

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 \$92.265

(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 = 92.265

b = 364 / 365, or .997260

a = (364 / 730) - .25, or .24863

c = (92.265 - 100) / 92.265, or -.083835

Resolution:

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

$$(1) i = \frac{-.997260 + \sqrt{(.997260)^2 - 4[(.24863)(-.083835)]}}{2(.24863)}$$

$$(2) i = \frac{-.997260 + \sqrt{.994528 + .083376}}{.497260}$$

$$(3) i = (-.997260 + 1.038222)/.497260$$

$$(4) i = .040962/.497260$$

$$(5) i = .082375 \text{ or}$$

$$(6) i = 8.24\%$$

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