

Long-Term Debt

Objectives:

- ! Extend our understanding of valuation methods beyond simple present value calculations.
- Understand the terminology of long-term debt
 - Par value
 - Discount vs. Premium
 - Mortgages
- ! Practice bookkeeping for debt issuance, interest accruals, periodic payments, and debt retirement.
- ! Understand how long-term debt affects the financial statements over time.



Valuation Concepts

Annuities

Ordinary Annuity (annuity in arrears) - payments occur at the end of the period

Annuity due (annuity in advance) - payments occur at the beginning of the period

What is the FV of a \$100 ordinary annuity at the end of 3 years at 8%?



A general formula:

$$FV(a) = \{[(1+r)^N - 1] * [1/r]\} * \text{Fixed Period Cash Flow}$$

Bonds - Terminology

Par value - stated or face value of the bond; the amount due at maturity

Market value - the value assigned to the bond by investors

Three interest rates are relevant to bond accounting:

Coupon rate -the rate used to determine the periodic cash payments (if any)

(Current) Market interest rate - the rate used to determine the current market value of the bond. The market rate is based upon market conditions and the risk characteristics of the borrower

Effective interest rate - the market rate at issuance, used to determine the interest expense and the book value of the liability

Bonds - An Introduction

If at issuance the market rate = coupon rate then market value = par value. The bond is said to sell at par. When a bond sells at *par* its coupon payment is equal to its interest expense.

While we will primarily focus on bonds sold at par, there are two other possibilities:

If at issuance the market rate $>$ coupon rate then market value $<$ par value. The difference between market value and par value is called the *discount* on the bond and its coupon payment is less than its interest expense. An extreme case of this is the zero-coupon bond.

If at issuance the market rate $<$ coupon rate then market value $>$ par value. The difference between market value and par value is called the *premium* on the bond and its coupon payment is more than its interest expense.



Bonds

Consider a loan with proceeds of \$10,000 initiated on 1/1/99. The market interest rate is 6% and final payment is to be made at the end of the third year (12/31/01). What annual payments are required under the following three alternatives?

I. Yearly payments of interest at the end of each year and repayment of principal at the end of the third year (typical bond terms).

II. Three equal payments at the end of each year (mortgage / new car loan terms).

III. A single payment of principal and interest at the end of year 3 (Zero-Coupon bond).

Bonds - alternative payment streams

I	II	III
coupon	mortgage	zero

End of Year 1

End of Year 2

End of Year 3

Undiscounted
sum of payments



Accounting for a Regular Bond - at par

Example I (coupon)

A		=	L		+	E
Cash			Principal	-Discount		
1999	10,000		10,000			

Periodic payments

Cash			Principal	-Discount	+	RE
1999	(600)					(600) int. exp.
2000	(600)					(600) int. exp.
2001	(600)					(600) int. exp.
	(10,000)		(10,000)			

Accounting for a Mortgage

Example II (mortgage)

A		=	L	=	+	E
	Cash		Mortgage			
1999	10,000		10,000			
Periodic payments						
	Cash		Mortgage		+	RE
1999	(3,741)		(3,141)			(600) int. exp.
2000	(3,741)		(3,329)			(412) int. exp.
2001	(3,741)		(3,530)			(211) int. exp.

Accounting for a Zero-Coupon Bond

Example III (zero coupon)

A		=	L		+	E
Cash			Principal	-Discount		
1999	10,000		11,910	1,910		
Periodic payments			Principal	-Discount	+	RE
Cash						
1999	0			(600)	(600)	int. exp.
2000	0			(636)	(636)	int. exp.
2001	0			(674)	(674)	int. exp.
	(11,910)		(11,910)			



Bonds - disclosures

Balance sheet

- current portion of L-T debt in current liabilities
- long-term debt

Income Statement

- interest expense

Indirect SCF

- Operations* - interest accruals not yet paid, amortization of discount/premium
- Investing* - purchase / sale of AFS debt
- Financing* - proceeds, repayment
- + supplemental disclosure of cash paid for interest

Notes

- details on all of the above



Bonds - disclosures

Nextel Communications (partial footnote)

7. Long-Term Debt, Capital Lease and Finance Obligations

	December 31,	
(dollars in millions)	<u>2001</u>	<u>2002</u>
Domestic		
10.65% senior redeemable discount notes due 2007, net of unamortized discount of \$59 and \$136	\$781	\$704
9.75% senior serial redeemable discount notes due 2007, net of unamortized discount of \$86 and \$180	1,043	949
4.75% convertible senior notes due 2007	354	354
9.95% senior serial redeemable discount notes due 2008, net of unamortized discount of \$168 and \$303	1,459	1,324
12% senior serial redeemable notes due 2008, net of unamortized discount of \$3 and \$4	297	296
9.375% senior serial redeemable notes due 2009	2,000	2,000
5.25% convertible senior notes due 2010	1,150	1,150
9.5% senior serial redeemable notes due 2011, including a fair value hedge adjustment of \$11	1,261	-
6% convertible senior notes due 2011	1,000	-
Bank credit facility, interest payable quarterly at an adjusted rate calculated based either on the U.S. prime rate or London Interbank Offered Rate, or LIBOR, (4.02% to 10.44% - 2001; 8.63% to 10.44% - 2000)	4,500	4,500
Other	19	1
Total domestic long-term debt	13,864	11,278
Less domestic current portion	(49)	-
	13,815	\$11,278



Does the Balance Sheet Represent the Market Value of Debt

Footnote from Shoney's 1999 Annual Report

	<u>Oct. 31, 1999</u>	<u>Oct. 25, 1998</u>
Subordinated zero coupon debentures, due April 2004 (face value \$179,299,000)	122,520,712	112,580,014

What is the effective interest rate of the debt?

$$(122,520,712/112,580,014 - 1) = 8.83\%$$

What is the market interest rate of the debt?

The WSJ (11/1/99) reports Shoney's debt to be selling for 210 per thousand, with 5 years until maturity. $1000 = 210 \cdot (1+r)^5$, $4.762^{(1/5)} = 1+r$, $r = .366$, or 36.6%, more than four times the interest rate used in the financial statements. How could this be?



Shoney's Statement of Cash Flows

Effects of Discount Amortization

Years Ended	October 31 1999	October 25 1998
Operating activities		
Net loss	\$ (28,826,398)	\$ (107,703,920)
Adjustments to reconcile net loss to net cash provided by operating activities:		
Depreciation and amortization	41,162,155	49,340,252
Interest expense on zero coupon convertible debentures and other noncash charges	16,329,932	18,508,713
Deferred income taxes	(1,890,000)	38,088,000
Gain on disposal of property, plant and equipment	(20,230,756)	(9,417,828)
Impairment of long-lived assets	18,424,046	48,403,158
Changes in operating assets and liabilities:		
Notes and accounts receivable	1,834,878	1,966,717
Inventories	(492,529)	1,236,546
Prepaid expenses	(1,676,202)	1,450,081
Accounts payable	(10,850,662)	2,524,508
Accrued expenses	(7,324,161)	11,240,256
Federal and state income taxes		1,612,557
Litigation settlement	14,500,000	3,500,000
Refundable income taxes	14,005,359	(9,928,809)
Deferred income and other liabilities	(444,616)	4,243,692
Net cash provided by operating activities	34,521,046	55,063,923

The annual discount amortization on the zeros (which is equal to the annual interest expense on the zeros) is a non-cash expense and is added back to NI to reconcile to OCF

Early Retirement of Debt for Less than Book Value

Example I (zero coupon)

	A	=	L	+	E
	Cash		Principal	-Discount	
EB 99			11,910	1,310	

You repurchase the bonds in the open market at the start of 2000 (2 years to maturity) when the market rate is 7% for \$10,403 ($11,910/1.07^2$)

	A	=	L	+	RE
	Cash		Principal	-Discount	
	(10,403)		(11,910)	(1,310)	197 [Gain on retirement of debt on I/S]

The gain or loss on early retirement of debt is reported as an *extraordinary item* on the income statement (see Pratt, p. 569).

Early Retirement of Debt for More than Book Value

Example I (zero coupon)

	A	=	L	+	E
	Cash		Principal	-Discount	
EB 99			11,910	1,310	

You repurchase the bonds in the open market at the start of 2000 (2 years to maturity) when the market rate is 5% for \$10,803 ($11,910/1.05^2$)

	A	=	L	+	RE
	Cash		Principal	-Discount	
	(10,803)		(11,910)	(1,310)	(203) [Loss on retirement of debt on I/S]

The gain or loss on early retirement of debt is reported as an *extraordinary item* on the income statement (see Pratt, p. 569).

Bonds - restrictions on debt

TCBY

- Borrower will at all times maintain a ration of Current Assets to Current Liabilities ... that is greater than 2.0... a Profitability ration greater than 1.5 ...[defined as] the ratio of Net Income for the immediately preceding period of 12 calendar months to Current Maturities of Long Tern Debt ... a Fixed Coverage Ratio greater than 1.0 ... [defined as] the ratio of Net Income ... plus noncash Charges to Current Maturities of Long Term Debt ... plus cash dividends ... plus Replacement CapEx of the Borrower
- [Borrower will not] sell, lease, transfer, or otherwise dispose of any assets ... except for the sale of inventory ... and disposition of obsolete equipment ...[to] repurchase the stock of TCBY
- [Borrower agrees it will not take on new loans if] the aggregate amount of all such loans ... would exceed 25% of the consolidated Tangible Net Worth of the Borower...

