

Libby Chapter 10 Live Adobe Connect Reporting and Interpreting Bonds

Bonds Payable

The market (sales) price of a bond depends upon the *terms of the bond* (which determine the future cash flows to be paid) and the *market rate of interest on the date of sale*; i.e., **the price is determined by supply and demand.**

- ***The sales price of the bond is equal to the present value of the future cash flows required under the bond agreement discounted at the market rate of interest appropriate for the bond on the date the bond is sold.***
- The difference between the *sales price* and the *face value of the bond* is accounted for as ***premium/discount***.
- In accounting and finance, once we know the sales price, we can compute the effective interest rate (market rate) on that day.

Amortization of Bond Premium/Discount. Bond payable premium/discount is amortized over the life of the bond as an adjustment to interest expense using the **effective interest method.**

- **The effective interest method is GAAP**
- The **straight-line method** of amortization is not GAAP and can be used only if it produces results not materially different from the effective interest method.
- **THE TEXT INTRODUCES BOTH METHODS, BUT STUDENTS SHOULD MAKE SURE THAT THEY CAN USE THE EFFECTIVE INTEREST METHOD, WHICH IS GAAP.**

Time Value of Money (Present Value) Parameters

Present value is a tool used in accounting (bonds), finance (capital budgeting), and operations.

Learn to use Excel now to solve these problems.

N	Number of interest payment (compounding) periods
I	Market rate of interest, per n
Pmt	Periodic interest payment, per n (determined by contractual terms)
FV	The onetime payment at end (for a bond, this is the maturity (face) value)
PV	Present value, also in bond problems the fair value

Effective Interest Method

The purpose of the effective interest method is to obtain the following outcome.

Interest expense for the period (2)	=	Constant (1)
Beginning of period carrying value		

- (1) Historical effective interest rate (market rate) at the date of issuance/purchase.
- (2) The period is “n” in the present value model, the number of interest payment periods (compounding periods)

Steps in Effective Interest Method Application

	Beginning of the period carrying value (Face ± Premium/Discount)
x	Historical effective interest rate (at date of issuance), per n
=	Interest expense, per n
±	Interest paid/payable, per n
	Premium/discount amortization, per n

Bond Example

On January 1, 2015, the Pyles Co. issued \$15,000,000 bonds in a private placement to the Fowler Co. Fowler paid \$15,199,818 for the bonds.

The 6 year, 4% bonds, with interest paid semiannually on June 30 and December 31, are due December 31, 2020.

For convenience, let's start out by assuming that Pyles makes semiannual entries related to the bond.

STEP 1: SOLVE FOR MARKET (EFFECTIVE) INTEREST RATE

N	$6 \times 2 = 12$
I	= ??? = 1.875*
Pmt	$15,000,000 \times 4\% / 2 = 300,000$
FV	15,000,000
PV	15,199,818

*1.875% per period, or 3.75% per year

The Excel syntax is as follows: `=RATE(12,300000,-15199818,15000000)`

An amortization table for the problem provides the information for the problem (see next page).

ADOBE CONNECT LIVE BOND PAYABLE PROBLEM: PREMIUM

Amortization Table					
		Interest	Interest	Premium	Carrying
		Paid/Payable	Expense (3)	Amortization (2)	Value (1)
1-Jan	2015				15,199,818
30-Jun	2015	300,000	284,997	(15,003)	15,184,815
31-Dec	2015	300,000	284,715	(15,285)	15,169,530
30-Jun	2016	300,000	284,429	(15,571)	15,153,959
31-Dec	2016	300,000	284,137	(15,863)	15,138,095
30-Jun	2017	300,000	283,839	(16,161)	15,121,935
31-Dec	2017	300,000	283,536	(16,464)	15,105,471
30-Jun	2018	300,000	283,228	(16,772)	15,088,698
31-Dec	2018	300,000	282,913	(17,087)	15,071,612
30-Jun	2019	300,000	282,593	(17,407)	15,054,204
31-Dec	2019	300,000	282,266	(17,734)	15,036,471
30-Jun	2020	300,000	281,934	(18,066)	15,018,404
31-Dec	2020	300,000	281,595	(18,404)	15,000,000
Total		3,600,000	3,400,181	(199,819)	
(1) Equal to the present value of the remaining cash flows using the historical effective interest rate					
(2) Premium Amortization. If a discount problem, discount amortization.					
(3) Beginning carrying value x 1.875					

STEP 2: RECORD THE BOND ISSUANCE

January 1

Assets	=	Liabilities	+	Equity
Cash ↑ 15,199,818		Bonds payable ↑ 15,199,818		

January 1, 2015

Gross Method (Premium/Discount Recorded Separately)

Cash	15,199,818	
Premium, bonds payable (1)		199,818
Bonds payable (1)		15,000,000

$$(1) 15,000,000 + 199,818 = 15,199,818$$

Note: your textbook also shows you how to use a net method (bonds payable face and premium/discount netted together). I will use the gross method showing both the face value of the bond and premium/discount. Students could use either method.

Net Method

Cash	15,199,818	
Bonds payable		15,199,818

STEP 3. PERIOD 1 SEMIANNUAL JOURNAL ENTRY TO RECORD INTEREST PAYMENT AND INTEREST EXPENSE

June 30

Effective Interest Computations (see also amortization table).

	Beginning of the period carrying value	15,199,818
x	Historical effective interest rate	1.875%
=	Interest expense	284,997
±	Interest paid/payable	300,000
	Premium amortization	(15,003)

Gross Method

Assets	=	Liabilities	+	Equity
Cash ↓ 300,000		Bonds payable ↓ 15,003		Interest expense ↓ 284,997

Interest expense (1)	284,997	
Premium, bonds payable (3)	15,003	
Cash		300,000

Alternatively, Net Method (Bond Premium not recorded separately)

Interest expense	284,997	
Bonds payable	15,003	
Cash		300,000

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Monthly Entries. Note: if the company made monthly adjusting journals entries, then the following would be made each month.

January 31, 2015

Interest expense (1)	47,499	
Premium, bonds payable (3)	2,501	
Interest payable (2)		50,000

(1) $284,997 / 6 = 47,499$

(2) $30,000 / 6 = 50,000$

(3) $15,003 / 6 = 2,501$

This same entry would be made in February, March, April, May, June

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STEP 4: PERIOD 2 SEMIANNUAL JOURNAL ENTRY TO RECORD INTEREST PAYMENT AND INTEREST EXPENSE

The period July 1, 2015 – December 31, 2015 is the *second semiannual period*.

		Interest	Interest	Premium	Carrying
		Paid/Payable	Expense (3)	Amortization (2)	Value (1)
30-Jun	2015	300,000	284,997	(15,003)	15,184,815

December 31, 2015

	Beginning of the period carrying value (July 1)	15,184,815
x	Historical effective interest rate	1.875%
=	Interest expense	284,715
±	Interest paid/payable	300,000
	Premium amortization	(15,285)

1/1/ carrying value + June 30 premium amortization

Gross Method (Premium/Discount Recorded Separately)

Assets	=	Liabilities	+	Equity
Cash ↓ 300,000		Bonds payable ↓ 15,285		Interest expense ↓ 284,715

Interest expense	284,715	
Premium, bonds payable (3)	15,285	
Cash		300,000

Alternatively, Net Method (Bond Premium not recorded separately)

Interest expense	284,715	
Bonds payable	15,285	
Cash		300,000

December 31

December 31, 2015 Carrying Value = 15,169,530 (see amortization table).

31-Dec	2015	300,000	284,715	(15,285)	15,169,530
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We can confirm the ending carrying value. The carrying value is the present value of the *remaining cash flows* using the historical effective interest rate.

N	$5 \times 2 = 10$
I	1.875%
Pmt	$15,000,000 \times 4\% / 2 = 300,000$
FV	15,000,000
PV	$= ? = 15,169,530$

December 31, 2015

Current Liabilities	
Noncurrent Liabilities	
Bonds payable	15,169,530

Example 2 Change the previous example slightly. The Pyles Co. still makes semiannual journal entries, *but the interest payment dates are **July 1 and January 1** of each year.*

Gross Method (Premium/Discount Recorded Separately)

Assets	=	Liabilities	+	Equity
		Bonds payable ↓ 15,003 Interest payable ↑ 300,000		Interest expense ↓ 284,997

Interest expense	284,997	
Premium, bonds payable	15,003	
Interest payable		300,000

Alternatively, Net Method (Bond Premium not recorded separately)

Interest expense	284,997	
Bonds payable	15,003	
Interest payable		300,000

June 30, 2015

30-Jun	2015	300,000	284,997	(15,003)	15,184,815
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Current Liabilities		
Interest payable		300,000
Noncurrent Liabilities		
Bonds payable		15,184,815

July 1, 2015

Interest payable	300,000	
Cash		300,000

Ratios

Debt-to-Equity Ratio

The debt-to-equity ratio is computed as follows:

$$\text{Debt-to-Equity Ratio} = \frac{\text{Total Liabilities}}{\text{(Total) Stockholders' Equity}}$$

Times Interest Earned

Times interest earned is computed as follows:

$$\text{Times Interest Earned} = \frac{\text{Net Income} + \text{Interest Expense} + \text{Income Tax Expense}}{\text{Interest Expense}}$$

The ratio can also be expressed as follows:

$$\text{Times Interest Earned} = \frac{\text{Income Before Income Taxes(1)} + \text{Interest Expense}}{\text{Interest Expense}}$$

Statement of Cash Flows

Operating Activities

Net Income

Add (Deduct)

 Increase (decrease) in interest payable*

 Amortization of Bond Discount*

 (Amortization of Bond Premium)*

*Interest paid is treated as an operating activity in SCF

**Almost certainly, this would be combined with other items in an “other” category

Financing Activities

Issuance of debt

(Debt retirement)

(Payment of debt principal)

Note: The total inflows related to issuance of debt and the total outflows related to payments of debt principal should be shown separately (i.e., should not be netted).

CUMMINS INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS

In millions, except par value	December 31,	
	2014	2013
ASSETS		
Current assets		
Cash and cash equivalents	\$ 2,301	\$ 2,699
Marketable securities (Note 5)	93	150
Total cash, cash equivalents and marketable securities	2,394	2,849
Accounts and notes receivable, net		
Trade and other	2,744	2,362
Nonconsolidated equity investees	202	287
Inventories (Note 6)	2,866	2,381
Prepaid expenses and other current assets	849	760
Total current assets	9,055	8,639
Long-term assets		
Property, plant and equipment, net (Note 7)	3,686	3,156
Investments and advances related to equity method investees (Note 3)	981	931
Goodwill (Note 8)	479	461
Other intangible assets, net (Note 8)	343	357
Prepaid pensions (Note 11)	637	514
Other assets	595	670
Total assets	\$ 15,776	\$ 14,728
LIABILITIES		
Current liabilities		
Loans payable (Note 9)	\$ 86	\$ 17
Accounts payable (principally trade)	1,881	1,557
Current maturities of long-term debt (Note 9)	23	51
Current portion of accrued product warranty (Note 10)	363	360
Accrued compensation, benefits and retirement costs	508	433
Deferred revenue	401	285
Taxes payable (including taxes on income)	70	99
Other accrued expenses	689	566
Total current liabilities	4,021	3,368
Long-term liabilities		
Long-term debt (Note 9)	1,589	1,672
Pensions (Note 11)	289	232
Postretirement benefits other than pensions (Note 11)	369	356
Other liabilities and deferred revenue (Note 12)	1,415	1,230
Total liabilities	\$ 7,683	\$ 6,858
Commitments and contingencies (Note 13)		
EQUITY		
Cummins Inc. shareholders' equity (Note 14)		
Common stock, \$2.50 par value, 500 shares authorized, 222.3 and 222.3 shares issued	\$ 2,139	\$ 2,099
Retained earnings	9,545	8,406
Treasury stock, at cost, 40.1 and 35.6 shares	(2,844)	(2,195)
Common stock held by employee benefits trust, at cost, 1.1 and 1.3 shares	(13)	(16)
Accumulated other comprehensive loss (Note 15)		
Defined benefit postretirement plans	(669)	(611)
Other	(409)	(173)
Total accumulated other comprehensive loss	(1,078)	(784)
Total Cummins Inc. shareholders' equity	7,749	7,510
Noncontrolling interests (Note 17)	344	360
Total equity	\$ 8,093	\$ 7,870
Total liabilities and equity	\$ 15,776	\$ 14,728

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Amounts payable under our revolving credit facility will rank pro rata with all of our unsecured, unsubordinated indebtedness. Up to \$200 million under our credit facility is available for swingline loans denominated in U.S. dollars. Advances under the facility bear interest at (i) a base rate or (ii) a rate equal to the LIBOR rate plus an applicable margin based on the credit ratings of our outstanding senior unsecured long-term debt. Based on our current long-term debt ratings, the applicable margin on LIBOR rate loans was 0.875 percent per annum as of December 31, 2014. Advances under the facility may be prepaid without premium or penalty, subject to customary breakage costs.

The credit agreement includes various covenants, including, among others, maintaining a leverage ratio of no more than 3.25 to 1.0. As of December 31, 2014, we were in compliance with the covenants.

There were no outstanding borrowings under this facility at December 31, 2014. A reconciliation of the maximum capacity of our revolver to the amount available under the facility was as follows:

In millions	December 31, 2014	
Maximum credit capacity of the revolving credit facility	\$	1,750
Less: Letters of credit against revolving credit facility		24
Amount available for borrowing under the revolving credit facility	\$	1,726

As of December 31, 2014, we also had \$261 million available for borrowings under our international and other domestic credit facilities. Borrowings against the other domestic and international short-term facilities were \$86 million as of December 31, 2014 and \$17 million at the end of 2013.

Long-term Debt

In millions	December 31,	
	2014	2013
Long-term debt		
Senior notes, 3.65%, due 2023	\$ 500	\$ 500
Debentures, 6.75%, due 2027	58	58
Debentures, 7.125%, due 2028	250	250
Senior notes, 4.875%, due 2043	500	500
Debentures, 5.65%, due 2098 (effective interest rate 7.48%)	165	165
Credit facilities related to consolidated joint ventures	3	92
Other debt	31	65
Unamortized discount	(47)	(48)
Fair value adjustments due to hedge on indebtedness	65	49
Capital leases	87	92
Total long-term debt	1,612	1,723
Less: Current maturities of long-term debt	(23)	(51)
Long-term debt	\$ 1,589	\$ 1,672

Principal payments required on long-term debt during the next five years are as follows:

In millions	2015	2016	2017	2018	2019
Principal payments	\$ 23	\$ 28	\$ 12	\$ 16	\$ 11

As a well-known seasoned issuer, we filed an automatic shelf registration for an undetermined amount of debt and equity securities with the Securities and Exchange Commission on September 16, 2013. Under this shelf registration we may offer, from time to time, debt securities, common stock, preferred and preference stock, depositary shares, warrants, stock purchase contracts and stock purchase units.

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CONSOLIDATED BALANCE SHEETS

(In millions, except number of shares which are reflected in thousands and par value)

	September 27, 2014	September 28, 2013
ASSETS:		
Current assets:		
Cash and cash equivalents	\$ 13,844	\$ 14,259
Short-term marketable securities	11,233	26,287
Accounts receivable, less allowances of \$86 and \$99, respectively	17,460	13,102
Inventories	2,111	1,764
Deferred tax assets	4,318	3,453
Vendor non-trade receivables	9,759	7,539
Other current assets	9,806	6,882
Total current assets	68,531	73,286
Long-term marketable securities	130,162	106,215
Property, plant and equipment, net	20,624	16,597
Goodwill	4,616	1,577
Acquired intangible assets, net	4,142	4,179
Other assets	3,764	5,146
Total assets	<u>\$ 231,839</u>	<u>\$ 207,000</u>
LIABILITIES AND SHAREHOLDERS' EQUITY:		
Current liabilities:		
Accounts payable	\$ 30,196	\$ 22,367
Accrued expenses	18,453	13,856
Deferred revenue	8,491	7,435
Commercial paper	6,308	0
Total current liabilities	63,448	43,658
Deferred revenue – non-current	3,031	2,625
Long-term debt	28,987	16,960
Other non-current liabilities	24,826	20,208
Total liabilities	<u>120,292</u>	<u>83,451</u>
Commitments and contingencies		
Shareholders' equity:		
Common stock and additional paid-in capital, \$0.00001 par value; 12,600,000 shares authorized; 5,866,161 and 6,294,494 shares issued and outstanding, respectively	23,313	19,764
Retained earnings	87,152	104,256
Accumulated other comprehensive income/(loss)	1,082	(471)
Total shareholders' equity	<u>111,547</u>	<u>123,549</u>
Total liabilities and shareholders' equity	<u>\$ 231,839</u>	<u>\$ 207,000</u>

See accompanying Notes to Consolidated Financial Statements.

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Long-Term Debt

In the third quarter of 2014 and 2013, the Company issued \$12.0 billion and \$17.0 billion of long-term debt, respectively. The debt issuances included floating- and fixed-rate notes with varying maturities for an aggregate principal amount of \$29.0 billion (collectively the "Notes"). The Notes are senior unsecured obligations, and interest is payable in arrears, quarterly for the floating-rate notes and semi-annually for the fixed-rate notes.

The following table provides a summary of the Company's long-term debt as of September 27, 2014 and September 28, 2013:

	2014		2013	
	Effective		Effective	
	Amount (in millions)	Interest Rate	Amount (in millions)	Interest Rate
Floating-rate notes due 2016	\$ 1,000	0.51%	\$ 1,000	0.51%
Floating-rate notes due 2017	1,000	0.31%	0	0
Floating-rate notes due 2018	2,000	1.10%	2,000	1.10%
Floating-rate notes due 2019	1,000	0.54%	0	0
Fixed-rate 0.45% notes due 2016	1,500	0.51%	1,500	0.51%
Fixed-rate 1.05% notes due 2017	1,500	0.30%	0	0
Fixed-rate 1.00% notes due 2018	4,000	1.08%	4,000	1.08%
Fixed-rate 2.10% notes due 2019	2,000	0.53%	0	0
Fixed-rate 2.85% notes due 2021	3,000	0.79%	0	0
Fixed-rate 2.40% notes due 2023	5,500	2.44%	5,500	2.44%
Fixed-rate 3.45% notes due 2024	2,500	0.90%	0	0
Fixed-rate 3.85% notes due 2043	3,000	3.91%	3,000	3.91%
Fixed-rate 4.45% notes due 2044	1,000	4.48%	0	0
Total borrowings	29,000		17,000	
Unamortized discount	(52)		(40)	
Hedge accounting fair value adjustments	39		0	
Total long-term debt	\$ 28,987		\$ 16,960	

The Company has entered, and may enter in the future, into interest rate swaps to manage interest rate risk on the Notes. Such swaps allow the Company to effectively convert fixed-rate payments into floating-rate payments or floating-rate payments into fixed-rate payments. In the third quarter of 2014, the Company entered into interest rate swaps with an aggregate notional amount of \$9.0 billion, which effectively converted the fixed-rate notes due 2017, 2019, 2021 and 2024 into floating-rate notes. In the third quarter of 2013, the Company entered into interest rate swaps with an aggregate notional amount of \$3.0 billion, which effectively converted the floating-rate notes due 2016 and 2018 into fixed-rate notes.

The effective rates for the Notes include the interest on the Notes, amortization of the discount and, if applicable, adjustments related to hedging. The Company recognized \$381 million and \$136 million of interest expense on its long-term debt for the years ended September 27, 2014 and September 28, 2013, respectively. The Company did not have any long-term debt in 2012.