

PRODUCT INFORMATION SHEET - BONDS

1. WHAT ARE BONDS?

A bond is a debt instrument issued by a borrowing entity (issuer) to investors (lenders) in return for lending their money to the issuer. The issuer is obliged to pay the bondholders a specified rate of interest (the coupon) during the duration of the bond and repay the principal invested when the bond matures at a later date (maturity). A bond can be issued by a government, corporation, statutory board or other entity.

2. WHAT ARE THE KEY FEATURES OF BONDS?

- **Issuer**

The entity issues bonds to investors to raise money and repays them with regular coupons in addition to principal repayment at maturity of the bond.

- **Principal**

Nominal value of the bonds issued or amount of money borrowed by the issuer that will be repaid to the investor upon maturity of the bond. Principal value is also known as face value or par value.

- **Maturity**

The date where the issuer must return the principal or the face value to the investor.

- **Coupon**

Coupon is the interest payment(s) paid by the issuer in regular periods, to the bondholder. Coupons are usually paid semi-annually. A \$1,000 bond paying \$40 a year has an annual coupon rate of 4.0%.

- **Yield**

It is the annual rate of return earned on a bond. It is calculated by dividing the coupon amount by the price of the bond and expressed in percentage term.

- **Types of Bonds**

There are different types and grades of bonds, from simple plain vanilla bond to those with call/put or convertible covenants. Bonds can be traded over-the-counter (OTC) or can be quoted on an exchange.

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3. INVESTING IN BONDS

- **Investment objectives and investment timeline**

Bond is one possible asset class to diversify one's investment portfolio. Depending on the issuer's financial/credit standing, it can potentially be a good instrument for investment, earning regular interest income.

Investor will need to decide on his/her personal investment timeline in the selection of bonds based on the maturity dates. This affects the cash flow and the amount of risk the investor is prepared to bear. Generally, the longer the period of investment, the higher the return and risk involved. Prices of longer tenure bonds are more sensitive to interest rates movement and investor may potentially make greater capital gains or losses if he/she sells off the bond investments before the maturity.

4. WHAT ARE THE KEY RISKS OF INVESTING IN BONDS?

- **Credit risk**

Credit risk occurs when the issuer default on the payment of the coupon, and even the principal amount. This may occur if the issuer has problems meeting its obligations as promised. This is also known as default risk or issuer risk.

- **Interest Rate risk**

The value of the bond is affected by interest rate changes. When interest rates rise, bond prices fall and vice versa. The longer the time to a bond's maturity, the greater is the interest rate risk.

- **Market Risk**

The value of the bond is also subject to demand and supply forces. Should the bond market as a whole decline, the value of individual bonds may be brought down by market sentiments regardless of their fundamental characteristics. As such, this market risk is relevant if the investor decides to sell the bond and not hold it to maturity.

- **Liquidity Risk**

When there is a lack of buyers or sellers in the market, the investor may not be able to execute the trade or may be forced to trade at a value significantly away from the investor's desired price. This is liquidity risk.

- **Foreign exchange risk**

The investor is exposed to fluctuations in foreign exchange rate when the investor trades in bonds that are denominated in a foreign currency. Foreign currency exchange rate may move adversely and may erode the returns on the bond investment.

- **Counterparty risk**

There are counterparty risks for bonds which are traded over-the-counter (OTC). Counterparty risk is present when the party who goes into a trade or transaction does not fulfill its obligations. For this reason, OTC transactions may involve increased risks.

- **Call risk**

Some bonds may have a call provision which give their issuers the option to redeem the bonds at a specified price prior to maturity. Declining interest rates may accelerate the redemption of a callable bond, where the investor's principal will be returned earlier than expected. When this happens, the investor may have to reinvest the principal at a lower interest rate (or coupon rate).

Investors are advised to consider all risks by reading the prospectus / information memorandum / term sheet or obtaining advice from a qualified financial adviser representative before they make a commitment to purchase any bonds.

5. HOW ARE RETURNS ON BONDS CALCULATED?

To illustrate the calculations based on a bond issued by the government, the following example is taken from the Singapore Government Securities website. (www.sgs.gov.sg)

There are different measures of returns for bonds.

1) One simple way of calculating bond return is to take into account capital and interest gains:

If you bought a fixed rate 10-year bond paying a 4% coupon with a face value of S\$100, you will receive semi-annual interest equal to $(S\$100 \times 0.04 / 2) = S\2

(i) Assume you had bought the bond at a primary auction at \$100 and sold it one year later.

(a) If the bond had appreciated in price to S\$102, Returns = $[(102-100) + 4]/100 * 100 = 6\%$

(b) If the bond had fallen in price to S\$98, Returns = $[(98-100) + 4]/100 * 100 = 2\%$

(ii) If the bond was a reopening instead of a new issue, the coupon rate would have already been set. The purpose of the auction is then to determine the yield, which would impact the amount paid up-front for the bond. If the yield comes out lower than the coupon rate, the amount paid for the bond would be higher than S\$100, and vice versa.

(a) Again using the above 4% coupon bond, assume that it had been reopened at a yield of 3.5%. Because the yield is lower than the coupon rate, the price paid would have to be higher, at S\$105. If the bond fell in price to S\$103 one year later and you sold it, the returns would be calculated as $[(103-105)+4]/105 * 100 = 1.9\%$

2) The **current yield** of a bond relates its annual coupon interest to its market price. If the market price of a 10-year bond with a 4% coupon is S\$98, its current yield would be $(4 / 98 \times 100\%) = 4.08\%$, which is more than the coupon rate of 4%. Conversely, if its market price is S\$102, the current yield would be $(4 / 102 \times 100\%) = 3.92\%$, which is less than the coupon rate of 4%.

3) **Yield-to-maturity** is the most widely used to measure %returns+in the bond market. It combines the coupon income of a bond and the capital gain or loss from holding the bond to maturity. It also considers the timing of the bond's cash flows and interest-on-interest, although it assumes that the coupon payments can be reinvested at an interest rate equal to the yield-to-maturity. As a very simple example, assume that you bought a bond with 1-year left to run at a price of S\$95, which is less than the face value of the bond. The coupon interest of the bond is S\$4. The capital gain at maturity is $(S\$100 - S\$95) = S\$5$. Therefore, the total gain for you is S\$9. The bond's yield-to-maturity is $(9 / 95 \times 100)\% = 9.47\%$ from the present till the maturity of the bond.

Treasury Bills

Treasury bills do not have coupon payments and are issued at a discount. Therefore, the yield that you get upon the maturity of the bill is the difference between the purchase price and the maturity price. For example, if you pay S\$95 for a Treasury bill with a face value of S\$100 at an auction for a 1-year Treasury bill, your yield-to-maturity, or amount earned if you hold the bond for one year, is $(S\$100 - S\$95) / 95 \times 100 = 5.26\%$.

Reference: The above example is taken from Singapore Government Securities website (www.sgs.gov.sg)

6. WHAT IS THE RELATIONSHIP BETWEEN BOND PRICES AND BOND YIELDS?

Similarly, for the same purpose of illustration, we refer to the Singapore Government Securities website (www.sgs.gov.sg)

Bond prices and yields move in **opposite** directions. To illustrate this concept, let us assume that you are holding a bond of 1-year maturity that you bought at S\$900. At maturity, you will receive your principal of S\$1000. Assume the bond does not pay any coupon, so your yield-to-maturity is 11.1% at the moment:
$$[\$ (1000-900) / \$900] \times 100 = 11.1\%$$

If the bond price falls to S\$850, the yield-to-maturity on this bond will be higher:
$$[\$ (1000-850) / \$850] \times 100 = 17.6\%$$

Likewise, when the bond price rises to S\$950, the bond's yield-to-maturity will fall:
$$[\$ (1000-950) / \$950] \times 100 = 5.3\%$$

Intuitively, if you bought your bond when interest rates were at 4%, and if interest rates rose to 6%, it would mean that you would be able to sell your bond at a lower price than what you paid for it. This is because investors can buy new bonds that will give them a higher yield (i.e. 6%). The price of your bond will therefore decline. On the other hand, if interest rates fall, investors will find your bond attractive relative to new bonds with lower yields. Therefore, the price of your bond will rise.

Reference: The above example is taken from Singapore Government Bond website (www.sgs.gov.sg)

7. CONTACT INFORMATION

Please refer to your appointed trading representative or financial advisory consultant.

8. REFERENCES

1. http://www.sgx.com/wps/portal/marketplace/mpen/products/securities_products/fixed_income
2. <http://www.investinginbonds.com/learnmore.asp?catid=3&id=383>
3. http://www.sgs.gov.sg/pub_guide/faqs/publ_faqindinvestors.html#22
4. http://www.sgs.gov.sg/pub_guide/faqs/publ_faqindinvestors.html#23

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