important not to presume that, just because the business cycle has turned up, *trend* growth has turned the corner too. The time is now, during this sustained Spanish *cyclical* recovery, for policy steps to be taken to help boost *long-term* trend growth, and in particular trend productivity growth.

As students of the business cycle, we focus on the distinction between shorter-term *cyclical*, and longer-term *secular*, patterns. So, since the summer of 2008, when we recognized the secular pattern of falling U.S. trend growth, and then, how it is actually a global pattern that has intensified, it's long been obvious to us that monetary stimulus, aimed at pulling demand forward from the future, couldn't possibly reverse the long-term decline in trend growth. And with the U.S. economy failing year after year to reach so-called "escape velocity," recession worries have lingered.

But that doesn't explain the extreme anxiety surrounding the word "recession." Over the past 225 years the U.S. has experienced 47 recessions – that they come, and go, is not unusual.

The big difference today is that, while we have low trend growth, which reduces the leeway before growth falls below zero, the Fed is basically out of bullets, which is why it's so anxious to hike rates, despite low inflation.

Thank you.

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Please recall that, around U.S. recessions since the late 1970s, the Fed Funds rate fell by at least five percentage points, which is not possible today.

And while fiscal stimulus is feasible in theory, if not politically, the government debt-to-GDP ratio, which is set to rise further, is already the highest it's ever been, except right after World War II.

The Fed may try to raise interest rates soon, so that they can lower them later, as Japan tried in 2000, or the ECB and Riksbank in 2010-11. But central banks, including the Fed, cannot engineer sustainably higher interest rates, given

the underlying economic forces outlined today.

So what options do policy makers have when the next recession hits? The most obvious is a return to, or continuation of, QE. In other words, trying to keep kicking the can down the road, desperately hoping that trend growth will somehow revive. But as we all know, hope is not a plan. Still, hopefully this cyclical vantage point can help move the discussion towards a more complete strategy going forward.

THANK YOU ■