E-A-R©'s

Fixed Income Research

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Fixed Income Introduction (Part 1)

Fixed income markets are populated with a vast range of instruments. The fixed income section of EAR seeks to explore a typology of debt capital market instruments, namely bond instruments. Further, the series of fixed income reports will span other asset classes such as foreign currency market, futures and swap market plus commodity markets. This particular report hopes to stimulate investment ideas, mainly for vanilla/bullet/nominal bonds and inflation-linked bonds (ILBs).

In its simplest definition: a debt security or a bond is a financial claim by which the issuer (borrower) is committed to paying back to the bondholder (lender), the amount borrowed, called a principal amount. In addition to the obligation of paying a principal amount the borrower also has to make periodic interest payments, calculated on this amount (i.e. principal) during a given period of time. What is noteworthy is that this contract between the lender and borrower is of a long term nature (i.e. more than one year). There are many types of bonds in the bond market, which include:

- Plain Vanilla bonds
- Floating Rate Bonds
- Zero Coupon Bonds
- Call Bonds
- CPI Linked Bonds
- Convertible Bonds
- Exchangeable Bonds
- Eurobonds
- Pay in Kind (PINK) Bonds
- Revenue Bonds
- Junk Bonds

A standard type is a fixed coupon rate bond, which is a bullet bond that delivers coupon on periodic dates and principal on maturity date.

Terminology and Convention

A bond issue is characterised by, among others, the following components:

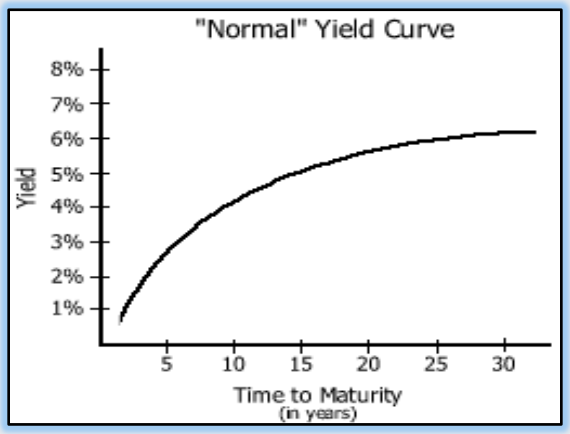
- *The issuer's name*: For Example FirstRand or Telkom
- *The issuer's type:* this mainly the sector it belongs to. e.g. Telecommunication or Banking
- *The market in which the bond is issued*: e.g. South African market or US market
- *The coupon type:* it can be fixed, floating, multi-coupon etc.
- *The coupon rate:* it is expressed in percentage of the principal amount
- *The coupon frequency*: the number of times during which investors receive coupon payments in a given year.
- *The type of guarantee:* refers to the type of underlying guarantee or security for the holder (investor)
- *The nominal/principal amount*: the nominal amount is used to calculate the coupon payable. For example, consider a bond with a fixed 5% coupon rate and a R1,000,000 nominal amount. The annual coupon equates to R50,000.

Bond Investment Strategies

One of the main tenets of fixed income valuation proceed from the basis that there exists an inverse/negative relationship between the yield usually referred to as a market rate (e.g. the yield of bond A at 9:00 am was 7%) and the price of a particular bond instrument. The yield is also often referred to as the internal rate of return, which is useful for the pricing in of risks that are associated to the issuer (borrower). Therefore, bonds are quoted in yields, from which the actual price per 100 units can be derived. To price different bond instruments, participants refer to the **yield curve.** The yield

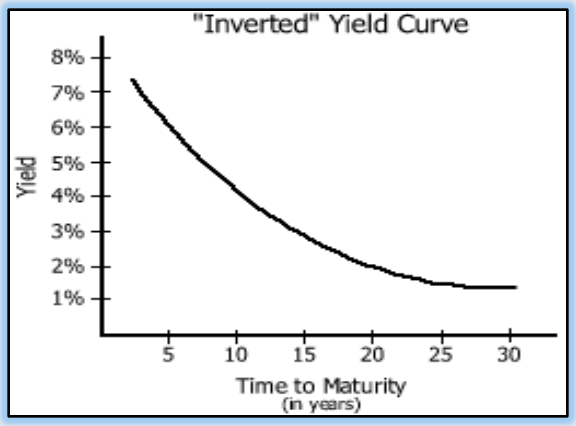
curve, also known as the term structure of interest rates is a graphical representation of bond yields that are of similar quality (credit quality) against their respective maturities. The yield curve enables investors at a quick glance to compare the yields offered by bonds that mature in the “short-term, medium-term and longer-term”. Globally, the yield curve is often characterised by three common shapes. If short-term bond yields are lower than long-term yields, the line/curve is upward sloping, which is referred to as a normal shape as shown below.

Figure 1: Normal Yield Curve



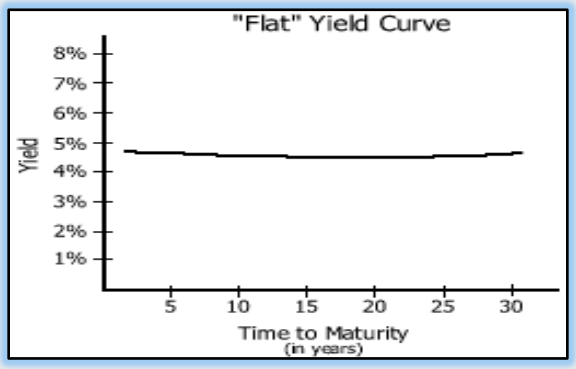
If short-term bond yields are higher than long-term bond yields (the curve would be inverted), the shape is referred to as an inverted yield curve

Figure 2: Inverted Yield Curve



When there is little or no difference between short and long-term bond yields, the curve is referred to as flat. This is very rare!

Figure 3: Flat Yield Curve



Admittedly, fixed income markets and related trading activities are inherently forward looking. This is corroborated by the fact that there exists greater market and corporate specific uncertainties over the term during which capital has been committed. This is in light of investors’ desire to protect the buying power they have. Chief among the sources of uncertainty is the purchasing power of capital (inflation). Ideally, investors require some form of compensation when requested to part with their money or capital for a longer period (i.e. over a year). Moreover, inflation should not nibble away at the value of the invested capital.

Rolling Down the Curve Trading Strategy

This dominant need for returns and capital protection calls for investment strategies that are cognisant of the shape of the yield curve (the implication of the various shapes will be explored in the subsequent issues). One such simple strategy is commonly known as “Rolling Down the Curve” strategy. The key to this strategy is to understand the shape of the prevailing yield curve of a particular bond market. When investing in bonds, changes in interest rates/yields have a direct impact on the value/price of a bond. During low interest rate periods, investors who buy bonds (at relatively higher prices) would naturally dread the possibility of an increase in interest rates as that would negatively affect the value of their

investment (bond prices decreasing). Consequently when the yield curve is normal, implying that it is steep, investors tend to expect rates to be higher in the future than they are currently. In such an environment, as is the case in South Africa, when a bond approaches its maturity/redemption date, it gradually "rolls down the curve", thus trading at lower/weaker yields (and higher prices) from period to period. Thus, the "Rolling Down" strategy seeks to shield investors against potential capital loss due to changes in yields. This strategy has the potential of outperforming the much vaunted "buy and hold strategy". The strategy advocates buying a relatively longer dated bond and sell it when it is relatively short dated.

For example:

Bond Codes	Issue Date	Maturity Date	Yield%	Coupon Rate%	Price(Units per 100)	TTM (Years)	Rolling Down Return%
R207	17-Jun-05	15-Jan-20	7.70	7.25	98.68	3.41	0.30
R203	7-May-04	15-Sep-17	7.42	8.25	100.83	1.08	
TL20	22-Feb-00	24-Feb-20	9.5	6.00	89.79	3.52	2.24

The Telkom bond (TL20) was issued in February 2000 and is due to mature/redeem on the 24th of February 2020. This is a bullet/vanilla bond. There is another bond, government's R203 bond, which will mature in September 2017. The price return that would arise from rolling down the TL20 yield in two years (2017) would approximately be 2.24% (Calculation: 9.5% yield on TL20 less 7.42% yield on R203 x TTM of R203). The return is based on the assumption that yields will be mainly anchored by inflation expectations' volatility only (also known as parallel shift of the curve). The strategy of rolling down the curve is based on the assumption that an investor will generate an additional return by liquidating their investment in the TL20 bond when the R203 matures in 2017. ***It should be noted that this is not the total return!*** This is just a "yield curve trading strategy" to maximize returns.

Noteworthy, is the higher return associated to trading a corporate bond instead of another government bond with a similar credit risk quality. Rolling down the R207 for a year would generate price return of 0.30%. This rings true the conventional adage of "higher risk that is associated to higher returns", indicating that corporate bonds carry a higher risk compared to government bonds. This does not imply that government bonds do not carry any risk – in fact they do, only lower relative to corporates.

Inflation Linked Bonds (ILBs)

Bond Codes	Issue Date	Maturity Date	Yield	Coupon Rate	Index Ratio	Price
FRS134	22-May-15	31-Jan-38	3.41	2.25	1.25	103.36
FRS138	30-Jun-15	7-Dec-33	3.17	3.45	2.00	207.52
I2033	15-Jul-15	28-Feb-33	1.87	1.88	1.068	106.87
I2038	4-Jul-12	31-Jan-38	1.82	2.25	1.25	134.76

Inflation-linked bonds (ILBs), commonly known as linkers are something of a "mystery" in the fixed income asset class. Countries that were "billed" serial defaulters (the likes of Brazil and Argentina) were known for letting inflation spiral out of control so as to disadvantage holders of vanilla bonds upon receipt of their capital at some future date (before maturity or at maturity). Coupled with a radical departure from "old-fashioned" monetary policy regimes, market participants were fuelled to advocate for instruments that would force governments to keep inflation in check. In this regard, certain markets that were beset by high inflation were targeted, which includes the likes of Mexico and Chile. Soon thereafter, other countries including South Africa "latched on".

Contrary to common intuition, linkers do not reference the year-on-year or month-on-month inflation rate (as this tends to move up and down, whilst remaining positive). At EAR we would argue that proponents of this class of instruments took out time to understand how monthly CPI inflation (which reflects the actual price increases in the economy) works. Therefore, these instruments reference the actual "composite basket" that tracks the change in the prices of goods and services in an economy. This change in the prices of goods and services is often positive, although it may vary from month to month. Suffice it to say,

linkers generate positive returns, in a somewhat steady fashion even when the yearly inflation moves down from, say from 6.2% to 6%.

Whilst the focus for vanilla instruments is often on the yield and coupon, for linkers the focus extends to the "inflation factor" known as the index ratio, which revalues the nominal amount so as to obtain the total value. The difference between the nominal amount and the "indexed amount" produces the additional return that is due to CPI (not inflation rate) accretion. The dynamics of this instrument will be explained in subsequent issues.

If one considers the complexities and riskiness associated with ILBs, this type of instrument is often unfavourable for borrowers who issue longer dated ILBs and generate generous returns for investors who buy long-term ILBs(with a term to maturity of more than 10 years). For instance, FirstRand issued an inflation linked bond in July 2015 (bond code: FRS138). This bond will mature in December 2033. The inflation factor/index ratio for FRS138 which is a ratio of the daily reference CPI and historic base CPI (of when the bond was issued) is already 2. This implies that if an investor lent (bought the FirstRand bond) R1 million to FirstRand (at the date of issue), the investor, in today's value, has earned an extra million (ignoring any kind of fees or tax), implying that FirstRand owes R2 million to the investor (i.e. investor made a 100% return in just 14 months). This bond still has some 17 years to maturity. A companion instrument which is issued by SA government, also with a maturity date of 2033 (I2033) bears an index ratio of 1.068, which is way too low than that of the FRS138. Could it be that FirstRand is too generous and therefore "pegged" the index ratio with a bond that was already issued? Whatever the reason, investors stand to benefit massively from buying the FRS 138. On average, it takes at least 10 years for an instruments' index ratio to reach 2. However the FRS138 already has an index ratio of 2 after 14 months of being issued.

We would recommend that investors continue to read up more on these instruments and consider linkers issued by FirstRand, particularly the FRS138 and FRS134.

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Disclosures

Some EAR contributors hold equity shares in FirstRand and Telkom.

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