

# ***15.515 RECITATION AGENDA – SESSION 8***

## ***Long-Term Debt***

### **Agenda**

- Long-Term Debt (Bonds)
  - Terminology
  - Balance Sheet Equation Effects
  - Sample Problems
    - Calculate the interest expense, net book value of bonds, par value and market interest rate using available information
    - Retirement of bonds
    - Zero-coupon bonds

## ***LONG-TERM LIABILITIES – LONG-TERM DEBT***

### **Terminology**

- Par Value: stated or face value of the bond; the amount due at maturity
- Coupon Rate: the rate used to determine the periodic cash payments, if any. (Also called the “Stated Rate” in the book.) This rate is stated as the *annual* amount.
- Current Market Interest Rate: the rate used to determine the current market value of the bond. It is based on market conditions and risk characteristics of the borrower.
- Market Rate of interest at issuance: the rate used to determine the proceeds received by the firm when the bond is issued. This rate is also used to determine interest expense. (Also called the “Effective Rate” in the book.)
- Coupon Payment:  $\text{Cash Interest Payment} = \text{Par Value} \times \text{Coupon Rate}$
- Interest Expense:  $\text{Interest Expense} = \text{Book value of bond} \times \text{Market Interest Rate at issuance}$
- Zero-Coupon Bond: Bond with Coupon Rate of 0%

**Bonds - Par/Discount/Premium** (*Be sure you understand bonds sold at Par, and Zero-Coupon Bonds.*)

<b>Bond Sells</b>	<b>Market Rate at issuance</b>	<b>Market Value at issuance</b>	<b>Coupon Payment</b>
At Par	= Coupon Rate	= Par Value	= Interest Expense
At a Discount	> Coupon Rate	< Par Value	< Interest Expense
At a Premium	< Coupon Rate	> Par Value	> Interest Expense

**Long-Term Debt - Balance Sheet Equation****If bond is sold At Par***(Note: Market Value = Par Value, Coupon Payment = Interest Expense)*

	<b>Assets</b>	=	<b>Liabilities</b>	+	<b>S. E.</b>
<b>Date</b>	<b>Cash</b>		<b>Bond Payable</b>	<b>Premium (Discount)</b>	<b>Retained Earnings</b>
Issue	Market Value		Par Value		
6 mo.	(Coupon Payment)				(Interest Expense)
1 yr.	(Coupon Payment)				(Interest Expense)
...					
Maturity	(Par Value)		(Par Value)		

*If bond is **Zero-Coupon** (special case of bonds sold At Discount)*

	<b>Assets</b>	=	<b>Liabilities</b>	+	<b>S. E.</b>
<b>Date</b>	<b>Cash</b>		<b>Bond Payable</b>	<b>Premium (Discount)</b>	<b>Retained Earnings</b>
Issue	Market Value		Par Value	(Discount) <sup>a</sup>	
6 mo.				Discount Accrual <sup>c</sup>	(Interest Expense) <sup>b</sup>
1 yr.				Discount Accrual <sup>c</sup>	(Interest Expense) <sup>b</sup>
...					
Maturity	(Par Value)		(Par Value)		

<sup>a</sup> Discount = Par Value - Market Value<sup>b</sup> Interest Expense = Net Bond Liability x Market Rate of interest at issuance  
= (Bond Payable + Premium (Discount) Balance) x Market Rate of interest at issuance<sup>c</sup> Discount Accrual = Interest Expense (only for Zero-coupon bonds)