

Explanation of Bond Market Summary in the Capstone/Capsim Simulation

In the Capsim simulation course at Georgian Court University, Lakewood, NJ in summer session 2012, there are three bond issues by all six companies. The companies are: Andrews, Baldwin, Chester, Digby, Eire and Ferris. The industry simulation is the sensor industry. All bonds are ten year notes. These are the bonds for round zero of two practice rounds. The first round ends December 31, 2013.

Bonds Series Number	Face Value of Bond (\$)	Present Bond Yield (%)	Closing Price of Bond (\$)	S&P Bond Rating
11.0S2014	\$6,950,000	11.0%	\$100.00	B
12.5S2016	\$13,900,000	11.9%	\$105.30	B
14.0S2018	\$20,850,000	12.3%	\$113.62	B

The first bond series number is **11.0S2014**. The first three numbers list the bond's interest rate of 11.0%. The letter S (Series) separates the last four numbers which stand for the year the bond is due which is December 31, 2014. The face value of the bond issue is \$6,950,000. The bond's yield is 11.0% and the closing value is \$100.00. The bond yield 11.0% is the interest rate paid to bond holders, which is par or equal to the original interest rate. The closing value of \$100.00 means the bond is selling at par value, the original bond offering. The Standard and Poor's (S&P) Bond Rating of B means the bond is lowly rated and is considered junk.

This bond is currently at par value. Let's say Team Ferris wants to retire the entire bond early. Ferris pays \$6,950,000 plus a 1.5% brokers fee ($\$6,950,000 \times 0.015 = \$104,250$). The broker's fee is shown within the Other Category on the Income Statement. The entry to record this reacquisition is:

Bonds Payable	\$6,950,000	
Other-Brokers Fee	104,250	
Cash		\$7,054,425

Team Ferris's Cash Flows from Financing Activities shows Early Retirement of Long Term Debt as a negative number (\$6,950,000). On the Balance Sheet, Ferris's Long Term Debt is decreased by \$6,950,000.

Sometimes a team wants to pay part of long term debt. For example Team Erie pays \$1,000,000 of debt on this first bond issue. A broker's fee of \$15,000 ($\$1,000,000 \times 1.5\%$) is calculated with other fees into the Other Category on the Income Statement. The face value of the bond is decreased from \$6,950,000 - \$1,000,000 = \$5,950,000 plus a factor of \$3,422 calculated by the simulation. Therefore the face value of the bond is now \$5,953,422 as displayed in the Bond Market Summary.

Standard and Poor's Bond Rating for AAA, AA, A, and BBB are considered investment grade bonds. Therefore these bonds are a good investment and will not default. In the simulation all companies issued bonds with a B rating. S&P Bonds rated BB, B, CCC, CC and C is rated junk bonds. This means these bonds are speculative issues and may default.

The second bond series number is **12.5S2016**. This bond has an interest rate of 12.5% and is due December 31, 2016. The face value of this bond issue is \$13,900,000, the yield is 11.9% and the closing price is \$105.30. This second bond is selling at a premium to the original par

value of the bond. Par value is \$100.00. The bond's closing price is \$105.30. The bond has increased in value. There is an inverse relationship between the price of a bond and the bond's yield. When the value of a bond increases the interest rate/yield decreases. The second bond's initial interest rate was 12.5%. The present interest/yield rate is 11.9%. If you purchase this bond on the open market you will pay a premium of \$5.30 per bond (\$105.30 - \$100.00) and receive a payment of 11.9% for the year. The interest rate has been reduced by 0.6% (12.5% - 11.9%). The bond has a S&P rating of B and is a junk bond.

Team Ferris paid part of this debt issue in the simulation. Ferris paid more than par value to retire part of the debt because the closing price is \$105.30 or \$5.30 over par value of \$100.00. The excess becomes a loss or write off, and is reflected in the Other Category on the Income Statement.

The third bond is designated **14.0S2018**. Bond number three has an original interest rate of 14.0% and is due December 31, 2018. The face value of the bond issue is \$20,850,000. The present yield paid to bondholders is 12.3% and the closing price of the bond is \$113.62. This bond has also increased in value and decreased in yield. The bond is selling at a premium of \$13.62 (\$113.62 - \$100.00) and the yearly interest rate paid to a purchaser of the bond on the open market has decreased by 1.7% (14.0% - 12.3%). This bond also has a S&P rating of B and is considered junk.

Sometimes bonds are sold at a discount. An example would be a bond with a face value of \$10,000,000 at original value/Par value of \$100 and an interest rate/yield of 7.0%. We will name the bond series number **07.0S2015**. This means the bond has a 7.0% interest rate and is due December 31, 2015. Let's say the bond's closing value is now \$98.00 and the interest rate is 7.4%. Therefore the bond is selling at a discount of \$2.00 (\$98.00 - \$100.00 = -\$2.00). The interest/yield has increased by 0.4% (7.4% - 7.0%). When the face value of the bond issued is \$10,000,000 at \$100 PAR value for each bond you divide \$10,000,000 by \$100 and get an issue of 100,000 bonds. The S&P rates this bond A or investment grade. If you retire this bond and pay a discount you will gain \$200,000 on the repurchase (\$10,000,000 x 0.98 = \$9,800,000). This is reflected as a negative write off in the Other Category on the Income Statement. Remember that each time you retire a bond you pay a broker's fee of 1.5%

In the Capsim Simulation bond issues fund long term capacity and automation. A bond issue can also fund the invention of a new sensor. When a company issues a bond there is a 5.0% broker's fee. Let's say the Andrew's company issues \$1,000,000 face value of bonds. The cost to Andrews for the bond issue is \$1,050,000. That is (\$1,000,000 times 0.05 = \$50,000 plus \$1,000,000 = \$1,050,000). This \$50,000 fee is reflected on the income statement in the Other Category.

Note that in Capstone, S&P rates go from AAA to D and ratings are evaluated by comparing the current debt interest rates with the prime rate. When bonds are issued in the simulation the rate for the issue is 1.4% over the current debt rate. Thus if the current debt rate is 8.6% you add 1.4% and get the 10.0% interest rate on the bond issue.

When a bond becomes due the long term debt goes to current debt on the balance sheet. Assume you have a face amount of \$1,000,000 for a bond 12.6S2014. This bond is due on December 31, 2014. On the 2015 spreadsheet the \$1,000,000 goes into current debt and the long term bond disappears.

If your team has no debt, long term or short term, your company will have an AAA bond rating. Your company's bond rating slips one category for each additional 0.5% in current debt

interest. Thus your team would have an AA rating instead of an AAA rating if the prime interest rate is 10.0% and your company's current debt rate is 10.5%.

I hope this lesson helps students understand the Bond Market Summary in the Capstone Simulation.