$$i = \left[\frac{100 - P}{P} \times \frac{y}{r}\right]$$

Where:

i = investment rate, in decimals.
P = price per 100 (dollars).
r = number of days remaining to maturity.
y = number of days in year following the issue date; normally 365 but, if the year following the issue date includes February 29, then y is 366.

Example:

For a cash management bill issued June 1, 1990, due June 21, 1990, with a price of $99.559444 (computed from a discount rate of 7.930%), solve for the investment rate (i).

Definitions:

P = 99.559444.
r = 20 (June 1, 1990, to June 21, 1990).
y = 365.

Resolution:

$$i = \left[\frac{100 - P}{P} \times \frac{y}{r}\right]$$

$$(1)\ i = \left[\frac{100 - 99.559444}{99.559444} \times \frac{365}{20}\right]$$

(2) i = [.004425 × 18.25].
(3) i = .080756.
(4) i = 8.076%.

2. For bills of more than one half-year to maturity:

Formula:

P [1 + (r − y/2)(i/y)] (1 + i/2) = 100.

This formula must be solved by using the quadratic equation, which is:

$$ax^2 + bx + c = 0.$$

Therefore, rewriting the bill formula in the quadratic equation form gives:

$$\left[\frac{r}{2y} - .25\right] i^2 + \left(\frac{r}{y}\right) i + \left(\frac{P - 100}{P}\right) = 0$$

and solving for ''i'' produces:

$$i = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$$

Where:

i = investment rate in decimals.
b = r/y.
a = (r/2y) − .25.
c = (P − 100)/P.
P = price per 100 (dollars).
r = number of days remaining to maturity.
y = number of days in year following the issue date; normally 365, but if the year following the issue date includes February 29, then y is 366.

Example:

For a 52-week bill issued June 7, 1990, due June 6, 1991, with a price of $92.265000 (computed from a discount rate of 7.65%), solve for the investment rate (i).

Definitions:

r = 364 (June 7, 1990, to June 6, 1991).
y = 365.
P = 92.265000.
b = 364 / 365, or .997260274.
a = (364 / 730) − .25, or .248630137.
c = (92.265 − 100) / 92.265, or − .083834607.

Resolution:

$$i = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$$

$$(1)\ i = \frac{-.997260274 + \sqrt{(.997260274)^2 - 4[(.248630137)(-.083834607)]}}{2(.248630137)}$$

$$(2)\ i = \frac{-.997260274 + \sqrt{.994528054 + .083375239}}{.497260274}$$

(3) i = (− .997260274 + 1.038221216) / .497260274.
(4) i = .040960942 / .497260274.
(5) i = .082373244 or
(6) i = 8.237%.

[69 FR 45202, July 28, 2004, as amended at 69 FR 52967, Aug. 30, 2004; 69 FR 53622, Sept. 2, 2004; 73 FR 14939, Mar. 20, 2008]

APPENDIX C TO PART 356—INVESTMENT CONSIDERATIONS

I. INFLATION-PROTECTED SECURITIES

A. Principal and Interest Variability

An investment in securities with principal or interest determined by reference to an inflation index involves factors not associated with an investment in a fixed-principal security. Such factors include the possibility that:

• The inflation index may be subject to significant changes,

• changes in the index may or may not correlate to changes in interest rates generally or with changes in other indices,

• the resulting interest may be greater or less than that payable on other securities of similar maturities, and

• in the event of sustained deflation, the amount of the semiannual interest payments, the inflation-adjusted principal of the security, and the value of stripped components will decrease. However, if at maturity the inflation-adjusted principal is less than a security's par amount, we will pay an additional amount so that the additional amount plus the inflation-adjusted principal equals the par amount. Regardless of whether or not we pay such an additional amount, we will always base interest payments on the inflation-adjusted principal as of the interest payment date. If a security has been stripped, we will pay any such additional amount at maturity to holders of principal components only. (See §356.30.)

B. Trading in the Secondary Market

The Treasury securities market is the largest and most liquid securities market in the world. The market for Treasury inflation-protected securities, however, may not be as active or liquid as the market for Treasury fixed-principal securities. In addition, Treasury inflation-protected securities may not be as widely traded or as well understood as Treasury fixed-principal securities. Lesser liquidity and fewer market participants may result in larger spreads between bid and asked prices for inflation-protected securities than the bid-asked spreads for fixed-principal securities with the same time to maturity. Larger bid-asked spreads normally result in higher transaction costs and/or lower overall returns. The liquidity of an inflation-protected security may be enhanced over time as we issue additional amounts or more entities participate in the market.

C. Tax Considerations

Treasury inflation-protected securities and the stripped interest and principal components of these securities are subject to specific tax rules provided by Treasury regulations issued under sections 1275(d) and 1286 of the Internal Revenue Code of 1986, as amended.

D. Indexing Issues

While the Consumer Price Index (''CPI'') measures changes in prices for goods and services, movements in the CPI that have occurred in the past do not necessarily indicate changes that may occur in the future.

The calculation of the index ratio incorporates an approximate three-month lag, which may have an impact on the trading price of the securities, particularly during periods of significant, rapid changes in the index.

The CPI is reported by the Bureau of Labor Statistics, a bureau within the Department of Labor. The Bureau of Labor Statistics operates independently of Treasury and, therefore, we have no control over the determination, calculation, or publication of the index. For a discussion of how we will apply the CPI in various situations, see appendix B, section I, paragraph B of this part. In addition, for a discussion of actions that we would take in the event the CPI is: discontinued; in the judgment of the Secretary, fundamentally altered in a manner materially adverse to the interests of an investor in the security; or, in the judgment of the Secretary, altered by legislation or Executive Order in a manner materially adverse to the interests of an investor in the security, see appendix B, section I, paragraph B.4 of this part.

APPENDIX D TO PART 356—DESCRIPTION OF THE CONSUMER PRICE INDEX

The Consumer Price Index (''CPI'') for purposes of inflation-protected securities is the non-seasonally adjusted U.S. City Average All Items Consumer Price Index for All Urban Consumers. It is published monthly by the Bureau of Labor Statistics (BLS), a bureau within the Department of Labor. The CPI is a measure of the average change in consumer prices over time in a fixed market basket of goods and services. This market basket includes food, clothing, shelter, fuels, transportation, charges for doctors' and dentists' services, and drugs.

In calculating the index, price changes for the various items are averaged together with weights that represent their importance in the spending of urban households in the United States. The BLS periodically updates the contents of the market basket of goods and services, and the weights assigned to the various items, to take into account changes in consumer expenditure patterns.

The CPI is expressed in relative terms in relation to a time base reference period for which the level is set at 100. For example, if the CPI for the 1982–84 reference period is 100.0, an increase of 16.5 percent from that period would be shown as 116.5. The CPI for a particular month is released and published during the following month. From time to time, the CPI is rebased to a more recent base reference period. We provide the base reference period for a particular inflation-protected security on the auction announcement for that security.

Further details about the CPI may be obtained by contacting the BLS.