

Comments and Discussion

COMMENT BY

FREDERIC S. MISHKIN This paper by John Campbell, Robert Shiller, and Luis Viceira is excellent. Indeed, I would have titled it, “Everything You Always Wanted to Know about Inflation-Indexed Bond Markets, But Were Afraid to Ask.”¹ The paper documents many key facts and puzzles about this market, including the following:

- the decline in long-term real yields on inflation-indexed bonds from the 1990s;

- the instability of real yields and returns on these bonds during the recent financial crisis;

- the negative correlation of returns on these bonds with those on stock prices, indicating that these bonds can be used to hedge equity risk;

- the fact that real yields on these bonds differ in different countries;

- the fact that the expectations hypothesis view that long-term real yields are driven by expectations of short-term real interest rates is supported by the data;

- but also the fact that risk and liquidity premiums on these bonds are very important and are volatile, suggesting that institutional factors matter a lot to their yields;

- the fact that long-term inflation-indexed bonds have high short-term risk;

- but also the fact that this is fully consistent with their being good long-term risk reducers.

1. For readers too young to remember, this is a takeoff on the title of a popular book and a Woody Allen movie from the 1970s.

The paper focuses on inflation-indexed bonds from the perspective of the investor. Given my comparative advantage as a former governor of the Federal Reserve, I will instead provide a different perspective by discussing why their analysis is so important for policymakers.

One of the most important issues for monetary policymakers is whether they can keep long-run inflation expectations anchored. Such anchoring is key to successful monetary policy for several reasons, and this is one of the reasons that I and many other monetary economists have argued strongly for some form of inflation targeting. First, anchoring long-run inflation expectations leads to more stable inflation outcomes. As I discussed in Mishkin (2007), long-run expectations of inflation on the part of households and firms are a key factor in determining the actual behavior of inflation. If these expectations are unstable, so, too, will be inflation. Moreover, the commitment that inflation targeting provides can play an important role in minimizing the risk of what Marvin Goodfriend (1993) has called “inflation scares,” that is, episodes in which longer-term inflation expectations jump sharply in response to specific macroeconomic developments or monetary policy actions.

Second, anchoring long-run inflation expectations can help stabilize output and employment. Specifically, to counter a contractionary demand shock, the monetary authorities need to reduce the short-run nominal interest rate; however, the effectiveness of such a policy action may be hindered if long-run inflation expectations are not firmly anchored. For example, if the private sector becomes less certain about the longer-run inflation outlook, the resulting increase in the inflation risk premium could boost longer-term interest rates by more than the increase in expected inflation. The higher premium would in turn place upward pressure on the real cost of long-term financing for households and businesses (whose debt contracts are almost always expressed in nominal terms) and hence might partly offset any direct monetary stimulus. Thus, firmly anchoring inflation expectations can make an important contribution to the effectiveness of the central bank’s actions aimed at stabilizing economic activity in the face of adverse demand shocks.

Third, anchoring long-run inflation expectations provides the central bank with greater flexibility to respond decisively to adverse demand shocks. Well-anchored expectations help ensure that an aggressive policy easing is not misinterpreted as signaling a shift in the central bank’s inflation objective; they thereby minimize the possibility that long-run inflation expectations could move upward in response to the easing and lead to a rise in actual

inflation. Well-anchored expectations are especially valuable in periods of financial market stress; at such times, prompt and decisive policy action may be required to prevent a severe contraction in economic activity that could further exacerbate the uncertainty and the stress, leading to a further deterioration in macroeconomic activity, and so on. Thus, by providing the central bank with greater flexibility in mitigating the risk of such an adverse feedback loop, well-anchored long-run inflation expectations play an important role in promoting financial stability as well as the stability of economic activity and inflation.

Fourth, well-anchored long-run inflation expectations can help prevent deflation from setting in—a particularly relevant consideration today. Deflation can severely weaken economic activity by triggering debt-deflation of the type described by Irving Fisher (1933), in which the falling price level increases the real indebtedness of firms, undermining their balance sheets.

Fifth, well-anchored long-run inflation expectations can help minimize the effects of an adverse cost shock such as a persistent rise in the price of energy. Generally speaking, such shocks tend to result in weaker economic activity as well as higher inflation. However, when long-run inflation expectations are firmly anchored, these shocks are likely to have only transitory effects on actual inflation, thus obviating the need to raise interest rates aggressively to keep inflation from rising. Thus, well-anchored long-run inflation expectations can help reduce output and employment fluctuations that impose unnecessary hardship on workers and on the economy more broadly.

The bottom line is that anchoring long-run inflation expectations is so important to successful monetary policy that the monetary authorities need to know what is happening to these expectations at all times. Indeed, when I was on the Federal Reserve Board, we spent a lot of time and effort trying to assess where long-run inflation expectations were heading, and we looked at several measures of these expectations. Surveys of households, such as the University of Michigan Inflation Expectation Survey, are one important source of information, but they have an important drawback. Research in the field of behavioral economics suggests that biases due to framing are likely to make survey measures of long-run inflation expectations unreliable. The problem is that when survey measures of short-run inflation expectations change, survey measures of long-run inflation expectations are likely to move with them, even if long-run expectations have not changed. This might happen because questions about both are

asked at the same time, and the answer to the first question influences (“frames”) the response to the second, resulting in a spurious co-movement between the two. Indeed, this is exactly what has happened recently. When oil prices rose, driving up inflation in terms of the consumer price index (CPI), not only did one-year inflation expectations move up in the Michigan survey, which makes sense, but so did measures of 5-to-10-year inflation expectations. Then, when CPI inflation and one-year survey expectations came back down, so, too, did the 5-to-10-year survey expectations. These temporary fluctuations in the 5-to-10-year survey measure were almost surely illusory.

A second measure of long-run inflation expectations comes from the Survey of Professional Forecasters (SPF). In recent years this measure has been rock steady. Of course, this may indicate that inflation expectations are firmly anchored, but it may instead be that the measure is failing to capture long-run inflation expectations that are in fact moving around.

Skepticism about survey measures is one reason why many economists, including myself, are more willing to trust expectations measures that are derived from financial markets data. After all, people buying or selling securities are putting their money where their mouth is—they thus have a strong incentive to base their decisions on their true forecasts. Here the inflation-indexed bond market provides exactly the information desired. The difference between interest rates on nominal government bonds and those on inflation-indexed bonds, or what the paper calls “breakeven inflation” and the Federal Reserve Board calls “inflation compensation,” serves as a measure of inflation expectations. Such measures can be used as the canary in the coal mine to let monetary policymakers know if inflation expectations are becoming unanchored. Indeed, when I was at Board meetings, I would always ask Jonathan Wright, the other discussant of this paper, what he thought long-run breakeven measures of inflation were telling us about long-run inflation expectations.

As the paper points out, however, there is one big problem with using breakeven inflation measures from inflation-indexed bonds to assess whether long-run inflation expectations are becoming unanchored, namely, the presence of risk and liquidity premiums. The paper demonstrates that these premiums are substantial and seem to vary a lot. Sorting out what drives these premiums is thus key to helping policymakers evaluate what is happening to inflation expectations, and the paper attempts to do that.

The results in the paper raise three issues, however. First, the standard risk premium theories do not seem to explain much of the actual movements in inflation-indexed bond yields. Second, these theories suggest that

inflation-indexed bonds should be good hedges against both consumption risk and equity risk, in which case inflation-indexed bonds should have a negative risk premium. Yet, to the contrary, they seem to have a positive risk premium. Both of these findings suggest that the existing theories do not tell us much about why liquidity and risk premiums vary. Third, it appears that a lot of the fluctuation in real yields on inflation-indexed bonds is due to institutional factors. This became very apparent during the recent period of financial market stress, when there were huge swings in these yields. However, as the paper points out, how these institutional factors affect real yields on these bonds is not well understood.

The paper's bottom line is that financial economists do not yet understand what causes the risk and liquidity premiums on inflation-indexed bonds to move around. This means that extracting information from these bonds about expected inflation is not easy.

A striking example of this problem was occurring at the time of this conference. As the paper shows, long-run breakeven inflation as measured by the difference in bond yields declined precipitously as the economy went into a tailspin. Does this mean that long-run inflation expectations became unanchored in the downward direction? If so, the situation was dangerous indeed, because it meant that deflation was more likely to set in, and aggressive monetary policy to prevent this unanchoring of inflation expectations was called for. Yet because one could not be sure what was happening to the risk and liquidity premiums on inflation-indexed bonds, neither could one be sure that this decline in breakeven inflation really meant that long-run inflation expectations had fallen.

Even though there was still some uncertainty about what inflation-indexed bonds were saying about long-run inflation expectations, I do think the sharp fall in breakeven inflation was cause for worry—that the dangers of deflation were real. To me this suggests that it is even more imperative that the Federal Reserve take steps to anchor inflation expectations better. This is why I have argued, both when I was a governor of the Federal Reserve and afterward,² that if ever there was a time for the Federal Reserve to announce an explicit, numerical inflation objective, that time is now.

2. Mishkin (2008); Frederic S. Mishkin, "In Praise of an Explicit Number for Inflation," *Financial Times*, January 12, 2009, p. 7.

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COMMENT BY

JONATHAN H. WRIGHT It is now just over a decade since the United States began issuing inflation-linked Treasury bonds. This paper by John Campbell, Robert Shiller, and Luis Viceira is a timely and excellent analysis of what has been learned from the pricing of these new securities and their counterparts in other countries. TIPS yields have been more volatile than might have been anticipated. Campbell, Shiller, and Viceira discuss the reasons why this is so before turning to the most topical issue, namely, explaining the behavior of TIPS in the recent financial crisis.

ARE RISK PREMIUMS ON INFLATION-INDEXED BONDS POSITIVE OR NEGATIVE? Abstracting for the moment from issues of liquidity, the yield on an inflation-linked bond is the sum of the average expected real short-term interest rate over the life of the bond and a risk premium. Campbell, Shiller, and Viceira use both a consumption-based model of asset pricing and a capital asset pricing model to argue that the risk premium on TIPS ought to be low or even negative. That would make them an ideal instrument for a Treasury seeking to minimize expected debt-servicing costs.

Some simple pieces of empirical evidence can be brought to bear on the question of the typical sign of the risk premium on such bonds. The average 5-to-10-year-forward TIPS yield from January 2003 to August 2008 was 2½ percent. If the risk premium on TIPS is zero or negative, this means that the expectation of r^* , the equilibrium real short-term interest rate, must be at least 2½ percent (abstracting from any liquidity premium, but this was a time when TIPS liquidity was generally good). This seems a rather high number. Expectations of real short-term interest rates 5 to 10 years hence, computed from the twice-yearly Blue Chip survey of economic forecasters, are volatile but were around 2 percent over this period. This reasoning suggests that risk premiums on TIPS are positive.