**Understanding Bonds**

**Note:** the following reading is adapted from a variety of sources including Bloomberg, U.S. Treasury sites and <http://www.investopedia.com/articles/bonds/07/price_yield.asp>. This reading specifically deals with long term coupon issues. For U.S. Treasuries that would be debt with maturities of greater than one year. Recall, Treasury Bills (maturities of one year and less) are zero coupon issues (i.e., they sell at a discount of their par value). U.S. Treasuries with maturities of over one year to ten years are commonly referred to as Treasury Notes and those ten years and over are referred to as Treasury Bonds. Throughout this reading, the term Government Bonds will be used for all bonds with maturities over one year.

**U.S. Government Bond Quotes**

Bond prices are quoted in two ways. When you look at a bond quote, you will frequently see both the dollar price and the yield. The chart below is taken from Bloomberg.com, a provider of U.S. Treasury data. We will refer to information shown in this chart throughout the article. Notice that in the chart, both bond dollar prices and yields are quoted.

**U.S. Treasuries (February 7, 2011)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **COUPON** | **MATURITY** | **PRICE/YIELD** | **PRICE/YIELD CHANGE** |  |
| 2-Year | 0.625 | 01/31/2013 | 99-23 / 0.77 | -0-01½ / 0.024 |  |
| 3-Year | 1.000 | 01/15/2014 | 99-08+ / 1.25 | -0-02 / 0.022 |  |
| 5-Year | 2.000 | 01/31/2016 | 98-22 / 2.28 | -0-03 / 0.020 |  |
| 7-Year | 2.625 | 01/31/2018 | 97-16+ / 3.02 | -0-03½ / 0.018 |  |
| 10-Year | 2.625 | 11/15/2020 | 91-21½ / 3.65 | -0-02+ / 0.010 |  |
| 30-Year | 4.250 | 11/15/2040 | 92-23 / 4.71 | 0-10 / -0.021 |  |

**U.S. Government Bond Prices**

A bond's dollar price represents a percentage of the bond's principal balance (recall that in the U.S., this is $1,000), otherwise known as [par or face value](http://www.investopedia.com/terms/p/parvalue.asp). Look at the 2 year Treasury above. It has a quoted price of 99-23. What does this mean in U.S. dollars?

To begin, note that U.S. Government Bonds are quoted in 32nds of a dollar.

A U.S. Treasuries price consists of a "handle" (the numbers to the left of the -) and "32nds". The two-year Treasury's handle is 99, and the 32nds are 23. We must convert those values into a percentage to determine the market price for this bond. To do so, we first divide 23 by 32. This equals .71875. We then add that amount to 99 (the handle), which equals 99.71875. So, 99-23 equals 99.71875% of the par value of $1,000, which equals $997.1875.

Some very active issues may be quoted in 64ths of a point. To reflect this in the quote, a plus sign (+) would follow the price. The 3 year bond quote of 99-08+ means 99 and 8/32 plus 1/16 or 99 and 17/64. The 17/64 equals .265625 which we add to the handle for a price of 99.265625% of par, or $992.65625.

Also note that the 2 year Treasury is trading at a discount, which means that it is trading at less than its par value. If it were "trading at par", its price would be 100. If it were trading at a premium, its price would be greater than 100.

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**Price and Yield Change**

The price and yield change data for U.S. Treasuries presented in the Bloomberg illustration show the price change (handle and "32nds") from the close the trading day before. Thus the 3 year bond’s price is down 2 "32nds", and the yield is up 0.022 percentage points (or basis points).

**Corporate and Foreign Government Bond Quotes**

Only the market for U.S. Treasuries prices securities using thirty-seconds of a dollar. All other markets (foreign and corporate) use decimal notation.

**German Government Bonds (February 8, 2011)**

 Maturity Coupon Maturity Date Current Price/Yield

|  |  |  |  |
| --- | --- | --- | --- |
| 3-Month | 0.000 | 05/11/2011 | 99.84 / .68 |
| 6-Month | 0.000 | 08/10/2011 | 99.6 / .80 |
| 1-Year | 1.250 | 12/16/2011 | 100.19 / 1.03 |
| 2-Year | 1.000 | 12/14/2012 | 99.22 / 1.44 |

The above quotes for German government bonds are priced in decimal form as a percent of par value. Thus, the 1 year is 100.19% of par, or €100.19 and the 1 year 99.22% of par or €99.22 (Note: German Government bonds have a minimum par value of €100).