



What Determines Interest Rates?

By John H. Makin

The pundits who have been predicting higher interest rates based on large U.S. budget and current account deficits have some explaining to do. Beyond the fact that very little systematic empirical evidence exists of a close link between deficits of any kind and interest rates, many high-profile commentators such as Robert Rubin and Pete Peterson, not to mention Pimco's Bill Gross, have consistently warned that long-term interest rates would rise as America's budget and current account deficits rose. Actually, U.S. long-term interest rates have been falling—from 4.8 percent in early June to 4.1 percent at year-end. Despite this stellar performance, Gross has even gone so far as to suggest that U.S. government liabilities should be downgraded from their top rating of AAA to AA.

It is odd that the broad field of U.S. deficit bemoaners, including a former Treasury secretary, an immensely successful investor, and the manager of the world's largest bond fund, have chosen to mislead the public on the major determinants of interest rates. In order to rationalize the awkward fact that interest rates on ten-year Treasury notes have gone down this year, the disaster that these pundits are calling for in the bond market has to be "looming" in the future. The consequences, it is assumed, are visible only to the prognosticator and somehow are invisible to the bond market. For the benefit of this distinguished group and the rest of us who need to have some idea where interest rates are going, I offer here a basic primer on the determinants of interest rates.

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Proximate Determinants of Interest Rates

I shall focus primarily on a typical government security, the ten-year U.S. Treasury note. The first thing to remember about a Treasury note is that it serves to store wealth over time. The interest rate on that note, which must compete with all other means of storing wealth, is roughly determined by the sum of the real (adjusted for inflation) interest rate and expected inflation over the life of the bond. The real interest rate on ten-year Treasury notes over the long run varies as real returns on alternative assets vary. If, other things equal, the stock market is rising as a reflection of rapidly rising investment opportunities, then the real return on stocks (an alternative financial asset to bonds) will rise and, other things equal, the return on bonds will rise. It is no accident then that during the rapid run-up in the stock market from 1998 to 2000, the yield on ten-year Treasury notes rose from just above 4 percent to 6.5 percent. In effect, bonds had to compete with a rapidly rising stock market and therefore had to pay a higher real (inflation-adjusted) rate of return.

The other major determinant of interest rates on Treasury notes is the expected rate of inflation over the life of the Treasury instrument. Since the interest on U.S. Treasury notes is paid in dollars, expected inflation measures the rate at which dollars depreciate against goods over the life of the bond. Therefore, an expectation of higher inflation, which will depreciate the value of interest payments and the principle on a ten-year Treasury note, means that an investor must earn a higher interest rate to compensate for the loss of

purchasing power that higher expected inflation would entail. In effect, higher inflation makes a bond that is paying fixed interest a less attractive way to store wealth. Therefore, higher and more volatile inflation depresses bond prices while boosting the yield, which moves inversely with the price of a bond.

The U.S. government does offer Treasury notes that are protected against inflation. By comparing the yield on ten-year Treasury inflation-protection securities (TIPS) with the yield on regular Treasury notes, it is possible to infer the inflation rate expected by investors over the life of the ten-year note and the expected real return on Treasury notes. Currently, the expected inflation rate over the next ten years implied by the TIPS yield is about 2.5 percent. The remainder, 1.75 percent on a bond paying a nominal yield of 4.25 percent, is the expected real return on the ten-year notes. Based on past history, 1.75 percent is somewhat low but probably reflects the fact that rates of return on invested capital have been driven down over the past several years by the widespread search for ways to store wealth in a world where wealth is rising rapidly. Beyond that, excess capacity exists in the global traded-goods sector, so there is little opportunity for profitable new investment there. By comparison, just before the March 2000 stock market crash when bonds faced stiff competition from a soaring stock market, the expected real yield on ten-year Treasury notes reached 4.5 percent.

Other Determinants of Interest Rates

Another determinant of interest rates on ten-year Treasury notes (and all assets) is Federal Reserve interest-rate policy. Since the Fed can control short-term interest rates by setting the federal funds rate at which banks can borrow overnight, it also controls the rate at which an investor can borrow, using a string of short-term borrowing transactions, to finance the purchase and holding of a longer-term Treasury note.

Of course such transactions carry the risk that, as the Fed raises the federal funds rate, the spread will be reduced. Indeed, the Fed did begin to raise the federal funds rate in June of this year and so far has increased the rate by 125 basis points from 1 percent to 2.25 percent. Interestingly, during that period the yield on ten-year Treasury notes has fallen slightly from about 4.6 percent in June to the current 4.2 percent. As the Fed has raised short-term interest

rates, the impact on shorter-term securities like two-year notes has been more noticeable, with yields rising on two-year notes by about 40 basis points during the time when the Fed was increasing the federal funds rate by 125 basis points.

The behavior of longer-term interest rates as the Fed has increased the federal funds rate suggests either that the expected real return has been reduced during the time that the Fed has been raising the federal funds rate, or that expected inflation has fallen. Actually, a reduction of about 75 basis points in the expected real yield on ten-year Treasury notes since June has reduced the nominal yield on ten-year Treasury notes even as the Fed has raised short-term rates. This outcome suggests that

markets expect economic growth, a rough proxy for the expected real yield, to slow in the future.

It is especially interesting to see that the yield on ten-year Treasury notes has been flat to lower as U.S. external deficits have risen. Another way of describing the rise in U.S. external deficits is to suggest that the supply of dollars going into foreign exchange markets through the U.S. current account deficit has increased to nearly \$2 billion per day. For the U.S. dollar to remain stable, foreign investors must purchase \$2 billion a day. Purchases have probably fallen somewhat short of that figure over the past six months as the dollar has depreciated by about 10 percent. That said, the nominal yield on long-term Treasury notes has fallen somewhat, while the yield on five-year notes has remained about stable since foreign purchases of U.S. Treasury notes have, along with domestic purchases, kept prices of such notes stable to rising.

Foreign investors own a substantial portion of outstanding U.S. government debt; some estimates put the figure as high as 45 percent. Private and official foreign owners of Treasury debt have been willing to increase their holdings of that debt as the supply increased. Leaving aside foreign official purchases of Treasury securities tied to currency intervention (not an insignificant fact, but also not one that I want to focus primarily on here), other reasons make Treasury securities attractive to private and official foreign holders.

Unique Appeal of U.S. Government Bonds

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U.S. domestic investors. Foreign official institutions that accumulate foreign exchange reserves need to store those accumulated reserves in a market that is highly liquid and safe. It may be necessary to buy or sell securities in multi-billion dollar lots, and no other markets can accommodate, as well, transactions of such size that are simultaneously such a good store of value. The superiority of the Treasury market as a way to store wealth helps to account for the low interest rates on Treasury securities.

There are other markets for government securities. Sovereign debt (the liabilities of governments) tends to represent a higher quality credit than corporate debt for the simple reason that sovereign debt in advanced industrial countries is backed by the government's power to tax in order to meet its liabilities. The catch has always been that governments may be tempted to levy an inflation tax and thereby depreciate the real value of their liabilities. Other governments are unable to collect taxes effectively and so are forced to use the inflation tax. But since the disastrous episode of the 1970s when inflation and interest rates soared, governments and central banks that have a choice have learned that low and stable inflation contributes to higher growth by virtue of reducing the real cost of raising money in stable credit markets.

U.S. government debt is a superior store of wealth that is in heavy demand globally. It is a superior store of wealth because the United States government has a well-established tax system run by a notoriously efficient Internal Revenue Service able to raise the funds necessary to service the debts of the government, among other tasks. The "sovereign" portion of the attractiveness of U.S. government debt is tied to the fact that the U.S. is the world's preeminent military power, able to effect its goals globally with that power and able to finance the activities of its military by issuing debt. This has been amply demonstrated during the War in Iraq, as the period of rising budget deficits tied to that war has produced no increase in U.S. interest rates and no attendant increase in U.S. inflation expectations. In fact, interest rates and inflation expectations have both declined over this period.

Alternative sovereign debt to U.S. Treasury debt does exist, but it is simply not as attractive. Euro-denominated debt is an amalgam of the liabilities of the many governments included in the European monetary system. Outstanding euro debt may be euro-denominated liabilities of the governments of Italy, France, or Germany—countries with different long-term reputations as stewards of stable purchasing power. Beyond that, most European governments shoulder retirement and health programs, the costs

of which are far more onerous than even the costs being faced by U.S. programs. Hence, the prospective borrowing needs of such governments and the temptation to pursue inflationary policies are perhaps more present in Europe than they are in the United States.

Europe endures the awkward reality of one central bank and twelve treasuries in the European Monetary Union. While the central bank is earnest about maintaining hard money and stable prices, the pressures on the various European governments to fund overburdened social programs probably means that political pressure on the European Central Bank to inflate some time during the next decade will be intense. With that all said, some governments and private sector investors seeking wealth storage prefer euro-denominated assets to dollar-denominated assets, especially as the dollar has weakened against the euro. This is part of a normal market adjustment that has pushed yields on European bonds below yields on U.S. bonds as a reflection of the expected depreciation of the dollar against the euro.

The other major sovereign government bond issuer—Japan—offers remarkably low nominal yields. The yield on ten-year notes in Japan is about 1.3 percent, or less than a third the yield in the United States. While the yen tends to be a hard currency, such yields are artificially depressed by the fact that Japan's central bank and government agencies own a large portion of Japan's substantial outstanding debt. This suggests that the market for such debt is nowhere nearly as liquid as the market for U.S. Treasury debt.

U.S. Debt and Social Security Reform

Looking forward, the attractiveness of U.S. sovereign debt can be a great asset in helping to finance the transformation of Social Security from a pay-as-you-go system financed by payroll taxes to a pre-funded system. The transition will involve allowing younger participants in the Social Security system to designate some of their payroll tax payments toward the accumulation of assets that they own and can transfer to their heirs. United States sovereign debt could provide an excellent wealth storage vehicle for U.S. workers seeking to build up their own retirement nest eggs.

In fact, it may be useful for the U.S. Treasury to contemplate issuing much longer-term debt as an attractive asset to offer to U.S. workers during the transition from a pay-as-you-go retirement system to a pre-funded one. During the nineteenth century, the British government

successfully offered consols—that is, perpetual liabilities of the government—as a means to finance its activities. The yield on consols averaged about 2.5 to 3 percent, the long-run real rate of return on capital, during periods of low inflation.

The U.S. Treasury may wish to consider a large issue of consols to fund the approximately \$2 trillion worth of transition costs over ten years. It seems appropriate for the U.S. government to issue long-term debt to finance a long-term investment in the solvency of the Social Security system. Experience shows that by issuing such long-term debt, the financing costs may actually be lower than costs of using shorter-term debt by virtue of the large demand for long-term assets among pension and insurance companies that need to match long-term liabilities with long-term assets. Beyond that, long-duration instruments such as consols, or even fifty or one-hundred-year government bonds, would be attractive for managers of mortgage portfolios by virtue of the long-duration of such assets. Mortgage portfolio managers need to make rapid adjustments in the duration of their portfolios, and very long-term government liabilities can make such adjustments easier.

Looking Ahead

Alexander Hamilton, America's greatest Treasury secretary, observed during his effort to consolidate the debts of the new republic in 1781 that "a national debt, if it is not excessive, will be to us a national blessing." Hamilton understood that sovereign governments perform a service by issuing large stocks of debt that pay predictable interest rates that, in turn, sustain stable purchasing power by virtue of stable prices. A national debt of \$3.5 trillion, the current level, is not excessive for an \$11 trillion economy like that of the United States. Nor is an additional \$2 trillion in debt issued over ten years to restore solvency to the Social Security system as the economy grows to \$18 trillion.

The demand for U.S. debt instruments will continue to rise worldwide. Investors in emerging markets—especially China where wealth is rising rapidly—are hungry for attractive ways to store wealth and are largely deprived of such outlets by controls on capital outflows. Chinese households that can only store wealth by earning 2.5

percent on deposits in an insolvent state banking system are forced to chase after back-alley investments through shady intermediaries raising money to fund highly risky real estate investments. They would be pleased to have the

opportunity to own long-term claims on the U.S. government paying a 4-percent rate of return. Indeed, the governments of many countries, including China, Japan, Korea, Taiwan, and other Asian nations, have found U.S. Treasury securities to be a particularly attractive store of value and so have continued to buy them.

The appeal of U.S. government liabilities as a store of value has contributed to the ease with which large U.S. current account deficits are financed. It could be said that the U.S. current account deficit has continued to rise because foreign governments and foreign investors will not permit it to fall. The United States exports superior claims on future goods or superior media for wealth storage, with U.S. government securities among the best in this category. America's low national saving

rate is as much a testimony to the attractiveness of U.S. government liabilities as a store of value as it is a measure of U.S. imprudence.

That said, conditions may change, and the terms on which foreigners are willing to finance a low U.S. national saving rate may change. Indeed, if real returns on assets abroad were to rise, U.S. real interest rates would rise, and the real return on U.S. government securities would rise. The possibility that interest rates may rise in the future is another reason for the U.S. government now to consider funding the transition to a sound Social Security system with long-term debt.

When all is said and done, it is the search for ways to store wealth that drives interest rates and not some hazy notion of unsustainable twin deficits. Markets clear every day. Today, everyone knows what the outlook is for U.S. inflation, issuance of Treasury securities, and economic growth relative to the same variables in the rest of the world. It is somewhat ironic that the plans of the Bush administration to place its government programs for retirement and health care on an actuarially sound basis have been taken by critics as a reason for U.S. interest rates to rise. Fortunately, based on the fundamentals of interest rate determination, global markets know better.

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sovereign debt can be a great asset in helping to finance the transformation of Social Security from a pay-as-you-go system financed by payroll taxes to a pre-funded system.
