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focus on PRACTICE

I-Bonds Adjust for Inflation

in practice One of the disadvantages of bonds is that they usually offer a fixed interest rate. Once a bond is issued, its interest rate typically cannot adjust as expected inflation changes. This presents a serious risk to bond investors because if inflation rises while the nominal rate on the bond remains fixed, the real rate of return falls.

The U.S. Treasury Department now offers the I-bond, which is an inflation-adjusted savings bond. A Series-I bond earns interest through the application of a *composite rate*. The composite rate consists of a *fixed rate* that remains the same for the life of the bond and an *adjustable rate* equal to the actual rate of inflation. The adjustable rate changes twice per year and is based on movements in the Consumer Price Index for All Urban Consumers (CPI-U). This index tracks the prices of thousands of goods and services, so an increase

in this index indicates that inflation has occurred. As the rate of inflation moves up and down, I-bond interest rates adjust (with a short lag). Interest earnings are exempt from state and local income taxes, and are payable only when an investor redeems an I-bond. I-bonds are issued at face value in denominations of \$50, \$75, \$100, \$200, \$500, \$1,000, \$5,000, and \$10,000.

The I-bond is not without its drawbacks. Any redemption within the first 5 years results in a 3-month interest penalty. Also, you should redeem an I-bond only at the first of the month because none of the interest earned during a month is included in the redemption value until the first day of the following month. The adjustable-rate feature of I-bonds can work against investors (that is, it can lower their returns) if deflation occurs. Deflation

refers to a general trend of falling prices, so when deflation occurs, the change in the CPI-U is negative, and the adjustable portion of an I-bond's interest also turns negative. For example, if the fixed-rate component on an I-bond is 2 percent and prices fall 0.5 percent (stated equivalently, the inflation rate is -0.5 percent), then the nominal rate on an I-bond will be just 1.5 percent (2 percent minus 0.5 percent). Nevertheless, in the past 80 years, periods of deflation have been very rare, whereas inflation has been an almost ever-present feature of the economy, so investors are likely to enjoy the inflation protection that I-bonds offer in the future.

► *What effect do you think the inflation-adjusted interest rate has on the price of an I-bond in comparison with similar bonds with no allowance for inflation?*

deflation
A general trend of falling prices.

The premium for *expected inflation* in Equation 6.3 represents the average rate of *inflation* expected over the life of an investment. It is *not* the rate of inflation experienced over the immediate past, although investors' inflation expectations are undoubtedly influenced by the rate of inflation that has occurred in the

rates of return on risky investments
the incentive for investors to bear the
and a higher nominal rate of return on
return is called the risk premium (RP).
Equity 1, r_1 , is given in Equation 6.1:

$$r_1 = R_F + RP_1 \quad (6.1)$$

$\underbrace{\hspace{1.5cm}}$
 risk premium

indicate, the nominal rate, r_1 , can be
risk-free rate of return, R_F , and a risk

(6.2)

RP_1 , and focus exclusively on the
real rate can be represented as

(6.3)

embodies the real rate of interest
on premium is driven by investors'
on they expect, the higher will be
nominal interest rate.

re short-term IOUs issued by the
as the safest investments in the
al world to a risk-free investment.
Typically try to determine what rate
months. Next, they subtract the
from the 3-month T-bill to arrive at
real asset in Equation 6.3, the real
personal finance example can
nominal and real rates of interest.