Today I want to talk about a security market that should offer safety during this period of financial market turbulence—the Treasury Inflation-Protected Securities or TIPS market. Now that this market is more than 10 years old, it should be sufficiently mature to permit a fair evaluation of its efficacy as a funding vehicle for the U.S. Treasury. Some research studies have concluded that the incremental financing costs associated with the TIPS program have been substantial, leading some to conclude that the costs may outweigh the benefits. Today I am going to lay out the reasons why I disagree with this conclusion.

Put simply, I come here to praise TIPS... In my opinion, the benefits of the TIPS program significantly exceed the costs of the program.

Before saying anything more, let me emphasize the phrase in the prior sentence—“in my opinion.” The views that I express today are my own and may not represent the views of the Federal Open Market Committee, the Federal Reserve Bank of New York or the Federal Reserve System.

The logic of issuing inflation-protected securities is straightforward. Wouldn’t some investors pay a premium—that is, accept a lower expected return—in exchange for guaranteed, full compensation for inflation? Because the United States and a number of other countries decided that the answer was likely enough to be “yes,” they developed an inflation-indexed government debt market.

Has the program been a good development from the perspective of the U.S. Treasury? What about from the public’s perspective? A good starting point for answering these questions is to account for the costs and benefits of the program relative to an appropriate counterfactual. For example, we might start by comparing the difference in funding costs to the Treasury of TIPS versus a program of comparable duration nominal Treasuries.

But we should also be careful not to ignore other potential benefits of the TIPS program. As I see it, these potential benefits include:

- Greater diversification of the Treasury’s funding sources, which presumably has favorable implications for the Treasury’s funding costs.
- The potential for TIPS issuance to reduce the variability of the U.S. government’s net financial position.
- Access to a market-determined measure of inflation expectations that can help inform the conduct of monetary policy.
- The provision of a virtually risk-free investment that provides value to risk-averse investors.

Although it is difficult to quantify these benefits, I will argue that they are considerable and should not be ignored in evaluating the benefits of the TIPS program.

Turning first to the issue of measuring the impact of TIPS issuance on the government’s funding costs, this could be done simply by comparing the ex-post costs of a program of TIPS issuance to the costs of a comparable program of nominal Treasury issuance. Studies of this sort have typically shown that TIPS issuance has resulted in a higher net cost to the Treasury. For example, a 2004 paper by Brian Sack and Robert Elsasser found a net cost to the Treasury from the start of the program through early 2004 of slightly less than $3 billion. A more recent paper by Jennifer Roush of the Federal Reserve Board finds that total ex-post costs of TIPS through March 2007 were in the range of $5-8 billion. Unfortunately, although this methodology is attractive in its simplicity, it has some flaws that undercut its usefulness in reaching conclusions about the attractiveness of the TIPS program.

The problem with an ex-post analysis is that it depends critically upon the performance of inflation over the period in question. If inflation turns out to have been meaningfully different than what was expected at the time of TIPS issuance, then this difference—the so-called “inflation surprise”—can be important in affecting the relative costs of TIPS versus nominal Treasury issuance. If inflation turns out to be higher than expected, then TIPS issuance will likely look to have been more expensive than nominal Treasury issuance. If inflation turns out lower, an ex-post analysis will likely show a saving from the TIPS program.
Over the long run—and I mean the very long run—there should be roughly as many downward surprises in inflation performance as upward surprises. But within any relatively short period, such as the last decade, this certainly does not need to be the case. In other words, over such a short period, the outcome of an ex-post analysis can be heavily influenced by which of the two sides—the Treasury or investors—was the lucky recipient of the net inflation surprise that occurred over the period in question. For example, in countries, such as the United Kingdom, where inflation declined following the inception of an inflation-linked debt program, ex-post studies generally suggest that these programs have reduced financing costs for these countries.

The fact that the Treasury saved or lost money ex post is thus not a very reliable guide as to whether the strategic decision to implement a TIPS program has been a good idea. The relevant question is whether the Treasury obtained the financing it needed at a lower ex-ante cost. If the experiment were to be run thousands of times drawing from the underlying distribution of possible inflation outcomes, would Treasury’s costs have been lower, on average, with TIPS or with nominal Treasuries? To conclude on the basis of one coin flip or roll of the dice as ex-post analysis essentially does surely is not the best way to evaluate the respective costs of TIPS issuance versus nominal Treasuries.

To execute an ex-ante analysis, we need a real-time measure of the inflation expectations of TIPS investors that is not contaminated by premiums for inflation risk or liquidity differentials. Unfortunately, we don’t have a perfect measure. Nevertheless, we may be able to get close. We do have estimates of expected inflation from other sources—such as the Survey of Professional Forecasters (SPF) conducted by the Federal Reserve Bank of Philadelphia. If such measures do indeed reflect the inflation expectations of investors, then we can conduct a reasonably accurate ex-ante analysis.

TIPS analysts often talk about a concept they call the breakeven inflation rate. Essentially, this is the realized inflation rate that would cause investors to come out the same in terms of total compensation regardless of whether they had bought TIPS or nominal securities. If inflation comes in above the breakeven rate, the investor who bought TIPS comes out ahead ex post; if inflation comes in below the breakeven rate, the investor who bought nominal securities wins. When I wrote this speech, the breakeven inflation rate at the ten-year maturity point was about 2.4 percent. This compares to the Philadelphia Survey of Professional Forecasters’ most recent long-run estimate for CPI inflation of 2.4 percent. If we assume that the SPF fairly represents the expectations of investors, then the current constellation of data indicates that investors are roughly indifferent between the benefit of being protected against inflation risk versus the cost in terms of the greater illiquidity of TIPS relative to on-the-run nominal Treasuries. Thus, on an ex-ante basis, it appears that the cost of issuing TIPS is currently about equal to the cost of issuing nominal Treasuries. From this perspective, there appears to be no net benefit or cost from TIPS in terms of expected financing costs.

That does not sound very compelling for TIPS. But I think it is important to emphasize that this standoff is occurring at a time when the preference for liquidity is especially strong. This benefits nominal Treasuries versus TIPS. When market turmoil subsides and this liquidity premium shrinks, one might expect TIPS to move ahead on an ex-ante basis.

Even on an ex-post basis, a detailed analysis of the timing of the net costs of TIPS issuance suggests that continuing a TIPS program makes sense. In her examination of the ex-post costs of the TIPS program, Jennifer Roush finds that the entire cost occurs during the early years of the TIPS program—up until around 2004. Roush’s analysis suggests that there were large startup costs associated with the TIPS program. Initially, TIPS were quite illiquid and investors demanded significant compensation for this illiquidity. But as the market developed, this illiquidity discount shrank.

The important point to take away from Roush’s analysis is that the large startup costs of the TIPS program have passed and are now, in essence, sunk costs. Thus, if the question is whether the TIPS program should be continued on the basis of expected interest expense, then the answer appears to be “yes.” Since 2004, TIPS issuance appears to have saved the Treasury money and the program appears likely to be “profitable” from the perspective of the Treasury on an ongoing basis.

So it’s TIPS by a small margin at this point. But that’s before we have included some of the other considerable—although more difficult to quantify—benefits associated with TIPS issuance.

Let me now discuss some of these other benefits. The comparison between the prevailing interest rates on TIPS versus nominal Treasuries provides insight into the relative costs associated with issuing the last dollar of debt. Is the marginal cost of TIPS lower than the marginal cost of nominal Treasuries? But just as important is whether TIPS issuance, by displacing nominal Treasury issuance, reduces the average cost of nominal Treasuries. This would occur if TIPS were not perfect substitutes for nominal Treasury securities and if the demand for nominal Treasuries were downward sloping—i.e., not completely elastic.

The first condition almost certainly holds given the different attributes of TIPS versus nominal Treasuries. If they were perfect substitutes, then there would not be a liquidity premium for nominal Treasuries versus TIPS. The second condition almost certainly holds because numerous studies have found that an increase in the net amount of Treasury borrowing leads to higher expected borrowing costs for the Treasury.

How big might this effect be? To get an idea of potential magnitude let’s make two assumptions. First, let’s assume that TIPS and nominal Treasuries are not substitutes at all. This is too strong, but it will make it simpler to think through the analysis and it will
be offset by a second assumption that will be on the conservative side.

Second, let’s assume that each $100 billion increase in Treasury issuance leads to a 1 basis point increase in nominal Treasury yields. In contrast to the first assumption, this assumption appears to be very conservative. After all, a study by Thomas Laubach that looked at the impact of a one percentage point increase in the projected debt-to-GDP level (about $140 billion currently), found that such an increase could be expected to raise the future level of interest rates by about 4 basis points. This is not quite the same comparison because he was focused on an increase in the expected amount of debt outstanding and we are looking at a change in the composition of Treasury debt issuance. Nevertheless, it suggests that our 1 basis point assumption may be in the ballpark—it certainly does not seem, on the face of it, to be unreasonably large.

Applying this 1 basis point saving to the entire stock of nominal marketable Treasury debt outstanding—after all, we are arguing that less nominal issuance reduces the average cost of all nominal marketable Treasury debt (about $4 trillion), this would imply a saving from TIPS issuance of about $400 million per year. While this estimate provides a false level of precision, it does suggest that the magnitude of the potential saving from this source is not trivial, especially viewed relative to the ex-post cost estimates of the TIPS program discussed earlier.

The second noteworthy benefit that stems from TIPS issuance is the fact that it reduces risk to the U.S. government in terms of the variability of its net financial position. Although the U.S. Treasury historically has focused on the net interest expense and rollover risk associated with funding the U.S. budget deficit, one could argue that this is an incomplete set of objectives. The Treasury might also take into consideration the goal of minimizing the volatility of its net financial position. After all, this goal is consistent with Treasury’s long-repeated policy of maintaining regular and predictable debt issuance to help minimize net interest costs.

So what role might TIPS play in this regard? That’s simple. The rate of inflation influences both the cost of TIPS and the government’s tax receipts. Thus, some level of TIPS issuance may reduce the variability of the government’s net financial position. This, in turn, should lead to a more regular and predictable pattern of issuance, which should help minimize interest costs.

The potential role of TIPS in terms of the asset-liability management of the government’s fiscal position is just the flip side of the role of TIPS for entities such as pension plans that have liabilities linked to inflation. The Treasury has assets in the form of anticipated tax revenue that are sensitive to inflation. If this is the case, it may make sense for its liabilities—its expected borrowing costs—to also have some sensitivity to unexpected shifts in inflation. In contrast, for a pension plan in which benefits are indexed to inflation, it is just the reverse—it is useful to have assets that are sensitive to inflation.

The point I want to emphasize here is that the Treasury’s borrowing decisions should be made within an asset-liability management framework. The goal is not just to minimize the government’s net interest expense. If that were the case, then all borrowing should occur in the Treasury bill market given that the yield curve is upward sloping on average. Instead, the Treasury’s borrowing regime should consider many elements including interest expense, rollover risk, and the impact of the borrowing regime on the variability of the government’s net financial position. I am only suggesting that the last factor—the impact of borrowing on the variability of the net financial position—should be added to the mix and that the role of TIPS should be evaluated in that context.

The third noteworthy benefit from the TIPS program is the value of TIPS as a tool for assessing inflation expectations. Because keeping inflation expectations well-anchored is so important in keeping inflation itself in check, real-time measures of inflation expectations may lead to better monetary policy-making. This, in turn, should improve macroeconomic performance. Although this is very difficult to quantify in terms of value, I think it is safe to say that in a $14 trillion economy, even a modest improvement in performance generates large dollar benefits.

U.S. policymakers focus on four broad sets of inflation expectation measures:

1. The University of Michigan Survey of Consumer Sentiment measures of household inflation expectations.
3. Periodic internal surveys of primary dealers, which include questions about long-run inflation expectations and uncertainty about the inflation outlook.
4. Breakeven inflation rates and forward breakeven inflation rate measures, both calculated by comparing the yields on nominal Treasuries to the yields on TIPS.

But in practice, the value of the first three measures is limited by the lack of timeliness—new data become available only monthly, about every six weeks, or quarterly. Also, real money isn’t riding on the accuracy of the survey responses. In contrast, the comparison between nominal Treasury and TIPS yields represents the consensus of market participants.

For these reasons, policymakers put considerable weight on the inflation expectations proxied by the difference between nominal Treasury note and TIPS yields. Here the emphasis is not on the break-even inflation rate as implied by, say, the 5-year Treasury notes versus 5-year TIPS or 10-year Treasury notes versus 10-year TIPS, but instead on forward measures of breakeven inflation. For example, the 5-year, 5-year forward breakeven inflation measure is a very important part of the monetary policymaking
process. Without a TIPS market, this tool would be unavailable and I think it would be safe to say that monetary policy would suffer as a consequence.

How much is this tool worth? Of course, it is very difficult to say. Perhaps, we would flatter ourselves and think that we could do just as well without such a market-based, real-time measure of inflation expectations. But I doubt it. After all, inflation expectations, when untethered, are very difficult to re-anchor. TIPS help make it easier to keep inflation expectations firmly in check.

Finally, TIPS offer a benefit to investors because they have less risk than any other asset class. With virtually no credit risk or inflation risk, TIPS are one of the safest of investments. For investors that want such safety, TIPS offer significant benefits. How much is this worth? Is the value of this completely captured in the relative interest costs of TIPS? Probably not, because the relative interest costs between TIPS and nominal Treasuries are set at the margin. I think there is some value in having a high-quality hedge to inflation risk, especially one that is available to less sophisticated investors.

Hopefully, I have convinced you that the benefits of an ongoing TIPS program exceed its costs. So now I want to turn to a related question: Are there ways to increase the benefits?

I would be willing to make two modest suggestions here. First, it may make sense to emphasize longer-dated TIPS issuance rather than shorter-dated issuance. Analytically, the logic goes as follows. Inflation uncertainty is likely to increase at longer time horizons. Thus, investors are likely to pay a greater premium for inflation protection at longer-time horizons. This implies that the cost savings associated with TIPS are likely to be greater for longer maturities rather than shorter maturities.

This prediction is supported by empirical studies that have examined the premium that investors pay for inflation protection both in the United States and elsewhere. For example, a recent study by Brian Sack of Macroeconomic Advisors finds that forward breakeven inflation rates increase as maturity lengths. In contrast, the level of survey-based measures of inflation expectations is quite constant beyond a time horizon of a few years. This means that the difference between forward breakeven inflation and inflation expectations climbs as the time horizon extends. This strongly suggests that the premium that investors pay for inflation protection increases as maturities lengthen.

Second, it may make sense to concentrate TIPS issuance and limit the number of outstanding issues. This might increase the liquidity of outstanding TIPS issues. That might help reduce the illiquidity discount associated with TIPS relative to on-the-run nominal Treasury securities.

Long live TIPS! That’s my conclusion. Thanks for your attention.

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1 There is some inflation basis risk in that TIPS are based on the not seasonally adjusted consumer price index and a household’s expenditure basket might differ from the basket in the CPI. Also, pension and endowment liabilities may be more closely related to other inflation or wage measures than the CPI.