Bonds Price & Yield Worksheet

This worksheet allows to calculate annual or semi-annual coupons bonds with actual or 360 days per year calendar in an easy way with all options and values at sight.

Bond Price & Yield Menu Actions	
Calendar Actual or 30/360	Select the Bond calendar type. Actual calendar or 30 days per month and 360 days per year calendar.
Coupon 1 / Yr or 2 / Yr	Select the bond coupon type. One or Two coupons per year.
🔢	Shows a Date picker for the Settlement or Maturity dates.
Settlement	Inputs Settlement or purchase date value in the current date format.
Maturity	Inputs the Maturity or call date value in the current date format.
CALL	Inputs the Call value. It is set for a call price per 100.0 face value. A bond at maturity has a call of 100% of its face value.
CPN	Inputs the bond Coupon rate as an annual %.
Accrued Interest	Calculates the accrued interest from the last coupon date to the settlement or purchase date.
YIELD	Stores or calculates the bond Yield% to maturity or yield% to call date for given bond Price.
PRICE	Stores or calculates the bond Price per 100.0 face value for a given bond Yield.
Effective Duration	Calculates the sensitivity of the bond price to a 1% positive and negative variation of the yield.
If any other key is pressed before one of the **Blue** keys, the displayed number is stored in the corresponding variable. Otherwise, the variable is calculated.	

To enter dates (Settlement and Maturity) tap the ⌨ to show a date picker or tap the corresponding button to enter the displayed number as date using he current date format indicated in the display's status bar (M.DY, D.MY or Y.MD). The following examples assumes "M.DY" date format.

Example 1: Price & Yield of a Bond

What price should you pay on October 25, 2021 for a 3.5% U.S. Treasury bond that matures on March 15, 2035 if you wish a yield of 5%? The calendar basis is actual and the coupon payments are semi-annually.

Solution:

Keystrokes	Description
Calendar **Actual**	Sets the calendar to **Actual**.
Coupon **2 / Yr**	Sets the bond coupon period to **Semi-Annual**.
10.252021 **[Settlement]**	Input the Settlement date (M.DY format).
3.152035 **[Maturity]**	Input the Maturity date (M.DY format).
100 **[CALL]**	Input the initial call value.
3.5 **[CPN]**	Input the annual coupon rate in %.
5 **[YIELD]**	Input the desired bond Yield in %.
[PRICE]	Calculates the bond price. **Result = 85.48**
In ALG , AOS or CHN logic **[+]** **[Accrued Interest]** **[=]**	Calculates bond net price in Algebraic or Chain logic: Adds the interest accrued since last coupon to the settlement date. **Result = 0.39** Calculate the net price. **Result = 85.87**
In RPN logic **[Accrued Interest]** **[+]**	Calculates bond net price in RPN logic: Accrued Interest. **Result = 0.39** Calculate the net price. **Result = 85.87**

Suppose that the market quote for the bond is 88¼. What yield does it represent?, what is the bond sensitivity (Effective Duration) at that yield?

88.25 [PRICE]	Input the market quote.
[YIELD]	Calculates the bond yield to maturity. **Result = 4.69**
[Effective Duration]	Calculates the Effective Duration. **Result = 10.39**

Example 2: A Bond with a Call feature

What is the price of a 6% corporate bond maturing on March 3, 2042 and purchased on May 2, 2023 to yield 5.7%? It is callable on March 3, 2026 (a coupon date), at a value of 102.75. What is the yield to the call date? Use a 30/360 calendar with semi-annual coupon payments.

Solution:

Keystrokes	Description
Calendar **30/360**	Sets the bond calendar to **30/360**.
Coupon **2 / Yr**	Sets the bond coupon period to **Semi-Annual**.
5.022023 [Settlement]	Input the Settlement date (M.DY format).
3.032042 [Maturity]	Input the Maturity date (M.DY format).
100 [CALL]	Input the initial call value.
6 [CPN]	Input the annual coupon rate in %.
5.7 [YIELD]	Input the desired bond Yield in %.
[PRICE]	Calculates the bond price. **Result = 103.43**
3.032026 [Maturity]	Input the call date and (M.DY format).
102.75 [CALL]	Input the call value at the call date.
[YIELD]	Calculates yield to call date. **Result = 5.58**

Example 3: A Zero-Coupon Bond

Calculate the price of a zero-coupon annual bond using a 30/360 calendar basis. The bond was purchased on May 19, 2021 and will mature on June 30, 2027, and has a yield to maturity of 10%.

Solution:

Keystrokes	Description
Calendar **30/360**	Sets the bond calendar to **30/360**.
Coupon **1 / Yr**	Sets the bond Coupon to **Annual**.
5.192021 **[Settlement]**	Input the Settlement date (M.DY format).
6.302027 **[Maturity]**	Input the Maturity date (M.DY format).
100 **[CALL]**	Input the CALL value to 100%
0 **[CPN]**	Input the annual coupon rate in %.
10 **[YIELD]**	Input the annual coupon rate in %.
[PRICE]	Calculates the bond price. **Result = 55.84**