Chapter 10

Bond Prices and Yields

U.S. Credit Market Instruments O/S 2008 Q3

U.S. Equity Market (Common)

$19,648 Billion

U.S. Credit Market Debt

$51,796

Debt by Selected Major Borrowers (Not Exhaustive List):

U.S. Government Securities (Includes Agency & GSE) $13,850 (27%)

%s are percent of Total U.S. Credit Market Debt, source is Federal Reserve Flow of Funds

U.S. Credit Market Instruments O/S 2008 Q3

By Selected Major Borrowers (Not Exhaustive List)

Corporate & Foreign Bonds	$11,262 Billion (22%)
Municipal Bonds G.O., Revenue, Notes	$2,669 Billion (5%)
Mortgages	$14,720 Billion (28%)

Bond Characteristics

- Face or par value
- Coupon rate
  - Zero coupon bond
- Compounding and payments
- Indenture

Treasury Notes and Bonds

- T Note maturities range up to 10 years
- T bond maturities range from 10 to 30 years
- Bid and ask price
  - Quoted in dollars and 32nds as a percent of par
  - Typical par = $1,000
- Accrued interest
  - Quoted price does not include interest accrued

Prices and Yields of U.S. Treasuries

U.S. Treasury Quotes

Treasury note and bond data are representative over-the-counter quotations as of 3pm Eastern time. Figures after colons in bid and ask quotes represent 32nds; 101:26 means 101 26/32, or 101.8125% of face value; 99:01 means 99 1/32, or 99.03125% of face value. For notes and bonds callable prior to maturity, yields are computed to the earliest call date for issues quoted above par and to the maturity date for issues below par.

MATURITY	Coupon	BID	ASKED	CHG	ASK YLD
Apr 30 09	4.500	101:07	101:08	–1	0.12
May 15 09	3.875	101:06	101:07	–1	0.14
May 15 09	4.875	101:17	101:18	–1	0.12
Nov 15 09	4.625	103:14	103:15	–1	0.44
Nov 30 09	3.125	102:11	102:12	+1	0.41
Dec 15 09	3.500	102:25	102:26	unch.	0.41
Dec 31 09	3.250	102:22	102:23	–1	0.41
Jan 15 10	3.625	103:09	103:10	+1	0.30
Oct 31 11	4.625	110:12	110:14	+3	0.83
Nov 15 11	1.750	102:06	102:08	unch.	0.95
Nov 30 11	4.500	110:00	110:02	–1	0.94
Dec 15 11	1.125	100:13	100:15	–1	0.96
Dec 31 11	4.625	110:20	110:22	–1	0.95
Jan 15 12	1.125	100:10	100:11	unch.	1.01
Jan 31 12	4.750	111:07	111:09	+1	0.98
Feb 15 12	4.875	111:22	111:24	+3	0.99
Nov 15 12	4.000	111:07	111:08	–8	1.00
Nov 30 12	3.375	108:31	109:00	–8	1.00
Dec 31 12	3.625	110:02	110:04	–10	1.01
May 15 16	7.250	134:07	134:09	+1	2.17
Aug 15 16	4.875	120:02	120:04	+28	2.00
Nov 15 16	4.625	118:19	118:20	–8	2.04
Nov 15 16	7.500	136:28	136:29	–13	2.32
Feb 15 17	4.625	118:21	118:23	–7	2.09
May 15 20	8.750	155:16	155:18	–2	2.95
Aug 15 20	8.750	155:27	155:29	–5	3.00
Feb 15 21	7.875	148:17	148:19	+2	3.04
Feb 15 37	4.750	134:25	134:28	+3	2.92
May 15 37	5.000	139:26	139:28	+12	2.92
Feb 15 38	4.375	129:12	129:14	+13	2.87
May 15 38	4.500	132:07	132.09	+17	2.87

Bond Pricing Between Coupon Dates

$$\text{Accrued Interest} = \frac{\text{Annual Coupon\$}}{2} + \frac{\text{Days since last coupon payment}}{\text{Days between coupon payments}}$$

- A bond has a flat price of $925.30 and an annual coupon of $42.50. 160 days have passed since the last coupon payment and there are 182 days separating the coupon payments. What is the bond's invoice price?

$$\text{Accrued Interest} = \frac{\$42.50}{2} + \frac{160}{182} = \$18.68$$

$$\text{Invoice price} = \text{Flat Price} + \text{Accrued Interest}$$

$$\text{Invoice price} = \$925.30 + \$18.68 = \$943.98$$

Corporate Bonds & Debt

- Most bonds are traded over the counter
- Par = $1,000
- Registered versus Bearer bonds
- Call provisions
- Put provision (putable bonds)
- Convertible provision
- Floating rate bonds
- Preferred Stock

Figure 10.2 Listing of Corporate Bonds

ISSUER NAME	SYMBOL	COUPON	MATURITY	RATING MOODY'S/S&P/ FITCH	HIGH	LOW	LAST	CHANGE	YIELD %
BANK OF AMERICA	BAC.HDU	4.900%	May 2013	Aa3/A+/A+	99.627	96.059	97.659	–0.991	5.520
REGIONS BANK	RF.GO	3.250%	Dec 2011	Aaa/–/AAA	104.640	103.547	103.910	0.059	1.848
ABBOTT LABORATORIES	ABT.GO	5.875%	May 2016	A1/AA/A+	110.596	107.557	110.276	4.829	4.225
WELLS FARGO & CO	WFC.GDW	4.375%	Jan 2013	Aa3/AA/AA	101.394	97.830	99.616	–1.804	4.480
ALTRIA GP	MO.HC	9.700%	Nov 2018	Baa1/BBB/BBB+	114.761	107.500	113.307	–0.910	7.735
BANK OF AMERICA, N.A	BAC.HGS	1.700%	Dec 2010	Aaa/AAA/AAA	101.393	100.663	100.663	–0.123	1.349
GENERAL ELECTRIC CAPITAL	GE.HHG	6.875%	Jan 2039	Aaa/–/–	99.855	92.500	98.375	–0.875	7.005

Other Domestic Issuers

- Federal Home Loan Bank Board
- Farm Credit Agencies
- Ginnie Mae
- Fannie Mae
- Freddie Mac
- Municipalities

- **Municipal Bonds**
  - **Issuer?**
  - **Differ from Treasuries and Agencies?**
    - **Risk?**
      - **G.O. vs Revenue**
      - **Industrial development**
    - **Taxation?**

$$r_{\text{Tax Exempt}} = r_{\text{Taxable}} \times (1 - \text{Tax Rate})$$

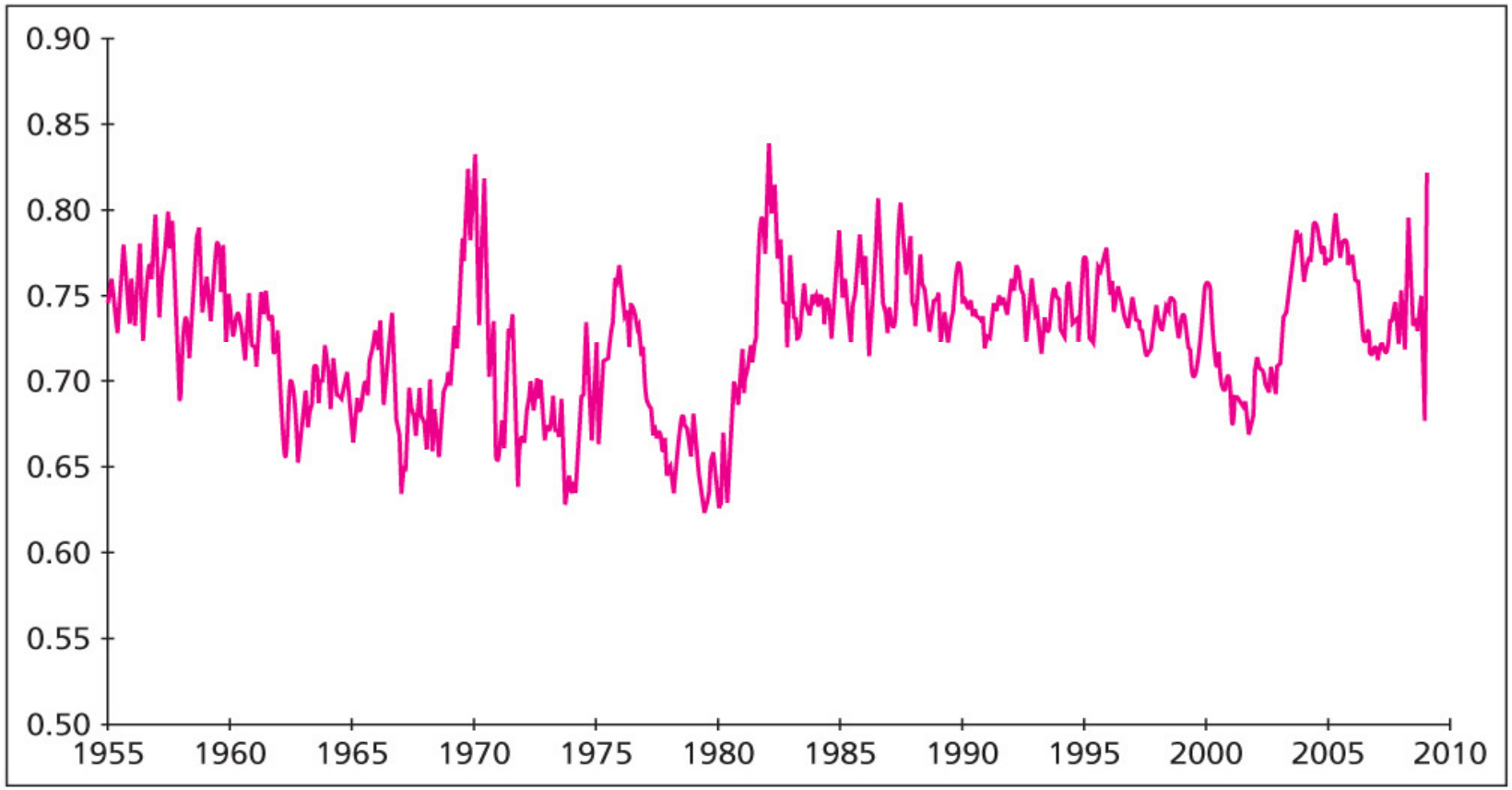
r = interest rate

Equivalent Taxable Yields

	Tax-Exempt Yield				
Marginal Tax Rate	1%	2%	3%	4%	5%
20%	1.25%	2.50%	3.75%	5.00%	6.25%
30	1.43	2.86	4.29	5.71	7.14
40	1.67	3.33	5.00	6.67	8.33
50	2.00	4.00	6.00	8.00	10.00

$$r_{\text{Tax Exempt}} = r_{\text{Taxable}} \times (1 - \text{Tax Rate})$$

Ratio of yields on tax exempt to taxable bonds



“When Muni Bonds Go Private”

WSJ, Oct. 25 2010

THIS WAY FOR FUNDING: A Million Air terminal in Houston. The firm plans to use muni bonds for financing.

International Bonds

- Foreign bonds
  - Issued by a borrower from a country other than the one in which the bond is sold.
  - Bonds are denominated in the currency of the country in which it is sold.
    - Yankee bonds, Samurai bonds, Bulldog bonds

- Eurobonds
  - Bonds issued in the currency of one country but sold in other national markets.
    - Eurodollar bonds, Euroyen bonds

Innovations in the Bond Market

- Inverse floaters
  - Coupon rate falls when interest rates rise & vice versa
- Asset-backed bonds
  - Income from specified assets is used to service the bond
- Pay-in-kind bonds
  - Bond issuer may choose to pay interest by giving the investor a bond rather than cash

Innovations in the Bond Market

- Catastrophe bonds
  - In the event of a specified ‘disaster’ the bond issuer’s required payments are reduced or eliminated.

- Indexed bonds
  - Payments are tied to a price index or the price of a commodity.
    - TIPS (Treasury Inflation Protected Securities) With TIPS the par value of the bond increases with the Consumer Price Index.

Hypothetical Principal and Interest Payments on a TIPS

Time	Inflation in Year Just Ended	Par Value	Coupon Payment	+	Principal Repayment	=	Total Payment
0		$1,000.00					
1	2%	1,020.00	$40.80		0		$40.80
2	3	1,050.60	42.02		0		42.02
3	1	1,061.11	42.44		$1,061.11		1,103.55

"Bond Market TIPS Toward Inflation"

WSJ Oct. 25, 2010