

MONETARY POLICY MONITOR

- **TRENDS IN MONETARY POLICY**

On “Secular Stagnation” and the Equilibrium Real Interest Rate

- **CONVERSATION WITH PAUL VOLCKER**

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■ Trends in Monetary Policy

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The Original Idea

■ In 1938, Harvard Professor Alvin Hansen, at that time the leading Keynesian economist in America, was elected president of the American Economic Association. The presidential address, entitled “Economic Progress and Declining Population Growth”, was delivered on December 28 of that year. At the occasion, he made use of the expression “secular stagnation”.

Hansen, probably influenced by the length and severity of the Great Depression, was concerned with the possibility that the era of growth and prosperity which had characterized the Western world after the Industrial Revolution might be coming to an end. Later, as the US entered into World War II, economic activity intensified. But the big question was what would happen in the future, when the conflict ended. In the opinion of many, economic growth was threatened by the possibility of lack of investment demand.

Modern economic textbooks do not mention Hansen’s once famous expression. It fell out of use, as his concern proved to be unfounded. Contrary to what many imagined, the immediate post-war years were marked by rapid rates of economic growth and low rates of unemployment, a picture which did not change much for a couple of decades. The baby boom modified the trend in population growth and productivity gains were high until the early 1970s.

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More recently, the slow pace of the recovery from the 2008 financial crisis, and some aspects of the behavior of the American economy in the years prior to the crisis, led Lawrence Summers to revive the “secular stagnation” idea.

A brief look at the views put forward by Hansen in the final years of the 1930s allows one to compare the discussion which arose in the wake of the remarks made by Summers with the one which came up seven and a half decades ago.

What had made possible the great rise in the standard of living of Western Europe and the United States since the beginning of the Industrial Revolution was the rapid growth of capital formation during that period, says Hansen. And the “external forces” (as he called them) behind that process were: a) inventions; b) the discovery and development of new territory and new resources; and c) the growth of population. (Hansen 1939, pp. 3-4). In his conjectures, he concluded that “the opening of new territory and the growth of population were together responsible for a very large fraction – possibly somewhere near one-half – of the total volume of new capital formation in the nineteenth century”. (Hansen 1939, p. 9). The then projected decline in population growth and the lack of important areas left for exploitation and settlement meant that those two outlets for new investments were being closed.

Declining population growth would affect the pace of capital accumulation especially through a diminished demand for residential housing. And there would be a negative impact on the rate of investments in public utilities and in the manufacture of essential consumers’ goods as well. Additionally, Hansen argued that there would be no basis for assuming that one could count on the emergence of new industries as rich in investment opportunities as the railroad or, more recently, the automobile, with all the related developments, public roads in particular. He concluded that “when a revolutionary new industry like the railroad or the automobile, after having initiated in its youth a powerful upward surge of investment activity, reaches maturity and ceases to grow, as all industries must, the whole economy must experience a profound stagnation, unless indeed new developments take its place”. (Hansen 1939, p. 10).

The Revival of the Hypothesis

The idea of secular stagnation was revived in a speech delivered by Summers at an IMF Economic Forum held in November 2013. Referring to the years prior to the crisis, Summers recalled that the US economy had experienced a couple of bubbles, in housing and the stock market. At the same time, lending by the banking industry was increasing at fast rates, the same being true as regards private sector debt. According to his reasoning, such an environment should have led to an overheated economy, that is, high rates of output growth and inflation. But this was not what happened.

Some statistics might be useful to illustrate the argument. Between 2002 and 2007, measured by the Case-Shiller 10 index, the cumulative rise in the average price of housing was 62%. If we consider the 1998-2005 period, that index went up by 166%. In the stock market, the S&P 500 index increased cumulatively by almost 30%, and was particularly strong between 2003 and 2006 (a cumulative rise by almost 60%). In the banking industry, the total volume of loans and leases went up by 74%. The other side of this coin was a considerable increase in the size of debt in the private sector, reinforcing a tendency which had started years before. If we look only at household debt, it represented roughly 75% of GDP in the beginning of 2002 and it went up to practically 100% in the end of 2007, while the corresponding ratio in the middle of 1980s was less than 50%. On the monetary side, the average real rate of interest was 0.3% per year (the policy rate corrected for the PCE), down from 2.8% in the 1990s.

The numbers above seem to justify the summary made by Summers: “too easy money, too much borrowing, too much wealth”. (Summers 2013). But in spite of all these stimuli, the GDP growth rate was 2.7% on average and inflation was 2.5% (averages for 2002-07), numbers which are far from extraordinary.

Summers would soon elaborate a bit more on his original reasoning. And he made clear that he was talking about the developed world, and not only the US. Referring to the Eurozone, for example, he observed that the good performance of the region in its first ten years of existence was not sustainable and was dependent on financial flows to the periphery, which, viewed in retrospect, characterized a bubble. As he put it, the record of the industrial world “over the last 15 years is profoundly discouraging as to

the prospect of maintaining substantial growth with financial stability”. (Summers 2014a, p. 69).

Perhaps the most striking fact which accompanied the creation of the euro was the convergence of long-term interest rates. As we approached 1999, when the monetary union was to become a reality, the long-term rates on government bonds in general got closer and closer to the rates paid by the bonds issued by Germany, the largest and soundest economy in the region. With the launching of the single currency, those rates became practically the same, a situation which lasted until the second half of 2008. This happened even in the case of Greece, which joined the euro two years after its creation.

The fact that the monetary policy rate was set at a rather low level, and considering that inflation rates varied from country to country, meant that there were periods of negative rates, especially in some peripheral economies. On average, the real policy rate was 0.4% per annum, between 2002 and 2007. Long-term rates were low during the mentioned period.

Particularly in peripheral countries, increased confidence and favorable financial conditions set the stage for a tremendous increase in borrowing activity. In a short paper published in 2010, Paul De Grauwe showed that, as a proportion of GDP, household debt in the Eurozone went up from a little over 50% in 1999 to 56% in 2002 and almost 70% in 2007. Bank liabilities in the Eurozone also increased substantially, especially in the 2002-07 period. As a proportion of GDP they went up from 190% to around 250%. (De Grauwe 2010, pp.2-3). Practically absent in Italy, the burst of optimism was particularly intense in Spain and Ireland, where the borrowing spree produced housing bubbles.

On the lending side, the stock of credit provided by the banking industry increased by 56% between 2002 and 2007. Banks certainly felt encouraged not only by the prevailing favorable climate but also by the disappearance of the exchange-rate risk. Those which had been reluctant to lend money in the currencies of countries in the region’s periphery suddenly became quite willing to do so in euros.

As in the case of the US economy, one might expect that such extraordinarily positive environment would have produced abnormal rates of economic growth and possibly a

rising inflationary tendency. But this was not what we saw. In the 2002-2007 period, economic growth averaged 2.0% per annum and inflation averaged 2.2%. The corresponding figures for the peripheral countries (the so-called PIIGS) were a bit higher than those numbers, respectively, 2.9% and 3.0%.

The experience of industrial countries in the years which preceded the crisis led Summers to wonder whether those economies needed bubbles to achieve reasonable rates of economic growth. Apparently, in the absence of those bubbles, growth would have been anemic, due to lack of effective demand.

In his efforts to understand what might explain the situation prevailing before the crisis, Summers discusses the possibility that structural changes (involving shifts in savings and investment) could have caused a decline in the equilibrium real rate of interest. In this case, lower levels of observed real (and nominal) interest rates would be a major factor stimulating borrowing and risk-seeking investors. Such a hypothesis seems compatible with the macroeconomic experience of those years.

Summers examines several changes which might have produced a substantial fall in the short-term real interest rate that is consistent with full employment. In reality, he even considers the possibility that “no attainable interest rate will permit the balancing of saving and investment at full employment, [which] is the secular stagnation hypothesis first put forward by Alvin Hansen in the 1930s”. (Summers 2014b, p. 32).

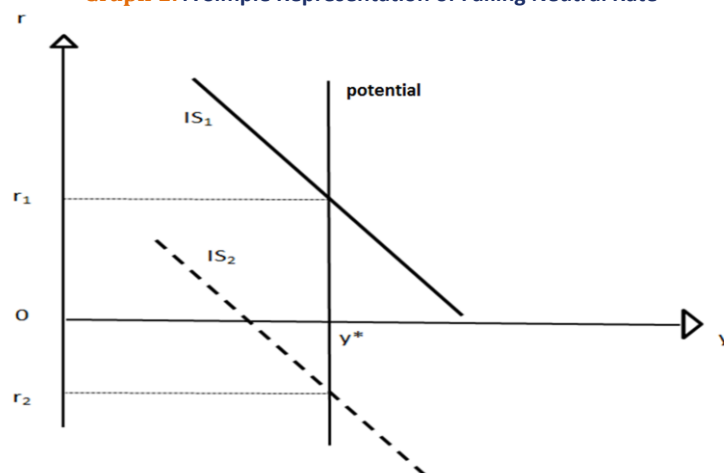
The major possible changes would be: a) an increase in savings (a decline in the propensity to spend) as a result of changes in the distribution of income, which favored capital as opposed to labor income, and benefitted individuals with more wealth as opposed to those with less; b) a diminished demand for capital goods due to slower population growth; c) a contraction in the demand for debt-financed investment associated with a new structure of the productive economy – “it used to require tens of millions of dollars to start a significant new venture, and significant new ventures today are seeded with hundreds of thousands of dollars” (Summers 2014a, p. 69); d) a substantial decline in the relative price of business equipment, which implies less borrowing and spending. All of them probably contributed to drive down the interest rates on safe assets.

Perhaps the simplest way to illustrate the essence of the discussion involves recourse to an old analytical instrument: the IS schedule. In graph 1 the equilibrium real rate of interest results from the interaction between the IS curve and the level of real potential output. In the context of the present discussion, it was first used by Paul Krugman a couple of months before the now famous speech made by Summers. (Krugman 2013). Krugman was already concerned with the old idea of stagnation associated with persistently inadequate aggregate demand.

Under normal conditions, forces in the economy would generate an equilibrium real rate given by r_1 in the graph. The central bank supposedly manipulates its policy rate with the objective of taking it to that level, where the output gap is zero, that is, economic activity is at its potential. Such is the level compatible with stable inflation. Assume now that structural changes in the economy give rise to shifts in savings and investment of the kinds suggested by those concerned with the stagnation hypothesis. Both an increase in savings as well as a contraction in investment causes the IS schedule to shift downward. The equilibrium rate of interest falls. It may even become negative, as indicated by r_2 in the graph.

The downward shift of the IS curve means that aggregate demand declined. Assuming that monetary authorities normally guide themselves by an estimate of the equilibrium real rate of interest, as they suspect of a falling rate they lower the policy rate, in a movement whose intensity depends on their objective function, or legal mandate.

Graph 1: A Simple Representation of Falling Neutral Rate



Within this framework of analysis, the lowering of the real policy rates in industrial countries in the years prior to the crisis were normal responses to the perception (by the authorities) of declining equilibrium real rates. This action of the central banks stimulated the forces already at work in the direction of more borrowing and leverage. In general, in their analyses of the equilibrium real rate of interest, what economists have in mind is the real return on short-term assets considered to be safe, as US Treasury bills, for example. In spite of the fact that the Hansen-Summers theoretical framework is designed for a closed economy, Summers seems to be aware of the influence of external factors on the determination of the basic interest rate in the US, since he recognizes, for example, that the “rising desire of central banks and governments to accumulate reserves, coupled with conservative investment strategies operates to raise the demand for safe assets”. (Summers 2014b, p. 34). In reality, in a financially-integrated world as the one we have now, that specific interest rate is not determined exclusively by forces within the US. In this case, it depends on the global supply of funds, the global demand for funds and the relative demand for safe assets.

A recent IMF study published as chapter 3 of the April 2014 World Economic Outlook discusses the declining movement of equilibrium real interest rate in recent times from a global perspective. The study shows that the degree of financial integration increased steadily since the 1980s. In consequence, the dispersion of interest rates among different countries diminished considerably. This would be an evidence of the growing influence of common factors in the determination of interest rates, allowing us to speak of global interest rates.

Before examining the way (and the reasons why) those rates moved in recent times, let us recall that the equilibrium real rate of interest is a variable that cannot be observed. Frequently, it is also referred to as the neutral or natural rate. In general, central bankers conduct monetary policy with an eye on what they believe the equilibrium rate is. When inflation rates are above the desired level, and the authorities wish to bring them back to that level, the real policy rate has to be set at a level higher than the neutral one. If the economy is weak and the authorities wish to stimulate it, the real policy rate needs to be set at a level below the neutral. Since any economy is constantly subject to the influence of cyclical forces, the observed real

policy rate rarely corresponds to the rate that the central bank believes to be the neutral one.

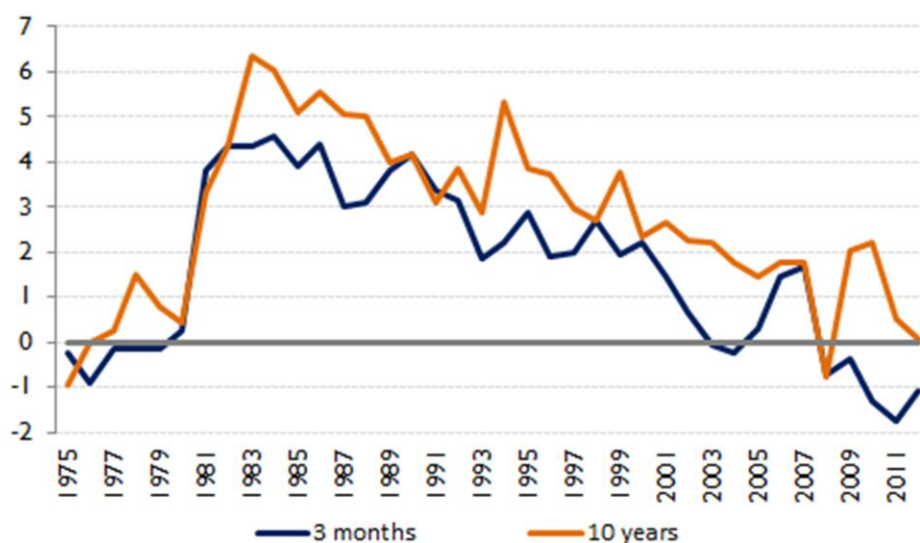
Assuming for a moment that we can identify the equilibrium real rate for a number of countries, which factors would make them differ? In an economy financially isolated from the rest of the world, no external force is capable of influencing her neutral rate. In this case, the rate is totally determined by the interaction of domestic savings and domestic investment. Thus, the degree of financial openness is part of the answer. The other factor is credit risk. Government securities issued by different countries are normally perceived as commanding different risk premiums. A higher perceived risk implies a higher neutral rate. In sum, rates across countries tend to differ according to their degree of financial integration and to specific factors associated with credit risk. If the world were made only of countries that would issue government securities perceived to be risk free, and were totally integrated from the financial viewpoint, arbitrage transactions would guarantee the uniqueness of the neutral real rate.

Over short time horizons, short-term and long-term interest rates may move in different directions. However, over the medium and long run, they tend to move together. The above-mentioned IMF study shows that the average global rates computed for three months and ten years, for samples of almost 20 countries (weighted by the corresponding GDPs), experienced a clear downward trend since the early 1980s (Graph 2). Both rates fell by approximately six percentage points. The short-term one declined from 4.0% in real terms to minus 2.0%. The long-term one fell from 6.0% to practically zero. (IMF 2014).

Two distinct phenomena apparently affected the behavior of global real interest rates since the beginning of the 1980s. The first phenomenon had to do with the fact that real rates were considerably high to begin with, as a result of the fact that at that time central banks (particularly in the US) were involved in a tough fight against the inflationary process that had erupted in the 1970s. As the fruits of the anti-inflationary war started to appear, real rates were gradually brought down. In other words, interest rates were abnormally high in the beginning of the 1980s because monetary authorities had set their policy rates well above any reasonable estimates of the neutral levels. In a nutshell, cyclical deviations predominated in the first ten years.

A different phenomenon apparently prevailed in the 2000s. Financial integration increased at a fast rate during that period. And some emerging markets (particularly in Asia) experienced an important structural change, namely, their aggregate savings expanded considerably. This was particularly true in China, where the excess of savings over investment meant an enormous surplus in the current account. On average, it reached 9.3% of GDP in 2006-07. Due to the fact that for the world economy as a whole the balance in the current account is necessarily zero (except for statistical discrepancies), any increase in the surplus of a group of countries necessarily corresponds to an increase in the deficit of another group. As the Chinese were saving more, the Americans, for example, were investing more, in comparison to their domestic saving effort. Current account deficits in the US balance of payments reached 5.3% of GDP in 2006-07.

Graph 2: Short and Long-Term Global Real Interest Rates (in %)



Average rates weighted by GDPs (18 countries for short-term rates; 19 countries for the long-term rates). Latest information: 2012.
Source: IMF, World Economic Outlook, April 2014, Chapter 3.

What this means is that the relevance of shifts in current-account balances can only be evaluated ex-post. And the taste of the pudding lies exactly in observing the movements of real interest rates. To the extent that, in a financially integrated world,

the equilibrium real rate of interest is the result of interaction between global savings and investment (with due account taken for the behavior of the relative demand for safe assets), we can say that the dominant movement behind the observed decline in real interest rates during the 2000s was probably an expansion of global savings, a contraction of global investment, or both.

The possibility of a saving glut was first raised in a speech made by Ben Bernanke in 2005. At the occasion, the then governor of the Fed argued that “over the past decade a combination of diverse forces has created a significant increase in the global supply of saving – a global saving glut – which helps to explain both the increase in the U.S. current account deficit and the relatively low level of long-term real interest rates in the world today”. (Bernanke 2005, p. 1). In his analysis, he stressed the factors that might explain the transformation of a large number of emerging economies from borrowers to net lenders in international capital markets.

The above-mentioned IMF study reinforced the point made by Bernanke. In fact, the authors concluded that “a steady increase in income growth in emerging market economies during 2000-07 led to substantially higher saving rates in these economies”. And this would have been a major factor behind the observed decline in real interest rates during that period. They also concluded that, since the crisis, the dominant force has probably been “a sharp and persistent decline in investment rates in advanced economies”. (IMF 2014, p. 1).

In sum, the experience of the industrial world in the years which preceded the crisis was a peculiar one. In spite of so many stimuli those economies did not produce any sign of overheating, neither in terms of economic activity, nor in the inflationary field. Were it not for those stimuli, economic growth would have been anemic.

To the extent that this whole reasoning makes sense, the monetary authorities faced a difficult dilemma. Lowering the policy rates may have stimulated the formation of bubbles and the borrowing spree, but it certainly contributed to the maintenance of the growth process, without significant inflation. Had the central banks refused to follow what seemed to be a declining trend of the equilibrium real rate of interest, they would have hurt the growth process and probably allowed for undesirable deflationary pressures. This is probably the gist of the message sent by Summers. Structural

changes made it difficult for industrial economies to achieve full employment, economic growth and financial stability at the same time.

The dilemma becomes even more serious if we are willing to accept the hypothesis that the short-term real interest rate consistent with full employment had fallen into negative territory, as illustrated in graph 1.

To the extent that the equilibrium rate becomes negative, and as long as inflation rates are relatively low, pursuing the neutral level becomes practically impossible, for the simple reason that the nominal rate has a zero lower bound. Since at some point this limit has been reached in important industrial economies (perhaps sometime in the middle of the last decade), one is well advised to give some credit to that hypothesis.

A Supply-Side Approach

Economic stagnation or slow growth persisting over an indefinitely long period is the threat contained in the secular stagnation hypothesis. Interestingly, when the discussion around this issue sprang, Robert Gordon had already expressed his concern with the slowing down of US economic growth.

Strictly speaking, Gordon's contribution is not directly related to the "secular stagnation" hypothesis. While this hypothesis is a demand-related idea, his work has to do with the supply side of the economy. Nevertheless, it became part of the debate for the simple reason that the two approaches have in common the same concern. Notice that the financial crisis plays no role in Gordon's analysis and that he shows no interest on what happens to the equilibrium rate of interest.

Gordon's arguments have given rise to considerable controversy. In a 2012 paper, he claimed that two different factors would contribute to a substantial fall in the rate of growth of the US economy, from 2007 onward. (Gordon 2012). The first one was a set of headwinds. The second one was related to an idea that he had developed several years earlier, involving a comparison of the effects of Industrial Revolution III (computers, the web, mobile phones) and Industrial Revolution II (electricity, internal combustion engine, internal plumbing). Gordon believes that IR#2 was more

important and more pervasive than IR#3, with stronger impact on productivity growth. (Gordon 2000).

In a sequel paper Gordon made use of a quite provocative title, in which he spoke of the “demise” of US economic growth. (Gordon 2014). The starting point of the second paper was a simple identity: output per capita equates labor productivity (output divided by hours worked) times hours per capita. The behavior of those variables was observed over a long period (1891-2013), divided into four sub-periods. Hours per capita showed a declining trend and its rate of growth was positive in only one of the sub-periods (1972-1996), as a result (basically) of an increase in female labor force participation. The author’s projections indicate hours per capita falling at a rate of minus 0.3% per annum. One of the main factors contributing for this negative growth will be the retirement of the baby boomers.

As to labor productivity, Gordon estimates that the first sub-period (1891-1972) corresponded to the golden age of productivity gains, which averaged 2.4% per annum. The author associates those gains with the great inventions of the last three or four decades of the XIX century (IR#2).

Productivity gains slowed down in the early 1970s (it grew at an annual rate of 1.4% in 1972-96), giving rise to a debate regarding the nature of the slowdown. Was it a temporary or a permanent phenomenon? As we entered the age of widespread use of computers, many analysts imagined that productivity growth was bound to go up again. “You can see the computer age everywhere but in the productivity statistics”, noted Robert Solow, in 1987. The results of the computer revolution finally appeared in the data, but they did not last long. Productivity gains were slightly stronger than those of the golden age, but they remained high only in 1996-2004, the most fertile years of IR#3 (average growth of 2.5%). Gordon argues that “the boom of the late 1990s was driven by an unprecedented and never-repeated rate of decline in the price of computer speed and memory, and a never since matched surge in the share of GDP devoted to information and communication technology (ICT) investment.” (Gordon 2014, p. 20). After 2004, productivity growth slowed down once again (average of 1.3% in 2004-13).

The short-lived nature of the “New Economy”, and Gordon’s expectations that nothing extraordinary (in comparison to IR#2) is about to happen in the field of innovations in the foreseeable future (an obviously bold assumption) led him to work with only two sub-periods, as far as the rhythm of productivity gains is concerned. The first corresponds to the golden age (1891-1972) and the second is made of the years between 1972 and 2013. Productivity gains averaged 2.4% in the first one and 1.6% in the second one.

In projecting the growth of GDP per capita for the coming decades, Gordon uses as reference the annual growth rate of GDP per capita between 1891 and 2007. That rate was 2.0%. He projects growth in the 25 or 40 years after 2007 by making adjustments to that number. As already mentioned, from 2.0% per annum we need to subtract 0.3%, the estimated negative influence of hours per capita.

As to productivity, he works with the 1.6% figure referred to above. This is equivalent to saying that he expects no major change in the field of innovations, that is, productivity gains will keep the pace observed since the early 1970s. Given that productivity growth in the reference period (1891-2007) was 2.2% per annum, the adjustment factor is 0.6%. Finally, there is an additional adjustment to the productivity figure, in the magnitude of 0.2%, to account for the fact that educational attainment has stagnated. The author recalls that increased educational attainment (particularly the surge in high-school graduation) was a central driver of 20th century economic growth. (Gordon 2014, p. 10). For Gordon, there are only two sources of labor productivity growth: innovation and improvements in labor quality through increased educational attainment. “Capital deepening and changes in capital quality are endogenous to innovation”, he says. (Gordon 2014, p. 22).

Performing the necessary subtractions, the author concludes that US GDP per capita will grow at a rate of 0.9% per annum. ($2.0 - 0.3 - 0.6 - 0.2 = 0.9$). Since the Census Bureau estimates that the US population will grow through 2032 at an annual rate of 0.6 to 0.65 percent, what Gordon is saying is that potential output growth is projected to grow at a rate between 1.5% and 1.55% per year. For the sake of comparison, estimates made by the CBO and by the IMF (Article IV) indicate 2.1% and 2.0%, respectively.

The View from the Fed

Since central bankers normally conduct their policies with an eye on what they perceive the equilibrium real interest rate to be, and given this whole discussion on what probably happened with that rate in recent times, it seems relevant to examine the views emanating from the monetary policymakers in the US.

In May and June of 2014, two members of the FOMC discussed that matter openly. William Dudley, president of the Federal Reserve Bank of New York and vice-chairman of the Federal Open Market Committee (FOMC), made a speech entitled “The Economic Outlook and Implications for Monetary Policy”, and Narayna Kocherlakota, president of the Federal Reserve Bank of Minneapolis, talked about “Low Real Interest Rates”.

In Dudley’s above-mentioned speech the issue involving the level of interest rates in the future was dealt with in just four paragraphs. But the author’s ideas were expressed very clearly. “I would expect them to be lower than historical averages for three reasons”. (Dudley 2014, p. 5). The first reason was that one could expect greater precautionary saving and less investment for a long time due to the fact that the Great Recession had scarred households and businesses, who had been accustomed to a relatively stable macroeconomic environment. The second reason was that slower growth of the labor force, associated with the aging of the population, and moderate productivity growth would imply a lower potential GDP growth rate, in comparison to the 1990s and the 2000s. Supposedly, the level of real equilibrium interest rates is positively related to the real growth rates of potential GDP. The third reason had to do with recent changes in financial regulation. Higher capital requirements for the banking industry, for example, tend to push down the long-term equilibrium interest rate.

Kocherlakota dedicated his entire speech to the question of low interest rates. And his analysis focused on the “dramatic changes in the demand for and supply of safe assets” observed over the past seven years. In his view, those changes (which might persist over the next five years or so) produced a considerable decline in what he called the mandate-consistent real interest rates. (Kocherlakota, 2014).

The main factors behind that fall would have been tighter credit access, heightened perceptions of macroeconomic risk and increased uncertainty about the federal fiscal policy. First, restrictions to borrow are tighter now than before the crisis, a situation which leads households and businesses to spend less and save more. Those contemplating the purchase of a house, for example, have to acquire more safe assets before going to the market, due to requirements of increased down payments. Second, before the crisis economic agents did not consider a severe macroeconomic shock a relevant contingency. The change in perception increases the demand for safe assets, since they give workers and businesses a sense of protection against macroeconomic risk. The third factor relates to the long-run fiscal problems of the US economy. Uncertainty regarding the nature and magnitude of fiscal adjustments also increases the propensity of individuals to accumulate more safe assets.

On the supply side, the main concern rests on the fact that real estate and asset-backed securities used to be seen as solid financial instruments. But this is no longer true, or at least not as true as in the past. Furthermore, the crisis in the Eurozone showed that papers issued by some governments are not as secure as they were before. Thus, the supply of safe assets has diminished substantially. Caballero and Farhi recall that a study by Barclays concluded that “the world supply of safe assets collapsed from 37% of world GDP in 2007 to about 18% by 2011”, a contraction driven primarily by the reassessment of the riskiness of US residential mortgages and sovereign debt in the European periphery. (Caballero and Farhi 2014, p. 111).

The conclusion reached by Kocherlakota was that “for many years to come, the FOMC will have to maintain low real interest rates to achieve its congressionally mandated goals”. Thus, the FOMC might have to follow policies capable of producing financial market instability, a risk which needs to be balanced against the risk of deviating from the dual-mandate objectives. (Kocherlakota 2014).

Equilibrium rate is a time-varying concept. In a paper which originally appeared in 2001, two Fed economists (one of them is the current president of the FRB of San Francisco) devised a model which would allow them to estimate the natural rate of interest in the United States. The exercise involved identifying the real rate which over time equated real GDP to its potential. In the early 2000s, that rate fluctuated

around 3.0% per annum. Since then, things changed substantially. Graph 3 shows the authors' updated estimates of the natural rate, which became slightly negative since the end of 2012. (Laubach and Williams 2001).

Graph 3: The Natural Rate of Interest in the US, as Estimated by Laubach and Williams (in %)



Quarterly data. Latest figure: 2014.II. Source: Thomas Laubach and John Williams, "Measuring the Natural Rate of Interest", Board of Governors of the Federal Reserve System, November 2001. Updated estimates obtained at the FRB of San Francisco.

Members of the FOMC make regular projections of key macroeconomic variables as part of the Fed's communication policy. Let us examine their estimates of GDP growth rates and the target federal funds rate over the longer run.

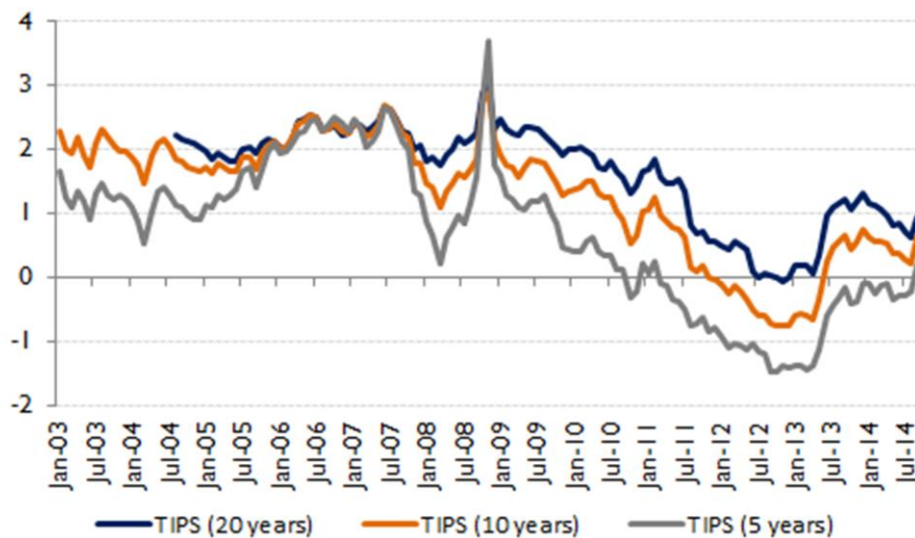
As to potential growth rates, looking only at central tendency estimates, which exclude the three highest and the three lowest projections, we notice that they started being revised downward in the second quarter of 2011. At that time, the range was 2.5-2.8% per annum. The latest figures, released on September 17, were 2.0-2.3%.

Estimates of the target federal funds rate for the longer run were first published in January 2012. At that time, the average and the median projections were 4.21% and 4.25%, respectively. On September 17, those numbers had fallen to 3.79% and 3.75%, respectively. Recalling that the FOMC sees no change in the long-run inflation rate (2.0% per annum), one can say that what has been revised downward was the real equilibrium rate, in about half of a percentage point.

The Behavior of the Markets

The fact that part of the debt of the US government takes the form of inflation-protected securities allows us to have an immediate notion of real rates of interest negotiated in the market. Graph 4 shows yields adjusted to constant maturities for 5, 10 and 20 years. Those rates fell constantly from the last quarter of 2008 until the second quarter of 2013, when the Fed gave the first signs of willingness to initiate the tapering of asset purchases. The upward movement lasted for a while, but by the end of 2013 rates had already resumed their downward trend. As shown in the graph, as regards the five-year maturity, rates had been in the negative territory for more than two and a half years. At the time of writing, the real rate was practically zero. As to the 10-year maturity, rates were negative for more than one and a half year and have been slightly positive since mid-2013. As to the 20-year maturity, rates were negative for more than one and a half year and have been slightly positive since mid-2013.

Graph 4: Real Interest Rates Adjusted for Constant Maturities in the US (in %)



Average monthly data. Source: FRB of St. Louis.

Combining the real rates of interest for different maturities allows us to observe the real forward rates implied by them. If we calculate the five year-five year forward rates for the US, and for the UK and Germany as well, we realize that they have

fluctuated significantly in recent times. They all reached very low levels since the beginning of 2011, there being periods of zero or even negative rates. Estimates of the 10 year-10 year forward rates have also been at historically low levels.

Concluding Remarks

The story told so far involves facts and some suppositions. Let us try to separate the first from the second ones. And let us consider some alternative suppositions as well.

Facts

- Industrial economies experienced a peculiar behavior in the years prior to the crisis. There was “too easy money, too much borrowing, and too much wealth” (Summers 2013). In spite of this, those economies did not overheat.
- The 2000s saw an increase in financial integration and a lowering of global interest rates. Savings increased in the emerging world, particularly in China.
- Recovery from the crisis has been disappointingly slow. Policy interest rates were brought down to their lower bound. And they are still there.
- Investment rates contracted substantially during and after the crisis, particularly in the Eurozone.
- For the longer run, the Fed has signaled lower rates of economic growth and nominal policy interest rates below the historical level.
- Market interest rates declined further in the post-crisis period. Since 2011, in the US, five-year real interest rates have been negative or close to zero. Five year-five year forward real rates have recently been low in the US, around zero in the UK and negative in Germany.

Suppositions

- There were important structural changes in the industrial world. Demand contracted and the equilibrium interest rate fell. Central banks ran after the

declining equilibrium rate. Monetary stimuli produced effects which somehow compensated for the negative impact of the structural changes. Otherwise, growth would have been anemic.

- Equilibrium interest rate has become negative, either before or during the crisis.
- Lack of demand persists in the post-crisis period.
- Output gap is still considerable, in spite of a generalized contraction of potential GDP growth.
- Stagnation or slow growth will prevail for an indefinitely long period. The possible presence of hysteresis effects (long-term damages produced by the extended recession) works in the same direction, by making the economy less productive in the long run. (Ball et.al. 2014).
- Equilibrium real interest rate is probably still negative and will remain so for quite some time. And it shall not return to its historical level.
- Market participants understand and accept the stagnation hypothesis. Their actions reduce real interest rates. Forward rates for relatively distant periods are also affected.

Alternative Suppositions

- This whole story of structural problems having caused some sort of a permanent lack of demand is pure nonsense. The presently poor economic situation in the industrial world simply reflects the usual difficulties faced by economies which try to recover from a serious financial crisis. Economic agents are still deleveraging and recovery will take longer than originally presumed. Acceptance of this interpretation, however, would leave without explanation the peculiar events of the pre-crisis period.
- The equilibrium real interest rate might have fallen and it may not return to its normal level. But if it became negative, this is a temporary phenomenon. The problem is more circumstantial than structural.

- Long-term interest rates are not immune to the influence of short-term factors. In the presence of signs of stronger (than expected) economic recovery, medium and long-term rates will adjust accordingly. And this may not take long, at least in the US.
- Rejection of the secular stagnation hypothesis does not rid us from concerns with slow growth in the future. After all, there are good reasons to believe that, due to the working of important supply-side factors like aging population, no major positive shock on productivity gains, etc., potential growth has declined in the industrial world.
- To the extent that slower potential growth implies lower equilibrium real interest rates, chances are that the era of low interest rates on safe assets will persist for a long time.

Concrete Possibilities

- The economic scenario in the Eurozone is the least-encouraging one of the industrial world. Since the Fed will certainly start the normalization of monetary policy a lot earlier than the ECB, attention will be concentrated on the Fed's movements.
- The Federal Open Market Committee (FOMC) will surely act in a gradual and careful way, in order to avoid possible negative effects of their actions on the rhythm of economic recovery. But members of the Committee do not hold coincident views. Some of them are clearly more concerned than others about the possible damages caused by aggressive monetary policy accommodation on resource allocation and financial stability.
- Within the Fed, there is a long tradition of respect for the position of the chairman of the organization. In general, the number of formal dissidents on votes of the Committee is kept at low levels. But dissenting views are expressed through other channels, like public speeches and individual (unidentifiable) votes on the estimated path of relevant macroeconomic variables, especially the target fed funds rate or range.

- Recent signs suggest pressures in the direction of earlier rather than later actions, out of concerns with the formation of bubbles and possible allocative problems created by interest rates being maintained at ultra-low levels for too long.
- Possible premature adjustments to the fed funds rate carry the risk of hurting the recovery process. The dilemma which apparently prevailed in the 2000s, between financial stability and economic growth, may not have disappeared.
- Assuming that when the normalization of US monetary policy begins the economic situation in the Eurozone will still be one of weakness, this fact will maintain a downward pressure on the equilibrium interest rate. This pressure may or may not be compensated by what happens to the savings rate elsewhere in the globe, particularly in China. Through the working of international arbitrage transactions, pressures on the longer segments of the yield curve will be stronger than pressures on the shorter segments.
- The above observation means that the monetary policy transmission mechanism in the US will be affected in a way similar to the one produced by the saving glut of the 2000s, that is, a decline in the steepness of the yield curve. But this will not avoid the strengthening of the US dollar.

J.J.S

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■ Conversation With Paul Volcker

This conversation was held through an exchange of emails between J. J. Senna and Mr. Paul Volcker in the middle of August 2014. Paul Volcker was Undersecretary of the Treasury for Monetary Affairs (1969-74), president of the Federal Reserve Bank of New York (1975-79), chairman of the Board of Governors of the Federal Reserve System (1979-87) and chairman of the Board of Trustees of the International Accounting Standards (2000-05). In 2008, he was chosen by President Elect Obama to head the President's Economic Recovery Advisory Board.

In his response to the set of questions which had been sent to him, Mr. Volcker attached a speech he had made in May last year, entitled "Central Banking at a Crossroad". At the occasion, he received the Economic Club of New York Award for Leadership Excellence. He indicated that some of his answers could be found in the mentioned speech. In what follows, the paragraphs in italics are excerpts from that text.

Volcker Rule

■ **In September 2009, in a testimony before the Committee on Banking and Financial Services of the House of Representatives, you suggested that commercial banks, providers of "vital basic services to customers" and which, "taken collectively, are certainly systemically important", should be excluded from risky activities such as proprietary trading and ownership of hedge funds and private equity funds. After all, those institutions have access to central bank support and are potential beneficiaries of taxpayer money. Your suggestion was later defended by the Administration and became known as the "Volcker Rule". During the debates which preceded the approval of the Dodd-Frank Act, the proposal was substantially watered down, although it apparently maintained some degree of effectiveness.**

My questions are: 1) Were you disappointed with the final result? 2) Are there other aspects of the regulatory problem that have not been dealt with by the recent legislation and need to be considered in the future?

Here are some comments in response to your questions. I am also attaching a speech I made last year, parts of which are directly “on point”.

Before getting to your questions, let me comment about the Volcker Rule, which you say has been “substantially watered down.” I often hear that comment. And, indeed, at almost the last minute of the passage of the law, limitations on sponsorship of hedge and equity funds were eased, but by no means eliminated. I believe the restrictions on proprietary trading are real. I suspect most affected banks will say burdensome and too detailed. No doubt they will also spend millions on legal fees in the search for loopholes. But reportedly many traders have left commercial banks for less restricted pastures. In sum, I am not disappointed except with respect to the complexity. That unfortunately is almost inevitable when the institutions affected make great efforts to circumvent the purposes of the regulation.

More broadly, it is of course true that regulators and supervisors are not exempt from psychological pressures and an inability to foresee the future. They almost inevitably lag behind in analysis and the understanding of the technological forces at work, now more complicated than ever. The particular sources of acute strain – derivatives and sub-prime mortgages in this century, the stock market excesses and margin lending in the 1920’s, possibly heavy student borrowing and consumer debt in the next decade – change and are identified too late.

Reform of the financial system should be a continuing process. Only now are steps underway to deal with the problems inherent in money market mutual funds – they are hybrid institutions, part mutual funds, part banks - but not logically regulated as either. They are very large and a channel for amplifying and transmitting market strains.

Meanwhile, little has been done to assure that credit rating agencies (or for that matter auditing firms) are adequately independent and subject to strong professional standards.

Efforts to achieve a common set of international accounting standards have been stymied in part by an inability to reconcile differences with USGAAP.

Even in the area of capital and liquidity standards for banks, there is unfinished business although substantial progress is resulting in greater consensus.

More importantly, the enormous change in the financial world in recent decades – the new technology, the speed of communication, the interdependence, the growth of the “shadow banking system,” perhaps most important the change in institutional culture toward trading characterized by impersonal “counter parties” rather than by continuing “relationships.” The strong incentives built into present compensation system will require different regulatory and supervisory approaches. The challenge is tough intellectually, politically and practically.

Household-Debt Crises

■ **Recessions which occur in the wake of financial crises tend to be not only deep but long lasting. Knowing this, policy makers around the developed world took numerous measures to restore the health of the banking system and the confidence of the public and the market on the banks. The sooner the system resumes its normal activities, the faster the economic recovery.**

In a recent book (House of Debt), Atif Mian and Amir Sufi show that banking crises are usually preceded by household-debt crises and that excessive debt is what explains the size and length of the ensuing recessions. A few other academics had reached similar conclusions. In a conversation with Charles Goodhart for the March 2014 issue of this publication, he said “I have myself lived through three financial crises in the UK (1973-75, 1990-92, 2007-09), and all of these have been caused by a bank credit-fuelled housing and property boom. This boom was typically financed by standard retail banks”.

My question is: 1) Is there anything that regulators can do in order to avoid the same sort of problems in the future?

I have been involved in observing and dealing with financial crises even longer than Charles Goodhart – or for that matter longer than Atif Mian and Amir Sufi, whom have written about the seeming inevitability of the speculative excesses that lead to financial stress and breakdown. Hyman Minsky and before him Charles Kindleberger long ago explained how periods of calm and prosperity lead to over-confidence,

unsustainable expansion, and then collapse. Regulatory restraints – new or well established – to limit consumer risk, to raise down payment requirements, to expose weaknesses in “repurchase” financing patterns are all inevitably controversial, and sometimes may risk stifling seemingly useful and efficient financing. However, the damage that can result from absence of regulation cannot be dismissed.

Quantitative Easing

■ **After the zero lower bound for the basic interest rate was reached in the US, and given the slowness of the economic recovery, the Fed opted to put into practice a program of massive purchases of financial assets. Now, as the economy improves, discussions are centered on the exit strategy. Perhaps a parallel can be made with the Second World War period, when the prevailing understanding was that the Fed should support the Treasury, by acquiring government bonds in the market in such a way as to maintain low the cost of financing to the Treasury. The experiment came to an end only in 1951. Despite concerns regarding the possible costs of the normalization of policy, the Fed managed to successfully eliminate monetary accommodation.**

My question is: 1) Do you believe we can expect the same this time?

No doubt, the challenge of orderly withdrawal from today's broader regime of “quantitative easing” is far more complicated. The still growing size and composition of the Fed's balance sheet implies the need for, at the least, an extended period of “disengagement”. Moreover, the extraordinary commitment of Federal Reserve resources, alongside other instruments of government intervention, is now dominating the largest sector of our capital markets, that for residential mortgages. Indeed, it is not an exaggeration to note that the Federal Reserve, with assets of three and a half trillion dollars and growing, is, in effect, acting as the world's largest financial intermediary, acquiring long-term obligations and financing short-term, aided and abetted by its unique privilege to create its own liabilities.

Beneficial effects of the actual and potential monetization of public and private debt, the essence of the QE program, appear limited and diminishing over time. The old “pushing on a string” analogy is relevant. The risks of encouraging speculative distortions and the inflationary potential of the current approach plainly deserve attention. All of this has given rise to debate within the Federal Reserve itself. In that debate, I trust sight is not lost of the merits – economically and politically – of an ultimate return to a more orthodox central banking approach.

I do not doubt the ability and understanding of [former] Chairman Bernanke and his colleagues. They have a considerable range of tools and instruments available to them to manage the transition, including the novel approach of paying interest on excess reserves, potentially sterilizing their monetary impact. What is at issue – what is always at issue – is a matter of good judgment, leadership, and institutional backbone. A willingness to act with conviction in the face of predictable political opposition and substantive debate is, as always, a requisite part of a central bank’s DNA.

Those are not qualities that can be learned from text books. Abstract economic modeling and the endless regressions of econometricians will be of little help. The new approach of “behavioral” economics itself is recognition of the limitations of mathematical approaches, but that new “science” is in its infancy.

A reading of history may be more relevant. Here and elsewhere, the temptation has been strong to wait and see before acting to remove stimulus and then moving toward restraint. Too often, the result is to be too late, to fail to appreciate growing imbalances and inflationary pressures before they are well ingrained.

Inflation Targeting and the Dual Mandate

■ **Inflation targeting (IT) and the so-called dual mandate, as practiced in the US, are different monetary-policy strategies. In the first case, there is an explicit numerical target for inflation which, if credible, serves the purpose of anchoring expectations. There is a hierarchy of objectives, according to which pursuing the**

target (over the medium run) is a priority, although the state of the real economy is also taken into account. The second case involves a more balanced approach.

When Ben Bernanke became governor, he apparently attempted to convince his colleagues at the Fed that it would be wise to adopt a new strategy (IT). Alan Greenspan and Donald Kohn, in particular, offered strong resistance. Greenspan defended and practiced what he called the “risk-management” approach, which involves efforts to identify and deal with the main sources of risk to each of the two objectives (maximum employment and price stability). Perhaps for this reason, he was sometimes viewed as hawk, sometimes as dove. Kohn used to stress that the US had benefitted a lot from the full flexibility embodied in the “dual mandate”.

My questions are: 1) Do you consider one of these two strategies to be superior to the other? 2) In your opinion, should the US authorities consider the possibility of switching to the IT strategy?

I cover the question of inflation targeting and dual (or triple) mandates for a central bank in my attached speech.

I know that it is fashionable to talk about a “dual mandate” – that policy should be directed toward the two objectives of price stability and full employment. Fashionable or not, I find that mandate both operationally confusing and ultimately illusory: operationally confusing in breeding incessant debate in the Fed and the markets about which way should policy lean month-to-month or quarter-to-quarter with minute inspection of every passing statistic; illusory in the sense it implies a trade-off between economic growth and price stability, a concept that I thought had long ago been refuted not just by Nobel prize winners but by experience.

The Federal Reserve, after all, has only one basic instrument so far as economic management is concerned – managing the supply of money and liquidity. Asked to do too much – for instance to accommodate misguided fiscal policies, to deal with structural imbalances, or to square continuously the hypothetical circles of stability, growth and full employment - it will inevitably fall short. If in the process of trying it

loses sight of its basic responsibility for price stability, a matter which is within its range of influence, then those other goals will be beyond reach.

I happen to believe it is neither necessary nor desirable to try to pin down the price stability objective by setting out a single highly specific target or target zone for a particular measure of prices. After all, some fluctuations in prices, even as reflected in broad indices, are part of a well functioning market economy. The point is no single index can fully capture reality, and the natural process of recurrent growth and slow-downs in the economy will usually be reflected in price movements.

With or without a numerical target, broad responsibility for price stability over time does not imply an inability to conduct ordinary counter-cyclical policies. Indeed, in my judgment confidence in the ability and commitment of the Federal Reserve (or any central bank) to maintain price stability over time is precisely what makes it possible to act aggressively in supplying liquidity in recession or when the economy is in a prolonged period of growth well below potential.

In sum, narrowly fixed targets for “inflation,” or for “maximum employment” – and an assumption that interest rate or other central bank policy instruments – can and should be set months or even years ahead seem to me ultimately counterproductive. Instead of resulting in credibility, the clear risk in confidence will be undermined, as earlier commitments cannot be met.

Neither the state of the economic profession nor practical experience offer grounds for confidence that we can anticipate economic circumstances years ahead.

To be perfectly clear in closing these comments, I do not believe it would be either useful or possible to manipulate the inflation rate in an effort to achieve fixed employment goals.

The ultimate result will be less price stability, and quite likely less employment. Certainly confusion in markets and loss of confidence in the central banks would ensue. I would have thought that lesson has been apparent in Brazil for decades!

Note: paragraphs in italics are excerpts from “Central Banking at a Crossroad”.

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