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Exploring Variable vs Constant NAV Investment Options

Understanding the differences between stable or constant net asset value (CNAV) and floating or variable net asset value (VNAV) funds, the benefits and challenges.

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Contents

The following paper outlines the differences between a stable nav (CNAV, constant $1.00) and a variable NAV (VNAV, the typical stock or bond mutual fund or exchange traded fund (ETF)). We will describe why the NAV will remain constant or change and what some of the potential risks and benefits are to these types of funds. Net Asset Value (NAV) refers to the current price of a commingled product, like the CalTRUST Short Term or Medium Term Fund.

Why does the price of a bond change?

The price of a bond (any debt security with a maturity date and a coupon) moves in the opposite direction of its yield and interest rate movements. As interest rates increase, yields rise and the price of the debt instrument will decrease and vice versa.

Interest rate movements of short duration securities are highly sensitive to the US Central Bank's (The Federal Reserve, or "the Fed") monetary policies. During restrictive regimes, the Federal Reserve raises the Fed Funds rate in order to slow growth and inflation, while during easing financial regimes the Federal Reserve lowers interest rates in order to spur growth and create modest upward price pressure. These policy rate moves will have a direct impact on market yields, i.e.: interest rates.

For example, if an investor purchases $1,000,000 of a bond with a coupon of 4.625% at par ($100) with a 2 year maturity and interest rates increase by 1%, the price of the bond will decline. Conversely, if interest rates decline by 1%, the price of the bond will increase:

2 Year U.S. Treasury with 4.625% Coupon	Current	Interest Rate Increase 1%	Interest Rate Decrease 1%
Original Investment	$ 1,000,000	$ 1,000,000	$ 1,000,000
Current Interest Rate	4.625%	5.625%	3.625%
Current Price of Bond	$ 100.00	$ 98.13	$ 101.91
Value of Investment	$ 1,000,000	$ 981,330	$ 1,019,125
Unrealized Gain or Loss	$ -	$ 18,670	$ (19,125)

Source: SSGA, Bloomberg as of April 10, 2024

Why would the price of one bond rise or fall more than another bond? How do I measure risk? What other factors play a part in the price change of a bond?

The risk of a bond can be determined by many attributes including duration (time to maturity), credit (risk of default or impairment), and liquidity (ability to buy/sell the bond) risk, to name a few. Depending on the type of bond, it may have one or more of these risks. For instance, debt issued by the U.S. Treasury is very safe and has minimum credit risk. However these bonds can have different maturity dates, and those maturity dates will impact how much the price of that bond could change. This is maturity risk or duration risk. Duration is a measure of a bond's sensitivity to a change in interest rates, and it increases the further out a bond's maturity date is. Shorter term bonds have less duration risk, and therefore their price will not move as much compared to a longer duration bond.

2 Year U.S. Treasury with 4.625% Coupon	Current	Interest Rate Increase 1%	Interest Rate Decrease 1%
Original Investment	$ 1,000,000	$ 1,000,000	$ 1,000,000
Current Interest Rate	4.625%	5.625%	3.625%
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Value of Investment	$ 1,000,000	$ 981,330	$ 1,019,125
Unrealized Gain or Loss	$ -	$ 18,670	$ (19,125)

10 Year U.S. Treasury with 4.00% Coupon	Current	Interest Rate Increase 1%	Interest Rate Decrease 1%
Original Investment	$ 1,000,000	$ 1,000,000	$ 1,000,000
Current Interest Rate	4.000%	5.000%	3.000%
Current Price of Bond	$ 100.00	$ 92.21	$ 108.58
Value of Investment	$ 1,000,000	$ 922,054	$ 1,085,843
Unrealized Gain or Loss	$ -	$ 77,946	$ (85,843)

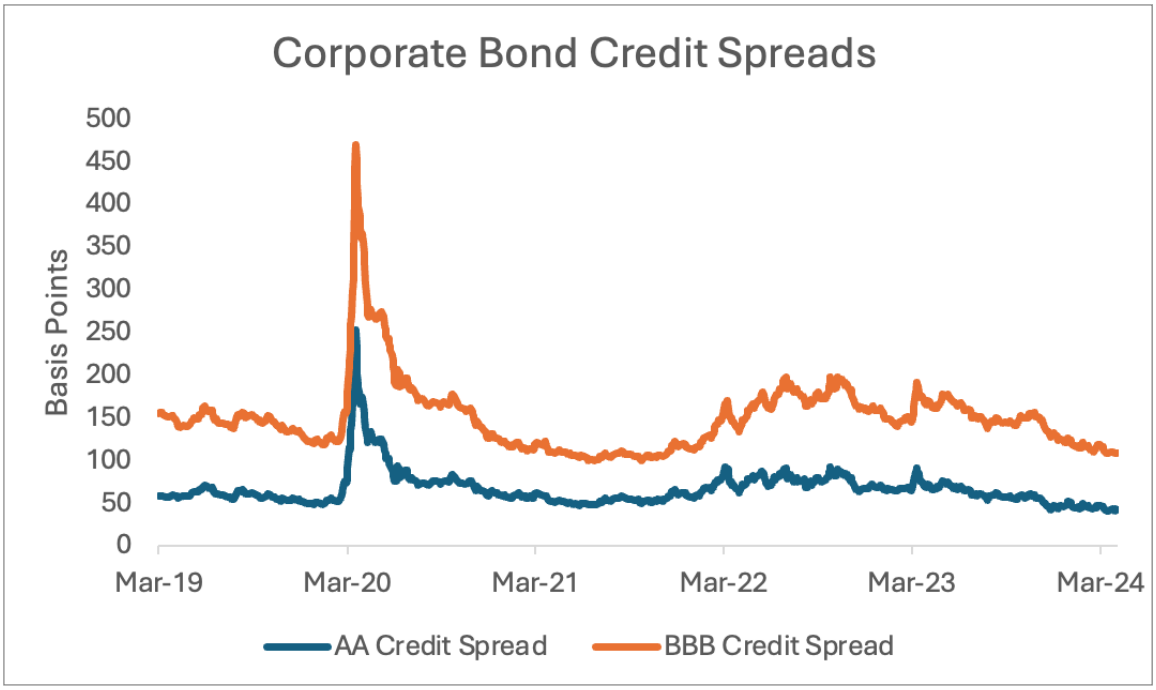
Source: SSGA, Bloomberg as of April 10th, 2024

As illustrated above, the change in price of the 10-year bond is approximately four times that of the 2-year bond.

What about credit risk?

Credit spread is the additional yield that investor seeks over that of similar maturing US Treasury debt. The greater a bond's credit risk, the more spread that will be demanded by investors to compensate for this additional risk. For example, a bond with a AA credit rating will have a smaller spread than a bond rated BBB. The BBB rated bond is seen as a riskier investment and thus investors demand a larger spread (more yield).

As economic conditions deteriorate or idiosyncratic risk of a specific company increases, the spread will increase, and as the overall yield increases, the price of the underlying debt/bond will decrease (remember, when interest rates increase, bond prices will decrease and when interest rates decrease, bond prices will increase). Similarly, when credit spreads widen, bond prices will decrease and when credit spreads tighten, bond prices will increase.



Source: SSGA, Bloomberg as of April 10, 2024

AA Rated Corporate Bond	Current	Credit Spreads March 2023	Credit Spreads March 2020
Original Investment	$ 1,000,000	$ 1,000,000	$ 1,000,000
US Treasury Interest Rate	4.77%	4.77%	4.77%
Credit Spread	0.40%	0.90%	2.00%
Yield of the Corporate Bond	5.170%	5.670%	6.770%
Current Price of Bond	$ 100.00	$ 99.07	$ 97.08
Value of Investment	$ 1,000,000	$ 990,740	$ 970,790
Unrealized Loss	$ -	$ (9,260)	$ (29,210)

BBB Rated Corporate Bond	Current	Credit Spreads March 2023	Credit Spreads March 2020
Original Investment	$ 1,000,000	$ 1,000,000	$ 1,000,000
US Treasury Interest Rate	4.77%	4.77%	4.77%
Credit Spread	1.10%	1.90%	4.00%
Yield of the Corporate Bond	5.870%	6.670%	8.770%
Current Price of Bond	$ 100.00	$ 98.54	$ 94.83
Value of Investment	$ 1,000,000	$ 985,370	$ 948,280
Unrealized Loss	$ -	$ (14,630)	$ (51,720)

Source: SSGA, Bloomberg as of April 10, 2024

What about the liquidity of a bond?

There are two definitions of liquidity in the cash and fixed income markets. First is the amount of ready cash a fund owns that can be used at any time to meet redemptions, [[see appendix A for expanded definition]]. Second is the cost of buying or selling an individual bond in the market. Here we elaborate on the second definition.

All bonds trade over the counter; meaning a transaction occurs between a trader and a broker/dealer rather than on an exchange. There is no commission or set cost to transact and the cost to trade is imbedded in the overall price of the bond. Think of it like buying or selling a car where you have a 'bid' price and an 'offer' price. The bid price is the price a broker is willing to pay to buy the bond and the offer price is the price a broker is willing to sell the bond. If a bond's liquidity is poor, it means the difference between the bid and the offer, or the 'bid/offer spread', is very wide and thus the cost to transact is high.

Liquidity can vary across asset classes as well as within specific asset classes. For instance, U.S. Treasuries are very liquid instruments. The bid/offer is usually very tight and the cost to sell is close to the cost to buy. Less liquid instruments, those that trade less frequently or in thin markets, may incur a wider bid/offer and come with a higher cost to transact. When financial conditions are deteriorating or there is a crisis in the market, certain bonds with less liquidity may be harder to sell and may require additional concession to be sold.

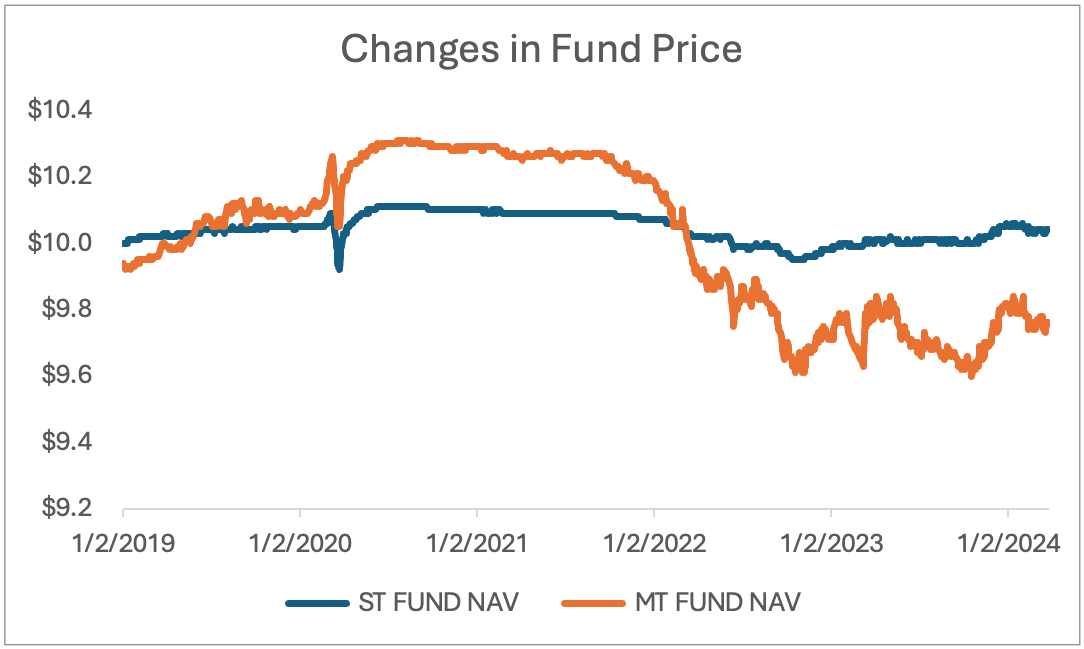
What about the three CalTRUST funds? Do they share these similar attributes?

The CalTRUST Liquidity Fund trades at a CNAV, $1.00. It uses a specific type of accounting called amortized cost accounting. This allows the fund to value the assets, not at the market price, but at the purchase price and then amortize the value of the asset to its maturity value, usually par ($100). This means that investors in this fund can purchase or redeem at $1.00 at any time. This is similar to a bank account where there are no capital gains or losses on your investment. This type of accounting was adopted in the 1970s when money market funds and liquidity pools were first created. The fund's return will simply be the interest income it generates. To be eligible to use this type of accounting, the fund must hold very short-term highly liquid investments, usually with maturity dates of 1 year or less. Because of this, the fund will have a very short duration. The fund will apply a buy and hold strategy and will aim not to generate any realized losses or gains.

What about the CalTRUST Short Term Fund and the Medium Term Fund?

These funds tend to invest in longer maturing debt, have longer durations, and take slightly more risk to generate greater returns.

The funds have a variable net asset value (VNAV), meaning their price can change as market interest rates change, just like the price of a bond. They do not use amortized cost accounting, but rather mark to market accounting, just like the stock and bond funds you might own in your own retirement account. These funds value the underlying assets at their current market price (the price that an investor would receive by buying or selling the assets in the marketplace) and calculate a weighted average of those prices that becomes the NAV of the fund. This means that the price of a VNAV fund will change based on current market interest rates.



Source: CalTRUST as of April 10th, 2024

Why has the Short Term Fund's NAV not risen or fallen as much as the Medium Term Fund?

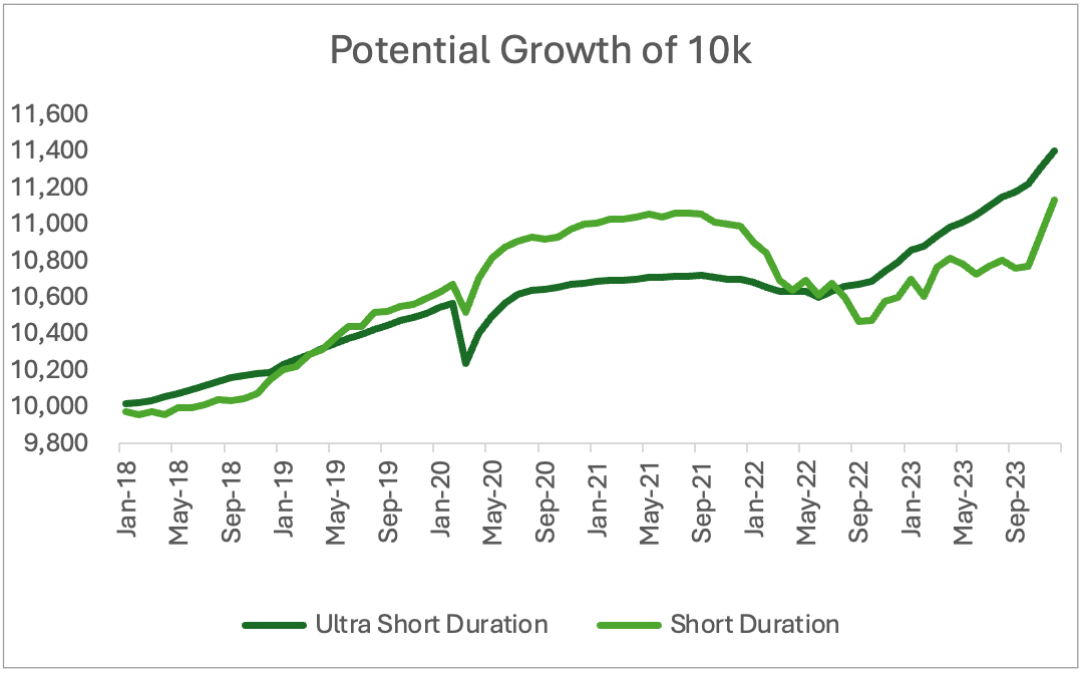
The Short Term (ST) Fund's duration (the weighted average duration of all of the underlying bond holdings) is shorter than the Medium Term (MT) Fund. The ST Fund's duration range can be 0.3 to 0.7 years While the MT Fund can be 1.5 to 2.1 years. As of March 31st 2024 they were 0.7 and 2.1 years respectively.

So if I invest in the fund and the NAV declines have I lost money on my investment?

You would only lose money if you sold out of the fund and realized the loss. If you did not sell and instead continued to hold the fund, you would show an unrealized loss or a “paper loss”. You would only have an actual realized loss if you chose to redeem assets out of the fund. Over the course of a market cycle the NAV should recover and the unrealized losses should normalize and could become neutral or an unrealized gain.

How does the NAV recover?

It can recover two ways. First, through an economic cycle interest rates will rise and fall as the economy goes from expansion to contraction. As interest rates rise, the NAV of the fund will decline but when the economy begins to contract, the central bank should begin to lower their policy rate causing interest rates to decline. As a result, the value of the bonds in the fund should increase. Second, over time the bonds in the fund will mature at par. As noted above, as a bond gets closer to its maturity date the price of that bond amortizes or accretes to its value at maturity, usually par. This process eliminates any unrealized losses or gains on that bond. This allows the NAV of the fund to also amortize or accrete towards par.



Source: SSGA as of April 7, 2024, for illustration only, do not represent investible market returns

What about Credit Risk in the funds?

The funds do invest in credit debt so if there is a disruption in the credit markets, the spread on those bonds could widen and their could price could fall.

Is the length of time I am invested in each fund important?

Yes, the holding period is very important. When considering investing, you must analyze how long you want to be invested in a particular fund. We encourage investors to consider holding periods of at least 6 months to 1 year for the Short Term (ST) Fund and 2 years or more for the Medium Term (MT) Fund. Markets go through cycles and a cycle could create unrealized gains or losses. By holding the funds over multiple market cycles, one can prevent selling too soon and incurring losses. Over time, given their risk characteristics, the ST Fund should outperform the Liquidity Fund and the MT Fund should outperform the Liquidity and ST Funds because is taking more risk and seeking more return. There is always a chance that market events could cause the ST or MT fund's NAV to decline. The aggressive interest rate hiking by the Fed in '22 or the market disruptions we saw in March of 2020 are examples of market events that would have had a negative impact on the funds. Alternatively, the very low interest rates we saw in 2021 created significant gains. Some clients are sensitive to generating capital gains as well as capital losses, which reiterates the importance of a holding period.

When an investor has short term cash requirements, such as working capital requirements, owning the Liquidity Fund with a constant NAV and the ability to redeem at $1.00 at any time seems appropriate. The CNAV fund's primary objective is capital preservation (safety) and liquidity. However, if an investor has no immediate need to access cash and has a longer investment timeline, owning the ST or MT Fund could make sense. These funds should provide a higher return over an economic cycle.

Conclusion

When considering investing one must be aware of the potential involved. Understanding your own cash flows and liquidity needs is the first step in choosing an investment. Next, it is important to determine what your investment priorities and goals are, namely safety, liquidity, and return objectives. After these two critical first steps are understood, doing research, determining the risk attributes and potential returns of the target funds is critical before making your investment choices.

Here are a few questions that are a good starting point:

1. How much money are you considering investing and when will you need this money back?
2. How will you react if you see an unrealized loss on your investment?
3. If there is an emergency or unforeseen event will you need access to this money?
4. Does your management, risk committee, board, constituents understand the different risks of investing in these different funds?

Please do not hesitate to reach out to us with any questions or to set up a call and discuss further at at 916.745.6703 or admin@caltrust.org.

Appendix A

A money market or liquidity fund's liquidity is defined as a certain percent of the fund that is easily convertible to ready cash to meet a shareholder redemption. There are two categories of liquidity: 1 business day or "daily" liquidity or 5 business day or "weekly" liquidity. Investments that mature in one day qualify for daily and investments that mature in five days qualify for weekly. There are two other investments that meet the SEC's definition of daily liquidity. 1. All US Treasury securities and 2. US government agency discount notes that mature in 60 days or less. Both assets have proven to be easily converted to cash in times of market stress. The CalTRUST Liquidity fund seeks to hold at least 10% of the fund's assets in daily liquidity and at least 30% of the fund's assets in weekly liquidity.

Disclosure

Investing involves risk including the risk of loss of principal.

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