CENE I PRINOSI OBVEZNICA

Karakteristike obveznica

- Nominalna vrednost
- Kuponska stopa
  - Beskuponske obveznice
- Isplata kamate
  - Akumulirana kamata
- Ugovorni odnos emitenta i investitora

Klauzule kod obveznice

- Osigurana ili neosigurana
- Call klauzula
- Klauzula konvertibilnosti
- Put klauzula (putable bonds)
- Obveznice sa promenljivom kamatnom stopom

Prikaz 9.1. Listing hartija trezora

TREASURY BONDS, NOTES & BILLS

Explanatory Notes

Representative Over-the-Counter quotation based on transactions of $1 million or more. Treasury bond, note and bill quotes are as of mid-afternoon. Colons in bid-and-asked quotes represent 32nds; 101:01 means 101 1/32. Net changes in 32nds. n-Treasury note. i-Inflation-Indexed issue. Treasury bill quotes in hundredths, quoted on terms of a rate of discount. Days to maturity calculated from settlement date. All yields are to maturity and based on the asked quote. Latest 13-week and 26-week bills are boldfaced. For 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. *When issued.
Source: eSpeed/Cantor Fitzgerald

U.S. Treasury strips as of 3 p.m. Eastern time, also based on transactions of $1 million or more. Colons in bid and asked quotes represent 32nds; 99:01 means 99 1/32. Net changes in 32nds. Yields calculated on the asked quotation. ci-stripped coupon interest. bp-Treasury bond, stripped principal. np-Treasury note, stripped principal. For 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.
Source: Bear, Stearns & Co. via Street Software Technology Inc.

Government Bonds & Notes

RATE	MATURITY MO/YR	BID	ASKED	CHG	ASK YLD
3.250	May 04n	100:02	100:03	...	0.79
2.875	Jun 04n	100:07	100:08	...	0.67
2.250	Jul 04n	100:08	100:09	...	0.88
2.125	Aug 04n	100:09	100:10	...	0.98
6.000	Aug 04n	101:07	101:08	1	0.92
7.250	Aug 04n	101:16	101:17	...	0.96
13.750	Aug 04	103:03	103:04	−3	0.98
1.875	Sep 04n	100:08	100:09	1	1.11
2.125	Oct 04n	100:11	100:12	...	1.29
5.875	Nov 04n	102:06	102:07	...	1.33
7.875	Nov 04n	103:06	103:07	1	1.32
11.625	Nov 04	105:02	105:03	1	1.26
2.000	Nov 04n	100:10	100:11	...	1.33
1.750	Dec 04n	100:05	100:06	...	1.42
1.625	Jan 05n	100:01	100:02	1	1.51
7.500	Feb 05n	104:11	104:12	1	1.58
1.500	Feb 05n	99:29	99:30	1	1.56
1.625	Mar 05n	99:30	99:31	2	1.66
4.875	Feb 12n	102:06	102:07	18	4.53
3.000	Jul 12i	107:18	107:19	8	1.99
4.375	Aug 12n	98:13	98:14	18	4.60
4.000	Feb 14n	93:30	93:31	17	4.78
4.750	**May 14n**	**99:23**	**99:24**	**1**	**4.78**
13.250	May 14	142:00	142:01	16	3.91
12.500	Aug 14	139:29	139:30	17	3.99
11.750	Nov 14	137:13	137:14	10	4.07
11.250	Feb 15	152:23	152:24	27	4.88
10.625	Aug 15	148:16	148:17	28	4.95
9.875	Nov 15	142:07	142:08	25	5.00
3.625	Apr 28i	119:16	119:17	13	2.53
5.500	Aug 28	98:23	98:24	26	5.59
5.250	Nov 28	95:14	95:15	26	5.59
5.250	Feb 29	95:13	95:14	24	5.59
3.875	Apr 29i	124:29	124:30	12	2.52
6.125	Aug 29	107:05	107:06	26	5.59
6.250	May 30	109:02	109:03	27	5.58
5.375	**Feb 31**	**98:06**	**98:07**	**26**	**5.50**
3.375	Apr 32i	119:07	119:08	22	2.42

U.S. Treasury Strips

MATURITY		TYPE	BID	ASKED	CHG	ASK YLD
Jul	04	ci	99:26	99:26	...	1.15
May	05	ci	98:07	98:07	3	1.82
May	05	bp	98:08	98:08	3	1.78
May	05	np	98:08	98:08	3	1.79
May	05	np	98:08	98:08	3	1.80
May	06	np	94:30	94:30	6	2.63
Jul	06	ci	95:03	95:03	6	2.35
Jul	06	np	94:11	94:11	6	2.71
Feb	12	ci	69:10	69:10	11	4.79
Feb	12	np	69:27	69:27	11	4.69
May	12	ci	68:07	68:07	11	4.84
Aug	12	ci	67:02	67:02	11	4.91
Aug	12	np	67:29	67:29	11	4.75
Nov	12	ci	66:01	66:01	11	4.95
Nov	12	np	67:01	67:01	11	4.77
Feb	13	ci	65:01	65:01	11	4.98
May	13	ci	63:31	63:31	11	5.03
Aug	13	ci	62:30	62:30	12	5.07
Nov	13	ci	61:30	61:30	12	5.11
Feb	14	ci	61:00	61:00	12	5.14
May	14	ci	59:30	59:30	12	5.19
Aug	14	ci	58:31	58:31	12	5.22
Nov	14	ci	58:01	58:01	12	5.26

Treasury Bills

MATURITY	DAYS TO MAT	BID	ASKED	CHG	ASK YLD
Jun 24 04	38	0.82	0.81	...	0.82
Jul 01 04	45	0.78	0.77	−0.04	0.78
Jul 08 04	52	0.84	0.83	...	0.84
Jul 15 04	59	0.86	0.85	−0.01	0.86
Jul 22 04	66	0.90	0.89	...	0.90
Jul 29 04	73	0.91	0.90	−0.01	0.91
Aug 05 04	80	0.95	0.94	...	0.96
Aug 12 04	**87**	**0.97**	**0.96**	**−0.01**	**0.98**
Aug 19 04	94	1.02	1.01	−0.01	1.03
Aug 26 04	101	1.01	1.00	−0.02	1.02
Sep 02 04	108	1.04	1.03	−0.02	1.05
Sep 09 04	115	1.07	1.06	...	1.08
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.10
					1.10
					1.13
					1.16
					1.18
					1.22
					1.24
					1.29
					1.33

	A	B	C	D	E	F	G
1		**4.250% coupon bond,**		**4% coupon bond,**		**8% coupon bond,**	
2		**maturing Nov 2013**		**maturing Feb 2014**		**30-year maturity**	
3							
4	Settlement date	5/15/2004		5/15/2004		1/1/2000	
5	Maturity date	11/15/2013		2/15/2014		1/1/2030	
6	Annual coupon rate	0.0425		0.04		0.08	
7	Yield to maturity	0.0477		0.0478		0.1	
8	Redemption value (% of face value)	100		100		100	
9	Coupon payments per year	2		2		2	
10							
11			Formula in column B				
12	**Flat price (% of par)**	**96.065**	**=PRICE(B4,B5,B6,B7,B8,B9)**	**93.972**		**81.071**	
13	Days since last coupon	0	=COUPDAYBS(B4,B5,2,1)	90		0	
14	Days in coupon period	184	=COUPDAYS(B4,B5,2,1)	182		182	
15	Accrued interest	0	=(B13/B14)*B6*100/2	0.989		0	
16	**Invoice price**	**96.065**	**=B12+B15**	**94.961**		**81.071**	

Inovacije na tržištu obveznica

- *Reverse floaters*
- Obveznice sa aktivom u osnovi
- *Pay-in-kind* obveznice
- Obveznice za slučaj katastofe
- Indeksirane obveznice
  - TIPS (Treasury Inflation Protected Securities)

Prikaz 9.2. Listing korporativnih obveznica

CORPORATE BONDS

Thursday, July 8, 2004

Forty most active fixed-coupon corporate bonds

COMPANY (TICKER)	COUPON	MATURITY	LAST PRICE	LAST YIELD	*EST SPREAD	UST†	EST $ VOL (000's)
Sprint Capital (FON)	8.750	Mar 15, 2032	117.870	7.244	203	30	165,763
Ford Motor Credit (F)	7.000	Oct 01, 2013	101.244	6.814	234	10	156,704
General Motors (GM)	8.375	Jul 15, 2033	104.414	7.982	276	30	143,382
Sprint Capital (FON)	8.375	Mar 15, 2012	115.845	5.786	131	10	98,395
Marsh & McLennan Companies (MMC)	5.375	Jul 15, 2014	100.023	5.372	90	10	97,025
Wal-Mart Stores (WMT)	3.375	Oct 01, 2008	98.150	3.854	23	5	39,624
Verizon Global Funding (VZ)	7.750	Dec 01, 2030	113.928	6.625	140	30	39,544
SLM (SLMA)	3.625	Mar 17, 2008	99.076	3.896	29	5	38,921

Volume represents total volume for each issue; price/yield data are for trades of $1 million and greater. * Estimated spreads, in basis points (100 basis points is one percentage point), over the 2, 3, 5, 10 or 30-year hot run Treasury note/bond. 2-year: 2.750 06/06; 3-year: 3.125 05/07; 5-year: 4.000 06/09; 10-year: 4.750 05/14; 30-year: 5.375 02/31. †Comparable U.S. Treasury issue. c-Convertible bond.

Source: MarketAxess Corporate BondTicker

	A	B	C	D	E	F	G
1					Semiannual		Annual
2					coupons		coupons
3							
4	Settlement date				1/1/2000		1/1/2000
5	Maturity date				1/1/2030		1/1/2030
6	Annual coupon rate				0.08		0.08
7	Bond price				127.676		127.676
8	Redemption value (% of face value)				100		100
9	Coupon payments per year				2		1
10							
11	**Yield to maturity (decimal)**				**0.0600**		**0.0599**
12							
13							
14		The formula entered here is: =YIELD(B4,B5,B6,B7,B8,B9)					

Cena obveznice

$$P_B = \sum_{t=1}^{T} \frac{C_t}{(1+r)^T} + \frac{Par\ Value_T}{(1+r)^T}$$

P_B = Cena obveznice

C_t = Kupon

T = Broj perioda do dospeća

r = Polugodišnja diskontna stopa ili polugodišnji prinos do dospeća (yield to maturity)

Cena 8%-tne, 10-ogodišnje obveznice sa prinosom od 6%

$$P_B = 40 \times \sum_{t=1}^{20} \frac{1}{(1.03)^t} + 1000 \times \frac{1}{(1.03)^{20}}$$

$$P_B = 1{,}148.77$$

Kupon = 4%*1,000 = 40 (polugodišnjil)

Diskontna stopa = 3% (polugodišnja)

Ročnost = 10 godina ili 20 perioda

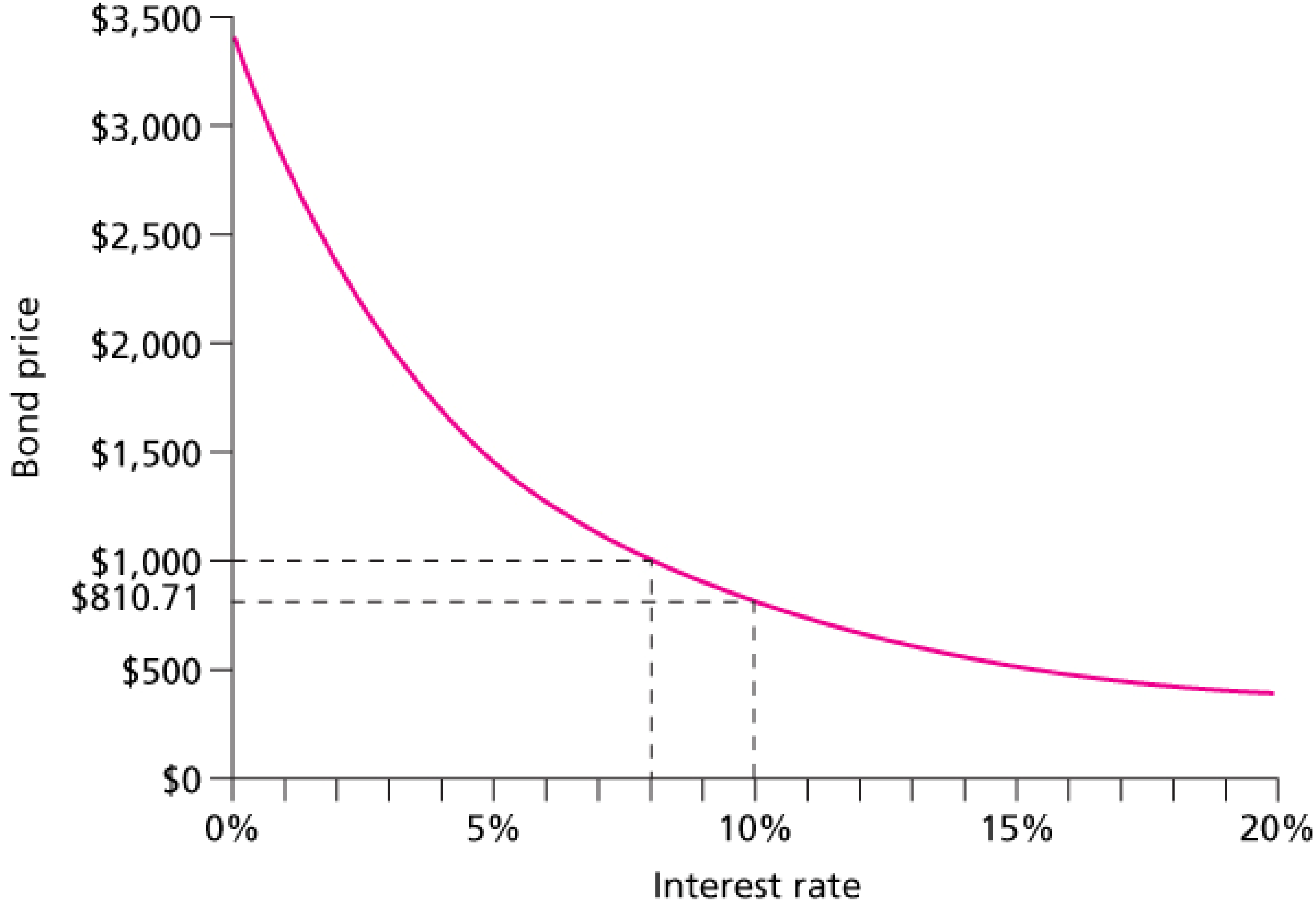
Nominalna vrednost = 1000

Cene i prinosi obveznice

Cena i zahtevani prinos imaju inverzan odnos

- Kada se prinos povećava, vrednost obveznice se smanjuje
- Kada se prinos približi nuli, vrednost obveznice se približava sumi novčanih tokova koje generiše

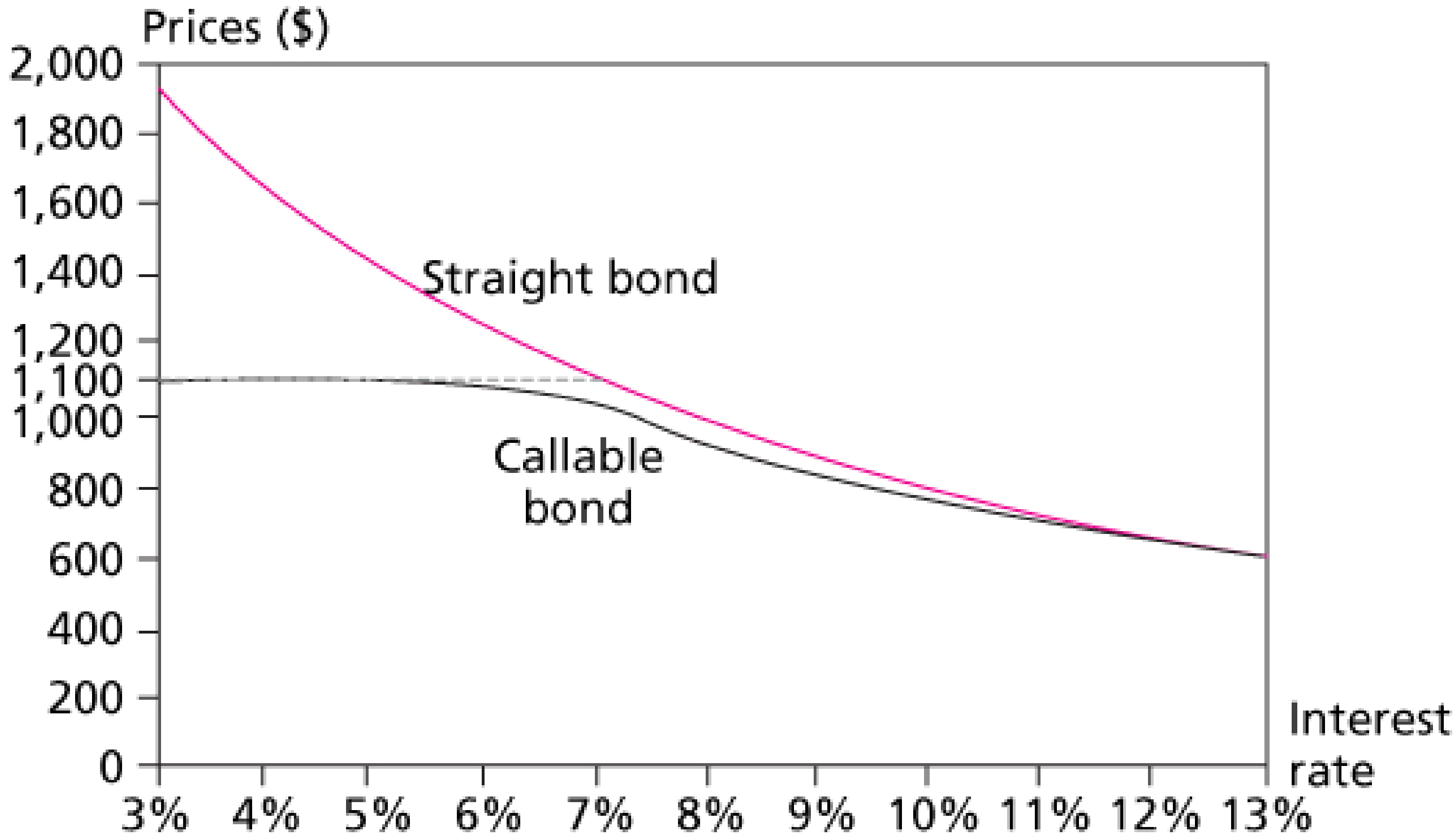
Grafik 9.3. Inverzan odnos cene i prinosa obveznice



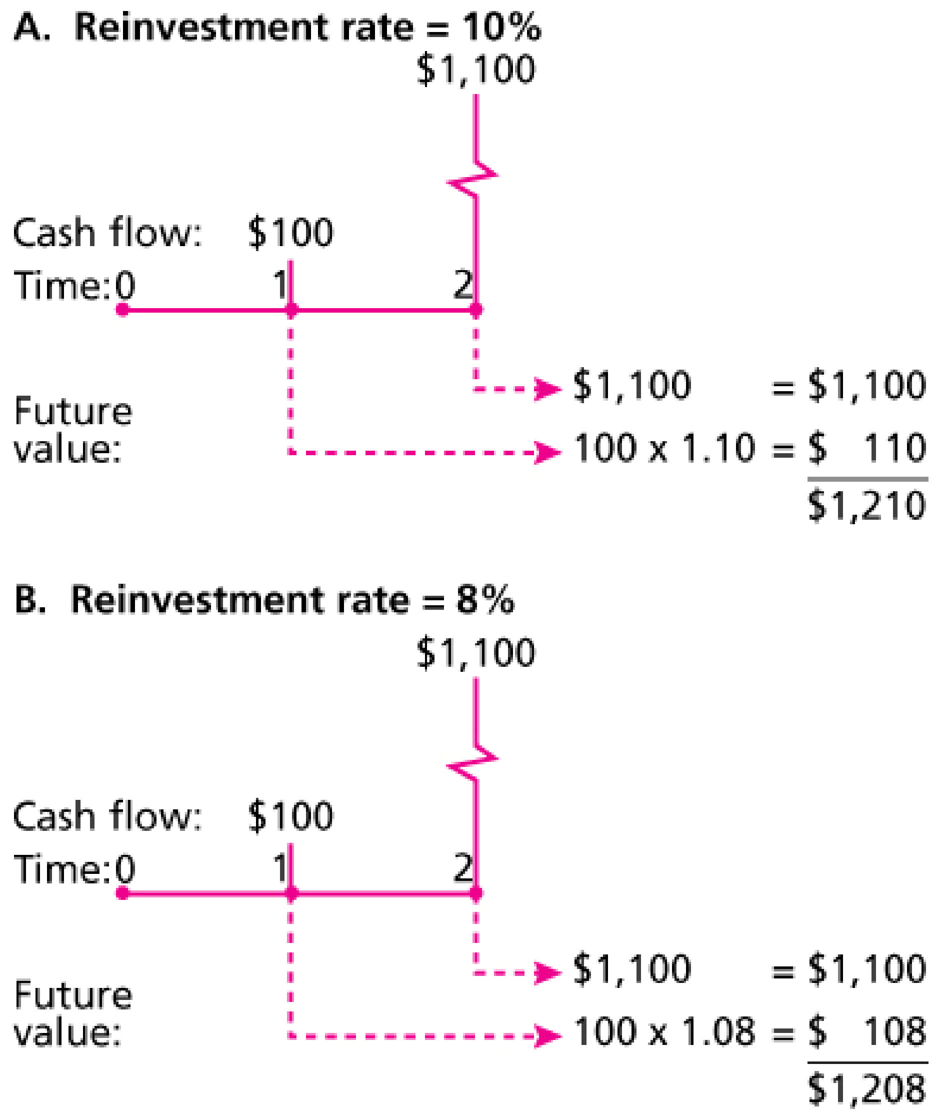
Alternativne mere prinosa

- Tekući prinos (Current Yield)
- Prinos do opoziva (Yield to Call)
  - Cena opoziva zamenjuje nominalnu vrednost
  - Datum opoziva zamenjuje datum dospeća
- Prinos u periodu investiranja (Holding Period Yield)
  - Uzima u obzir prinos od reinvestiranja kupona
  - Uzima u obzir cenovnu aprecijaciju/deprecijaciju ako se obveznica drži kraće od roka dospeća

Grafik 9.4. Cene obveznica: Opoziva vs klasična



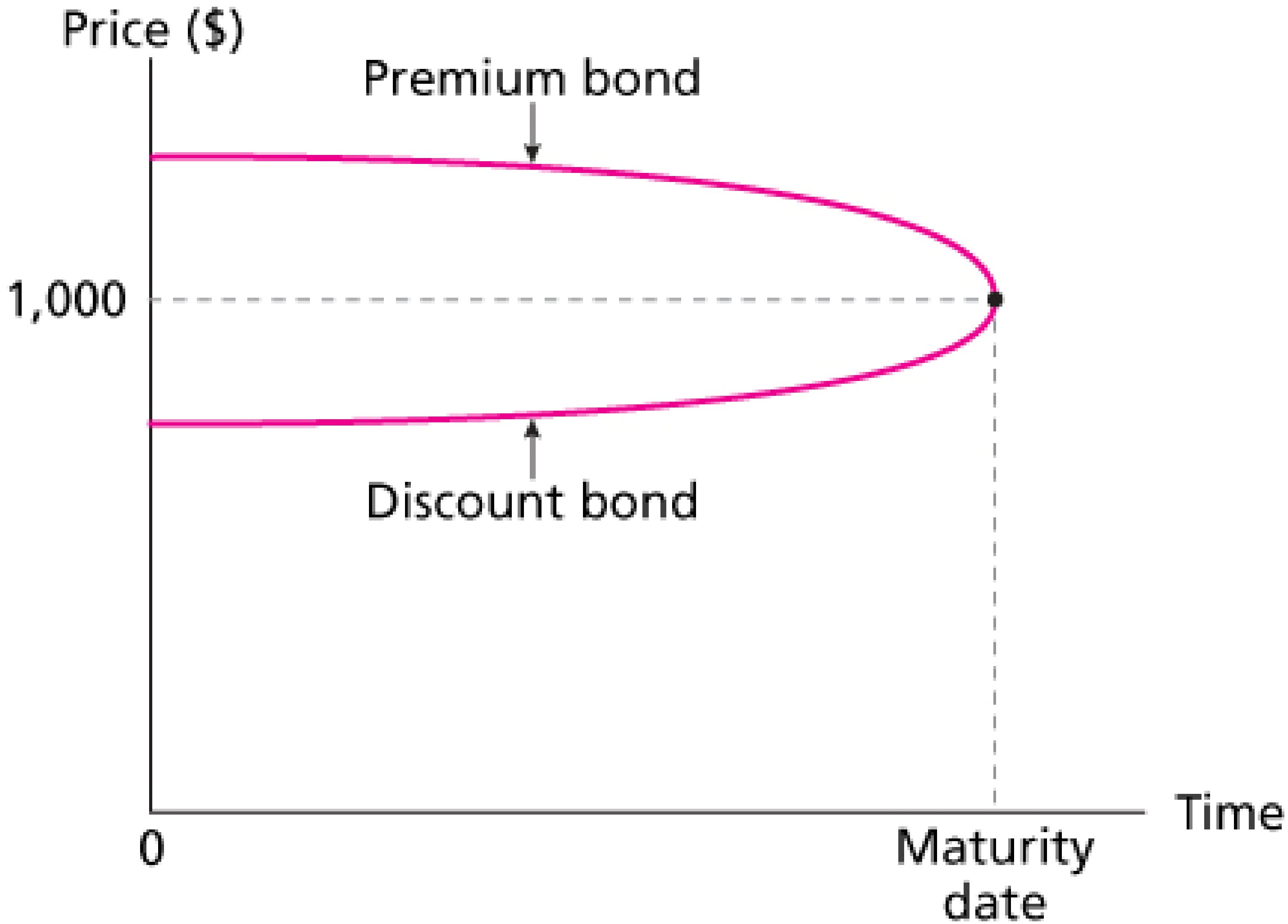
Grafik 9.5. Uvećanje investiranih sredstava



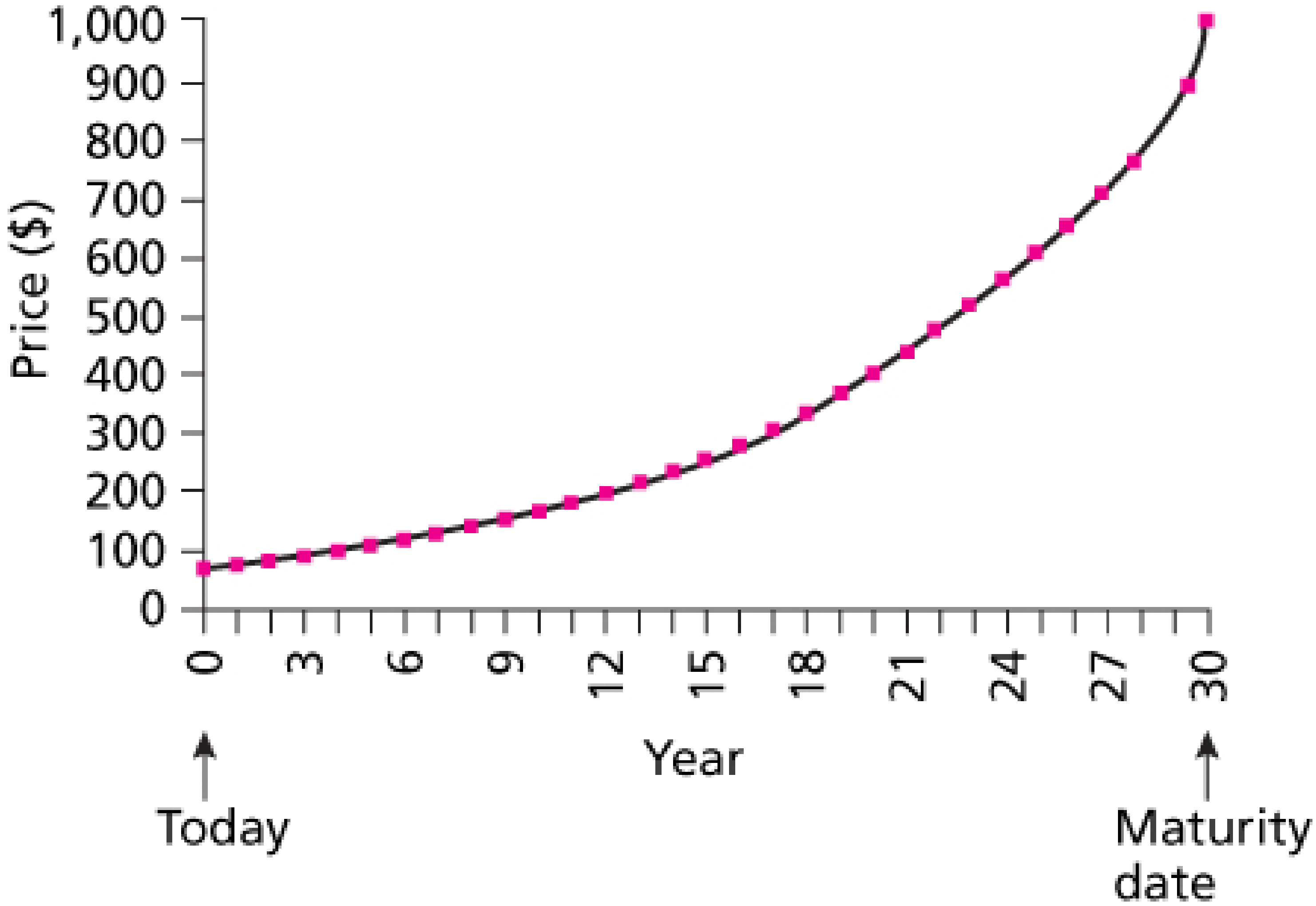
Premijske nasuprot diskontnim obveznicama

- Premijska obveznica
  - Kuponska stopa je viša od prinosa do dospeća
  - Cena ove obveznice će opadati do nivoa nominalne vrednosti do roka dospeća
- Diskontna obveznica
  - Prinos do dospeća je viši od kuponske stope
  - Cena ove obveznice će rasti do nivoa nominalne vrednosti do roka dospeća

Grafik 9.6. Premijska vs diskontna obveznica tokom vremena



Grafik 9.7. Cena beskuponske obveznice tokom vremena



Rizik difolta i rejting

- Rejting agencije
  - Moody’s Investor Service
  - Standard & Poor’s
  - Fitch
- Rejting kategorije
  - Investicioni rang
  - Spekulativni rang

Prikaz 9.8. Definicije nivoa rejtinga

	Bond Ratings			
	Very High Quality	High Quality	Speculative	Very Poor
Standard & Poor's	AAA AA	A BBB	BB B	CCC D
Moody's	Aaa Aa	A Baa	Ba B	Caa C

At times both Moody's and Standard & Poor's use adjustments to these ratings. S&P uses plus and minus signs: A+ is the strongest A rating and A− the weakest. Moody's uses a 1, 2, or 3 designation—with 1 indicating the strongest.

Moody's	S&P	
Aaa	AAA	Debt rated Aaa and AAA has the highest rating. Capacity to pay interest and principal is extremely strong.
Aa	AA	Debt rated Aa and AA has a very strong capacity to pay interest and repay principal. Together with the highest rating, this group comprises the high-grade bond class.
A	A	Debt rated A has a strong capacity to pay interest and repay principal, although it is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than debt in higher-rated categories.
Baa	BBB	Debt rated Baa and BBB is regarded as having an adequate capacity to pay interest and repay principal. Whereas it normally exhibits adequate protection parameters, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity to pay interest and repay principal for debt in this category than in higher-rated categories. These bonds are medium grade obligations.
Ba	BB	Debt rated in these categories is regarded, on balance, as predomi-
B	B	nantly speculative with respect to capacity to pay interest ad repay
Caa	CCC	principal in accordance with the terms of the obligation. BB and Ba
Ca	CC	indicate the lowest degree of speculation, and CC and Ca the highest degree of speculation. Although such debt will likely have some quality and protective characteristics, these are outweighed by large uncertainties or major risk exposures to adverse conditions. Some issues may be in default.
C	C	This rating is reserved for income bonds on which no interest is being paid.

Faktori koje koriste rejting agencije

- Količnici pokrića obaveza
- Količnici leveridža
- Količnici likvidnosti
- Količnici profitabilnosti
- Novčani tok/dug

Zaštita od difolta

- Otplatni fond (Sinking funds)
- Sabordinacija budućeg duga
- Ograničenja kod isplate dividendi
- Kolateral

Prikaz 9.9. Opoziva obveznica emitovana od strane kompanije Mobil

& Mobil Corp. debenture 8s, due 2032:

Rating — Aa2

AUTH — $250,000,000.
OUTSTG — Dec. 31, 1993, $250,000,000.
DATED — Oct. 30, 1991.
INTEREST — F&A 12.
TRUSTEE — Chemical Bank.
DENOMINATION — Fully registered, $1,000 and integral multiples thereof. Transferable and exchangeable without service charge.
CALLABLE — As a whole or in part, at any time, on or after Aug. 12, 2002, at the option of Co. on at least 30 but not more than 60 days' notice to each Aug. 11 as follows:

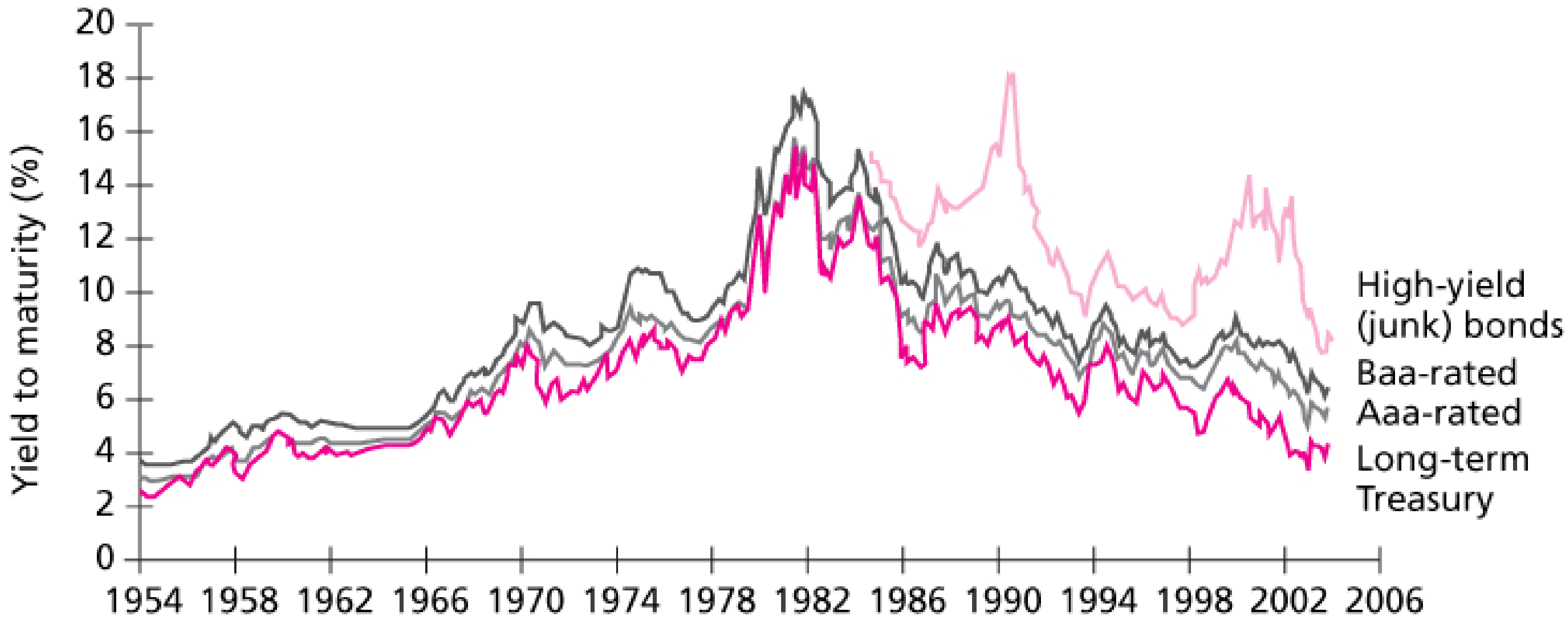
2003	105.007	2004	104.756	2005	104.506
2006	104.256	2007	104.005	2008	103.755
2009	103.505	2010	103.254	2011	103.004
2012	102.754	2013	102.503	2014	102.253
2015	102.003	2016	101.752	2017	101.502
2018	101.252	2019	101.001	2020	100.751
2021	100.501	2022	100.250		

and thereafter at 100 plus accrued interest.
SECURITY — Not secured. Ranks equally with all other unsecured and unsubordinated indebtedness of Co. Co. nor any Affiliate will not incurr any indebtedness; provided that Co. will not create as security for any indebtedness for borrowed money, any mortgage, pledge, security interest or lien on any stock or indebtedness is directly owned by Co., without effectively providing that the debt securities shall be secured equally and ratably with such indebtedness, so long as such indebtedness shall be so secured.
INDENTURE MODIFICATION — Indenture may be modified, except as provided with, consent of 66⅔% of debs. outstg.
RIGHTS ON DEFAULT — Trustee, or 25% of debs. outstg., may declare principal dua nad payable (30 days' grace for payment of interest).
LISTED — On New York Stock Exchange.
PURPOSE — Proceeds used for general corporate purposes.
OFFERED — ($250,000,000) at 99.51 plus accrued interest (proceeds to Co., 99.11) on Aug. 5, 1992 thru Merrill Lynch & Co., Donaldson, Lufkin & Jenerette Securities Corp., PaineWebber Inc., Prudential Securities Inc., Smith Barney, Harris Upham & Co. Inc. and associates.

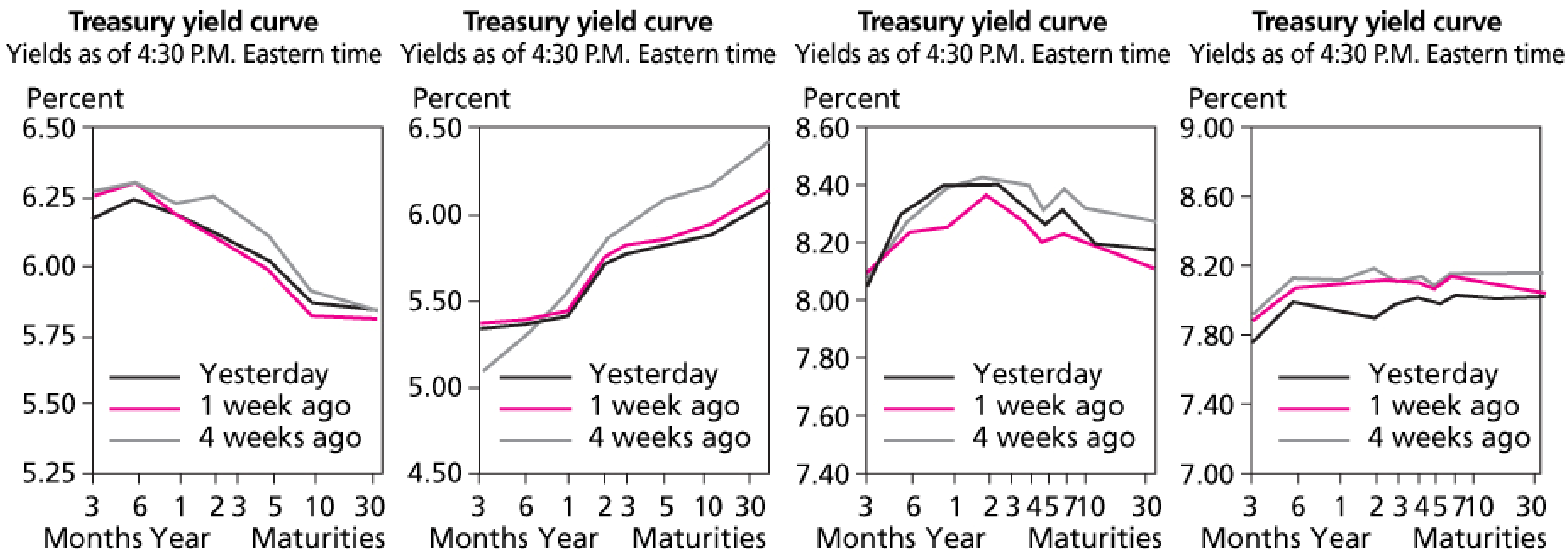
Ročna struktura kamatnih stopa

- Odnos prinosa do dospeća i dospeća
- Kriva prinosa – grafički prikaz prinosa obveznica prema broju godina do dospeća
  – Obično državne obveznice
  – Potrebno je da se posmatraju obveznice istog ili sličnog nivoa rizika jer bi u protivnom drugi faktori uticali na visinu prinosa

Grafik 9.10. Prinosi na dugoročne obveznice



Grafik 9-11. Krive prinosa



A. (September 11, 2000)
Falling yield curve

B. (November 18, 1997)
Rising yield curve

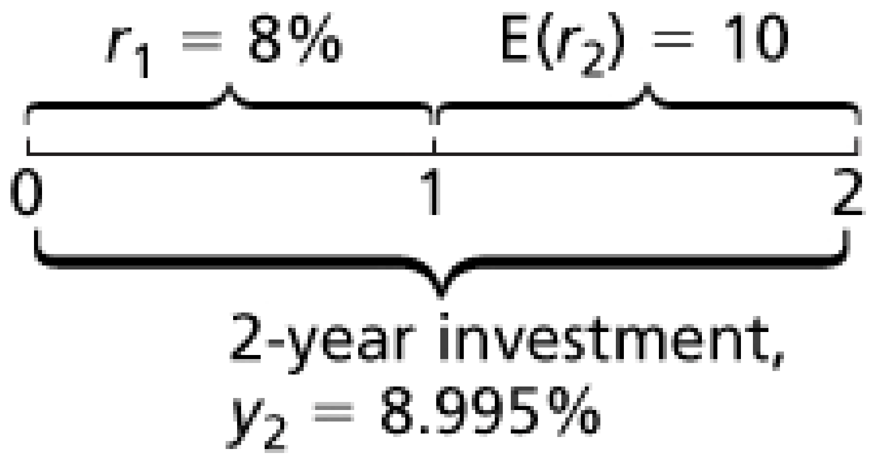
C. (October 4, 1989)
Hump-shaped yield curve

D. (October 17, 1989)
Flat yield curve

Teorije ročne strukture kamatnih stopa

- Teorija očekivanja
  - Dugoročne stope zavise od očekivanih budućih kratkoročnih stopa
  - Rastuća kriva ukazuje na to da tržišni učesnici očekuju više buduće kratkoročne stope
  - Opadajuća kriva ukazuje na to da tržišni učesnici očekuju niže buduće kratkoročne stope
- Teorija preferencije likvidnosti
  - Kriva prinosa po ovoj teoriji je uvek višeg nagiba od krive prema teoriji očekivanja
  - Dugoročna stopa uključuje premiju za rizik likvidnosti

Prikaz 9.12. Prinos na dvogodišnju investiciju



2-year cumulative expected returns

$1.08 \times 1.10 = 1.188$

$1.08995^2 = 1.188$

Forvard stope

$$(1+y_n)^n = (1+y_{n-1})^{n-1}(1+f_n)$$

$$(1.12)^2 = (1.11)^1(1.1301)$$

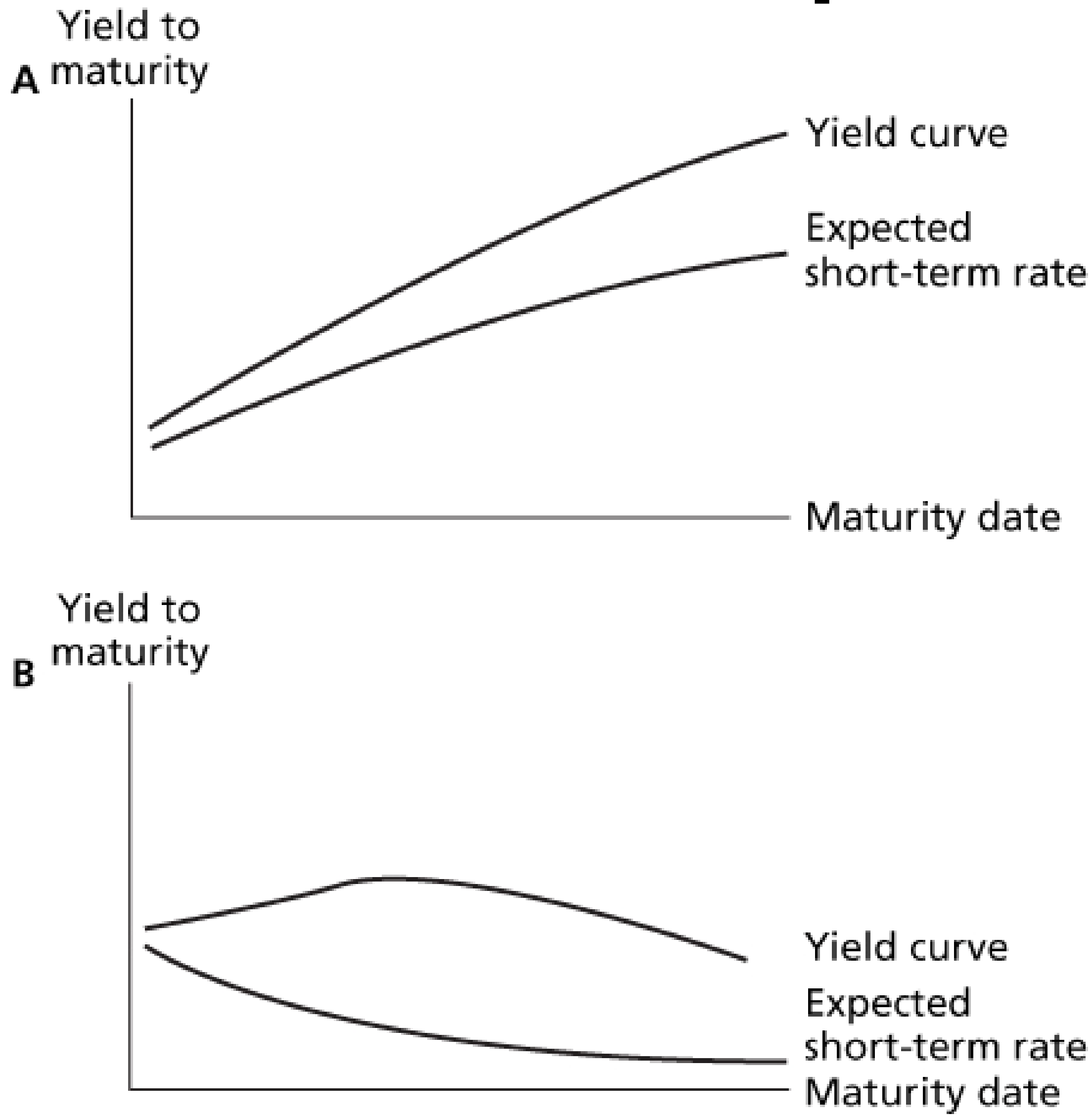
Npr., korišćenjem stope na jednogodišnju i dvogodišnju investiciju

Kratkoročnija, y(n-1) = 11%

Dugoročnija, y(n) = 12%

Forvard stopa godinu dana od danas = 13.01%

Prikaz 9.13. Krive prinosa



Prikaz 9.14. Ročni spred