

Understanding South African **Financial Markets**

Chapter 11: The bond market



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Study outcomes

The objective of this chapter is to explain the market in which bonds are traded.

When you have studied this chapter you should be able to

- define the capital market
- define bonds and the bond market
- perform and explain basic calculations concerning the prices and yields on bonds
- discuss the trading of bonds in South Africa
- list and discuss different types of bond issued and traded in South Africa



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Study outcomes

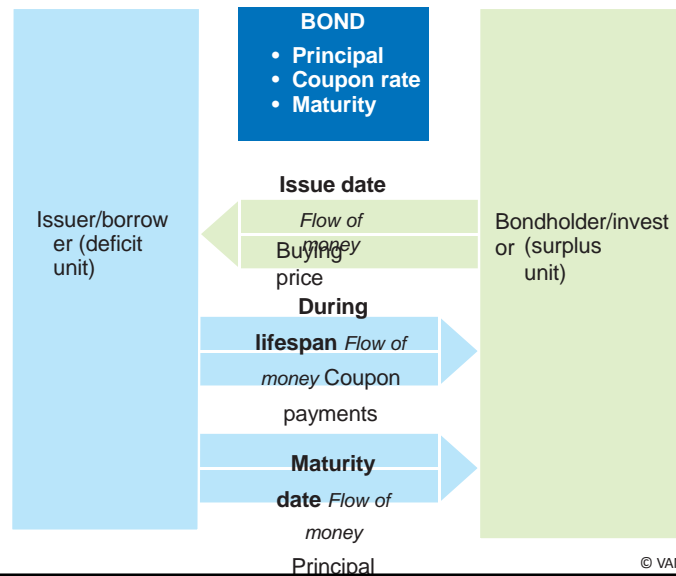
- describe the primary and secondary markets for bonds
- explain information on the bond market that appears in the media.

The capital market is the market in which long-term financial instruments are sourced and traded. As explained in Chapter 10, instruments with a maturity of longer than one year are regarded as capital market instruments, and those with a maturity of less than one year as money market instruments. The capital market consists of the bonds market and the share or equities market. Shares are perpetual instruments, meaning that they do not have an expiry date. Shares are discussed in Chapter 12. Bonds are capital market instruments with an expiry date, and are discussed in this chapter.

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Introduction

Figure 11.1 Bonds (Textbook page 314)



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Overview

- Price and yields on bonds
- Factors that affect the interest rate on bonds
- Trading of bonds in South Africa
- Market for government bonds
- Market for municipal bonds
- Markets for parastatal and water authorities bonds
- Market for corporate bonds
- Reading the business news

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Prices and yields on bonds

The inverse relationship between bond prices and yields

[Box 11.1](#)

[F.11.1](#)

[F.11.2](#)

[Box 11.2](#)

[F.11.3](#)

[Table 11.1 Yield to maturity and corresponding prices fro R186 bond on 21 December 2014 \(Textbook page 318\)](#)

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Prices and yields on bonds

The clean price, accrued interest and all-in price of a bond

[F10.3](#)
[F11.4](#)
[Box 11.3](#)
[Box 11.4](#)

Assume two bond coupon payment dates on 31 March and 30 September. The bond register closes 20 days before the interest date.

For the period from 31 March to 30 September:

- The register closes on 10 September, with the last date to register (LDR) on 9 September.
- The last coupon payment date (LCD) is 31 March.
- The next coupon payment date (NCD) is 30 September.
- The last day to register (LDR) is 9 September.
- The books close day (BCD) is 10 September – 20 days before 30 September.

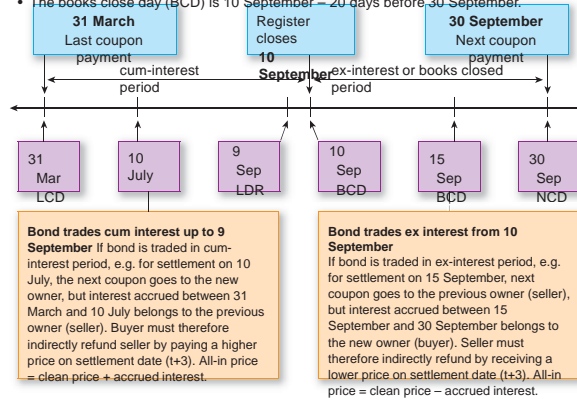


Figure 11.2 How accrued interest affects the all-in price of a bond (Textbook page 319)

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Prices and yields on bonds

Price volatility of bonds

[F11.5](#)
[Box 11.5](#)

Table 11.2 Price volatility of bonds with different maturities (Textbook page 324)

Principal:	R10 000 000		
Coupon rate:	15% annually		
Coupon payment dates:	28 February and 31 August		
Register closing dates:	18 February and 21 August		
Issue date:	1 May 2010		
Settlement date:	15 July 2015		
Maturity date	Bond prices at 10,5% yield rate	Bond prices at 11,5% yield rate	Price volatility
28 February 2031	R134,11572%	R125,04638%	-6,76%
28 February 2041	R139,66274%	R128,61555%	-7,91%
28 February 2051	R141,65625%	R129,78225%	-8,38%

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Prices and yields on bonds

Price volatility of bonds

Table 11.3 Price volatility of bonds with different coupon rates
(Textbook page 324)

Principal:	R10 000 000		
Coupon payment dates:	28 February and 31 August		
Register closing dates:	18 February and 21 August		
Issue date:	1 May 2010		
Maturity date:	28 February 2031		
Settlement date:	15 July 2015		
Coupon rate	Bond prices at 10,5% yield rate	Bond prices at 11,5% yield rate	Price volatility
15%	R134,11572%	R125,04638%	-6,76%
12%	R111,33339%	R103,52157%	-7,02%
9%	R88,55106%	R81,99676%	-7,40%

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Prices and yields on bonds

DurationF.11.6Box 11.6

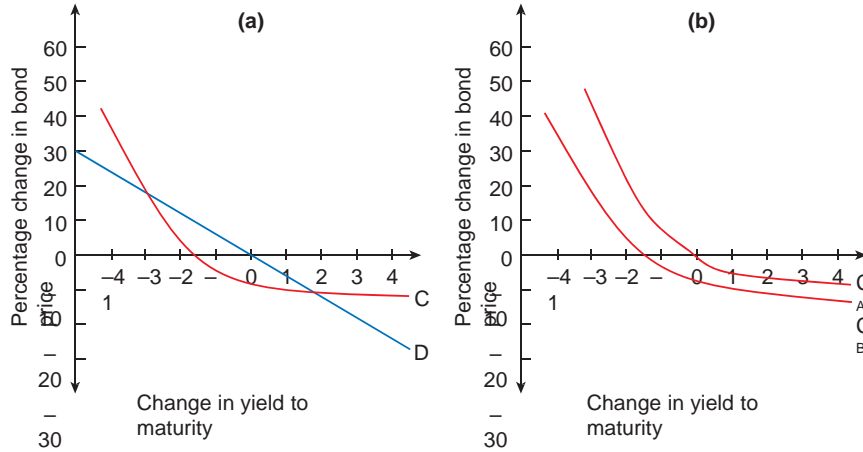
- Why is duration so useful?

F.11.7

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Convexity

Figure 11.3 Convexity of bonds (Textbook page 326)



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Factors that affect the interest rate on bonds

Market interest rate levels

Maturity

Table 1.4 Yield rates on government bonds on 5 February 2014 (Textbook page 327)

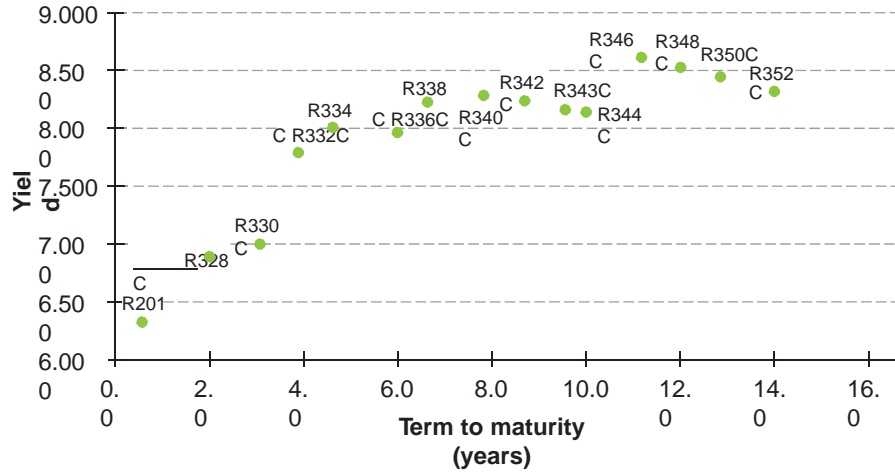
Bond	Maturity date	Yield
R201	21-Dec-14	6,300
R328C	21-Dec-15	6,945
R330C	21-Dec-16	6,985
R332C	21-Dec-17	7,800
R334C	21-Dec-18	7,990
R336C	21-Dec-19	7,960
R338C	21-Dec-20	8,195
R340C	21-Dec-21	8,270
R342C	21-Dec-22	8,210
R343C	21-Jun-23	8,170

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Factors that affect the interest rate on bonds

Maturity

Figure 11.4 Yield curve (Textbook page 328)



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Factors that affect the interest rate on bonds

Expectations

Market forces

Issuer

[Table 11.5 Credit rating agency grades \(Textbook page 330\)](#)

[Table 11.6 Sovereign credit ratings for the period 1994 to 2014 \(Textbook page 331\)](#)

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Trading of bonds in South Africa

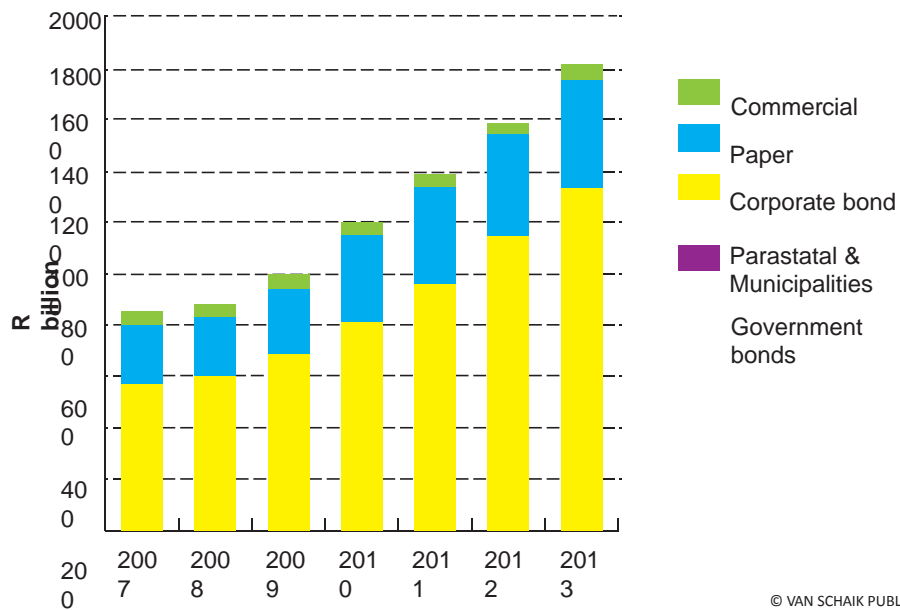
Table 11.7 Turnover ratios in government bond markets (Textbook page 333)

Country	Turnover ratio	Source
Australia commonwealth bonds 2011–2012	1,758	2013 Australian financial markets report
Hong Kong December 2012	1,44	Asian bonds online
China December 2012	0,75	Asian bonds online
Japan December 2012	1,23	Asian bonds online
Thailand December 2012	0,68	Asian bonds online
South Africa 2012	14,56	Website of the World Federation of Exchanges
Russia 2012	1,37	Website of the World Federation of Exchanges
United Kingdom 2011–12	6,49	Website of the United Kingdom Debt Management Office

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Trading of bonds in South Africa

Figure 11.5 Total nominal value of bonds in issue on the JSE Stock Exchange (Textbook page 334)



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**Table 11.8 Size of securities market at the end of 2013 (in billions of US dollars)
(Textbook page 335)**

Country	International debt securities market			Domestic debt securities market			Equities market
	Issuer			Issuer			
	Government	Financial institutions	Corporates	Government	Financial institutions	Corporates	
Australia	11,7	350,3	44,8	325,5	825,1	51,1	1286,4
Germany	108,8	1 134,8	131,5	–	–	–	1486,3
Switzerland	–	18,9	7,9	112,2	75,4	16,9	1079,0
United Kingdom	21,2	3 109,6	355,6	–	–	–	3019,5
South Africa	11,4	6,9	13,9	141,0	50,5	27,7	612,3
Mexico	49,7	15,8	73,1	336,0	161,8	41,5	525,1
Argentina	44,6	2,8	5,0	–	16,1	–	34,2
Malaysia	41	25,2	3,4	146,5	75,6	129,7	476,3
Poland	70	2,3	0,9	–	–	–	177,7
Thailand	0,3	3,2	5,3	100,6	144,3	45,7	383,0

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Market for government bonds

Different types of bond issued by the South African government

Table 11.9 Examples of government bonds (Textbook page 336)

Bond code	Coupon rate (%)	Issue date	Redemption date	Issue price (R%)
R186	10,5	21-05-1998	21-12-2025/26/27	78,23
R197	5,5	30-05-2001	7-12-2023	97,051
Z083	0,0	01-04-1996	30-09-2019	3,710
R209	6,25	21-07-2006	31-03-2036	77,846

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Market for government bonds

Different types of bond issued by the South African government

- Fixed-rate bonds
- Inflation-linked bonds
- Zero-coupon bonds
- Variable or floating-rate bonds
- Retail savings bonds
- Foreign currency bonds

[Table 11.10 Composition of foreign marketable debt of the South African National Government 2006-2010 \(Textbook page 340\)](#)

- Islamic bonds
- Stripping

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Market for government bonds

Primary market and issuing procedures

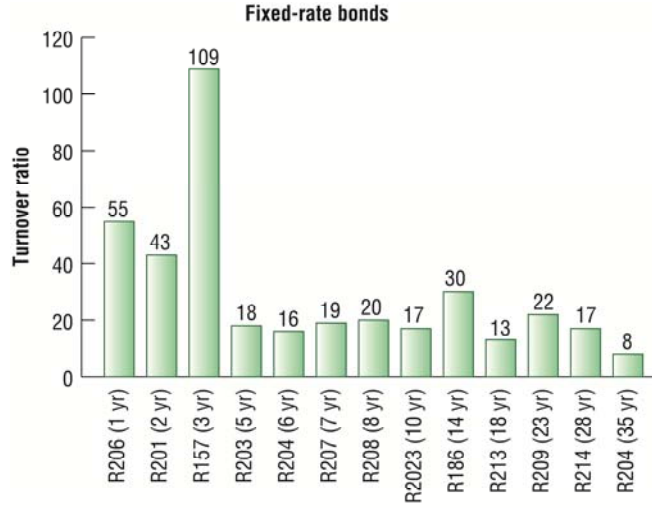
Box 11.7 Primary dealers in government bonds in South Africa

- Absa Bank Limited
- Citibank
- Deutsche Bank
- Investec Bank
- JP Morgan
- Nedbank
- Rand Merchant Bank
- Standard Bank

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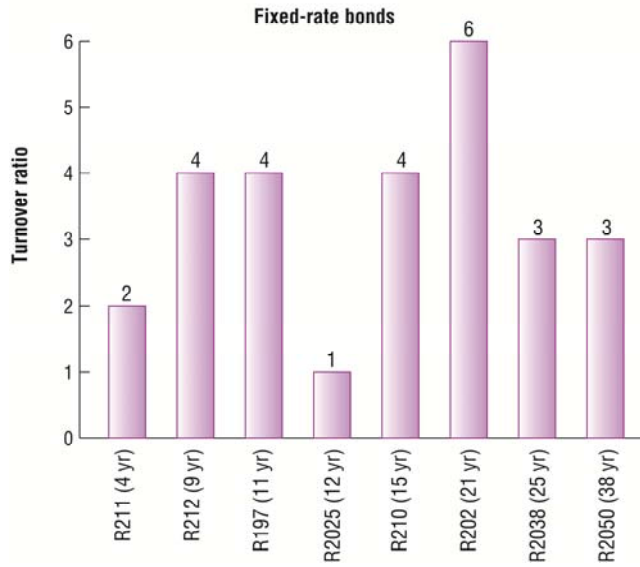
Secondary market

Figure 11.6 Turnover of liquid South African government bonds 2012/13
(Textbook page 344)



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Secondary market



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Market for municipal bonds



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Markets for parastatal and water authorities bonds

Table 11.11 Bonds of parastatals in South Africa (Textbook page 345)

Institution	Nominal value of bonds issued (R million) on 5 February 2014
Airports Company of South Africa Ltd (ACSA)	7 632
Denel (Pty) Ltd	8 800
South African National Roads Agency Ltd	29 621
Transnet Ltd	1 059 000
Eskom Holdings Ltd	111 550
Namibia Power Corporation (Pty) Ltd – Nampower	500
Development Bank of Southern Africa	179 500
Industrial Development Corporation of South Africa	60 500
Land and Agricultural Bank	20 000
Komati River Basin Authority	380
Rand Water Board	15 000
Umgenti Water	600
Trans-Caledon Tunnel Authority	27 519

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Market for corporate bonds

*Table 11.12 Composition of listed securities by market value in 2013
(Textbook page 345)*

Country	International debt securities market			Domestic debt securities market			Equities market
	Issuer			Issuer			
	Government	Financial institutions	Corporates	Government	Financial institutions	Corporates	
Australia	0,31%	17,08%	1,56%	15,68%	22,29%	1,41%	41,67%
Switzerland	0,00%	1,55%	0,57%	6,40%	4,62%	1,00%	85,85%
Canada	2,74%	8,98%	4,85%	25,63%	7,36%	4,60%	45,84%
South Africa	0,99%	0,60%	1,18%	11,37%	3,66%	2,20%	80,00%
China	0,19%	0,32%	0,14%	18,14%	21,54%	10,15%	49,52%
Mexico	4,21%	1,31%	8,09%	29,15%	12,79%	3,54%	40,90%
Chile	0,86%	2,36%	5,10%	6,49%	27,24%	6,29%	51,67%
Malaysia	0,52%	3,24%	0,46%	17,07%	6,82%	13,94%	57,94%
Hungary	18,58%	6,67%	1,81%	41,68%	18,06%	0,39%	12,82%
Thailand	0,02%	0,48%	0,95%	16,52%	20,12%	7,43%	54,49%

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Market for corporate bonds

Different types of corporate bond

- Yield
Figure 11.7 Cash flows on different types of bond (Textbook page 351)
- Security
- Terms
- Currency and country of issue
- Securitisation
- Medium-term note programmes
- Catastrophe-linked bonds
Figure 11.8 Catastrophe bond structure (Textbook page 356)

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Primary and secondary markets for corporate bonds



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Reading the business news

[Table 11.13 Information on individual bonds \(Textbook page 358\)](#)

[Figure 11.9 Total return indices and ALBI constituent bonds – 12 August 2014 \(Textbook page 359\)](#)

[Figure 11.10 Government bond yield rates on 12 August 2014 \(Textbook page 360\)](#)



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