

RPI

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Use **RPI** to calculate the price or yield for a bond that pays periodic interest and has a par value of 100. The formula for price with more than one coupon period to redemption is:

$$PRICE = \left(\frac{-C}{Y} + \frac{RV}{(1+Y)^N} - \frac{-C}{Y} \right) * (1+Y)^{1-\frac{DSC}{E}} - A$$

Where

C = 100 * coupon rate / frequency

Y = yield / frequency

RV = redemption value

DSC = number of days from settlement to coupon

N = the number of coupons between the settlement date and the maturity date

E = the number of days in the current coupon period

A = C * accrued days / E

When the next coupon is paid at maturity the formula for price is:

$$PRICE = \frac{RV + C}{1 + \left(Y * \frac{DSR}{E} \right)} - A$$

Where

C = 100 * coupon rate / frequency

Y = yield / frequency

RV = redemption value

DSR = number of days from settlement to redemption

E = the number of days in the current coupon period

A = C * accrued days / E

Syntax

```
Public Shared Function RPI(  
    ByVal A As Double,  
    ByVal DSC As Double,  
    ByVal E As Double,  
    ByVal N As Double,  
    ByVal R As Double,  
    ByVal Y As Double,  
    ByVal P As Double,  
    ByVal F As Integer,  
    ByVal RV As Double,)
```

Arguments

A

the accrued number of days. *A* is an expression that returns a **Double**, or of a type that can be implicitly converted to **Double**.

DSC

the days from settlement to the next coupon date. *DSC* is an expression that returns a **Double**, or of a type that can be implicitly converted to **Double**.

E

the number of days in the settlement period. *E* is an expression that returns a **Double**, or of a type that can be implicitly converted to **Double**.

N

the number of coupons between settlement and maturity. *N* is an expression that returns a **Double**, or of a type that can be implicitly converted to **Double**.

R

the annual coupon rate in decimal format (10% = 0.10). *R* is an expression that returns a **Double**, or of a type that can be implicitly converted to **Double**.

Y

the yield on the bond. *Y* is an expression that returns a **Double**, or of a type that can be implicitly converted to **Double**.

P

the price per 100 par value of the bond. *P* is an expression that returns a **Double**, or of a type that can be implicitly converted to **Double**.

F

the number of coupon payments per year. $F = 1$; for semi-annual, $F = 2$; for quarterly, $F = 4$; for bi-monthly, $F = 6$; for monthly $F = 12$. For interest basis A364 you can also use 364 (every 52 weeks), 182 (every 26 weeks), 91 (every 13 weeks), or 28 (every 4 weeks). *F* is an expression that returns a **Integer**, or of a type that can be implicitly converted to **Integer**.

RV

the redemption value of the bond. *RV* is an expression that returns a **Double**, or of a type that can be implicitly converted to **Double**.

Return Type

Double

Remarks

- If *A* is NULL then $A = 0$.
- If *E* is NULL then $E = 180$.
- If *DSC* is NULL then $DSC = E - A$.
- If *N* is NULL then $N = 2$.

- If R is NULL then $R = 0$.
- If F is NULL then $F = 2$.
- If RV is NULL then $RV = 100$.
- If Y is NULL and P is NULL then NULL is returned.
- If $E = 0$ then NULL is returned.
- If $F = 0$ then NULL is returned.
- $C = 100 * R/F$
- If Y is not NULL then the function calculates the price from the inputs otherwise the function calculates the yield.

See Also

- BONDCF - Cash flows for a bond paying regular periodic interest
- DIRTYPRICE - Dirty price of a bond
- DIRTYYIELD - Yield of a bond from the dirty price
- DIS - Price, discount rate, and/or yield of a discount security
- DISC - Discount rate
- DISFACTORS - Factors for the price calculation of a discount security
- IAM - Price and/or yield of a security paying interest at maturity
- IAMFACTORS - Factors for the price calculation of a security paying interest at maturity
- ODDFPRICE - Price of a bond with an odd first coupon
- ODDFYIELD - Yield of a bond with an odd first coupon
- ODDLPRICE - Price of a bond with an odd last coupon
- ODDLYIELD - Yield of a bond with an odd last coupon
- OFC - Calculate the price and/or yield of a bond with an odd first coupon using the ODDFPRICE equation
- OFCFACTORS - Returns the components of the ODDFPRICE equation
- OFL - Calculate the price and/or yield of a bond with an odd first and an odd last coupon using the OFLPRICE equation
- OFLFACTORS - Returns the components of the OFLPRICE equation
- OFLPRICE - Calculate the price of a security with an odd first and odd last period
- OFLYIELD - Calculate the yield of a security with an odd first and odd last period
- OLC - Calculate the price and/or yield of a bond with an odd last coupon using the ODDLPRICE equation
- OLCFACTORS - Returns the components of the ODDLPRICE equation
- PRICE - Price of a security paying regular periodic interest
- PRICEACT - Price of a bond where coupon amounts are based on number of days in the coupon period
- PRICEACTV - Cash flows and discount factors for a bond where coupon amounts are based on number of days in the coupon period
- PRICEDISC - Price of a discounted security
- PRICEFR - Price of a bond with forced redemptions
- PRICEMAT - Price of an interest-at-maturity security
- PRICESTEP - Price of a security with step-up rates
- RPIFACTORS - Factors for the calculation of the price of a bond that pays regular periodic interest
- TBILLEQ - Bond equivalent yield of a Treasury Bill
- TBILLPRICE - Price of a Treasury Bill
- TBILLYIELD - Yield of a Treasury Bill
- YIELD - Yield of a bond paying regular periodic interest
- YIELDACT - Yield of a bond where coupon amounts are based on number of days in the coupon period
- YELDDISC - Yield on a discount security
- YELDFR - Yield of a bond with forced redemptions

- YIELDMAT - Yield on an interest-at-maturity security
- YIELDSTEP - Yield of a security with step-up rates