

## Introduction to Bonds & the Bond Market

As part of its continuous service expansion to support the investor community, Qatar Exchange has introduced Qatar Government Bonds for trading. These will be followed, in due course, with the listing of corporate bonds.

### What are Bonds?

Bonds are debt securities, which are issued by Governments (Government or Sovereign Bonds) and Corporations (Corporate Bonds) to investors in order to raise capital.

(Islamic Sukuk are also debt securities and have the same structure and purpose as bonds but are issued pursuant to the provisions of the Islamic Shari'a.)

A bond issuer (the borrower) pays a fixed or variable coupon (interest payment) in consecutive intervals to the buyer of the bond (the lender). These coupon payments represent the interest on the money (the **par value** or face value) the borrower has received from the lender. In addition to the coupon, the borrower will repay the **par value** of the bond on the maturity date. The par value is the amount the investor (lender) will receive from the issuer on the maturity date and is also used, in conjunction with the coupon rate, to determine the coupon (interest) payment amount.

When a bond is traded or bought at issue, the following attributes should be considered by potential investors:

- **Issuer (credit risk)**  
The issuer is an important determinant of the value of a bond. Bonds issued by Governments are considered to be the lowest risk and highest quality, as it is deemed unlikely that the issuer will default and not be able to repay the par value. The value of Corporate bonds is dependent on the quality and creditworthiness of the specific issuer. Corporations and bonds with a lower **credit rating** are considered more likely to default and this has a bearing on the coupon rate that the Corporation is required to offer and the price that investors are willing to pay for that bond. The credit rating is a credit quality measurement that is applied by specialist agencies that analyse and track the creditworthiness of governments, corporations and individual bond issues. The higher the credit rating, the more creditworthy the borrower and, by implication, the less likely they are to default. The investor should consider these and other factors, including the effective yield, the availability of any collateral, the credit rating of the issuer and any tax considerations, when evaluating a potential bond investment.

- **Coupon Rate (Interest or Profit Rate)**  
The Coupon is the periodic interest or profit payment made by the borrower to the investor on each of the coupon payment dates, up to and including the maturity date. The frequency of the payments is defined at the time of issuance. Therefore, the higher the coupon rate, the greater the income to the investor.
- **Maturity Date (the date at which the par value will be repaid)**  
The term to maturity, which is a function of the maturity date, is an additional factor that should be considered by investors. Short-term bonds are those which mature within one year, medium-term bonds are those which mature within one and five years, and long-term bonds are those whose term to maturity is greater than five years. The rate of long maturity bonds is generally higher than that of the short maturity bonds, because investors require higher rates for committing to investments for longer periods. The longer the bond maturity, the greater its sensitivity to market conditions as a change in the prevailing market interest rates on a bond maturing after ten years will be greater than that on a bond which matures, for example, in four years.

## Why Invest in Bonds?

Bond price volatility is generally lower than that of equities and bond investments are therefore considered to carry less risk. Bond investments also provide investors with the opportunity to benefit from two types of return:

- 1- Periodic coupon payments (income)
- 2- Capital gain (profit, if the bond is sold at a price which is higher than the purchase price or is bought at a discount and held to maturity )

Investment in bonds provides a means to diversify a portfolio, balancing the risks across the various asset classes that an investor may hold. The combination of periodic interest payments, potential capital gains (from price increases) and lower risk make bonds an attractive investment vehicle.

Investors should be aware that bonds are not risk free, as default by the issuer can render the investment worthless. If an investor holds the bonds until maturity, price fluctuations between the date of issue and the maturity date are not material unless the issuer defaults. How long an investor holds the bonds and any changes in prevailing interest rates will also impact prices and the value of the investment. As with all investments, if the bond is sold on the secondary market – prior to the maturity – the investor may receive less in return than the value of the original investment.

The table below provides a comparison between investments in equities, T bonds and TBills:

Equities	TBills	TBonds
A shareholder becomes a part owner of the company in which shares are held	The TBill holder is a lender	The bondholder is a lender
Higher volatility	Lower volatility	Lower volatility
Dividend income is dependent on the performance of the company	Single payment of the par value at maturity	Coupon income is fixed
Shares in the profits/losses of the company	Receives the par value at maturity	Receives the coupon and par value
Issued at a pre determined price	Always issued at discount	Can be issued at a discount, par or a premium
No repayments, but investor may receive dividends	Repayment at maturity	Regular coupon payments plus repayment at maturity
No maturity period	Maturity period at issue is always less than one year	Maturity period at issue is always greater than one year

# Bond Prices and Yields

## Bond Prices

Bonds are priced as a percentage of the bond's par value (100%), and this price may be less than (which is termed trading or issued at a discount) or greater than 100% (which is termed trading or issued at a premium).

Factors impacting bonds prices can be divided into eight internal and external elements depending on how the bond has been structured:

### 1 – Interest Rate

Bond prices are sensitive to changes in prevailing market interest rates, as when interest rates rise, bond prices will usually fall and vice versa. The principal reason for this is that when rates rise, new bonds are issued at a higher rate, making existing bonds with lower rates less valuable and desirable.

### 2 – Maturity Date

The maturity date does not impact the price of the bond directly, but the sensitivity of the bond price to various factors (including the fluctuations in interest rates) increases the longer the bond has until maturity.

### 3 – Bond Currency

When a given currency has been devalued against other currencies (specifically those in which fund managers and investors measure performance), prices of bonds denominated in that devalued currency decrease as these bonds yield lower returns when converted to the reference or base currency.

### 4 – Repayments

Bond price sensitivity is impacted by the cash flow structure of the bond. Some bonds that do not pay coupons (called zero-coupon bonds) are issued at deep discount and all the interest is paid at maturity. The price of these bonds is more sensitive to various factors (including the fluctuations in interest rates) than those bonds paying frequent coupons.

### 5 – Credit Rating

Any modification to the bond or the issuer credit rating will impact the bond price. Generally speaking, any deterioration in the credit rating of the bond or the issuer will lead to a fall in the bond price and vice versa.

## 6- Technical Factors

Technical factors can be highly significant. For example, some investment funds are barred from holding bonds below a certain credit rating. If a bond is downgraded below that rating, these investment funds are obliged to sell their holdings resulting in deterioration in the price.

## 7- Liquidity

Price fluctuations of illiquid bonds will be more volatile than those of liquid bonds.

## 8- Issuer's Creditworthiness

The creditworthiness, and the credit rating, of the issuer (the issuers assumed or actual ability to repay the principal and the coupons) has a material impact on the price of the bond. This factor will also impact the bond price even when the issuer is not rated.

## Bond Yields

The yield (rate of return) provides a measure of the total return that an investor will receive if the purchased bond is held until it matures. The yield is a function of the price, the coupon rate and frequency of the coupon payments and of the term to maturity. Investors can calculate the yield on the investment in several different ways, including the current or simple yield and the yield to maturity.

The yield should not be confused with the coupon rate. The yield will fluctuate with an inverse correlation to the price. The higher the price paid for the bond, the lower the yield will be, and vice versa. This is because, although the income received from the coupons will remain the same, the difference between the amount invested and the amount received at maturity will be directly affected by the price that is paid. If the investor purchases the bond at a discount (price is less than 100%) and receives 100% of the par value at maturity, this is worth more than if the investor purchases the bond at a premium (price is greater than 100%) and only receives 100% at maturity.

The Current yield is simply the annual percentage return that an investor receives from the coupon payments in relation to the price paid. The formula is:

$$\text{Current Yield} = \frac{\text{Annual QAR Interest Received}}{\text{Price Paid}} \times 100$$

Yield to maturity calculations are complex as they involve calculating the implied interest rate that an investor will benefit from if all of the bonds cash flows (coupons and par value repayment) are invested at a constant rate until the maturity date of the bond, taking into

account the time value of money, which means that cash flows received in the future are worth less than cash flows received today. The yield to maturity is, therefore, the percentage return that an investor receives from the present value of the coupon payments, the par value and any capital gains which may arise in relation to the original price that is paid.

The formula for calculating the Yield to Maturity requires approximation and iteration to solve in each case and is best achieved using a financial calculator:

$$Price = Cashflow \times \frac{1 - \left[ \frac{1}{(1 + Yield)^n} \right]}{Yield} + \left[ Par\ Value \times \frac{1}{(1 + Yield)^n} \right]$$

## Listing of Bonds & Islamic Sukuk at Qatar Exchange

There will be a number of Government bonds and Government issued sukuk listed when bond trading is launched on Qatar Exchange. As with equities, bonds will be listed in both the normal and special market segments.

### 1) – Bond pricing mechanism

All bonds and sukuk on QE will be listed with a par value of QAR 10,000 and will be priced as a percentage of that par value. Each purchase or sale will therefore be in multiples of QAR10, 000. As an example, the purchase or sale of 5 (five) bonds will result in a position of QAR50, 000.

The nominal or face value is the total value that will be repaid to the investor by the issuer on the maturity date. The book value is the effective market value of a position, in relation to the price paid or received, but is not the amount of money paid or received, which is known as the settlement value or consideration. To calculate the Book Value of a bond trade:

$$\left( \left( \frac{Price}{100} \right) \times Par\ Value \right) \times Number\ of\ Bonds$$

#### Example:

Price	= 98.00
Number of bond units purchased or sold	= 100
Nominal (Face) Value	= QAR 1,000,000

Therefore, the book value of the trade will be:

$$= \left( \left( \frac{98}{100} \right) \times 10000 \right) \times 100 = \text{QAR } 980,000$$

## 2) – Settlement Value

The settlement value or consideration of a trade is the actual amount of money to be paid or received when the trade settles. It is equivalent to the book value of the position and any accrued interest. The interest is accrued daily on each bond and the holder of the bond is entitled to any interest due until the day the bond matures or it is sold, i.e. on the settlement date. To compensate the seller of the bond for the period that the bond is held, the buyer is required to pay for the interest that is due to the seller. As the new registered owner of the bond, the buyer will receive the coupon which is due on the next coupon payment date. This means that the seller will receive the interest for the period for which he held the bond and the buyer will be compensated for this and receive any additional interest due from the date that the bond was purchased when the next coupon is paid.

The accrued interest is calculated as follows:

$$AI = \left( \frac{T}{P} \right) \times (\text{Par Value} \times \text{Number of Bonds}) \times \left( \frac{\text{Coupon Rate}/2}{100} \right)$$

Where:

AI = Accrued Interest

T = The number of days from the last coupon date to the settlement date

P = the number of days from the last coupon date to the next coupon date

The Settlement Value is:

$$\text{Settlement Value} = \text{Book Value} + \text{Accrued Interest}$$

### Example:

Price	= 98.00
T	= 60 days
P	= 184 days
Coupon Rate	= 3%
Number of Bonds	= 100

$$AI = \left(\frac{60}{184}\right) \times (10000 \times 100) \times \left(\frac{3/2}{100}\right) = QAR 4,891.30$$

Therefore, the buyer pays and the seller receives the settlement value (excluding fees):

$$\begin{aligned} \text{Settlement Value} &= 980000.00 + 4891.30 \\ &= \underline{\underline{QAR 984,891.30}} \end{aligned}$$

### 3) – Bond Trading Cycle

On the normal market, bonds will follow the so-called “continuous TAL trading pattern”, in which trading will pass through the following phases:

Phase	Timing
Pre-open Period	9:00 – 9:30
No-cancel Period	9:25 – 9:30
Opening Auction followed by Continuous Trading	9:30 – 13:00
Pre-closing Period	13:00 – 13:10
No-cancel Period	13.05 – 13:10
Closing Auction and Trading At Last (closing price)	13:10 – 13:15

This is the same trading cycle which is currently in place for equities.

On the special market segment, bonds will follow the trading pattern below:

Phase	Timing
Continuous Trading Period	9:30 – 13:00
Market Close	13:15

## 5) – Product Comparison

Equities	TBills	TBonds
Price quoted is per share	Price quoted is per 10,000 par value	Price quoted is percentage of par value
Minimum size of trade is 1 share	Minimum size of trade is 1 unit of par value 10,000	Minimum size of trade is 1 unit of par value 10,000
No price constraints	Price can never exceed the 10,000 par value	Price can be less than, equal to or greater than 100.00%
Tick size is dependent on price	Tick size is always 0.01	Tick size is always 0.01
Settlement is T+3	Settlement is T+3	Settlement is T+3
Settlement value is Number of shares x price	Settlement value is number of units x price x par value	Settlement value is number of units x price x par value + accrued interest
Shown on the Equity Market Watch	Shown on the Debt Market Watch	Shown on the Debt Market Watch

## 4) – Static and dynamic thresholds and tick sizes

Static and dynamic thresholds are used by the exchange to ensure an orderly market.

Static thresholds are set to a percentage from the static reference price. An order with a price outside the static thresholds will be automatically rejected upon order entry. For bonds, the Static Threshold will be 3% of the previous day's closing price.

Dynamic thresholds define the maximum percentage deviation from the dynamic reference price. The dynamic thresholds are always within or at the static thresholds. They define the maximum percentage deviation of the price around the dynamic reference price. The Dynamic Thresholds for bonds will be 2% of the last executed trade price.

The Tick Size for bonds will be 0.01% regardless of the price.

## 5) – Fees on bonds’ trading

Fees for bond trading are charged by the brokers for each trade, whether buy or sell. Please refer to you broker for more information on fees charged for bonds.

## 6) – Trading Report

The daily trading report is produced at the end of each daily trading session, and will include a specific section for bond trading activity and prices.

The bonds section in the trading report will have the following format:

Bond	Symbol	Previous Closing Price	Current Closing Price	Total Trading Value in QAR	Number of Trades	Total Trading Volume	Next Coupon Date	Last Coupon Date	Accrued Interest

The bonds information that will be displayed on QE’s website is as follows:

Bond	Listing Date	Issue Date	Nominal Value	Par Value	Maturity Date	Coupon Frequency	Coupon Rate	Next Coupon Date	Last Coupon Date	Accrued Interest
XXXXXXXXXX	XX/XX/XXXX	XX/XX/XXXX	XXX,XXX,XXX.00	10,000.00	XX/XX/XXXX	X	X.XXX	XX/XX/XXXX	XX/XX/XXXX	XX,XXX.00

## 7) – Trading Restrictions

There are no restrictions on investors wishing to trade in bonds, except where an issuer sets conditions on the bond issue at the time of listing.

There are no restrictions on trading transactions carried out by foreign investors in bonds.