

Background of Thai Bond Market

Role of Bond Market

Since the Asian financial crisis in 1997, bond has proven to be one of the major financial instruments. Bonds are generally divided into two major sectors, corporate issues and governmental issues. Bonds serve as both long-term and short-term financing alternatives to equities. Government has been relying on issuing bonds to support its financial restructuring and fiscal policy. Bond is a contractual agreement between lender (investor) and borrower (issuer). Although interest rates varied across the investing spectrum, they have been at their historic lows in the past several years. Government has been collaborating both issuers and investors to use bond as an alternative tool to investing and diversifying their portfolios. Finally, the development of the local bond market will strengthen the governmental policy in promoting the Asian Bond Market (ABM). ABM is a collaboration of Thailand and neighboring countries, which is intended to create financial independency within the region.

What is Bond

Bond is a contractual agreement between lender (investor) and borrower (issuer). The issuer is obligated to pay the lenders/investors periodic coupon payments until the stated maturity. Thus, bond investor has the claim of the future cash flows from holding the bond. The information regarding the periodic interest rates, frequency of the coupon payments, term to maturity, par value of the bond, redemption value of the bond and any other provisions are all stated in the prospectus when a bond is issued. Once a bond is auctioned off the primary market, the bond can be electronically traded in the secondary market, Bond Electronic Exchange (BEX). There are several names associated with bond, such as debt instrument, fixed income instrument, debenture, etc.

Type of Bond

The major constituents of a bond consists of:

1. **Issuer** – the issuing organization can be either a government-related body or a private entity. Issuer is the one who needs the additional capital, and thus is the borrower of the proceeds. Issuer is obligated to pay the future cash flows in term of interest payments and repay the principal at the maturity of the issue.

2. **Type of bond** – the specification of each bond is clearly identified in its prospectus when the bond is issued. There are many varieties of bond that can be customized to the specific needs of the issuer. Some of the examples of bond that can be

issued are straight bond, zero-coupon bond, step-up coupon bond, amortizing bond, convertible bond, bond issued with warrant, etc.

3. **Term to maturity** – the total amount of time between when a bond is issued and when the same bond matures.

4. **Issue Date** – the official issue date of the bond. It is also the date in which the coupon interest starts to accumulate.

5. **Maturity Date** – the date on which a debt becomes due for a completion of its interest payment and repayment of the principal. It is simply the date in which the borrower must pay back the money they have borrowed through the issue of a bond.

6. **Par Value** – par value is the promised amount repaid to investors by the issuer at maturity. Par value is sometimes referred to as face value or redemption value of the bond. Bonds issued in Thailand generally have a par value of 1,000 Baht.

7. **Coupon Rate** – the periodic interest payment on a bond is called “coupon”. It is the committed cash flow the issuer pays to an investor. The coupon rate is then the stated percentage rate of interest in which the coupon payments will be determined.

8. **Payment Frequency** – is the number of the coupon or interest payments, often on an annual basis. For example, a bond that is quoted to have a frequency of 4 means the bond will pay interest payment on a quarterly basis.

9. **Issue Rating** – Securities and Exchange Commission, Thailand (SEC) sets the credit rating rules required for every bond issued and sold in Thailand. There are two credit rating agencies in Thailand, Fitch and TRIS. The ratings are based on evaluation of an issuer’s financial strength to meet its payment obligations. Ratings range between AAA to D, whereas any ratings above BBB are considered investment grade.

Bonds can be categorized into several sub-sectors based on their criteria and their options. The followings are a few examples:

- **Straight bond**, also known as an Option-free bond, is a bond that has no embedded option in its structure. Coupons are paid periodically and the redemption value is fully disbursed at maturity.
- **Amortizing bond** is a bond that has a schedule of periodic principal repayments over the life of the issue. The total principal is repaid in full at maturity. It implies, by its structure, that the bond price gradually decreases as its face value has been amortized.
- **Convertible bond** is a bond giving the bondholder the right, not an obligation, to exchange the bond for a pre-specified number of shares of common stock. Such feature allows the bondholder to take advantage of favorable movements in the

price of the issuer's common stock. Bondholders are likely to exercise the option when conversion value is lower than the market price of the common stock.

- **Callable and puttable bond** – for an option-free bond, the bond cannot be redeemed prior to its maturity. However, some bonds can be redeemed during its lives. It is common for a bond issue to include a provision in the indenture that gives either the bondholder and/or the issuer an option to take some action against the other party. The most common type of option embedded in a bond is a call feature, referred to as a callable bond. The provision grants the issuer the right to retire the debt, fully or partially, before the scheduled maturity date. On the other hand, an issue may also include a provision that allows the bondholder to tender (put) the bond back to the issuer prior to its maturity. An issue with this put provision is called puttable bond. The advantage to the investor is that if interest rates rise, reducing the bond's price, the investor can force the issuer to redeem the bond at par value.

Bond Issuance

Once a corporation decides to issue bonds. Financial advisor will be appointed in helping to provide opinions on the type, conditions, and other relevant details of bond issuance. The financial advisor helps in preparing all the necessary documents regarding the bonds being issued in order to obtain SEC's permission. Then, the advisor will go through the course of getting the bond rated by one of the two SEC's approved rating agencies. In addition, the company must appoint an underwriter who will allocate the bond to investors after receiving the SEC's approval. In some cases, issuers may decide to go through the process without the help of a financial advisor or underwriter.

There are two types of bond offerings. The first one is private placement, PP, where the offer is made to fewer than 10 investors or the issue size is less than 100 million Baht.

The second type is public offering, PO, which can be further subdivided into two additional categories. The first subset is a bond that is offered to a limited group of investors, particularly institutional investors. There is a condition in the secondary market that only allows institutional investors to buy and sell these bonds. This type of bond is negotiated and trade off the Exchange floor, referred to as an "Over-the-Counter" (OTC). The second subset involves bonds that can be bought and sold by any investors. Since these bonds are offered to a variety of investors, they are more actively traded in the secondary market. This bond category can be registered to trade on the Bond Electronic Exchange, BEX.

Credit Ratings

Prior to purchasing debt securities or even to invest in mutual funds, all investors ought to, at minimum, learn the corporate ratings and the companies' structures they intend to put their hard-earned savings in. Fortunately, individual investors do not need to perform all the necessary calculations and analysis. There are 2, approved by S.E.C., credit ratings agencies in Thailand; Fitch Ratings (Thailand) Limited and TRIS Rating Co., Ltd. These two companies provide investors with all the necessary information regarding the credit analysis. There are two dimensions of corporate credit analysis, which consists of:

First involves the "Traditional Credit Analysis" that deals with the computation of the firm's financial ratios using historical data and compare the computed ratios with the average ratios from firms in a same industry.

Second deals with "Capturing the Changes in Credit Quality", which concerns pro forma financial statement and ratios analysis to estimate the changes in company's financial structure.

Credit risk comprises of three types of risk, Default risk, Credit spread risk, and Downgrade risk.

After the evaluation, the rating agencies typically rank them in alphabetical orders. Traditionally, any ratings at or above "BBB-" are considered to be investment grades, while anything below the same "BBB-" rating are considered speculative, or high yield, or junk bonds. The higher the risk, the higher the required rate of return. Therefore, the "AAA" bond will pay lower interest rate (or yield to maturity or required rate of return) than the "CCC" rating bond since it is perceived to carry a lower credit risk.

AAA	Highest rating. Issuer's capacity to repay interest and principal is excellent.
AA	Very strong capacity to repay principal and interest.
A	Strong capacity to repay principal and interest. May be susceptible to adverse changes in economic conditions.
BBB	Adequate capacity to repay principal and interest. Adverse economic conditions will likely lead to erosion in ability to pay.
BB	Little near-term weakness but faces major ongoing uncertainties or exposure to adverse business, financial, or economic conditions that could lead to inadequate capacity to repay principal and interest.
B	Currently has the ability to pay principal and interest. Poor economic or business conditions would likely impair the ability to repay principal and interest.
C	This rating is applied to debt that is subordinated to senior debt that has been assigned a CCC rating.
D	Debt is currently in default.

Investment and Return

Primary and Secondary Market Investment

Investor can choose to invest in bonds through either primary or secondary markets. The primary market allows investors to participate in the first market activities, by buying issues directly from issuer. For corporate issues, most firms appoint underwriters and selling agents to help them allocate the issues and with other underwriting processes, while applying for SEC's approvals. The primary market for governmental issues is mostly auctioning method.

Once a bond has gone through the initial transaction in the primary market, the issue can subsequently be traded in the secondary market. Secondary market promotes the liquidity, thus reduces the price risk. Investors can engage in trading transactions through the secondary market facility. Most transactions, in the secondary market, occur over-the-counter (OTC) by large institutional investors. Transparency has been one of the major concerns for smaller investors.

In order to support the development of Thai and subsequently Asian bond market in the region, The Stock Exchange of Thailand launched a new division, Bond Electronic Exchange [BEX], on November 26th, 2003. The creation of BEX will introduce investors to an additional investing instrument and the benefit of diversification. As the name implies, electronic trading platform is BEX's main feature. The main thrust for choosing an electronic platform over the more traditional OTC as a trading tool is because it promotes transparency, uniformity, and real-time price quoting system.

Return on Investment

There are 3 different sources of return associated with bond investing.

- Interest income
- Principal repayment
- Capital gain

1) Interest income

In general, interest income or the periodic coupon income from investing in bond can be calculated based on fixed or floating rates methods. The rates and frequency of payments are clearly stated in the prospectus when a bond is issued.

2) Principal repayment

When a bond reaches its maturity, the redemption value will be returned to the bondholder. For a non-amortizing bond, the redemption value is equal to the face value of the bond, but is not necessary be equal to the initial purchase price of the bond. For an amortizing bond,

the redemption value may or may not be equivalent to face value, par value or the initial purchase price of the bond.

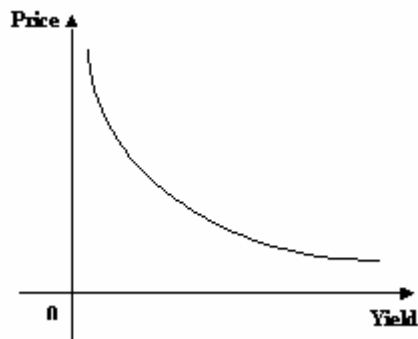
3) Capital gain

Capital gain is where the proceeds from sale of a bond exceed the original cost to obtain the bond, and the opposite is true for capital loss. Capital gain occurs when a bond is sold at a profit, and can take place during the life of the bond or at the maturity.

Price and Yield Calculation

There is an inverse relationship between bond price and interest rate. The interest rate or yield in this context, indeed, is the yield-to-maturity, which is the required rate of return from bond investment. The required rate of return is closely correlated with the market yield. In fact, market yield is the benchmark that investors use in determining the required yield from bond investment. Since the bond price is derived from summing up the present value of the future cash flows, it implicitly implies that when market yield increases, bond price will drop, and vice versa.

A bond can be priced at par, premium or discount, depending on the difference between required yield and its coupon rate. If the coupon rate and the required yield are identical, the bond will be priced at par, or a par bond (par is usually set at 1,000 Baht). When the investor's required yield is higher than the coupon rate, the bond will be sold at discount. A non-technical explanation will be that if an investor is willing to purchase a bond, which pays lower interest than the market's required rate of return, the investor must be compensated for the lower coupon rate. The compensation, thus, comes in a form of a lower price to be paid by the investor. Last but not least, if the bond offers a coupon rate higher than the required yield, the bond will be sold at premium. A similar non-technical elaboration implies that if an investor is willing to purchase this bond, which offers higher interest than the ongoing market's required yield, the investor must be willing to pay extra for the higher coupon rate.



Price of a bond is the present value of future cash flow receipts from holding the bond until maturity. The future cash flows from a bond (interest and redemption value) are the benefit that an investor earns from holding the bond. Rationally, an investor will only pay premium

for the benefit he will get. The present value of the total future cash flows becomes the price of the bond because of this rationale.

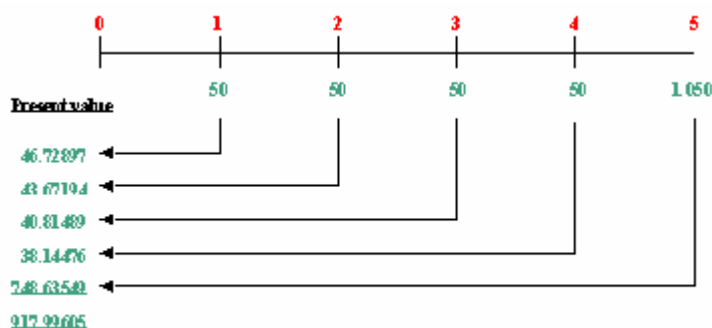
Suppose ABC's bond will mature in 5 years. The redemption value is 1,000 Baht. Coupon is determined to be at 5% annually. The yield to maturity (required yield) is 7%. The coupon will be paid once a year (Frequency). The price of this bond is calculated as followed

From the demonstration, it shows the idea of how to obtain the bond price. To calculate the present value of each cash flow is the basic of financial mathematics.

$$CF_0 = \frac{CF_x}{(1 + YTM)^x}$$

The following table shows the mechanism of how to price bond in detail. The table includes all three types of bonds, which are discount bond (price is less than par), par bond (price is equal to par), and premium bond (price is greater than par) from left to right respectively.

Period	Cash flow	Yield to maturity		
		7.00%	5.00%	3.00%
1	50	46.72897	47.61905	48.54369
2	50	43.67194	45.35147	47.12980
3	50	40.81489	43.19188	45.75708
4	50	38.14476	41.13512	44.42435
5	1,050	748.63549	822.70247	905.73922
Bond price		917.99605	1,000.00000	1,091.59414



Factors to Bond Price Variation

There are several factors affecting bond price. The market interest rate is one of the major contributors to bond price fluctuation. The issuer's credit rating also adds price volatility. When the issuer's financial outlook is improved, the credit rating is increased, reflecting in

a higher bond price or lower yield. On the other hand, when the issuer's credit rating is reduced, investors will want to be compensated for accepting a higher risk, reflecting in a lower bond price or higher yield. The lack of liquidity also poses some threats to the bond price. Investors should also be aware of the fact that all of these factors are part of the monetary and fiscal policy, in addition to the overall economy where the issuer is operating its business.

Information for Investment

Decision-making's Information

Information is one of the most valuable information for decision-making in the fast moving financial world. Investor ought to know as much information as s/he necessary can prior to making a final investing decision. Investor can log into BEX website for most of the investing related information. Examples are economic data such as inflation and market interest rates, analytical tools used in calculating rate of return, and individual bond data such as maturity date, issue date and coupon rate.

Prospectus

Prospectus of a bond provides full details of the bond being issued. A prospectus contains information such as company financial statements, company's future prospect and risk, positive covenants, negative pledges, the term to maturity of the bond, coupon rates and frequency, credit rating and others.

Risk associated with bond investing

A concern associated with investing is the risk versus return characteristic of the investment instrument. There are several types of risks involved in bond investing. The following are a few examples.

- **Interest-Rate Risk.**
Typical bond price will change in the opposite direction from a change in interest rates. When interest rates rise, bond price drops, and vice versa. Therefore, the volatility in the market interest rates lead to the price volatility. If an investor has to liquidate a bond prior to its maturity, an increase in interest rate will have an adverse effect on the sell price. This type of risk is referred to as "interest-rate risk".
- **Credit Risk.**
Credit risk, also known as "Default risk", is the risk that the issuer of a bond may default. The credit risk is gauged by credit rating agencies. There are two credit rating agencies in Thailand, Fitch and TRIS. A change in bond credit rating will have a direct and immediate consequence with the value of a bond.

- **Liquidity Risk.**

Liquidity risk can also be referred to as “Marketability risk”. One of the primary measures of liquidity is the size of the spread between bid and ask prices. The wider the spread, the lower the liquidity, and thus the higher the liquidity risk.

Transparency and uniformity create liquidity, and thus Bond Electronic Exchange, BEX, was established to oversee the bond’s secondary market development.