

Rampant confusion - monetary policy, yield curve, bond yields

Dr Woody Brock | SED | 10 August 2017

A client recently called me to ask: "Does any central banker or economist you know of understand what is really going on with respect to inflation, growth, and in turn monetary policy? Those of us who must make decisions about developments in real-world markets feel we are living in a Tower of Babel in which no one seems to know what they are talking about."

I wished that I could have replied that Janet Yellen is ahead of the pack, but I could not. She forever equivocates and leaves the door open for whatever is next. For example, consider her comments about the recent fall in inflation despite eight years of economic recovery, a tight labor market, vast injections of liquidity into the system via QE, and the easiest monetary policy in modern history. She clung to her 50-year-old textbook view that, at this stage in the recovery – and especially with the unemployment rate down from 11.4% to 4.4% – inflation "ought" to be increasing and almost certainly will be. The fact that inflation has recently declined, she continues, reflects "temporary developments" such as lower oil prices which will not matter in the long run. [Note: core inflation ex-oil has declined, but she did not mention this.]

Such an answer might have sufficed during the first four years of the current recovery starting late in 2010. But the persistence of low inflation – not only in the US but in most of the G-27 nations – for the better part of a decade signals to us that something very fundamental has been going on. Moreover, whatever this is, it has probably been going on for a much longer period than is generally recognised, because the data show that US inflation has dropped almost continuously since 1981. A recent 20 July article in the *Wall Street Journal* aptly entitled "The Inflation Riddle" went on to point out:

"Moreover, the recent inflation weakness appears more broadly based than it did when officials met last month and Fed Chairwoman Janet Yellen dismissed it as largely due to one-off price declines for a handful of items."

Yellen is not alone in providing virtually no explanation of the mystery of disinflation. The commentaries of other central bankers who toe the traditional macroeconomic line are no better. Moreover, in their comments, central bankers and economists always use the official data when discussing today's disinflation. In the US, they use NIPA data. Being methodologically risk averse, commentators fail to discuss the growing concern that statisticians at the BLS (Bureau of Labor Statistics) have overstated inflation by up to 2% over

the past two decades due to their failure to take into account: (i) the advent of new and ever-cheaper goods; (ii) the improved variety and quality of existing goods, and (iii) distortions due to creative destruction (this last being the most recent to have been discovered as discussed below).

Were the official numbers adjusted to reflect these shortcomings, then the amount of disinflation we have experienced is over double that reflected in the NIPA data, and the current inflation rate is in fact negative.

Why does this confusion about inflation matter? Does it matter primarily because the lack of central bank guidance about inflation makes it difficult for investors to predict the future Fed funds rate as well as the shape of the yield curve? [Remember that bond yields are overwhelmingly driven by inflationary expectations.] No. Frustrating as today's confusion may be to Wall Street, the real reason why today's confusion about inflation matters is that it is part and parcel of a much larger story unfolding on Main Street.

This story lies in the growing belief that the US has entered an era of permanently low economic growth, due in large measure to an alleged 50% reduction in productivity growth. This larger story matters to all US citizens, and is far more significant than investor confusion regarding where the Fed and the markets are headed. The story is completely false, of course, if statisticians have exaggerated inflation by 2% as we believe they have. For in this case, both real growth and productivity growth have been strong, not weak.

Relevance to the entitlements crisis ahead

The reason this larger story about growth and productivity matters is that the US and all other advanced nations are now entering a period that is unique in modern history. In the decades ahead starting now, all G7 and indeed G27 nations must find the means to pay for the trillions of dollars of unfunded liabilities accruing to meet ballooning social insurance and medical costs.

According to a recent IMF study, the present value of these unfunded future US expenditures is triple today's total Federal debt of \$20 trillion which is 100% of GDP. That is, total US debt properly measured is $\$20 + \$60 = \$80$ trillion, which is four times current GDP.

If economic and productivity growth really have fallen in half, and will remain stagnant for the foreseeable future, it will be impossible for nations to avoid a fiscal catastrophe in attempting to pay for benefits that have been promised, and that are politically untouchable. In this regard, the challenge of achieving strong real growth is challenge #1 for the nation. As the Simpson–Bowles bi-partisan Congressional report made crystal clear some nine years ago, dealing with runaway entitlements spending is by far the greatest problem confronting the US during the 21st century. This is why it is so crucial to know whether a long-term regime of low economic and productivity growth truly is at hand, or not.

The exception of Charles Evans

The one official recently to speak out on the issue of persistent low inflation has been Charles Evans, the President of the Chicago Federal Reserve Bank. He recently posed the question as to whether "misunderstood and underrated technological developments" could be the real driver of the counter-intuitive behavior of inflation that we have witnessed during an eight-year recovery. We believe this to have been the case, as readers well know.

OUR RESPONSE TO THIS CONFUSION

During the past 16 months, we have published several essays on all the issues discussed above. We introduced a formal model showing how, for the last four decades, the Digital Revolution has unleashed a never-ending series of developments that has driven inflation way down and nominal GDP growth down.

More formally, we argued that the productive sector's "supply curve" S has been shifting out much faster than normal, just as it did in the 1870–1900 era when inflation became negative. [Money supply constraints due to the gold standard also contributed to disinflation during this era.]

More importantly, the supply curve S shifted out more rapidly than the aggregate demand curve D did, i.e. $S > D$. And, if this inequality holds true, then the rate of inflation given a "neutrally" growing money supply declines. This is axiomatically true and not some mere opinion.

As for demand D , economists are in substantial agreement that the growth of demand has been "sluggish". This being true, why shouldn't the supply curve have marched out faster than the demand curve, driven outwards by the explosion of efficiencies and innovations due to the penetration of the digital revolution into most interstices of the economy? After all, one curve will have shifted outward more than the other, and we suspect that it is S that shifted the most.

But since government statisticians do not measure shifts in the supply curve at all, the story we have been told is one that is necessarily obscured by official data.

Note: Readers who doubt the all-pervasive impact of the digital revolution and why it will continue to revolutionise Main Street should read an extremely important new book by Jimmy Soni and Rob Goodman, "A Mind at Play – The Elegance of Ones and Zeroes" (Simon and Schuster 2017). Doing so will make crystal clear how completely ill-informed virtually every financial commentator today is about the true import of the digital revolution.

Importantly, our microeconomic S/D model explained why the disinflation we are experiencing need not be associated with "sluggish growth" or "falling productivity" or "stagnant living standards" as most everyone has assumed it has been.

To extend and deepen this point:

Our $S > D$ model predicts that the following six properties of an economy can co-exist: (i) falling inflation; (ii) decreasing nominal GDP growth; (iii) strong productivity growth; (iv) strong real growth; (v) full employment; and, (vi) rising living standards.

We established this formally at a theoretical level in our research. But is there any empirical evidence to support it? Suppose we adjust the official BLS inflation data so as to eliminate the three sources of the upward bias in the official data identified by Harvard's Martin Feldstein, by Stanford's Peter Klenow, and by a slew of technology-savvy economists at MIT. Then all six of our theoretical predictions are empirically confirmed via the adjusted data series, both during the past eight years and over a much longer time horizon. In this regard, recall once again that if we adjust downward the inflation rate by 2%, then both real GDP growth and productivity growth have been strong – indeed 2% higher than officially stated. A footnote reviews the three biases that skew the official data.¹

No standard macroeconomic analysis using unadjusted data can yield this result, at least none we have encountered. What happens if we do not bother to revise the inflation numbers downwards, but allow that $S > D$? Our model still predicts falling inflation, falling nominal GDP, and full employment, all of which have occurred. But it does not predict the other three developments.

EVANESCENT BUSINESS CYCLES

In our most recent *PROFILES*, we went somewhat further than all this in explaining another set of developments that are confounding investors. These concerns whether or not it is time for the next downturn after eight years of expansion.

We identified seven reasons why the business cycle we learned about in school may not exist at all in today's service sector economy devoid of inventory overshoots.

That is, we suggested that the best forecast of GDP today and in the future will be that of random deviations around steady, full-employment growth. Nothing more and nothing less.

We hear statements such as "after eight years of growth, today's recovery must be near its end, and a recession is coming." Such fears play a central role in the debate as to whether the Fed risks a recession at this stage of the recovery by raising the funds rate even more than it has.

As we explained in past reports, the fact that there is no extant business cycle per se does not imply that recessions cannot occur. They have occurred and will occur again because of random asset market bubbles bursting, or other exogenous events. But recessions will not be driven by developments possessing a causally significant cyclical structure such as the inventory cycle that played the principal role earlier in the 20th century. Everything has changed along those lines. Mathematically, there are no longer any periodic functions underlying the economy's ups and downs.

Yield Curve Nonsense

Given this transformation of the classical business cycle, concerns that flat or inverted yield curves "signal" recession no longer have any meaning. As we have seen in the US and Germany, the curve can flatten or invert simply because a zero or negative inflation rate can drive bond yields to zero, just as can a "flight to quality" independent of low inflation. The deeper point here is that monetary policy no longer matters in many of the ways it used to matter. Of course, in the event of those financial panics caused in large part by today's levels of leverage, completely new forms of monetary policy are being invented, and these are of great importance.

A CONTRARY OPINION: THE RECENT *BANK CREDIT ANALYST* REPORT

In the June 2017 edition of the BCA report, Chief Strategist Peter Berezin offers a thoughtful analysis of what is transpiring in today's economy. But, it differs significantly from our own.

To begin with, he and the BCA editors in general do not believe in the need to adjust the official BLS data on inflation. For reasons with which we do not agree, he does not believe that mismeasurement is a significant issue.

More interesting to us are the implications that a rejection of the mismeasurement hypothesis has for making sense of what has been going on. The analysis that results is, in our view, highly problematic.² Let us explain why.

Consider an economy of very low productivity and of low real GDP growth in the eighth year of recovery from the 2007–2009 recession. This is the US economy as Berezin sees it. He argues:

1. The US has reached an inflection point where weak productivity growth is starting to push up both the neutral real rate and inflation. Other countries will follow.

2. The implication for investors is that government bond yields have begun a long-term secular uptrend. The market is not at all prepared for this.

Traditionally, this analysis would have been compelling. And it is not only Berezin who advances this analysis. Early this year, both Henry Kaufman and Bill Gross predicted the advent of a long-term bear market in bonds. And to be fair, this was a very understandable forecast.

But consider what we are witnessing today – allegedly stagnant economic and productivity growth continue to go hand in hand with stagnant if not ever-lower inflation, not with increasing inflation. The situation is confounding all central bankers. Bond bears have made no sense of the nation's most recent statistics on inflation. How could the official inflation rate have declined yet again after eight years of recovery, especially when labor markets are ever tighter? Indeed, given conventional assumptions about the economy, accelerating inflation should have been observed during the past four years as the unemployment rate tumbled down to 4.4%.

Berezin also argues that the bond market is ignorant of and unprepared for the higher yields to come. Perhaps so. But perhaps the market has figured out that "things really are different this time around" and that inflation is not going to come back at all. In this regard, it is most probably the Fed who has gotten it all wrong, not the market.

In short, even if we ignore the mismeasurement problems discussed above, classical macroeconomic analysis has proven altogether incapable to explain what has been happening for years.

The "weak" investment spending fallacy

It is important to recognise that transaction costs in equity markets are made up of both visible cost elements that are relatively simple to observe and measure, and invisible cost elements that are a lot less so.

These points about inflation and bond yields represent only part of Berezin's story. He also addresses the causes of declining productivity growth and hence of declining real growth. His first explanation of falling productivity growth attributes it to falling investment spending by businesses. We all know the depressing figures on capital spending as a share of GDP. The problem here is that these assertions about the impact of stagnant investment on productivity growth are not only wrong, but are devoid of any meaning at all.

Here is why, as we have noted in the past. What drives productivity growth is the quantity Q and, of course, the quality of those new capital goods purchased by corporations. The greater the quantity and quality of innovative capital goods (adding in software, too), then the greater will be the boost to productivity. But the government's statistics are silent on the shifts in Q . Indeed the official statistics center on the dollar number $P \times Q$, where P is the price

of capital goods. It is this dollar arithmetic product that yields "capital investment" as it occurs in the NIPA accounts – and that has dropped.

But wait: Didn't we publish research four years ago from the University of Chicago showing that the price of capital goods has dropped some 60% during the past thirty years, and dropped rapidly in the past decade? But if this is true, then the dollar expenditure $P \times Q$ on capital equipment reported in the GDP accounts should have dropped, just as it has. In our view, it has done so because of the miracle of the Digital Revolution in boosting Q while reducing P . But it is only this increase in Q that boosts productivity, and changes in Q are never cited. Accordingly, capital spending in recent years should have increased and not decreased productivity.

It is incredible to us that this point is not more widely understood, and that almost all commentators blithely assert that "capital investment has been falling".

Berezin produces other reasons for allegedly declining productivity. These include: (i) the waning gains from the IT revolution; (ii) slower human capital accumulation due to reduced educational achievements; and, (iii) decreased "creative destruction". He makes some very good points here, but on balance, we disagree with all three of them.

As for a slowdown in the rate at which secondary degrees are being granted, we are reminded of the late Kenneth Arrow's path-breaking article "Learning by Doing". Arrow's belief that on-the-job training can be far more important to productivity growth than schooling seems to characterise what has been happening in today's centers of innovation such as Silicon Valley. It is telling that at least four founders of staggeringly successful companies (Steve Jobs and Bill Gates included) never finished college. The same point was made 30 years ago about the non-tech normal economy by GE's legendary Jack Welch, who tripled what GE spent on in-house training and education believing that this was the education that mattered.

As for his argument that "Facebook and Instagram do little to boost business productivity", Berezin joins Northwestern University's Robert Gordon and others who mistakenly believe that the Digital Revolution is all about the advent of social media. It is not. To be sure, the advent of the Internet has been transformative, wholly independent of social media. But above and beyond the Internet, we have discoveries such as CAD/CAM, 3D printing and myriad other technologies that are revolutionising Main Street.

Finally, we do not agree with Berezin that the gains from the IT revolution are decreasing, or that creative destruction is decreasing. Both hypotheses are of course open for debate. [See the Postscript below as to why many decades are needed for today's IT developments to boost productivity, and why productivity gains tend to increase over long periods of time when there is a genuine technological revolution.]

A Broader Argument

At a deeper level, the widespread belief that the US economy is experiencing decelerating productivity and economic growth runs afoul of two additional realities.

First, Lawrence Summer' hypothesis of "secular stagnation" is inconsistent with the huge fall in the unemployment rate since the economic recovery began in 2010. He has stated that this is a problem.

Second, the hypothesis of declining productivity growth is inconsistent with a doubling since 1975 of after-tax corporate profits as a share of GDP. This number increased from 5.2% to 10.4%. Economic theory tells us that profits cannot double in this manner if productivity growth has been declining, as it has been according to the official data.³

Conclusion

For the reasons such as we have reviewed, the widespread belief that both economic growth and productivity have fallen by half cannot be correct. But once again, if the inflation rate is revised downward by some 2% as seems increasingly justified, then neither real growth nor productivity growth has fallen at all.

More broadly, the revised data along with the theory we have introduced demonstrate that all six of the seemingly counter-intuitive developments that characterise today's economy can co-exist and should have occurred: falling inflation; full employment; decelerating nominal GDP growth; strong real economic growth; strong productivity growth; and, rising living standards.

POSTSCRIPT – BEING RIGHT FOR THE RIGHT REASON

The rediscovery of our 1997 paper on Productivity and the IT Revolution

Our analysis and explanation of the performance of the US economy during recent years possesses a notable failing. Little of what we have written addresses the question of how long the favorable economic developments of recent decades will continue. Will properly-measured real growth and productivity start to decline as the impact of the Digital Revolution runs its course? Has this already been happening, as Berezin and others suggest?

This matters to investors because, if it is true, then inflation might well rise to traditional levels of 2.5% to 4%, with the Fed funds rate reverting upward towards 5%.

We have not addressed this longer-term set of concerns because the research we have drawn upon did not show us how to predict the longer run. In a forthcoming publication, we

will do so and will argue that current developments have at least another decade to run, if not longer.

Remarkably, our new research will not be new in the sense that it is drawn entirely from a paper we published in November 1997, a paper that the author completely forgot about. We drew upon three different bodies of research that jointly implied inflation would fall and productivity would be strong for a very long period of many decades.

In short, we pretty accurately predicted today's confounding economic developments some 20 years in advance from very fundamental principles. We may have been right for the right reasons, which is always what matters most to us. Not simply "being right". What was this research we drew upon?

The MIT Research

The first body of research came from a study of new IT-based "organisational architectures" which bode well for future productivity growth. The work was carried out by Erik Brynjolfsson and Lorin M. Hitt at MIT, and it argues that new and evolving organizational architectures would gradually boost profitability and productivity.

The McKinsey Research

The second body of research was sponsored by McKinsey and Company. They focused on the forthcoming boost to productivity from the remarkable fall of "interaction costs" due to new IT developments.

The Stanford University Research

The third body of research centered on the advent of a new "production function" that captured the synergistic impact of complementary activities and, in particular, its impact on generating increasing returns to scale and, hence, increasing profits. The production function introduced by Paul Milgrom and John Roberts and Stanford University was known as a "supermodular" production function.

Our main result was to show that the combination of these three developments working in tandem would generate increased productivity growth and decreasing inflation over a multi-decade time horizon – far longer than expected. We have never before republished a paper written a good while ago. But we shall republish this report since it captures at the deepest possible level what may well have been taking place since it was written, if not before. Regrettably, the author did not cite this paper in last year's reports as he had completely forgotten about it.

ENDNOTES

1. The principal upward biases in the BLS measure of inflation stem from ignoring the increases in quality and in variety of goods and services now being produced, failing to measure the impact on GDP of completely new goods a number of which are "free" and the failure to recognise the disinflationary impact of "creative destruction" as discovered very recently by Peter Klenow at Stanford along with four colleagues elsewhere. [See "Missing Growth from Creative Destruction" by Philippe Aghion, Antonin Bergeaud, Timo Boppart, Peter Klenow, and Huiyu Li, Working Paper 2017-04, Federal Reserve Bank of San Francisco.] These three distortions capture different dimensions of the mismeasurement issue, and are additive in their impact. A 2% estimate of the upward inflation bias seems eminently reasonable when all three issues are taken as a whole.
2. To be fair, we shall only deal with certain aspects of the BCA article. In particular, we do not discuss the implications of allegedly sluggish productivity growth for future bond yields, a main point of the article.
3. Some would argue that the increase in profits is due to an increase in "rent-seeking behaviour" as powerful firms lobby for non-competitive benefits that boost their bottom line. What this argument misses is the zero-sum game.



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