NaviPlan®
by Advicent

Overview of Asset Allocation in NaviPlan

Functions Addressed in this Document

- What asset allocation options are available?
- What asset classes are available?
- How do time horizons affect my clients' portfolio?
- How does NaviPlan handle proceeds from assets?
- What are Morningstar capital market assumptions?
- How do I classify account and holdings in NaviPlan?

NaviPlan uses a powerful asset allocation system powered by Morningstar data. This guide explains how this system works so you can maximize the value of the information available to you. This guide will explain NaviPlan's asset allocation options, included asset classes, and an expected return calculation in its opening sections. Then, it will explain some of the Morningstar assumptions implicit in NaviPlan's asset allocation system.

What asset allocation options are available?

NaviPlan has five investor profiles to ensure that you are modeling the your clients' asset allocation correctly based on their risk tolerance:

- Conservative
- Moderate Conservative
- Moderate
- Moderate Aggressive
- Aggressive

Each of these profiles is comprised of a unique mix of asset classes. NaviPlan uses an Morningstar asset allocation questionnaire to determine the appropriate portfolio for your clients which is located inside the NaviPlan application as well as on the **Blank Fact Finder**. Use your clients' responses to these questions to determine an appropriate investor profile.

What asset classes are available?

Following, is a list of asset classes available in NaviPlan (last updated 2019-04-17). For a description of each asset class, see the **Morningstar Rate Disclosure** document, available from the **Clients** page in NaviPlan (**Client Information** section – **Client List** category)

Asset Class	Corresponding index	Interest	Dividend	Capital Gains	Def Growth	Total	Standard Deviation
Canadian Large Cap Equity	S&P/TSX Composite TR	-	2.81%	1.42%	2.64%	6.87%	13.48%
Canadian Small Cap Equity	BMO Small Cap Equity (Weighted) CAD	-	2.54%	2.16%	2.86%	7.56%	18.15%
US Equity	S&P 500 TR (WSJ) CAD	1.92%	-	1.38%	1.28%	4.58%	13.79%
International Equity	MSCI EAFE GR CAD	2.61%	-	1.84%	2.25%	6.71%	14.00%
Emerging Market Equity	MSCI EM GR CAD	2.21%	-	2.14%	2.05%	6.40%	19.29%
Canadian Bonds	FTSE TMX Canada Universe Bond	3.16%	-	-	-	3.16%	4.52%
Global Bonds	Barclays Global Aggregate	2.43%	-	-	-	2.43%	9.00%
Canadian Cash Equivalents	FTSE TMX Canada CDN Trsy Bill 91 Day	2.34%	-	-	-	2.34%	2.20%

To determine which of these asset classes are used in the investor profile recommended to your clients check the summary shown on the **Profile** page (**Plan Management** section – **Asset Allocation** category).

Morningstar Investment Management LLC provides a holdings-based style analysis where asset allocations data is based on the characteristics of the underlying securities. For example, the Morningstar® Style Box™ is a holdings based analysis of the size and value/growth orientation of the underlying stocks in a fund. Holdings-based methodology is dependent on the choice of style as its frame work, and provides a recent snapshot of asset returns and provides a stable and consistent estimate of a portfolio's future style and risk.

NaviPlan®
by Advicent

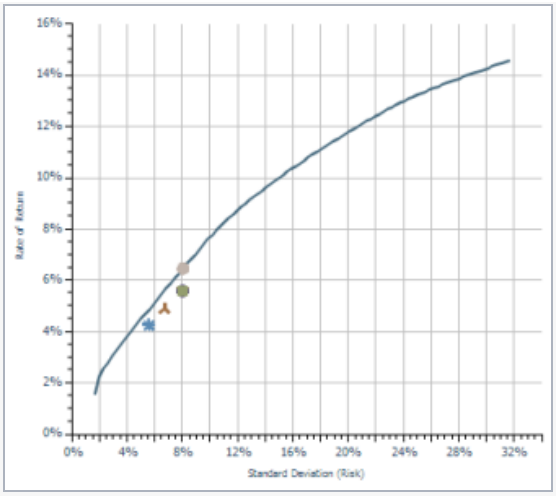
How do time horizons affect my clients' portfolio?

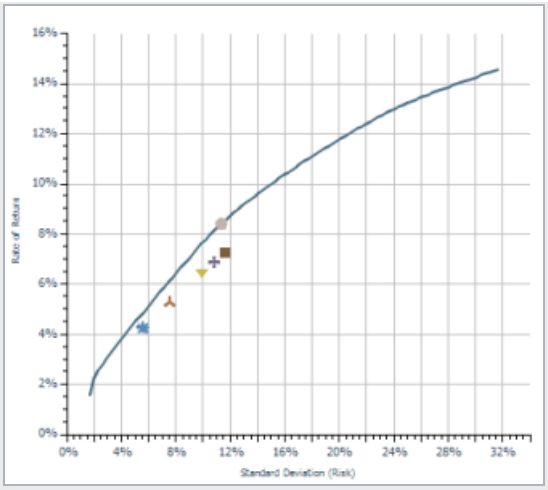
In addition to the asset allocation option you have selected and your clients' investment style, NaviPlan also considers the life stage of your clients. Based on your clients' answer to the **Asset Allocation Questionnaire** NaviPlan compares their investment strategy against the time available until the end of a goal and modifies the portfolio accordingly.

Example: Suppose you have a client who prefers an aggressive investment strategy but plans to retire in ten years. NaviPlan will still place this client into an **Aggressive** investor profile but will modify the classes and weightings typically included in that portfolio based on the shorter time frame.

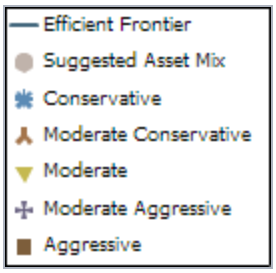
We can see this modification in action by observing the efficient frontier graphs below:

Aggressive Investor with Short Time Horizons	Aggressive Investor with Long Time Horizons





On the left, we see the **Suggested Asset Mix** is about 6% ROR (return) and at 8% Standard Deviation (risk); whereas on the right we see 8% and 12% respectively. We can account for this difference by noting that the graph on the right is for an aggressive investor with longer time horizons. Therefore, NaviPlan has determined that the investor can shoulder a greater degree of risk than an investor who has short horizons.



Remember to pay attention to time horizons and how they affect the **Suggested Asset Mix**. You can quickly check which time horizon category your clients fall into on the **Profile** page (**Plan Management** section – **Asset Allocation** category).

Summary	
Expected rate of return	5.64%
Expected standard deviation	15.25%
Proposed investor profile	Aggressive
Proposed time horizon	Very Long

Plan Management – Asset Allocation — Profile

How does NaviPlan handle proceeds from assets?

NaviPlan handles returns from different types of assets differently. The table below contains a brief explanation of how NaviPlan will handle returns from each asset type.

Category	Description:
Interest & Dividends	Interest and dividends are accrued within the account throughout the year and paid-out at the end of the year. Interest is taxed as regular income whereas dividends use their own rate of taxation. **How will NaviPlan handle these proceeds?** • Any proceeds from assets classified as this type will be directed to cash flow as a cash inflow.
Capital Gains	Capital gains are accrued within the account throughout the year and paid-out at the end of the year. Capital gains are taxed at either the short-term capital gains rate (default) or at the long-term capital gains rate (if the account is a Mutual Fund). **How will NaviPlan handle these proceeds?** • Any proceeds generated by assets classified as this type will be reinvested; cash flow will be unaffected until the asset is sold.
Deferred Growth	The market value of a deferred growth account increases monthly. Deferred growth income is not taxed until the account is sold; at this time, it is taxed as a long-term capital gain. **How will NaviPlan handle these proceeds?** • Any proceeds generated by assets classified as this type will be reinvested; cash flow will be unaffected until the asset is sold.

Standard Deviation

Within NaviPlan, Morningstar uses historical data to estimate risk. Historical data is used here since it provides an unbiased estimate of future volatility. To determine this historical estimate, Morningstar uses the "ratio method". This means it takes two sets of data a "short benchmark" (a more current measurement without long-term historical data) and a "long proxy" (a correlated asset class with long-term historical data) and finds the ratio between the two to determine the final standard deviation.

Correlation Coefficient

The standard deviation—and therefore the profile at large—is also affected by correlations between asset classes. In the context of asset allocation, correlation refers to the tendency of one asset's performance to affect another in a regular way.

To measure this correlation between asset classes, the correlation coefficient is used. The correlation measures the degree to which two assets are related; each coefficient is expressed as a value between positive one (1) and negative one (-1).

- Negative one (-1): Indicates that the two assets have a negative relationship; they move in opposing directions.
- Zero (0): Indicates that the two assets have no relationship at all; the movements of one do not affect the other.
- Positive one (1): Indicates that the two assets have a positive relationship; they move in the same direction.

Example: Large Cap Growth Equities and Large Cap Value Equities tend to have a positive correlation coefficient; this means that when one goes up, the other tends to follow (and vice versa).

To review the correlations currently in use in NaviPlan, go to the **Correlations** tab of the **Asset Allocation Settings** dialogue box (**Plan Management** – **Asset Allocation** – **Profile**).

How do I classify account and holdings in NaviPlan?

There are several ways to classify an asset in NaviPlan; each is detailed below.

How do I search by ticker symbol to have NaviPlan classify the asset for me?

1. Locate the **Asset Class Weightings** menu for the desired asset.
2. Select **Search**.
3. From the **Search** section (**Asset Class Weightings Details** dialogue box), enter any relevant information you have about the asset and click **Search**.
4. Select an option from the **Results** section.

Did you Know? You can use the **Search** feature to enter securities using their ticker symbol.

How do I indicate that an asset falls 100% into a single classification?

1. Locate the **Asset Class Weightings** menu for the desired asset.
2. Make a selection from the list.

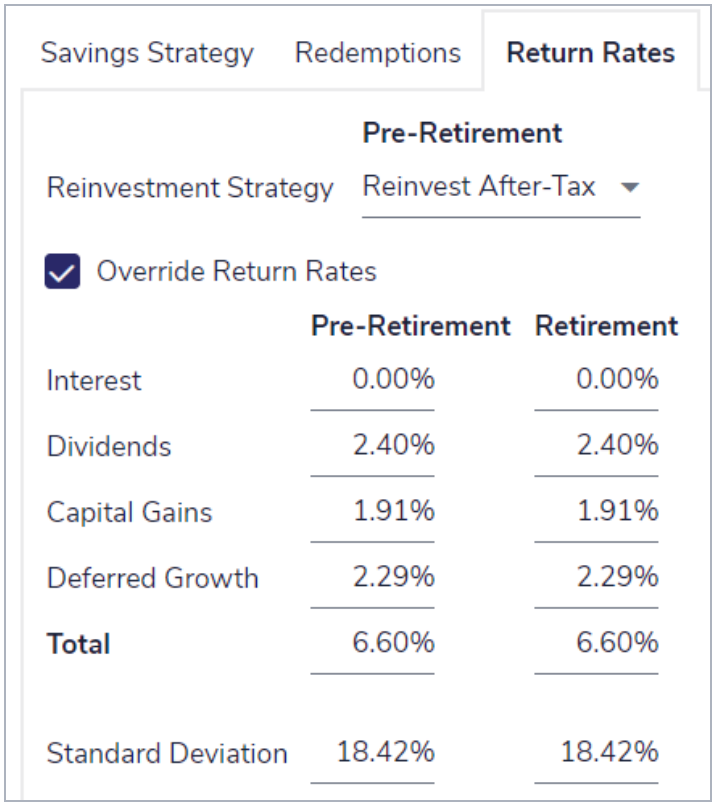
Asset Class Weightings Details

How do I manually adjust asset classification?

1. Locate the **Asset Class Weightings** menu for the desired asset.
2. Select **Manual Classification**.
3. From the **Asset Class Weightings** section (**Asset Class Weightings Details** dialogue box), enter percentage values into each applicable field until you have fully-classified the asset (the **Total** field has reached 100%).

How do I manually override rates of return?

1. Select  for the asset whose rate of return you wish to modify.
2. Select the **Return Rates** subtab.
3. Select the **Override** option.
4. Enter new values for the **Pre-Retirement** and **Retirement** periods.
5. When you are satisfied, click **OK**.



Enter Financial Data – Net Worth – Accounts – Return Rates

How are Morningstar Capital Market Assumptions determined and applied in NaviPlan?

Within NaviPlan, Morningstar incorporates two types of analyses, distinct between equities and fixed income securities. For equity individual asset class forecasts, Morningstaruses the building block approach to generate expected return estimates. Beginning in 2015, Morningstarhas shifted from a classic demand-side building block approach to an enhanced supply-side building block approach, which better identify economic and corporate drivers of returns (e.g. inflation, dividends, productivity growth, and defaults). Also beginning in 2015, Morningstar has adopted a more forward-looking model that better adjust for credit and term spreads for fixed-income individual asset class forecasts. While these models do not change frequently, both Advicent Solutions and Morningstar consistently participate in industry research and make improvements and enhancements to these models when it merits the advisors we serve.

Equity Expected Returns

Morningstar uses a supply-side building-block approach to forecast equity returns. First introduced by Diermeier, Morningstar, and Siegel (1984), and later adapted to stocks by Morningstar and Chen (2003), the supply-side model is based on the idea that equity returns can be decomposed into underlying economic and corporate fundamentals. The approach separates the expected return of each equity asset class into four key return drivers: 1) Inflation 2) Total Yield 3) Growth 4) Change in Valuation.

Inflation

Inflation is the expected increase in consumer prices reflected in future equity prices. Morningstar's long-term inflation expectations are based on several consensus and professional long-term inflation forecasts, as well as central banks' medium- to long-term inflation targets where inflation targeting is part of the monetary policy mandate.

Total Yield

Total yield is the expected payout from dividends and repurchases for a given equity asset class. Although dividends have been the primary way companies returned cash to shareholders historically, repurchases have become an important source of payouts in recent decades. The future total yields are estimated based on an analysis of the historical payout rates (i.e., repurchases and dividends as a percent of earnings) and total payout yields for a given asset class. Morningstar estimates total yields for each equity asset class at both the country and sector level.

Growth

The growth term measures the change in corporate cash flows per share (excluding repurchases). While generally smaller than total yields, the growth of corporate fundamentals is another key determinant of long-run equity returns. Morningstar's long-run growth expectations are based on forecasts of productivity growth for each country and expected cash flow growth at the equity sector level. Consistent with Morningstar and Chen (2003), Morningstar uses per-capita GDP growth as the preferred measure of economic productivity. The expected productivity growth for a given equity market is the weighted average of GDP-per-capita growth and an estimate of the geographic revenue breakdown of the equity market, accounting for the increasingly global revenue base of multinational firms. The expected equity sector cash flow growth is informed by both the historical trend growth and the forward-looking growth expectations of Morningstar's global equity research team.

Change in Valuation

Change in valuation is the expected return due to the convergence of valuations to their fair value. Morningstar uses several valuation models to estimate the fair value of equity asset classes and assumes reversion to fair value over a 10-year period. Research suggests that a combination of multiple valuation measures has a significantly better predictive power than any single valuation model. Specifically, Morningstar's valuation models rely on several forward-looking measures of normalized earnings such as profit margins, return on book-equity and inflation-adjusted average earnings over the business cycle. The fair values produced by these models are determined at both the regional and sector level.

Size/Style Premium

The size or style premium is the expected excess return of a size or value/growth index relative to a broad market equity index. Each equity market is represented by the pertinent MSCI broad market index. To estimate the size/style premium over a sufficiently long period, Morningstar uses index proxies to extend benchmark returns back in time. For the size premium, they rely on long-term data going back to 1926 from the Center for Research in Security Prices at the University of Chicago, Booth School of Business (CRSP), while they use the Morningstar Style Indices, with data going back to 1968, to extend the value/growth series.

Overall, the expected return of an equity asset class can be generalized based on the following equation:

Expected Return = Total Yield + Growth + Change in Valuation + Size/Style Premium + Inflation

Fixed Income Expected Returns

Morningstar uses a building-block approach to forecast returns of fixed-income asset classes. The key inputs into the fixed-income model are: 1) Inflation 2) Real Rate 3) Term Spread and 4) Credit Spread.

Inflation

The inflation forecast is the same as the one used in the equity model.

Real Rate

The real rate is the expected return of cash after inflation. Morningstar forecasts real rates based on an examination of long-run historical real-rate data and consideration of the macroeconomic environment for each fixed-income asset class. Specifically, they assume that real rates will converge to their long-run equilibrium value over 15 years. Morningstar's research suggests that real rates are more persistent than other variables, thus making 15 years an appropriate period over which interest rates can be expected to revert to their fair value. Real-rate forecasts across major developed and emerging fixed-income markets form the basis of our global fixed-income forecasts.

Term Spread

The term spread is Morningstar's forecast of the shape of the yield curve. The forecast is based off the term spread on the long-run shape of the yield curve, current market data, and surveys. The expected shape of the yield curve also determines the forecast of the roll return of a fixed-income asset class. The roll return is the price impact of moving from longer-term rates to shorter-term rates as bonds get closer to their maturity date. When the yield curve is upward slopping, the roll return is typically positive and an important driver of returns for bond investors keeping a relatively constant maturity profile. Morningstar's model makes the assumption that term spreads are mean-reverting over a 10- year period.

Credit Spread

The credit spread is the expected return of a credit bond in excess of a duration-matched government bond before accounting for default loss and credit migration. The credit quality and industry concentration of some markets have evolved considerably over time. Morningstar forecasts default and recovery rates across credit ratings and industries. Morningstar's model takes into account the impact of rating upgrades and downgrades (credit migration) on credit bond prices. Within high-grade credit, default rates are typically relatively low and credit migration is a key factor in explaining the difference between initial credit spread and effective excess return. Figure 9 shows the historical option-adjusted credit spread of U.S. high-yield bonds before defaults. Consistent with other variables, Morningstar's model assumes that that credit spreads revert to their long-run fair values over a 10-year period.

The four components discussed above form the basis for our forecast of fair interest rates. The expected return of a fixed-income asset class is the return implied by the convergence of the prevailing interest rate to the fair interest rate. In particular, Morningstar relies on an internal rate of return (IRR) calculation to solve for the rate of return implied the current interest rate and the expected future cash flows. The equation below is a generalization of the return components that make up the expected return:

Expected Return = Income Return + Shift Return + Roll Return + Credit Migration Cost + Default Loss