BSAMC

Bocconi Students Asset Management Club

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FIXED INCOME: Market and Opportunities

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Overview of fixed income

Fixed-income securities are financial instruments that pay a defined amount of interest, usually in the form of coupon payments, to investors.

Interest payments can be done at any time during the year, but they areusually made semi-annually, with the eventual return of the principal to investors at maturity.

Fixed-income securities include bonds, treasury bills, Guaranteed Investment Certificates (GICs), Banker's acceptances (BAs), mortgages, and preferred shares, all of which reflect a loan by the investor to the issuer. Most of the time, the interest rate on a fixed income security is determined at the time of issuance and remains fixed throughout the life of the investment.

As far as bonds are concerned, they vary from equitiesin that they do not reflect an ownership stake in the corporation, but they do grant a senior claim over equity interests in the event of bankruptcy or failure.

As a result, fixed income instruments can provide a consistent stream of income while posing less risk than equities.

However, the value of fixed income securities can be affected by changes in interest rates and credit risk, which can impact the issuer's ability to make interest and principal payments.

The characteristics of fixed-income instruments include:

- Fixed interest rate: Fixed income securities offer a fixed rate of return, which is usually paid as interest. This means that investors can expect to receive a steady stream of income from thesesecurities.
- Maturity date: Fixed income instruments have a specified maturity date, which is the date on whichthe principal amount will be repaid. The maturity date can range from a few months to several years.
- Liquidity: Fixed income instruments can be bought and sold on the secondary market, and the easewith which a security can be convert to cash varies depending on several factors.
- Creditworthiness: The credit quality of fixed income instruments varies depending on the issuer. Government bonds are generally considered to be the safest fixed income instruments, while corporate bonds may carry a higher risk of default.
- Yield to maturity: the YTM is defined as the unique internal rate of return that equates the discounted future cash flows provided by the fixed-income security to the current market price, assuming you hold the security until maturity. The YTM is an average annual rate of return of thesecurity and assumes that all payments can be reinvested at the same rate.

Fixed-income instruments are inherently affected by different sources of risk, that impact the market value of the security when it is sold, cash flow from the security while it is held, and additional income made by reinvesting cash flows.

- Interest rate risk: given that the value of fixed-income instruments is closely tied to prevailing market rates, an investor bears the risk of a potential decline in the value of the security due to changes in interest rates. When interest rates rise, the value of existing fixed income investments typically declines, as the interest payments become less attractive relative to the higher yields available on newly issued securities. Conversely, when interest rates fall, the value of existing fixed income investments may rise, as the fixed interest payments become more attractiverelative to the lower yields available on newly issued securities.
- Reinvestment risk: the proceeds from the coupon payments could be reinvested at a lower rate than the original investment. We already pointed out that for the calculation of the YTM it is assumed that all the cash flows received are reinvested at the same rate; in actuality, the additional income from reinvestment, sometimes called interest-on-interest, depends on the prevailing interest rates at the time of the reinvestment.

- Default/credit risk: the risk that the issuer of the fixed-income security will be unable to make timely principal and interest payments. To compensate for the higher risk of default, securities withlower credit ratings typically offer a higher yield than those with higher credit ratings.
- Inflation risk: the risk that the value of the cash flows provided by the fixed-income instrument measured in terms of purchasing power will be eroded over time due to inflation. As a matter offact, when inflation rises the real return on an investment decline, even if the nominal interest rate remains the same.
- Exchange-rate risk: the risk that a fixed-income security denominated in a foreign currency yields diminished cash flows due to the unfavorable exchange rate to the domestic currency at the time payments are received.
- Liquidity risk: it depends on the ease with which an investor is able to buy or sell an investment atthe desired time and near its fair value. The primary measure of liquidity is the size of the bid-ask spread quoted by the dealer – the wider the spread, the higher the perceived liquidity risk.
- Event risk: it refers to an unexpected event that diminished the value of the bond; it usually refers to natural or industrial accidents as well as corporate restructuring.
- Call risk: this risk refers to a specific category of bonds that include a provision allowing the issuer to retire or "call" the bond prior to the maturity date. From the investor's perspective, there are three disadvantages to call provisions: firstly, the cash flow pattern of a callable bond is not known with certainty; secondly, because the issuer will call the bond when rates have dropped, the investor is exposed to reinvestment risk; lastly, the capital appreciation potential of the bond is reduced (in fact, the price of the bond may not rise much above the strike price of the call).
- Volatility risk: the price of a bond with an embedded option (callable bond) depends on the level ofinterest rates and on factors that influence the value of the option itself. One of these factors is theexpected volatility of interest rates – higher volatility increases the value of the option and consequently decreases the value of the bond.

Furthermore, fixed-income securities can have different forms and features:

1. A bond refers to a loan or debt made by an investor to an issuer, such as a corporation or government. The issuer is then obligated to repay the bond's principal amount, also known as face value, upon reaching a fixed maturity date, and make periodic interest payments, usually every six months. Treasury bonds (T-bonds) are debt securities issued by the Treasury to finance the government's operations and pay for its debts; they have a maturity of 10 years or more, and they pay a fixed rate of interest every six months. Interest income from Treasury bonds is exempt from state and local taxes in the US, and the securities are backed by the full faith and credit of the government considered, making them a low-risk investment option. Corporate bonds,on the other hand, are issued by corporations to raise capital for various purposes; they have a fixed maturity date and pay a fixed or variable rate of interest (that is taxable) over the life of the bond. The cash flows of the corporate bond are backed by the creditworthiness of the issuing company; that's why they are riskier than Treasury Bonds, since they are subject to credit risk.
2. Treasury notes (T-bills) are the most secure kind of short-term debt issued by the federal government. T-bills are extremely liquid and ideal for investors looking for a one to 12-month investment period. Because they are backed by the government, T-bills are regarded as relatively secure if compared to other fixed-income instruments.
3. Banker's acceptances (BAs) are short-term financial instruments generally issued by a corporation and guaranteed by a major chartered bank. BAs generally offer higher yields compared to T-bills, and higher liquidity levels than most commercial paper issues. Moreover, BAs are often used by companies as a source of short-term financing to meet their working capital needs, especially in situations where traditional bank loans may not be readily available or suitable.
4. A certificate of deposit (CD) is a debt instrument issued by a bank, that provides interest to the

account holder in exchange for depositing money with the bank for a set period of time. CDs generally have maturities of less than five years and pay lower interest rates than bonds but higher interest rates than regular savings accounts.
5. Guaranteed investment certificates (GICs) are low-risk investment products issued by financial institutions such as banks, credit unions, or trust companies. It is a type of investment where an investor deposits a sum of money for a fixed term, usually ranging from one month to 10 years, and earns a predetermined rate of interest on the deposit.
6. Mortgage-Backed Securities (MBS) are financial instruments created by pooling together many residential or commercial mortgages and selling them as a single security to investors. Inessence, MBS represent an ownership interest in a pool of mortgages, and the cash flows generated by the underlying mortgages are used to pay interest and principal to the MBS holders.
7. Preferred stocks represent ownership in a company and entitle the shareholder to a fixed dividend payment set as a dollar amount or percentage of the share value every period before any dividend to common shareholders is paid. Preferred shares offer a greater yield than most bonds because of their longer duration.

Fixed income market analysis in 2023

Since the beginning of 2023, there has been a decline to 6.9% in global inflation rates compared to Q4 2022 levels, which was 8.3%.
This drop occurred due to Central Banks worldwide increased the interest rates to reciprocate the inflation rates. However, the case is different in terms of developed countries, such as the United Kingdom, Germany, France, and Sweden.
As these countries follow tightening monetary and fiscal policies, they still have high inflation rates.

With these revelations, we may intuitively state that the impact of inflation and raised interest rates will lead the bond prices to decrease.
The Bonds with longer maturity tend to be more sensitive to fluctuations in interest rates, and the real rate of return on fixed-income investments is impacted by inflation rates.
However, Bonds with fixed interest rates will have lower appeal, and, not all Bonds will face the same effects, and may become a great option to investduring rising inflation rates such as the I Bonds.
As we mentioned before, on a global scale, Central Banks continued to raise interest rates during Q1 in 2023. Two rate increases of 25 basis points each were announced by the Federal Reservein the quarter, signaling a slowdown.
The Bank of England authorized two rate increases of 25 and 50 basis points. In contrast, the European Central Bank maintained its hawkish stance and increased rates twice in increments of 50 basis points.
However, more than briefly specifying thetrend would be required, and therefore, we must consider each country or region a distinct case due to recent market-stirring occurrences and have one of the largest bond markets.

United States

Detrimental stresses occurred in the U.S. financial systems in March 2023. There have been consequent banking collapses all over the month.
Silicon Valley Bank's collapse created a domino effect on other banks, such as New York's Signature Bank. In the case of First Republic Bank, after its shares crashed, JP Morgan and ten other banks rescued the bank by depositing $30bn into First Republic Bank.
These escalations prompted a decrease in the overall stock market and increased Treasury Yields.

Eurozone

The first quarter has been a difficult period for European countries. In early March 2023, the world financial

market faced a shock with the collapse of Signature Bank and especially Silicon Valley Bank, which is considered the second and third largest bank collapses in the United States'history.
This unsettling news created a domino effect and hit one of the most prominent banks in Europe and the second-largest bank in Switzerland, Credit Suisse. Despite the bank's longhistory, Credit Suisse was the focal point of scandals, such as Archegos Capital's and Greensill Capital's collapses in 2021.
In the end, Credit Suisse was bought by UBS and helped in easingthe stress in the European Financial Market, but on the other side, the deal wiped out $17 Billion dollars from bondholders of Credit Suisse.
However, besides this quasi-banking crisis, the European region encountered extensive protest inFrance. On January 19, 2023, civil unrest began as the French President, Emanuel Macron, proposed a pension reform bill that amends an increase in the retirement age from 62 to 64.
This pension crisis is continuing in March and has led to a vote of confidence for Emmanuel Macron's Government but narrowly survived a no-confidence vote.
Even though Credit Suisse has been rescued and partially eased the crisis, the European Banking sector has been shaken. Banks' shares rose from a four-month low, and bonds remained under pressure.
Besides, concerns about broader repercussions persist, yet further uncertainties occur due to unstopping protests in France.

United Kingdom

2023 has been a different year for the United Kingdom compared to other European countries. The economy is in a positive trend. Industrials and the consumer discretionary sector both performed well during the first quarter. As of March 24, 2023, British Businesses reportedgrowth and, consequently, suggested an expansion in overall of the economy.
However, based onthe International Monetary Funds and Reuters reports, the British economic outlook begs a different scenario.
It is highly anticipated that the United Kingdom will be the only country from G7 to enter a recession near the end of 2023. The Annual GDP will witness a contraction of 0.6%due to expected reductions in government spending, rising interest rates, and hikes in energy costs.

China

China has eased its COVID restrictions on the public and reopened its borders to international travel. Besides, the government further loosened the regulations on the technology market, which promoted investment opportunities in the sector.
All these notions created rapid growth in the economy and, thus, an expected increase in GDP during quarter 2. In the meantime, the US- China tension resurfaced in February and March.

Additionally, there have also been many incidents in the political environments and financial markets, and these incidents have not been solved indefinitely, which causes high uncertainties in the markets. A Chinese high Altitude Baloon entered the U.S. Airspace, which caused distress in the global markets.
As these countries accommodate almost 75% of the global bond market, intuitively, whatever occurs in those countries, they definitely influence the whole market significantly.
Since the start of 2023, we have observed that due to upsurges in inflation rates, countries except China have been implementing contractionary monetary policies to lower the rates.

Market opportunities

Due to the adverse events that occurred in the first quarter, particularly in the European region, the Fixed Income Market has become more attractive to investors.
In the bond market, a basic intuition suggeststhat bond yields tend to increase when inflation and interest rates rise, and conversely, prices decline. For instance, based on data from the European Central Bank as of March 31st, 2023, we can observe yields of 2.95, 2.92, 2.88, and 3.15 for 3M, 6M, 1Y, and 10Y bonds, respectively.
Notably, even when focusing solely on short-term government bonds, it becomes apparent that these unfavorable escalations resulted inhigher yields than in 2022. In contrast, the 6M bond yield in the United Kingdom had a different trend.

Over the past three years, the U.K.'s bond market has experienced an upward yield trend. Since the beginning of 2023, this upward movement reached 3.99%, and it continued to rise further, reaching 4.32% by the end of Quarter 1. From this, the U.K. yield is higher than that of the European Central Bank.
Besides, regarding the U.S. Fixed Income Market, we have observed a decrease in bond yields since the beginning of the year. At the end of March 2023, the U.S. 6-Month Treasury Rate was recorded as 4.9%, making the yield higher than both U.K.'s and Eurozone's.
In the same period, the Chinese 6-Month bond yields less than every monitored region, which is 2.57%.
To provide a more accurate assessment, we follow short-term bonds due to ongoing inflation rate hikes and the uncertainty surrounding when interest rate rises will halt.
Besides, long terms government bonds are more sensitive to interest rate fluctuations, creating higher investment uncertainty. Conversely, short- term bonds have minimal interest rate risk, and investors can hold them until maturity.

Moreover, sincethe bond prices and interest rates are inversely related, it is highly recommendable to prioritize bonds that coincide more with the rest of 2023.
First, however, it is vital to acknowledge and assess the other uncertainties by analyzing the bond yields in the chosen region. A fundamental principle in the Fixed Income market is that higher bond yields generally indicate more significant interest payments and risks for bond investors.

Given these assumptions, based on the bond yields observed in Quarter 1, the U.S. 6 Month Treasury bond has the highest yield and thus representsthe riskiest option for investors. However, it is essential to consider other factors that can impact the relative attractiveness of different bonds, such as credit ratings.
According to Fitch Ratings, the U.S., U.K., Eurozone, and China have AAA, A.A.-, AAA, and A+, respectively, which suggests that the U.S. and Eurozone may be more appealing to investors, given their higher credit ratings and correspondingly lower risk of default. While Quarter 1 data provides valuable insights, it is essential to remember that it only represents the current state of the market and known public tensions.
Therefore, to produce well-informed investment decisions, we should consider future possibilities, particularly until the end of 2023.
Forecasts indicate a projected technical recession in the United Kingdom and a decline in inflation rates in the first two quarters of 2023. Consequently, the Bank of England plans interest rate cuts, making bonds an even more appealing investment choice.

Considering the potential for a recession, investors are likely to buy bondsat lower prices and hold them until the recession drives bond prices up. On the same token, according to European Central Bank's staff projections, Eurozone will also witness a decline in the inflation rates from 5.3% to 2.9% by the end of 2023.
However, it is crucial to consider the risks posed by recent events such as Silicon Valley Bank and Signature Bank collapses, the turmoil at Credit Suisse, and public unrest in France.
Based on these events, some critics state that we face new financial instability in the financial markets and raise concerns about whether there will be a domino effect in the banking system.

Despite tightening regulations and robust liquidity creation systems, European banks are not anticipated to

experience the same negative impact as seen on March 10th, 2023. Additionally, while the Eurozone and the U.K. expect a recession by the end of 2023, the U.S. economy shows signs of slowing down and a potential recession. However, the Federal Reserve will continue raising interest rates once inflation rates ease. The National Association for Business Economics anticipates a mild recession during or later this year.
The association's forecasts are based on the occurrence of recent bank collapses, which they consider a significant factor. However, they also provide a contrasting argument for their estimations.
As the Chinesegovernment is lifting the pandemic regulations and reponing the market globally, China's economy is expected to recover significantly.
Unlike other countries, they estimate a growth of 5.2%, which led to speculations on whether the reopening will cause further hikes in the inflation rates and raised doubts about the accuracy of market forecasts.
Considering these aspects, we may conclude that these macro scales occurrences left a mark of uncertainty on markets in general.

Nonetheless, in our case, we first looked at short-term government bonds to understand how the fluctuations may affect the market and distinguish the trends of the regional markets.
To elevate our analysis, we must also consider the other fixed-income products, such as Certificates of Deposits, Government Bonds, Asset-backed securities, Corporate Bonds, and Emerging Market Bonds.
In the second quarter of 2023, investing in Certificates of deposits, Government Bonds, Corporate Bonds, and Emerging Market Bonds are more suggestible than investing in Asset-Backed Securities.
As mentioned earlier, many countries will enter a recession or implement significant cuts in interest rates later this year, which indicates that Asset-Backed Securities, typically considered protection against inflation, may not be a reliable investment product. On the contrary, the rest of the mentioned securities are only logical investment products for slowing down economies, and in this case, credit ratings, proposed interest rates, and maturities are the only factors left when making profound investment decisions.

While current prices are significantly low, investors stand to benefit more during times of falling interest and inflation rates, making these securities an intelligent investment choice. In the meantime, whenaiming for short-term objectives, an investor should consider purchasing government bonds from advanced economies and emerging market bonds. U.S. Treasury Bills have historically provided higher returns during recessions, making them attractive.
Additionally, considering China's reopening and the potential for economic growth, investing in China's government bonds can also benefit investors. In termsof corporate bonds, investors should be aware that they are usually considered riskier than government bonds.
Therefore, it is vital to exercise caution and carefully consider the potential for default risks, especially considering any possible escalations in the banking sector. On the other hand, Certificates of Deposits (C.D.s) are an excellent option for risk-averse investors. However, uncertainty still exists in the banking system, which could be a potential disadvantage. Therefore, as with any investment decision, it is essential to thoroughly research and weigh the risks and benefits of each option before deciding.

Nevertheless, despite the prevailing ambiguous atmospheres and unprecise estimations, we still can find methods to cover potential risks, such asDiversification, Interest Rate Swaps, and Bond Insurance.
The diversification method is a tool to minimize losses by purchasing diverse products that react differently in fluctuating markets. In the case of fixed-income markets, an investor selecting high-quality bonds for their portfolios is highly advisable. Usually, if an investor uses the diversification method, they have bonds and stocks in their portfolios because these products have negative correlations.
Whenever there is an increase in stocks, bonds will react in the opposite direction. In our case, as mentioned before, since there will be a recession forecast, a dismal market performance will occur, and consequently, a stockweakening. Therefore, in a portfolio with volatile items, an investor should purchase more U.S. Treasury bills to reduce these fluctuations. Besides, an investor can use bonds issued by different issuers, sectors, and geographic regions to help spread risk and reduce the impact of defaults or credit events associated with individual bonds.

Even though there is an expectation of a recession later in 2023, as we mentioned earlier, there is still an ambiguity surrounding this assumption. Hence, for investors who have invested in bonds, Interest Rate Swaps can be a solution to this risk. Hypothetically, if the interest rates remain unchanged or the central banks raise their rates, the interest rate risk will rise and subsequently reduce the bond prices. Therefore, by employing such a method where investors exchange fixed-rate and floating-rate interest payments,they can effectively hedge against the risks associated with interest rate changes.
Additionally, considering the turmoil in Europe's banking system, which has led to fluctuations in the bond ratings, it is highly suggestible to implement the policy of Bond Insurance. This method guarantees the principal and interest payment on a bond in the event of default.
Bond insurance enhances the bond's credit quality and can provide an added layer of protection against credit risk.

Considering the forecasted recessions in the countries with the largest fixed-income markets worldwide, opportunities arise for investors regardless of origin. In such circumstances, investors should invest not in long-term bonds but short-term bonds with high ratings, specifically U.S. Treasury Bills or bonds with lower yields. This is because long-term bonds are more sensitive to interest rate changes, and we are specifically considering the trends of 2023.
Moreover, the world witnessed a brief banking crisis that left significant uncertainty in the financial sectors and got into political and public tensions during the first quarter, such as the China - U.S. balloon incident and the protests in France.
These events further deteriorated the ratings of the fixed-income markets and increased risks. In such situations, bond insurance can help reduce default risks. Hence, by implementing these strategies, investors can potentiallybenefit from the rising bond prices during the recession.

Analysis of a Fixed Income strategies

Active fixed-income portfolio managers work under the assumption that investment as well as arbitrage opportunities exist, which yield on average a higher return than the cost incurred to implement them.
Theirobjective is to have their portfolios outperform the target benchmark index.
Typically, there are two kinds of active strategies:

- Trading on interest-rate predictions (*market timing*)
- Trading on market inefficiencies (*bond picking*)

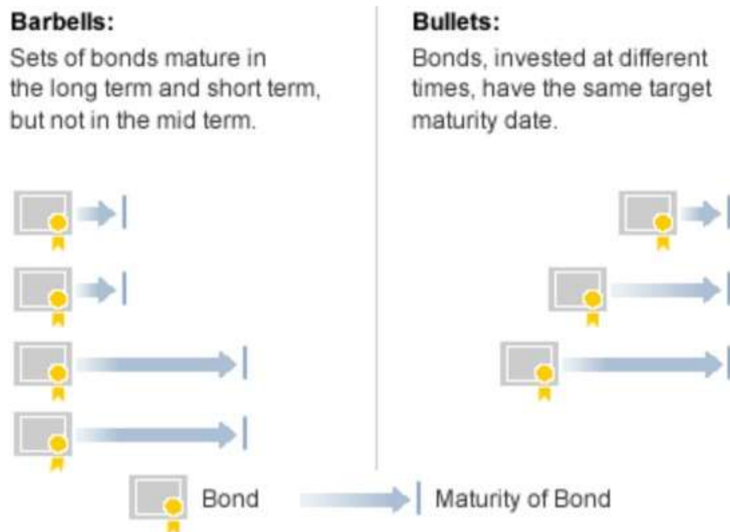
We start by thinking about "duration" trades, which are solely based on market direction.
Next, we look at "curve" trades, which are bets on changes to the yield curve's slope, as well as "combination" trades, whichare bets on both changes to the yield curve's direction and slope.
We lastly consider “spread trades”, which deal with bets made across markets (between two yield curves).

Market directional bets

This section examines *market direction trades* with a *neutral curve shape*. A market direction bet is either bearish or bullish.
Accordingly, investors are bearish/bullish if they, relative to what is priced into the market, anticipate a rate hike/drop.
Market direction bets are based on an anticipated parallel shift in the yield curve, and they are implemented by taking duration positions that deviate from the benchmark.
In our case, a position that is long/short duration means that the duration of the portfolio is larger/smaller than that of the benchmark.
Duration is increased/decreased when interest rates are expected to fall/rise as a portfolio with longer/shorter duration outperforms the benchmark during market rallies/contractions.
There are several ways to alter the duration of a portfolio including: (1) selling or buying bonds; (2) using interest rate swaps; and (3) buying or selling interest rate futures.

The investor anticipates that the central bank will lower interest rates at its upcoming policy meeting by a larger amount than the market is presently pricing.
The investor thinks that following the change, the yield curve's shape would essentially remain unchanged.
The investor is cash constrained in that purchases mustbe financed by sales of other assets.
The basic technique is executing a *cash-neutral duration extension* or selling at the short end of the curve (like 1s or cash) and buying at the long end of the curve (like 20s). Through positive convexity, duration extension enhances the bond price reaction to an interest rate reduction.
The strategy also benefits from positive carry and a roll-down advantage, which protect against downside risk if rates should happen to increase or remain steady in a typical environment with an upward-sloping yield curve; in this case, the cushion grows in size as the curve becomes steeper.
Keep in mind that curve flattening and a rise in expected volatility also help to raise the profitability of this strategy.
On the other hand, if the investor believes that the ECB will raise rates more aggressively during the investment horizon (as opposed to market expectations of more gradual increases), to profit from a predicted bond market sell-off that preserves the yield curve's shape, the investor would implement a *cash-neutral duration shortener*, which would entail selling long-duration bonds (such as 20s) and buying shorter duration bonds (such as 2s).
By cutting the duration, investors lessen the portfolio's sensitivity to interest rate risk, which results in less capital losses when the bond market declines throughout the curve.
The profitability of this trade is further improved by curve steepening and a decrease in anticipated volatility.

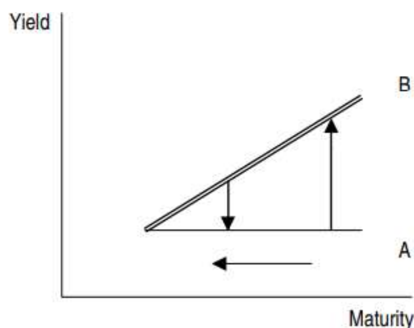
Before addressing the remaining sections, in the following images some useful terminology is summarized:



Yield curve bets: steepeners and flatteners

In this section, we take a *neutral duration* approach to yield curve trading.
To predict changes in the yield curve's slope, yield curve bets allocate securities across a different maturity span than the benchmark. One kind of yield curve bet takes advantage of the yield curve's predicted steepening or flattening over a specific maturity range.
When the yield gap between the long and short ends of the curveexpands or narrows, the curve steepens or flattens. A different kind of yield curve bet benefits from variations in curvature.
In *pure curve bets*, a maturity allocation that differs from the benchmark's maturity allocation is chosen, but the benchmark's duration is replicated.
A portfolio's maturity allocation can be changed by combining different bullet and barbell structures.
For investors who might want to match the duration of a benchmarkor who may be forced to, pure yield curve transactions are helpful.
When (1) there is uncertainty regarding the timing and/or direction of upcoming curve shifts, (2) directional expectations are consistent with market consensus, or (3) overall direction is anticipated to remain range bound (near current levels), neutral market exposure is also advised.

With no expectation for the direction of the market movement, the investor anticipates that theyield curve will steepen throughout the investment horizon.



A *duration-neutral curve steepener* is used to carry out the strategy: that consists in selling a longer-term bond (such as a 20-year bond) and purchasing an amount of shorter-dated bonds (such as 2s) that matches its duration. In this trade, the long end of the curve is shorted while the short end of the curve is longed.
The longer bullet's selling proceeds won't bring in enough money to pay for the shorter bullet's duration-matched price. As a result, the deal necessitates using cash reserves or borrowing, which presents a challenge for the investor with limited funds.

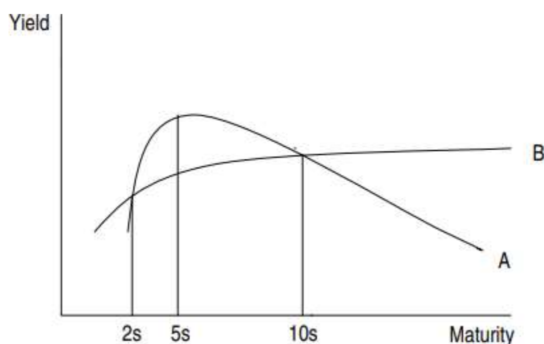
Note that the performance of this trade will be improved if volatility unexpectedly decreases. However, the strategy has a roll-down disadvantage and may experiencenegative carry if the yield curve is upward sloping. On the opposite side, if the yield curve is predicted to flatten over the investment horizon, the investor would implement a *duration-neutral curve flattened*, which would entail selling the short end of the curve(such as 1s) and purchasing a duration-matched amount of longer-term bonds (such as 10s).
This strategy benefits from roll-down-advantage and offers the potential for positive carry if the yield curve has an upward slope.

Additionally, a spike in volatility will improve this trade's profitability.
Several times, in the real word shifts and variations in the slope of the yield curve happen at the same time. By simultaneously holding positions in duration and maturity allocation that deviate from the benchmark, investors may manage these mixed exposures.
The goal is to shorten (or lengthen) duration in anticipation of changes in market direction while focusing exposure on maturity sectors that seem to give the highest returns throughout the investment horizon.

Rising and falling curvature of the yield curve

Non-uniform variations in the slope of the curve, or changes in curvature, are another sort of modificationin the yield curve.

An investor has seen what they believe to be an anomaly in the curve's shape, but they believe it to be transitory.
Particularly, 5-year maturity bonds appear inexpensive in comparison to 2s and 10. In otherwords, this area of the curve seems to be unusually concave.



The fundamental strategy is implemented by a *duration-neutral butterfly* that sells a barbell of short- and long-term bonds (in this example, 2s and 10s) and purchases a duration-matched bullet of an intermediate bond (5s). The deal will not be cash neutral since the money made from selling the barbell will be more than the money needed to buy the bullet.
Due to the duration neutrality of this deal, the investor is shielded against parallel shifts. This trade also benefits from positive carry if the yield curve has a typical concave form, which means that the increasing slope rises at a decreasing rate.
However, the carry advantage is not maximized because this is not a cash-neutral transaction. In addition, a sharp drop in volatility will further boost the effectiveness of this strategy.
In contrast, the investor could think that 5s look more expensive in comparison to 1s and 10s.
The investorsimultaneously wants to profit from this alteration and wants to maintain a neutral position regarding duration.
The right trade in this situation would be a *duration-neutral butterfly* that buys a duration- matched barbell of short- and long-term bonds (1s and 10s) and sells an intermediate bullet of 5s.
The dealis not cash neutral because the money raised from the sale of the bullet won't be enough to pay for the barbell.

If the yield curve is concave, this trade has a roll-down disadvantage and negative carry. But because the barbell has a convexity advantage over the duration-matched bullet, a rapid spike in volatility would raise the profitability of this strategy.

Spread Bets

We now broaden our scope to consider holdings of securities across different yield curves.
Spreadbets include transactions that change how securities in a portfolio are distributed across various fixed income market sectors.
A spread bet is placed if the investor thinks the current spread between two bondsis out of line with fundamentals, for instance, and thinks the spread will realign by the end of the investment horizon.

Spread positions may differ from the benchmark allocation on the following levels:

1. individual security
2. industry (e.g., utilities against industrial corporate bonds)
3. bond market (e.g., government versuscorporate bonds)

Positions will be allocated across yield curves (i.e., "credit risk allocations") based on the expected carry and spread change.
To profit from prospective credit-quality improvement, we use “credit upside trades”, that extend the portfolio's credit quality into lower quality tiers.
For instance, if corporate spreads are predicted to widen soon, an investor may temporarily raise the portfolio's average credit rating (so spread narrowing), wait for the predicted spread changes, and then reverse the transaction.
Keepin mind that it is more challenging to identify relative value possibilities between two curves in a narrow spread and low volatility environment.

As a result of an overall improvement in the economy, an investor anticipates a narrowing of the spread between US corporate and government bond rates.
The fundamental strategy is to sell a bullet of US Treasury securities and then use the proceeds to purchase a bullet of duration-matched corporate bonds.
This trade gains from a reduction in the yield spread as well as from an increase in yield level.
In contrast, to profit from a projected widening in the gap, the trade would entail the selling of a bullet of US corporates and the purchase of US Treasuries of a similar maturity.
This transaction forgoes yield but benefits from a growing yield spread.
Spreads must thus increase substantially to compensate forthe yield loss.

Conclusions

Fixed income investment provides a variety of alternative opportunities for those looking to preserve their cash while generating a steady income.

Bonds, Treasury bills, and corporate bonds are examples of fixed income assets that offer a steady stream of cash flows and may be a significant addition to a diversified portfolio.

Throughout this report, we have looked at several different aspects of fixed income investing, such as the features of various fixed income assets, interest rate risk, credit risk, and trading strategies.

Investors can make informed decisions and maximize their profits by comprehending the critical elements that affect the value and performance of fixed income instruments.

When building a fixed income portfolio, factors such interest rate changes, differences in credit quality, yield spreads, duration and convexityshould be carefully evaluated.

Based on the results and insights covered in this paper, the following final recommendations can be made for people or institutions wanting to invest in fixed income instruments:

- Diversification: Creating a portfolio of diverse fixed income securities can assist reduce risk and take advantage of a variety of opportunities. Reducing idiosyncratic risk and improving overall portfolio stability may be achieved by spreading assets among different industries, issuers, and maturities.
- Research and Analysis: For effective fixed income investment, in-depth research and analysis are crucial. Accordingly, investors should consider the credit quality, issuer fundamentals, macroeconomic variables, and market dynamics. It is certainly helpful to be abreast of changes incredit ratings, interest rate projections, and economic data.
- Risk management: When choosing securities, investors should consider both interest rate risk and credit risk. Risk management techniques including duration matching, credit analysis, and diversification may be used to successfully manage risks and guard against unforeseen market changes.
- Active Monitoring: To guarantee alignment with investment objectives and market circumstances, fixed income assets need to be actively monitored. It is crucial to regularly assess portfolio holdings, economic statistics, and the interest rate environment. If adjustments are required, they should be done as soon as possible to improve portfolio performance and accommodate shifting market conditions.
- Professional Advice: For people who are new to fixed income investing, seeking professional advice from financial advisers or fixed income experts is undoubtedly helpful, given the considerable intricacy of these financial instruments. They can offer insights, analysis, and recommendations that are tailored to each person's financial objectives and risk tolerance.

In conclusion, fixed income investments represent a unique chance for predictable income and risk reduction of the whole portfolio.

For investors to succeed in the fixed income market, they must employ the proper trading strategies, conduct exhaustive research, manage risk appropriately,and remain updated about market trends.

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