

Resolution:

$$P[1 + (r/s)(i/2)] = (C/2)(r/s) + (C/2) a_n + 100 v^n \text{ or}$$

$$P[1 + (181/183)(.0859/2)] = (8.50/2)(181/183) + (8.50/2)(2.759627) + 100(.881474)$$

- (1) $P[1 + .042481] = 4.203552 + 11.728415 + 88.1474$
- (2) $P[1.042481] = 104.079367$
- (3) $P = 104.079367 / 1.042481$
- (4) $P = 99.838143$
- (5) $P = 99.838$

C. For fixed-principal securities with a long first interest payment period: Formula:

$$P[1 + (r/s)(i/2)] = [(C/2)(r/s)]v + (C/2) a_n + 100 v^n$$

Example:

For an 8½% 5-year 2-month note issued March 1, 1990, due May 15, 1995, with interest payments on November 15 and May 15 (first payment on November 15, 1990), solve for the price per 100 (P) at a yield of 8.53%.

Definitions:

C = 8.50
i = .0853
n = 10
r = 75 (March 1 to May 15, 1990, which is the fractional portion of the first interest payment)

s = 181 (November 15, 1989, to May 15, 1990)

v = 1/(1+.0853/2), or .959095

vⁿ = 1/(1+.0853/2)¹⁰, or .658589

a_n = (1 - .658589)/.04265, or 8.004947

Resolution:

$$P[1 + (r/s)(i/2)] = [(C/2)(r/s)]v + (C/2) a_n + 100 v^n \text{ or}$$

$$P[1 + (75/181)(.0853/2)] = [(8.50/2)(75/181)].959095 + (8.50/2)(8.004947) + 100(.658589)$$

- (1) $P[1 + .017673] = 1.689014 + 34.021025 + 65.8589$
- (2) $P[1.017673] = 101.568939$
- (3) $P = 101.568939 / 1.017673$
- (4) $P = 99.805084$
- (5) $P = 99.805$

D. (1) For fixed-principal securities reopened during a regular interest period where the purchase price includes predetermined accrued interest.

(2) For new fixed-principal securities accruing interest from the coupon frequency date immediately preceding the issue date, with the interest rate established in the

auction being used to determine the accrued interest payable on the issue date.

Formula:

$$(P + A)[1 + (r/s)(i/2)] = C/2 + (C/2) a_n + 100 v^n$$

Where: A = [(s - r)/s](C/2)

Example:

For a 9½% 10-year note with interest accruing from November 15, 1985, issued November 29, 1985, due November 15, 1995, and interest payments on May 15 and November 15, solve for the price per

100 (P) at a yield of 9.54%. Accrued interest is from November 15 to November 29 (14 days).

Definitions:

C = 9.50
i = .0954

n = 19

r = 167 (November 29, 1985, to May 15, 1986)

s = 181 (November 15, 1985, to May 15, 1986)

vⁿ = 1/[(1 + .0954/2)]¹⁹, or .412570400

a_n = (1 - .412570)/.0477, or 12.315094

A = [(181 - 167)/181](9.50/2), or .367403