

Investment portfolio and mutual funds

Functions addressed in this document:

- As the default investment vehicle in NaviPlan, what is an investment portfolio?
- In NaviPlan, how does an investment portfolio differ from a mutual fund?

Registered and Non-Registered Accounts							Add Account ▼
Description *	Account Type	Owner	Market Value	Cost Base	Asset Class Weightings	Return Rates	
RRSP	RRSP ▼	David ▼	\$450,000	\$0		0.00%	Simple Account
TFSA	TFSA ▼	Susan ▼	\$375,000	\$375,000		0.00%	Investment Portfolio
							Mutual Fund
							Cash Account

Enter Financial Data - Net Worth - Accounts

In Level 1 and 2 plans, NaviPlan offers a choice of four investment vehicles (simple account, investment portfolio, mutual fund, and cash accounts).

While differences exist between each of the specialized investment vehicles, the focus of these document will be on investment portfolios, followed by some the differences between an investment portfolio and mutual fund.

To understand the difference between these two investment vehicles, we will look at two non-registered accounts (one investment portfolio and one mutual fund); both accounts are owned by Rich with a January 1 valuation date with a market value of \$100,000, and earn 12% (3% interest, 2% dividend, 4% capital gains, 3% deferred growth).

What is an investment portfolio?

An investment portfolio is a flexible investment vehicle, designed to model a collection of assets, such as stocks and bonds, as well as assets that may not be ideally suited to another vehicle type. An investment account is a beneficial vehicle for when an account is modeling multiple assets where the details for each are available, or where through integration holdings can be imported.

The key to investment portfolios is realizing that they are modeled after bonds and utilize the concept of accrued income. Below is an example of this concept:

Example: Steve owns a bond that pays interest to him in the form of an annual \$500 coupon in October. Bob will be purchasing this bond from Steve in April. After buying the bond from Steve, Bob will receive the coupon of \$500 in October, even though he has only owned the bond since April. For this reason, when buying the bond, Bob must reimburse Steve for the accrued income, that is, the interest earned since the last coupon was paid. While the coupon for the previous year's interest would not have been payable to Steve until October, by paying Steve for interest to April, Bob is essentially prepaying the interest that has accrued on the bond since October.

While this example above only considers accrued income in the form of interest paid as a coupon, for the investment portfolios in NaviPlan the concept of accrued income applies to the interest, dividend, and capital gains, where the income earned is calculated on a monthly basis buy paid annually.

Prior to calculating the income accrued, NaviPlan calculates a monthly return percentage by dividing the annual return on interest, dividend, and capital gains by twelve. Next, NaviPlan uses the start-of-year market value, buy and sell amounts, as well as accrued income related to the buy and sell amounts, to calculate the accrued income in each month.

To understand how investment portfolios use accrued income, we will look at the **Asset Details** report (**Quick Actions - Reports - Net Worth - Assets - Single Asset Details**) for Rich's investment portfolio. As indicated previously, this is a non-registered account earning 12% (3% interest, 2% dividends, 4% capital gains, and 3% deferred growth).

As the total annual return for interest, dividends, and capital gains is 9%, the accrued monthly return is 0.75%. In addition, as there are no buys and sells throughout the year for the account, the start-of-year market value of \$100,000 is used in each month, and therefore the amount of income that accrues monthly is \$750, or \$9,000 by the end-of-year as shown in the Accrued Income column.

1. Monthly return of 0.75% was calculated as follows:
 $(3.00\% \times 1/12) + (2.00\% \times 1/12) + (4.00\% \times 1/12)$

2. Because there are no buys or sells, the accrued income for each month is calculated as:
 $(\text{Start-of-year market value} \times \text{monthly return percentage}) \times (\text{current month} - 1)$
 For example, using October, the accrued income is calculated as follows:
 $(\$100,000 \times .0075) \times 9 = \$6,750$

		Accrued Income	Market Value (Start)	Interest	Dividend	Capital Gain	Tax Free	Buy Amount	Transfer from Trust	Account Fees	Reinv. Amount
Jan	2018	0.00	100,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Feb	2018	750.00	101,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mar	2018	1,500.00	102,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Apr	2018	2,250.00	103,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
May	2018	3,000.00	104,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jun	2018	3,750.00	105,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jul	2018	4,500.00	106,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aug	2018	5,250.00	107,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sep	2018	6,000.00	108,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oct	2018	6,750.00	109,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov	2018	7,500.00	110,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec	2018	8,250.00	111,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
End	2018	9,000.00	112,000.00	3,000.00	2,000.00	4,000.00	0.00	0.00	0.00	0.00	9,000.00
TOTAL			112,000.00	3,000.00	2,000.00	4,000.00	0.00	0.00	0.00	0.00	9,000.00

Reports - Net Worth - Assets - Single Asset Details

In more complex situations, such as those involving buys or sells, or those that include contributions, the concept of accrued income is applied as well.

Contributions to an account are considered buys by NaviPlan, and as they are added to the plan, relative to the accounts valuation date, a portion of the buy is discounted as it is assumed to be pre-paid income. This pre-paid income is what NaviPlan uses to set aside an amount that would be paid by the bond purchaser to the bond seller.

For example, after entering monthly contributions of \$1,000 and returning to the **Asset Details** report, we can see the effects of accrued income. Starting in January, we can see no income has accrued, however starting February and beyond, the buy amount is reduced, as a portion of the contribution is assumed to be accrued income. The difference between the contribution amount and the buy amounts is the amount needed for interest, dividends, and capital gains that can be included as accrued income.

Looking at the contributions in February, we can see negative values in the Interest, Dividend, and Capital Gain columns equaling \$6.88, which reflects the discounted value of the amount that would need to be prepaid, or accrued income.

Asset Details
Evans
Plan (2018)

		Accrued Income	Market Value (Start)	Interest	Dividend	Capital Gain	Tax Free	Buy Amount	Transfer from Trust	Account Fees	Reinv. Amount	Sell Amount	New Cost Basis
Jan	2018	0.00	100,000.00	0.00	0.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	1,000.00
Feb	2018	757.50	102,010.00	(2.29)	(1.53)	(3.06)	0.00	993.12	0.00	0.00	0.00	0.00	1,993.12
Mar	2018	1,529.88	104,030.47	(4.59)	(3.06)	(6.12)	0.00	986.24	0.00	0.00	0.00	0.00	2,979.36
Apr	2018	2,316.96	106,061.23	(6.88)	(4.59)	(9.17)	0.00	979.36	0.00	0.00	0.00	0.00	3,958.71
May	2018	3,118.58	108,102.06	(9.18)	(6.12)	(12.23)	0.00	972.47	0.00	0.00	0.00	0.00	4,931.19
Jun	2018	3,934.56	110,152.78	(11.47)	(7.65)	(15.29)	0.00	965.59	0.00	0.00	0.00	0.00	5,896.78
Jul	2018	4,764.73	112,213.19	(13.76)	(9.18)	(18.35)	0.00	958.71	0.00	0.00	0.00	0.00	6,855.49
Aug	2018	5,608.91	114,283.10	(16.06)	(10.71)	(21.41)	0.00	951.82	0.00	0.00	0.00	0.00	7,807.31
Sep	2018	6,466.95	116,362.31	(18.36)	(12.24)	(24.47)	0.00	944.93	0.00	0.00	0.00	0.00	8,752.24
Oct	2018	7,338.67	118,450.63	(20.65)	(13.77)	(27.54)	0.00	938.04	0.00	0.00	0.00	0.00	9,690.28
Nov	2018	8,223.91	120,547.87	(22.95)	(15.30)	(30.60)	0.00	931.15	0.00	0.00	0.00	0.00	10,621.43
Dec	2018	9,122.48	122,653.83	(25.25)	(16.83)	(33.66)	0.00	924.26	0.00	0.00	0.00	0.00	11,545.69
End	2018	10,034.23	124,768.31	3,344.74	2,229.83	4,459.66	0.00	0.00	0.00	0.00	10,034.23	0.00	21,579.92
TOTAL			124,768.31	3,193.31	2,128.87	4,257.74	0.00	11,545.69	0.00	0.00	10,034.23	0.00	21,579.92

To account for the accrued income on the contributions, the income on interest, dividend and capital gains are discounted.

The interest, dividends, and capital gains amounts shown in the Total row come into cash flow and subsequently subject to tax

While the contributions are \$1,000 per month, in the Buy Amount column we can only see buys of \$11,545.69. The difference of \$454.31 can be seen in the adjustments to interest, dividends, and capital gains.

(\$3,344.74 - \$3,193.31) + (\$2,229.83 - \$2,128.87) + (\$4,459.66 - \$4,257.75)

Reports - Net Worth - Assets - Single Asset Details

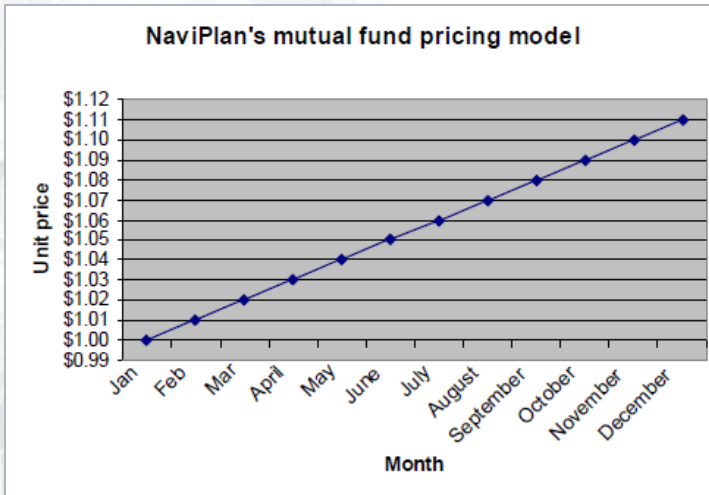
As the returns on interest, dividends, and capital gains are calculated monthly but are paid annually, calculations will begin at the beginning of each year.

In NaviPlan, how does an investment portfolio differ from a mutual fund?

While in NaviPlan, an investment portfolio models a collection of investments such as bonds and stocks, and uses the concept of accrued income, the mutual fund vehicle models a pool of investment assets where an investor purchases a share of an overall fund and tracks a unit value (this is similar to a new asset value per unit).

In contrast to investment portfolios, where using a bond model the buy amounts do not fully reflect the contribution amounts, mutual funds the buy amount values reflect the full amount of the contributions. Additionally, the tracking of unit values is another key difference.

While a unit value cannot be specified, a \$1.00 start-of-year unit price is assumed. Using the account's annual return rate, NaviPlan increases the unit price each month by one twelfth of the account's annual return rate including deferred growth. By tracking the amount in this way, the unit price increases at a fixed increment, such that when plotted on a graph it will follow a straight line, and such that the ratio of the end-of-year unit price and start-of-year unit price will be one plus the rate of return.



In the case of Rich's mutual fund account, the unit price increases at a fixed rate, in this case one twelfth of 12%.

Did you know? While non-rounded values will be used for calculation, the unit price is rounded to two decimal places in reports.

While in NaviPlan the income earned on both investment portfolios and mutual funds are paid and assumed reinvested (non-registered accounts have their estimated after-tax amount reinvested as well) at the end of the year, different transactions can occur. For investment portfolios, the accrued income amount resets to zero at the start at the following year, while with mutual funds the unit price resets to \$1.00. This unit value reduction occurs because of the income distribution, and models what occurs in most real mutual funds, where the fund distributes income to unit holders and the unit price declines to the amount for the loss of value. NaviPlan assumes that the earned income is distributed and resets the unit price to the assumed default of \$1.00 and increases the unit balance to reflect the reinvested amount.

The unit price increases by one twelfth of the return rate each month.

In this case the return rate is 12.00% annually or 1% monthly. When calculating the unit price, NaviPlan increases this value for the monthly return each month.

Asset Details

Evans
Plan (2018)

Change in Units is calculated by dividing the Buy Amount by the Unit Price.

Using February as an example, the Change in Units is calculated as follows:

$\$100/\$1.01 = \$99.01$

While the unit price in the report is rounded to \$1.01, the non-rounded unit price is used when calculating the Change in Units.

	Unit Price	Market Value (Start)	Interest	Dividend	Capital Gain	Tax Free	Buy Amount	Transfer from Trust	Account Fees	Reinv. Amount	Sell Amount	New Cost Basis	Sell Cost Basis	Change in Units	New Unit Balance
Jan 2018	1.00	100,000.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	100.00	0.00	100.00	100,100.00
Feb 2018	1.01	101,101.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	200.00	0.00	99.01	100,199.01
Mar 2018	1.02	102,202.99	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	300.00	0.00	98.04	100,297.05
Apr 2018	1.03	103,305.96	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	400.00	0.00	97.09	100,394.14
May 2018	1.04	104,409.90	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	500.00	0.00	96.15	100,490.29
Jun 2018	1.05	105,514.80	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	600.00	0.00	95.24	100,585.53
Jul 2018	1.06	106,620.66	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	700.00	0.00	94.34	100,679.87
Aug 2018	1.07	107,727.46	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	800.00	0.00	93.46	100,773.33
Sep 2018	1.08	108,835.19	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	900.00	0.00	92.59	100,865.92
Oct 2018	1.09	109,943.85	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	1,000.00	0.00	91.74	100,957.66
Nov 2018	1.10	111,053.43	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	1,100.00	0.00	90.91	101,048.57
Dec 2018	1.11	112,163.91	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	1,200.00	0.00	90.09	101,138.66
End 2018	1.03	104,172.82	3,034.16	2,022.77	4,045.55	0.00	0.00	0.00	0.00	8,799.06	0.00	9,999.06	0.00	8,542.78	109,681.44
TOTAL		112,971.88	3,034.16	2,022.77	4,045.55	0.00	1,200.00	0.00	0.00	8,799.06	0.00	9,999.06	0.00		109,681.44

Reports - Net Worth - Assets - Single Asset Details

Due to the significant differences between the investment vehicles as noted in this document, it is important to select the best model for your clients actual assets. A summary of the key differences are listed below:

Investment Portfolios	Mutual Funds
Uses bond pricing model and the concept of accrued income	Uses unit value
Generates short-term capital gains investment income	Generates long-term capital gains investment income