

## **Narayana Kocherlakota: Low real interest rates**

Speech by Mr Narayana Kocherlakota, President of the Federal Reserve Bank of Minneapolis, at the Ninth Annual Finance Conference, Carroll School of Management, Boston College, Boston, Massachusetts, 5 June 2014.

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### **Introduction**

Thanks for the invitation to speak at this great conference.

In my talk today, I will provide some perspectives on appropriate monetary policy and financial stability. I start by arguing that, over the past seven years, we have seen dramatic changes in the demand for and supply of safe assets. Given those changes, the Federal Open Market Committee (FOMC) is only able to achieve its congressionally mandated objectives of maximum employment and price stability by taking actions that serve to keep the real – that is, net of inflation – interest rate well below its 2007 level. I suggest that these changes in asset demand and asset supply are likely to persist over a considerable period of time – possibly the next five years or so. It follows that the FOMC will only be able to meet its objectives over that time frame by taking policy actions that ensure that real interest rates remain unusually low.

I then point out that low real interest rates are often associated with financial market phenomena that are seen as signifying instability. It follows that, for many years to come, the FOMC will only be able to achieve its congressionally mandated objectives by following policies that may result in signs of financial market instability.

Finally, I discuss how the FOMC should take those signs of instability into account when formulating monetary policy.

Before proceeding I need to stress that my remarks today reflect only my views and not necessarily those of any other FOMC participant.

### **Low real interest rates**

Economists generally distinguish between nominal and real interest rates. The nominal interest rate is the interest rate reported on a typical savings account or mortgage. It tells you how many dollars a saver or a lender will get in the future for giving up a dollar today. The real interest rate adjusts those future dollars for the anticipated rate of price increases – that is, for the anticipated rate of inflation. This means that the real interest rate tells you how much purchasing power a saver or lender will get in the future for giving up a dollar of purchasing power today.

When I was a student, back in the seventies and eighties, the real interest rate was a somewhat mysterious, unobservable object. That's no longer true. Treasury inflation-protected securities – bonds that are colloquially called TIPS – make coupon payments that are indexed to the inflation rate. This indexation means that TIPS coupon payments provide a fixed amount of purchasing power to the bondholder, not a fixed amount of dollars. As a result, TIPS yields provide a useful measure of the real interest rate.

When we look at TIPS yields, we see that real interest rates have fallen sharply over the past six years. In the first half of 2007, five-year TIPS had a real yield of about 2.5 percent and 10-year TIPS also had a real yield of about 2.5 percent. By 2012, both real yields had fallen well below zero, and while they have risen slightly, real yields continue to be low today. The five-year real TIPS yield is still below zero, around *negative* 0.3 percent. The 10-year real

TIPS yield is only slightly positive – around 0.4 percent. Note that, together, these market prices imply that the five year-five year forward real interest rate is around 1 percent. The 10 year-10 year forward real interest rate is only slightly higher.

Why have real interest rates fallen so much? At one level, the answer is obvious: monetary policy. Certainly, over the past seven years, the FOMC has taken a number of actions designed to put downward pressure on nominal bond yields. With inflationary expectations well-anchored, these actions tend to push downward on real interest rates.

But I think that the obvious monetary policy answer is actually deeply misleading. It is true that the FOMC takes monetary policy actions so as to influence the real interest rate. But, ultimately, these actions are designed to allow the FOMC to achieve its dual mandate of price stability and maximum employment. In 2007, the macroeconomic outlook was broadly consistent with the Committee's mandated objectives. In this sense, we can say that the real interest rate of 2.5 percent was *mandate-consistent*<sup>1</sup> in 2007.

The situation is different in 2014. As I've argued in previous speeches, the outlook for both employment and prices is too low relative to the FOMC's goals. For example, Personal Consumption Expenditure inflation – the Fed's preferred measure – is currently at 1.6 percent. I expect it to remain below the FOMC's inflation target of 2 percent for several years. This subdued outlook for both prices and employment suggests that the current path of real interest rates is actually too high to be consistent with the FOMC's mandated macroeconomic outcomes. Hence, I would argue that the mandate-consistent real interest rate is even lower than is suggested by the current yield on TIPS.

## What happened?

I've argued that the mandate-consistent path of real interest rates has fallen since 2007. I now turn to a discussion of *why* this has happened. I see the decline in mandate-consistent real interest rates as grounded in an increase in the demand for, and a fall in the supply of, safe financial investment vehicles. Importantly, I see these changes as likely to be highly persistent.

There are many factors underlying the increased demand for safe assets. I'll discuss three that strike me as particularly important: tighter credit access, heightened perceptions of macroeconomic risk and increased uncertainty about federal fiscal policy.

In terms of credit access, I don't think that it's controversial to say that credit access is more limited than in 2007. What is less generally realized, I think, is that restrictions on households' and businesses' ability to *borrow* typically lead them to spend less and *save* more.

I can best illustrate this point through an example. Consider a household that wants to purchase a new home. In 2007, that household could have received a mortgage with a down payment of 10 percent of the purchase price, or even lower. In 2014, that same household is considerably more likely to need a down payment of 20 percent. These tighter mortgage standards mean that, to buy a similarly priced house, the household needs to first acquire more assets.

Thus, the demand for safe assets has risen because of tighter limits on credit access. It has also risen because of households' and businesses' assessments of macroeconomic risk. As of 2007, the United States had just gone through nearly 25 years of macroeconomic tranquility. As a consequence, relatively few workers or businesses (or macroeconomists!) in the United States saw a severe macroeconomic shock as a relevant contingency.

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<sup>1</sup> What I'm terming the "mandate-consistent real interest rate" is the same as the "natural real rate of interest" in simple New Keynesian models.

However, in the wake of the Great Recession and the Not-So-Great Recovery, the story is different. Now, more workers see themselves as being exposed to the risk of persistent deterioration in labor incomes. More businesses see themselves as being exposed to the risk of a radical and persistent downshift in the demand for their products. These workers and businesses have an incentive to accumulate more safe assets as a way to self-insure against this enhanced macroeconomic risk.

The federal fiscal situation is the third key source of elevated uncertainty. The federal government faces a long-run disconnect between its overt commitments and the baseline path of federal tax collections. This disconnect can only be resolved by raising taxes and/or cutting the long-run arc of spending.

Of course, this tension between revenues and expenditures predated the 2007 downturn. However, it is at least arguable that the fiscal debates of the past few years have made more Americans aware of the uncertainties associated with resolving this long-run disconnect. And these uncertainties affect the demand for safe assets. The possibility of higher future taxes on corporate profits gives businesses an incentive to demand safe short-term financial assets as opposed to engaging in long-term investments. The prospect of reductions in Medicare, Medicaid or Social Security gives some households an incentive to demand more safe assets as a way of replacing those lost potential benefits.

I've argued that, due in part to tighter credit access and higher uncertainty, the demand for safe financial assets has risen since 2007. At the same time, the global *supply* of assets perceived as safe has also fallen. Americans – and many others around the world – thought in 2007 that it was highly unlikely that American residential land, and assets backed by land, could ever fall in value by 30 percent. Not anymore. Similarly, investors around the world viewed all forms of European sovereign debt as a safe investment. Not anymore.

Thus, the FOMC is confronted with a greater demand for safe assets and tighter supply of safe assets than in 2007. These changes in asset markets mean that, at any given level of real interest rates, households and businesses spend less. Their decline in spending pushes down on both prices and employment. As a result, the FOMC has to lower the real interest rate to achieve its objectives.<sup>2</sup>

I often hear that the FOMC has created a low interest rate environment that is harmful for savers and others. In my view, like savers, the FOMC is being forced to make unusual decisions by an unusual economic environment that is not of its own making. The FOMC has been confronted with a significant increase in safe asset demand and a significant fall in safe asset supply. Faced with these changes, the Committee can only achieve its macroeconomic objectives by taking actions to push down the real interest rate. Indeed, as I argued earlier, the subdued outlook for prices and employment suggests that the FOMC's actions have not lowered the real interest rate sufficiently.

What about the future? The passage of time will ameliorate these changes in the demand for and supply of safe assets – but only partially. Any long-run forecast has enormous attendant uncertainties. But I expect that for a considerable period of time – possibly the next five years or more – credit market access will remain limited relative to what borrowers had available in 2007. I expect that many workers and businesses will remain more concerned than in 2007 about the risk of a large adverse shock. And I also expect that businesses will continue to feel a heightened degree of uncertainty about taxes and households will continue to feel a heightened degree of uncertainty about the level of federal government benefits. These considerations suggest that, for many years to come, the FOMC will have to maintain low real interest rates to achieve its congressionally mandated goals. I see this conclusion as broadly consistent with the April FOMC statement, which predicts that the target fed funds

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<sup>2</sup> Kocherlakota (2012) provides a formal model of this mechanism.

rate will remain low for some time after inflation and employment are near mandate-consistent levels.

### **Financial market outcomes associated with low real interest rates**

I have argued that, for some time to come, the FOMC will only be able to achieve its dual mandate outcomes if the time path of real interest rates is considerably lower than in 2007 – as much as two full percentage points lower.

I now turn to the consequences of these unusually low real interest rates for broader financial market conditions. My main point is that unusually low real interest rates are likely to be associated with other unusual financial market outcomes. I'll discuss three of these outcomes in some detail: inflated asset prices, unusually volatile asset returns and high merger activity.

The first consequence of low real interest rates that I mentioned – higher asset prices – is the most obvious. Long-lived assets are somewhat substitutable for each other. Hence, investors generally respond to low real yields on bonds by bidding up the price of other long-lived assets – including gold, land, stocks or machines. It follows that when real interest rates are unusually low by historical norms, asset prices will typically be unusually high relative to historical norms.

The second consequence of low real interest rates is that asset returns should be expected to be highly volatile. When the real interest rate is very high, only the near term matters to investors. Hence, variations in an asset's price only reflect changes in investors' information about the asset's near-term dividends or risk premiums. But when the real interest rate is unusually low, then an asset's price will become correspondingly sensitive to information about dividends or risk premiums in the distant future. This new source of relevant information should be expected to induce more variability into asset prices and returns.<sup>3</sup>

Finally, I believe that when real interest rates are low, we should expect to see more mergers. Mergers typically involve enduring current costs in exchange for a flow of future benefits. For example, to initiate the merger, the acquiring firm has to search for an appropriate target, and that search can be costly. As well, after the merger, it may be necessary to undertake a one-time costly reorganization of people and materiel to achieve the anticipated gains in revenue. Businesses will be more willing to pay the upfront costs of a merger in exchange for the anticipated flow of future benefits associated with the merger if the real interest rate is low.<sup>4</sup>

In this way, unusually low real interest rates should be expected to be linked with inflated asset prices, high asset return volatility and heightened merger activity. All of these financial market outcomes are often interpreted as signifying financial market instability. And this observation brings me to a key conclusion. I've suggested that it is likely that, for a number of years to come, the FOMC will only achieve its dual mandate of maximum employment and price stability if its actions are able to keep real interest rates unusually low. I've also argued that when real interest rates are low, we are likely to see financial market outcomes that signify instability. It follows that, for a considerable period of time, the FOMC may only be able to achieve its macroeconomic objectives in association with signs of instability in financial markets.

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<sup>3</sup> Mathematically, I'm talking about the implications of having a higher average price-dividend ratio in the Campbell-Shiller (1988) formula. See also Cochrane (1992).

<sup>4</sup> Many academic models of mergers are based on this kind of cost-benefit structure. See Moran (2013) for a recent example.

## Financial stability and monetary policy

These financial market phenomena could pose macroeconomic risks. In my view, such potentialities are best addressed through effective supervision and regulation of the financial sector. It is possible, though, that these tools may only partially mitigate the relevant macroeconomic risks. How, if at all, should the FOMC adapt monetary policy in response to any residual risk?

In remarks that I gave earlier this year, I described an analytical mean-variance framework that the Committee could use to answer this question.<sup>5</sup> Today, I'll simply sketch the elements of that framework. Basically, the FOMC will need to confront an ongoing probabilistic cost-benefit calculation. On the one hand, raising the real interest rate will definitely lead to lower employment and prices. On the other hand, raising the real interest rate *may* reduce the risk of a financial crisis – a crisis that *could* give rise to a much larger fall in employment and prices. Thus, the Committee has to weigh the *certainty* of a costly deviation from its dual mandate objectives against the benefit of reducing the *probability* of an even larger deviation from those objectives.

In my view, this cost-benefit assessment is relatively clear right now. As I mentioned earlier, employment and prices are expected to be quite low over the medium term. In these circumstances, the cost of tightening policy has to be seen as great. At the same time, the Survey of Professional Forecasters reveals that forecasters see little chance of a large downward movement in employment and prices. These forecasts suggest that there would be little gain, in terms of forestalling adverse macroeconomic outcomes, from monetary policy tightening.

However, I expect this assessment to become more difficult for monetary policymakers in the future. Eventually, the outlook for employment and prices will improve to be broadly consistent with the FOMC's objectives. As I've described, I expect that the real interest rate will still be unusually low at that juncture. In these circumstances, I anticipate that financial stability considerations are likely to play a substantial role in the determination of the appropriate level of monetary accommodation.

I should stress that the Committee is in a better position to carry out this kind of probabilistic cost-benefit analysis in 2014 than it was in 2007. The Federal Reserve System now dedicates a significant amount of our best staff resources to financial system surveillance. The Federal Reserve Bank of Minneapolis contributes to these efforts in a number of ways, including our ongoing monitoring of the risk-neutral probability distributions of future asset values.<sup>6</sup> As a result of these efforts, the FOMC has a lot more information, on an ongoing basis, about the extent of financial system risks.

Nonetheless, as always, there is more to be learned. We need to understand better, in light of the current state of supervision and regulation, which residual financial system risks have the potential to translate into macroeconomic risks. And we need to understand better to what extent monetary policy tightening can in fact temper those residual financial system risks.

## Conclusions

Let me wrap up.

Over the past seven years, there have been big changes in the demand for and supply of safe assets. These changes seem likely to be persistent, and they mean that the FOMC may need to keep real interest rates unusually low for years if it is to achieve its objectives of

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<sup>5</sup> See the [March 2014 panel](#) at the Board of Governors.

<sup>6</sup> See the Minneapolis Fed's [asset prices page](#).

maximum employment and price stability. I see this conclusion as broadly consistent with the last sentence of the FOMC's April statement.

It follows that, to attain maximum employment and price stability over the same long period of time, Americans will likely face the consequences of low real interest rates. I've emphasized consequences related to financial market instability, like inflated asset prices, volatile asset returns and heightened merger activity. Even in the presence of effective supervision and regulation, these phenomena could pose residual macroeconomic risks. The FOMC's decision about whether to respond to those residual risks using the rather blunt tool of monetary policy will necessarily depend on a delicate probabilistic cost-benefit calculation.

Thanks for listening. I look forward to taking your questions.

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