



# Financial Goals Analysis



**ACME Planning Group**

*Prepared By:*  
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Broker Dealer and/or RIA securities disclosure appears here.

Prepared For: John Dollar & Mary Dollar | Scenario: Example Case

# Introduction

Today, retirees are facing financial challenges as a result of longer life expectancies and the concern of outliving their retirement savings. Traditional asset allocation models focus primarily on accumulating retirement savings but very few models focus on the unique financial issues concerning retirement income. Accumulation investing vs. withdrawal investing creates the need for a careful understanding of the difference between the two and the need for prudent withdrawal strategies coupled with proper asset allocation strategies.

It is important for a retiree to establish a prudent withdrawal strategy which does not threaten one's long term financial security. Primary concerns are: what amount of income is required, how long you will need the income, how much will be left to heirs, what other sources of income are available other than from investments, and the expected rate of return that will be earned in the future.

A common mistake in estimating your expected rate of return is forecasting a fixed rate of return per year based on a long-term historical average rate of return. For instance, if the S&P 500 Index has averaged 12% per year since 1926, one might logically presume that over the next 25 years the average would continue to be roughly the same. In reality, historical average returns have only a probability of repeating themselves. Our analysis reveals the importance of understanding the probability of achieving a rate of return as it relates to a particular asset class or allocation.

For example, between the years 1973 thru 1999 the average annual rate of return for the S&P 500 equaled 13.6%, which would appear as though an annual withdrawal of 6% increasing 3½% annually would have been sustainable. However, because of the actual annual sequence of returns, the original retirement savings would have depleted in 1997 and compounded at 7.14%. (see graph)

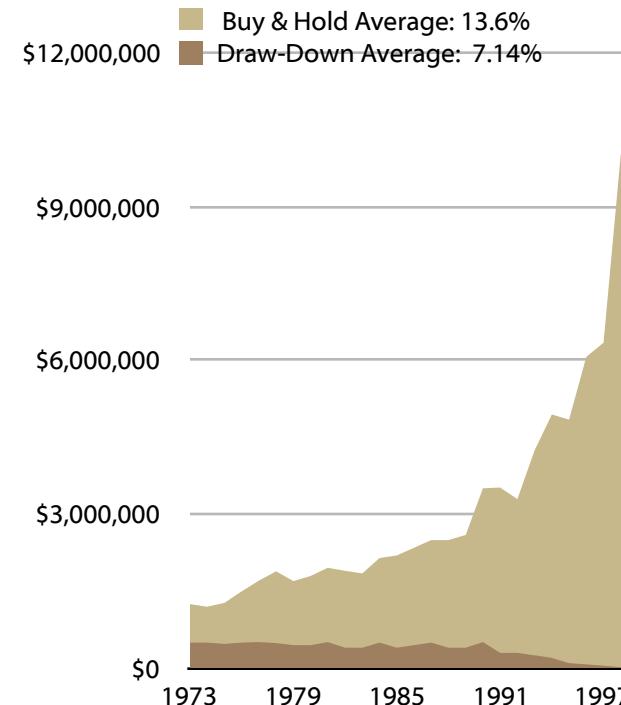
Conventional wisdom defines risk as a measure of the ups and downs of an investment or asset class (known as volatility). However, this limited view fails to consider the risk of premature depletion of retirement savings. A more valid definition of risk should identify and balance a portfolio's volatility and probability of success (i.e., not running out of money).

In general, historical asset allocation demonstrates that higher risk (volatility), normally associated with diversified stocks, provides a higher probability of success as portfolio withdrawal rates and length of need increase; as compared with low risk (low volatility) such as US T-Bills, CD's and Intermediate Term Government Bonds.

Our objective is to analyze your individual circumstances and to provide you with a clearer understanding of your probability of retirement success through analysis of historical asset class returns when observed using rolling period analysis. This method provides us with a historically supported perspective of the probability of achieving your retirement goals.

Overall, Government bonds, T-Bills, and Certificates of Deposit (CDs) represent a legal obligation of the government, meaning that interest and principal is generally paid even in a weak economy. For the holder of Gov't bonds, CDs or T-bills, the loss of principal could occur, if in the extremely rare situation, the issuing government failed to recognize its debt obligations. This means that bonds, CDs, and T-Bills are generally less risky investment than stocks. As a result, due to the lower risk involved, bond returns are usually lower than stock returns. Note that bonds also face market risk. A recession or inflation affects the bond markets. Sometimes market forces will cause interest rates to rise, leaving the investor holding a bond with a value much lower than the face value. Although stocks may produce returns that may be higher than bonds, T-Bills, or CDs, there is an inherent risk of investing in stocks which may result in a loss of value and principal.

The graph demonstrates the difference between average returns vs. actual returns and the impact on retirement savings when income withdrawals occur.

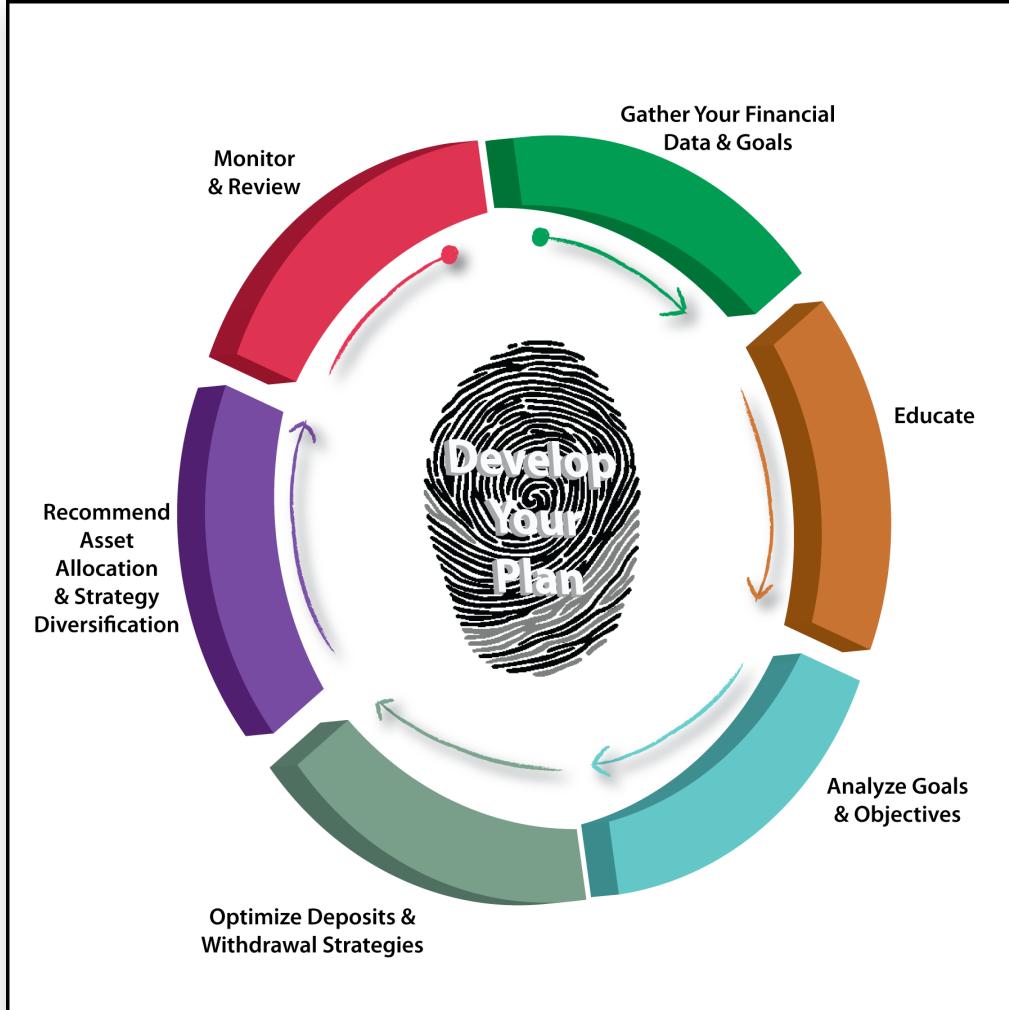


\*S&P 500 Composite Index 1973 thru 1999. All capital gains and dividends reinvested before tax. Past performance is not a guarantee of future results. Loss of principal may occur.

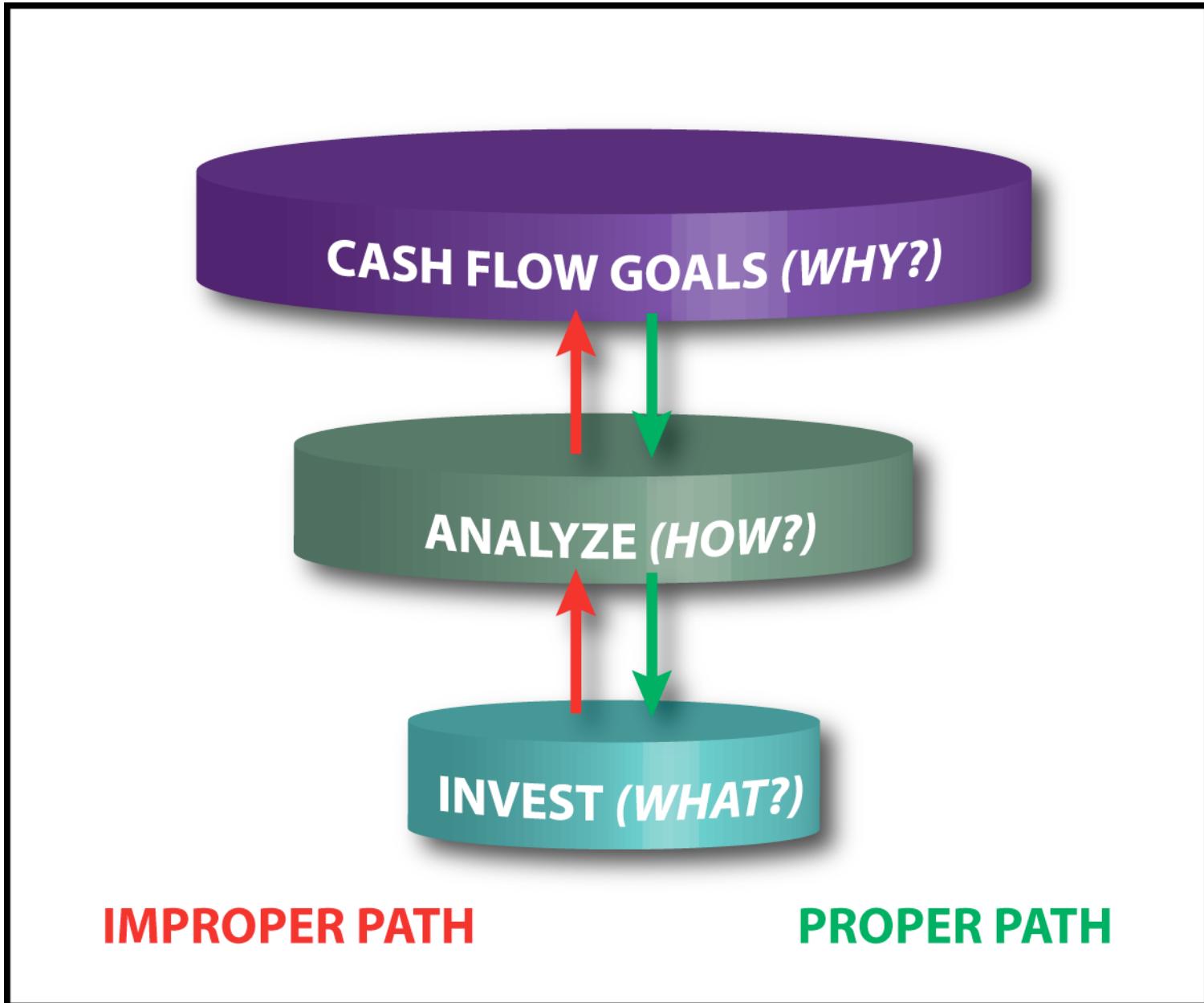
# Investment Strategy Process

- It is important that your financial data and goals have been properly communicated to us. This information is the foundation of success.
- You have viewed pertinent educational presentations which are intended to form a basic understanding of investment principles necessary to make important decisions concerning your financial future.
- A deposit/withdrawal strategy has been carefully chosen which represents your future financial goals.
- An asset allocation strategy has been carefully chosen that, when combined with your deposit/withdrawal strategy, reveals a historical probability of success which is acceptable to you.
- Within each asset class, we have recommended investments that represent each category, but future diversified performance and conformity cannot be guaranteed.
- It is important that this plan be reviewed and the asset allocation rebalanced periodically.

No investment strategy process can guarantee results and loss of principal might occur.



# Alternative Decision Paths



# Retirement Success

## ...or level of success?

Our objective is to emphasize the importance of retirement income planning as it relates to the chosen asset allocation strategy, that when combined, produces an uncertain future end value because of the unpredictable future sequence of returns. The level of annual deposit and/or withdrawal affects the actual compounded return for any possible asset allocation and its future end value.

The following report utilizes historical rolling period analysis as a means to quantify historical probability of success within a three goal criteria:

- 1) Capital Depletion (not running out of money)
- 2) Capital retention (maintaining your original portfolio balance)
- 3) Capital inflation adjusted balance (growing your portfolio)

The primary goal is to generate an inflation adjusted income flow to you over your life expectancy with your final end value falling within the above range of success.

**What is important to understand is:**

**How sequence of returns, cash flow, and asset allocation can affect the probability of success. \***

\* Probability of Success as measured by historical outcomes derived from analysis described in "Data Sources & Methodology" section of report.

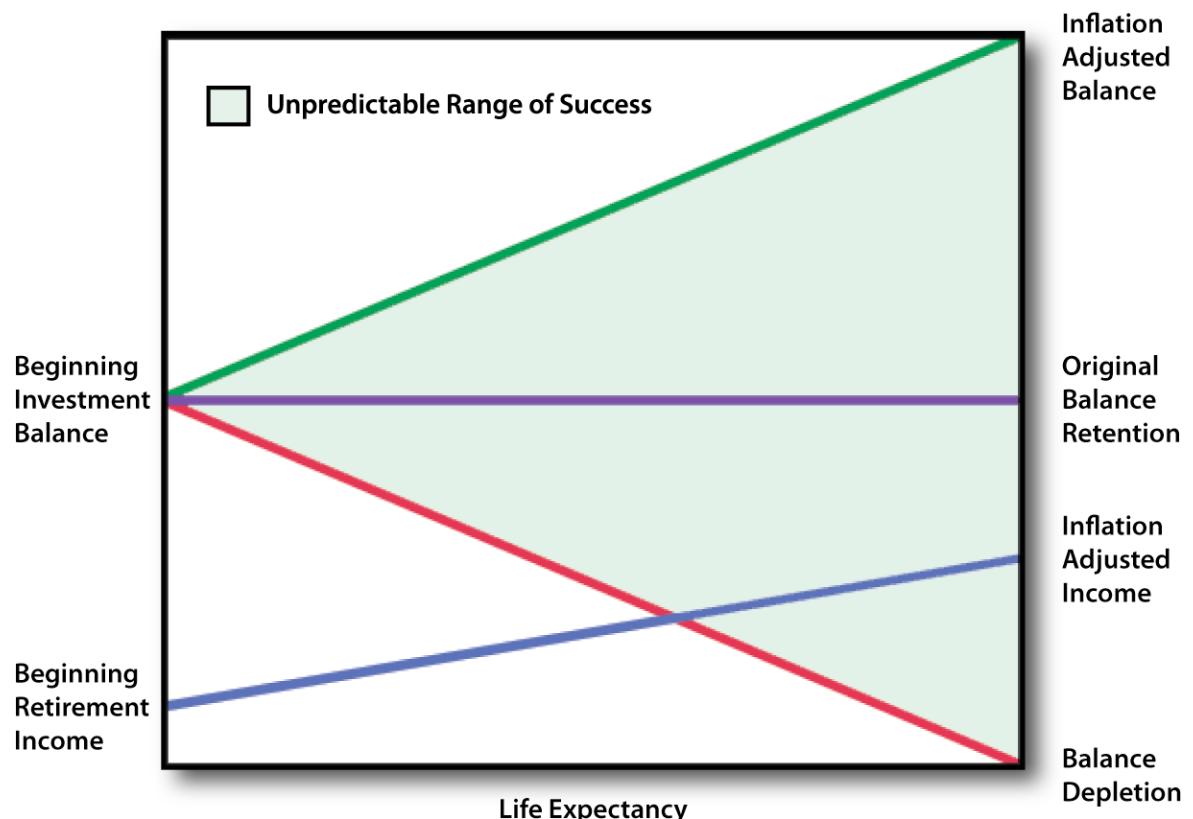
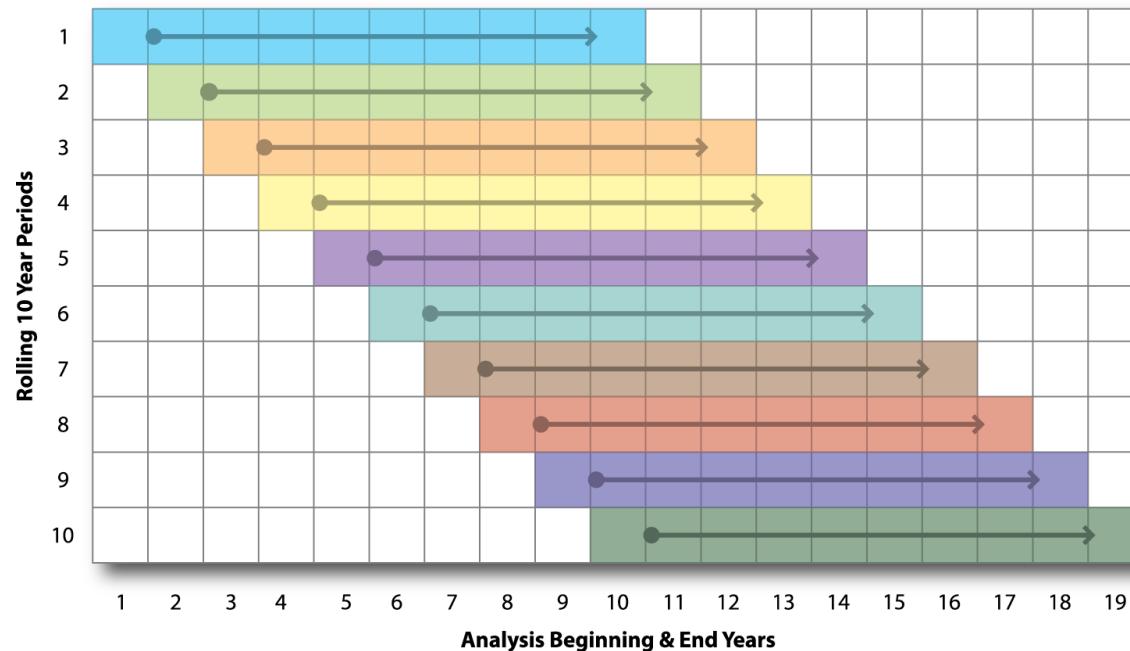


Illustration does not represent any actual investment and does not represent any indication of future or past performance.  
Life expectancy does not assume any specific age of investor.

# Illustration of Rolling Period Analysis

The following chart illustrates the method for executing rolling period analysis simulations. Each of the colored bars represent one 10 year simulation period. Our process measures success or failure by simulating portfolio performance over multiple periods thereby measuring historical probability of success or failure for all 10 periods.



**Figure:** Each of the colored lines is representative of one analysis period. Note that each line's beginning date and ending date is one year later than its predecessor.

For example: In analyzing 10 year periods, we will examine the weighted annual returns for any given portfolio of asset classes (i.e. large co. stocks, intermediate-term government bonds, and U.S. T-Bills) for the earliest common historical beginning date through the first 10 year ending date based on your available investment balance, your anticipated future deposits and withdrawals and their timing. This is done to determine the 10th year ending value. This is repeated for each successive 10 year period in order to determine all historical investment end balances for all of the periods analyzed.

Once these balances are computed, all of the ending values are compared to determine the historical percentage probability of meeting your minimum, medium and maximum investment goals.

# Certainty vs. Uncertainty

The following compares certainty, or no-risk, to uncertainty, high risk. We will describe certainty as a Certificate of Deposit and uncertainty as Diversified Stocks.

<b>Certainty: <i>Certificates of Deposit</i></b>	<b>Uncertainty: <i>Diversified Stocks</i></b>
More Predictable End Values & End Date	Unpredictable End Values & End Date
No Negative Returns or Investment Losses	May Incur Negative Returns or Investment Losses
Historically Poor Inflation Protection	Historically Better Inflation Protection
Simple Management	Advanced Management
FDIC* Principal Protection	No Principal Guarantee
May Increase Probability of Capital Depletion**	May Reduce Probability of Capital Depletion**

\*FDIC: An independent agency created by Congress in 1933, the FDIC supervises banks, insures deposits up to \$100,000 and helps maintain a stable and sound banking system.

\*\*Probability of capital depletion is dependent upon amount of withdrawal and length of withdrawal period.

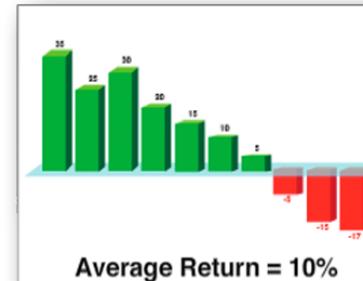
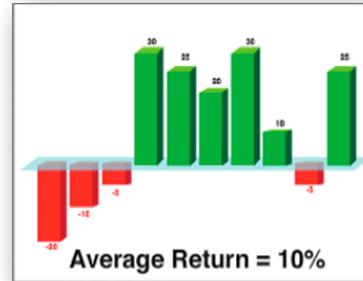
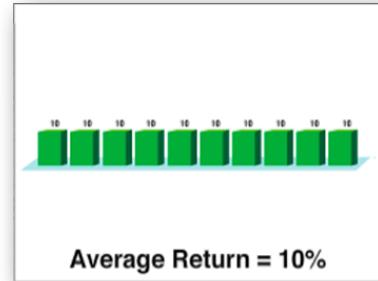
## ***It's A Difficult Decision....but the Choice is Yours!***

Unfortunately, your financial professional cannot mix and match these characteristics, which creates a difficult decision. The choice is yours to make with the assistance of your financial professional.

Overall, Government bonds, T-Bills, and Certificates of Deposit (CDs) represent a legal obligation of the government, meaning that interest and principal is generally paid even in a weak economy. For the holder of Government bonds, CDs or T-bills, the loss of principal could occur, in the extremely rare situation, the issuing government failed to recognize its debt obligations. This means that bonds, CDs, and T-Bills are generally less risky investments than stocks. As a result, due to the lower risk involved, bond returns are usually lower than stock returns. Note that bonds also face market risk. A recession or inflation affects the bond markets. Sometimes market forces will cause interest rates to rise, leaving the investor holding a bond with a value much lower than the face value. Although stocks may produce returns that may be higher than bonds, T-Bills, or CDs, there is an inherit risk of investing in stocks which may result in a loss of value or principal.

# Sequence of Return

The following case study illustrates three client withdrawal scenarios (Cases 1,2, and 3) as they are applied to four different sequences of returns (portfolio A, B, C, and D) and then compares the outcome of these cash flows and returns (see Investment Results).



Portfolio A	
End Value	%
\$259,374	10%
\$175,312	10%
\$150,161	10%

Portfolio B	
End Value	%
\$226,498	8.52%
\$213,801	13.6%
\$88,862	6.1%

Portfolio C	
End Value	%
\$226,951	8.54%
\$108,079	1.4%
\$161,203	10.58%

Portfolio D	
End Value	%
\$186,382	6.5%
\$125,174	4.1%
\$105,747	7.3%



Case #1  
Lump Sum Investor  
\$100,000 Original  
Investment; Buy & Hold  
for 10 years



Case #2  
Periodic Saver  
\$10,000 Deposit  
per year for 10 years



Case #3  
Spender / Retiree  
\$100,000 Original Investment; Annual  
Withdrawal 6% at end of year with 3.5%  
annual increase for 10 years

*Sequence and Range of return, how much and when you deposit or withdraw, can be more critical to your success than what you "average" in return!*

\* All portfolios and sequences of return are hypothetical and assume initial and any future deposits and withdrawals are made at the beginning of each year. Does not assume the effect of taxes or fees. Annualized returns are computed using a time weighted internal rate of return method (XIRR).

# Asset Allocation Probability of Success

The following charts demonstrate the effect of the combination of asset allocation\*, withdrawal rate, and length of withdrawal period. The percentages within each table represent the probability of not running out of money comparing a 100% large cap stock portfolio versus a 100% Intermediate Term Government Bond portfolio. Assumes a 3.5% increase in annual withdrawal.

## Large Cap Stocks

Annual Withdrawal Percentage

	3%	4%	5%	6%	7%
<b>25yr periods</b>	97%	95%	89%	74%	60%
<b>20yr periods</b>	99%	96%	91%	81%	69%
<b>15yr periods</b>	100%	97%	96%	94%	83%

## Intermediate Term Government Bonds

Annual Withdrawal Percentage

	3%	4%	5%	6%	7%
<b>25yr periods</b>	100%	61%	37%	31%	15%
<b>20yr periods</b>	100%	100%	67%	39%	30%
<b>15yr periods</b>	100%	100%	100%	85%	56%

In general, as withdrawal rate and length of years increase, a more heavily weighted stock portfolio historically produces a higher probability of success.

All deposits and withdrawals are made at the beginning of each year and withdrawal increases are annual. Investment allocation does not assure or guarantee performance and cannot eliminate the risk of investment loss. Past performance does not guarantee future results.

Index of Intermediate Maturity Government Bonds (7 years) performance data and NYSE Large Cap Based Portfolios Index performance data source: CRSP, Center for Research in Security Prices, Graduate School of Business, The University of Chicago (2003). Used with permission. All rights reserved. [www.crsp.uchicago.edu](http://www.crsp.uchicago.edu). Data provided for monthly, quarterly and annual periods beginning 1926 through 2003. Return data from 1/1/2004 through 12/31/2011 from published sources.

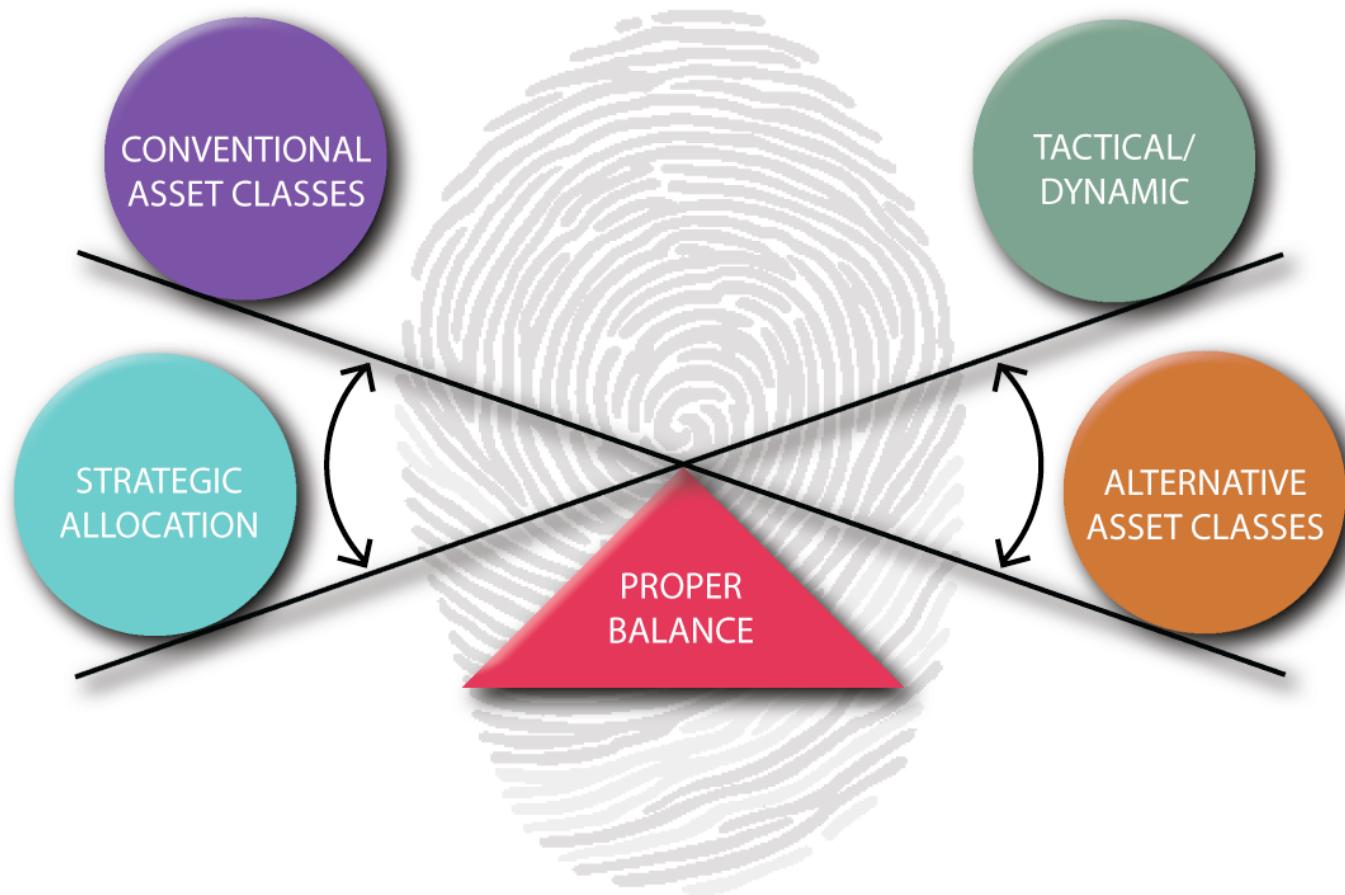
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\*Asset allocation does not assure a profit or protect against loss in a declining market and investments are subject to market risk and may lose value.

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# Portfolio Construction



# Withdrawal Sequence



**Withdrawal sequence may vary per individual case. Please consult your tax advisor concerning tax implications of portfolio withdrawals.**

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# Conclusion

In summary, the factors that most influence your financial success are asset allocation, sequence of return, and deposit & withdrawal strategy.

All factors will vary with each individual investor. Therefore, future outcome is unpredictable and does not guarantee success.



Of these, you as the client are most able to control the deposits and withdrawals. Thus, it is important that you communicate any change in the cash flow strategy that you and your financial professional have discussed.\

Asset allocation is the factor that your financial professional will most be able to control. An asset allocation strategy will be provided for you that is based on a combination of your preferred level of risk and the realistic probability of achieving your goals within that risk level.

Finally, Sequence of Return is a factor that cannot be controlled by either you or your financial professional. However, this uncertainty can be dealt with using strategies that your financial professional will custom tailor to your needs in an attempt to manage the probability of meeting your income goals.

# Client Information

DESCRIPTION	John	Mary
Plan Beginning Age	60	58
Retirement Age	64	62
Life Expectancy	84	95

## SPENDABLE GOALS

DESCRIPTION	ANNUAL AMOUNT	FROM YEAR	THRU YEAR	ANNUAL INCREASE
Essential Living Needs	(\$112,550.00)	5	37	3.00 %
Discretionary	(\$11,255.00)	5	25	3.00 %
Travel	(\$10,000.00)	5	15	0.00 %
Wedding	(\$40,000.00)	2	2	0.00 %
2nd Wedding	(\$40,000.00)	4	4	0.00 %
Gifting	(\$40,656.00)	25	35	3.00 %

## NON-INVESTMENT INCOME

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# Client Information

OWNER	INCOME TYPE	DESCRIPTION	FROM YEAR	THRU YEAR	AMOUNT	ANNUAL INCREASE	TAX RATE
John	Social Security	John's Soc Sec	5	37	\$22,000.00	2.00 %	20.00 %
Mary	Social Security	Mary's Soc Sec	7	25	\$16,000.00	2.00 %	20.00 %

## PORTFOLIO DATA

OWNER	SEQUENCE #/DESCRIPTION	VALUE	END VALUE GOAL	TAX STATUS	MGT FEE	TAX BASIS
John	1 / Surplus Income	\$0.00	\$0.00	Non-Qualified	0.00 %	\$0.00
Joint Account	1 / Brokerage	\$350,000.00	\$0.00	Non-Qualified	1.00 %	\$0.00
John	2 / Roth IRA	\$60,000.00	\$0.00	Roth	1.00 %	\$40,000.00
John	3 / Pension Rollover	\$0.00	\$0.00	Qualified	2.20 %	\$0.00
John	4 / John's 401(k)	\$475,000.00	\$0.00	Qualified	0.75 %	\$0.00
Mary	5 / Mary's 401(k)	\$325,000.00	\$0.00	Qualified	1.00 %	\$0.00
John	6 / Variable Annuity	\$200,000.00	\$0.00	Non-Qualified Deferred	2.20 %	\$200,000.00
John	8 / Excess RMD	\$0.00	\$0.00	Non-Qualified	0.00 %	\$0.00

## PORTFOLIO ADDED DEPOSITS/WITHDRAWALS

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# Client Information

PORTFOLIO	DESCRIPTION	AMOUNT	ANNUAL INCREASE	FROM YEAR	THRU YEAR
Brokerage	Inheritance	\$250,000.00	0.00 %	5	5
Pension Rollover	Pension Rollover	\$425,000.00	0.00 %	5	5
John's 401(k)	401(k) Deposits	\$15,000.00	3.00 %	1	4
Mary's 401(k)	401(k) Deposits	\$7,500.00	3.00 %	1	4

# Pension Rollover - Additional Assumptions

## Death Value Input Variables

Current High Watermark (HWM) Death Value:	N/A
Current Compound Min Death Value:	N/A
Compound Min Death Value Rate (%):	N/A
Compound Min Death Value Lock-In Age:	N/A
HWM Death Value Lock-In Age:	N/A
Withdrawal Impact:	N/A
Hypothetical HWM Death Value Charge (%):	N/A

## Income Level Input Variables

Current High Watermark (HWM) Income Base:	\$0
Current Compound Min Income Base:	\$0
Compound Min Income Rate:	6.00 %
Compound Min Income Lock-In Age:	74
HWM Income Lock-In Age:	95
Hypothetical Income Base Level Charge (%):	1.50 %

Beginning Income Factor Age	Income Withdrawal Percentage
64	4.00 %
70	4.50 %
75	5.00 %
80	5.25 %
85	6.00 %

This example is for illustrative purposes only and is not intended to predict future investment results. Principal value and investment return will fluctuate and account value, upon surrender, may be less than initial premium. Hypothetical assumptions associated with this illustration are not subject to, nor representative of, the claims-paying ability of any insurer, and only apply to the historical benchmark investment performance of the underlying asset classes available with this illustration tool. Actual account values displayed in the illustration results have been generated assuming the entered data inputs. Results have been calculated assuming annual resets for high watermark and compounded values based on historical calendar years. These results do not reflect the impact of potential surrender charges for early withdrawals. Tax consequences of any withdrawals are subject to the chosen tax status. These calculations are not limited to any fixed time frame, the time period illustrated is representative of the plan duration of the client to show how a hypothetical example of how HWM and/or Compound calculations may be generated. Total charges include contract value fees (i.e. advisor fee, assumed mortality and expense, average sub-account charges, and income level base charge and/or death value charge, if applicable). See actual prospectus for all cost and benefit details before investing.

Hypothetical death value calculations assume the input variables as entered. Death values may diminish to zero when offset by actual portfolio withdrawals.

Hypothetical income level calculations assume the input variables as entered. The calculations assume that the maximum withdrawal need does not exceed the permissible hypothetical high watermark and/or compound income payout amount for any given year, unless the income leveling option is chosen and the tax status is Qualified. Then, if the Required Minimum Distribution, or RMD, if greater than the annual hypothetical high watermark/compound payout amount, will be used as the actual withdrawal. Calculations assume RMD friendly definitions. This method prevents the termination of any hypothetical lifetime high watermark/compound value payment amounts.

# Variable Annuity - Additional Assumptions

## Death Value Input Variables

Current High Watermark (HWM) Death Value:	\$200,000
Current Compound Min Death Value:	\$200,000
Compound Min Death Value Rate (%):	5.00 %
Compound Min Death Value Lock-In Age:	80
HWM Death Value Lock-In Age:	85
Withdrawal Impact:	Proportionate
Hypothetical HWM Death Value Charge (%):	0.00 %

## Income Level Input Variables

Current High Watermark (HWM) Income Base:	N/A
Current Compound Min Income Base:	N/A
Compound Min Income Rate:	N/A
Compound Min Income Lock-In Age:	N/A
HWM Income Lock-In Age:	N/A
Hypothetical Income Base Level Charge (%):	N/A

Beginning Income Factor Age	Income Withdrawal Percentage
N/A	N/A

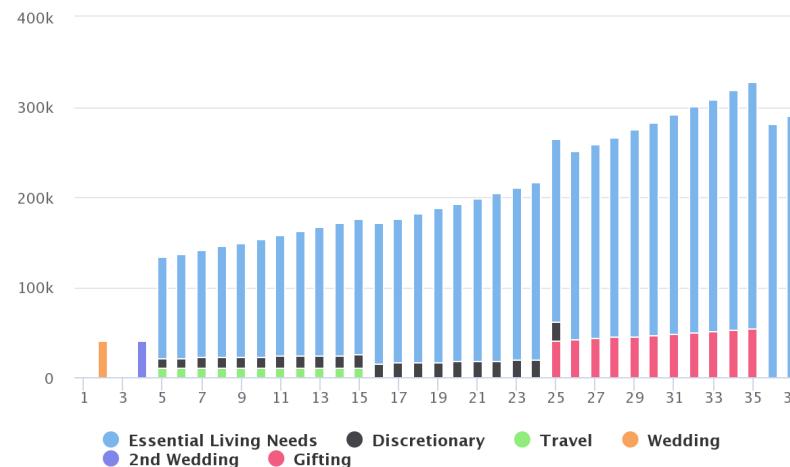
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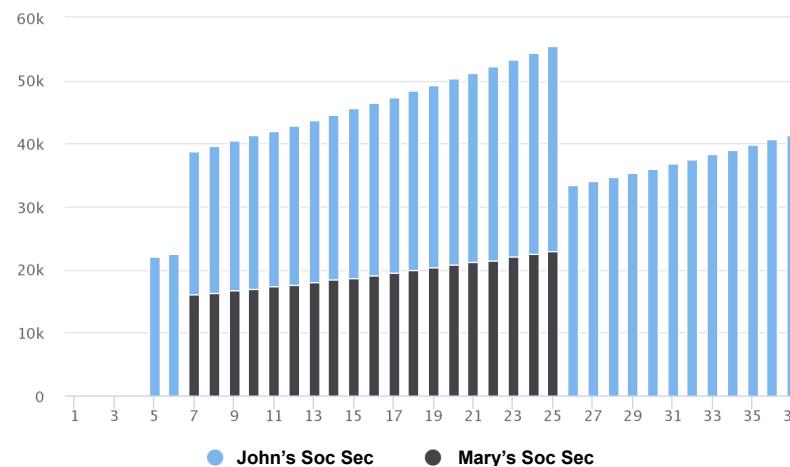
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# Spending Goals & Income Sources

## Net Spending Goals (After Tax)



## Gross Non-Investment Income Sources (Before Tax)



# Planned Cash Flow

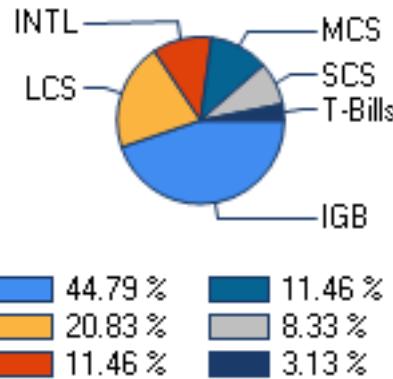
YEAR	John's Age	Mary's Age	SPENDABLE NEED	ADDITIONAL PORTFOLIO DEPOSITS	ADDITIONAL PORTFOLIO WITHDRAWALS	NON-INVESTMENT INCOME AFTER TAX	NET TOTAL DEPOSITS OR WITHDRAWALS
1	60	58	\$0.00	\$22,500.00	\$0.00	\$0.00	\$22,500.00
2	61	59	(\$40,000.00)	\$23,175.00	\$0.00	\$0.00	(\$16,825.00)
3	62	60	\$0.00	\$23,870.25	\$0.00	\$0.00	\$23,870.25
4	63	61	(\$40,000.00)	\$24,586.36	\$0.00	\$0.00	(\$15,413.64)
5	64	62	(\$133,805.00)	\$675,000.00	\$0.00	\$17,600.00	\$558,795.00
6	65	63	(\$137,519.15)	\$0.00	\$0.00	\$17,952.00	(\$119,567.15)
7	66	64	(\$141,344.72)	\$0.00	\$0.00	\$31,111.04	(\$110,233.68)
8	67	65	(\$145,285.07)	\$0.00	\$0.00	\$31,733.26	(\$113,551.81)
9	68	66	(\$149,343.62)	\$0.00	\$0.00	\$32,367.93	(\$116,975.69)
10	69	67	(\$153,523.93)	\$0.00	\$0.00	\$33,015.28	(\$120,508.64)
11	70	68	(\$157,829.64)	\$0.00	\$0.00	\$33,675.59	(\$124,154.05)
12	71	69	(\$162,264.53)	\$0.00	\$0.00	\$34,349.10	(\$127,915.43)
13	72	70	(\$166,832.47)	\$0.00	\$0.00	\$35,036.08	(\$131,796.39)
14	73	71	(\$171,537.44)	\$0.00	\$0.00	\$35,736.81	(\$135,800.64)
15	74	72	(\$176,383.57)	\$0.00	\$0.00	\$36,451.54	(\$139,932.02)
16	75	73	(\$171,375.07)	\$0.00	\$0.00	\$37,180.57	(\$134,194.50)
17	76	74	(\$176,516.33)	\$0.00	\$0.00	\$37,924.18	(\$138,592.14)
18	77	75	(\$181,811.81)	\$0.00	\$0.00	\$38,682.67	(\$143,129.15)
19	78	76	(\$187,266.17)	\$0.00	\$0.00	\$39,456.32	(\$147,809.85)
20	79	77	(\$192,884.15)	\$0.00	\$0.00	\$40,245.45	(\$152,638.71)
21	80	78	(\$198,670.68)	\$0.00	\$0.00	\$41,050.36	(\$157,620.32)
22	81	79	(\$204,630.80)	\$0.00	\$0.00	\$41,871.36	(\$162,759.44)

# Planned Cash Flow

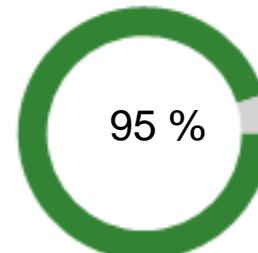
YEAR	John's Age	Mary's Age	SPENDABLE NEED	ADDITIONAL PORTFOLIO DEPOSITS	ADDITIONAL PORTFOLIO WITHDRAWALS	NON-INVESTMENT INCOME AFTER TAX	NET TOTAL DEPOSITS OR WITHDRAWALS
23	82	80	(\$210,769.72)	\$0.00	\$0.00	\$42,708.79	(\$168,060.93)
24	83	81	(\$217,092.81)	\$0.00	\$0.00	\$43,562.97	(\$173,529.85)
25	84	82	(\$264,261.60)	\$0.00	\$0.00	\$44,434.23	(\$219,827.37)
26	85	83	(\$251,251.83)	\$0.00	\$0.00	\$26,675.73	(\$224,576.10)
27	86	84	(\$258,789.39)	\$0.00	\$0.00	\$27,209.24	(\$231,580.14)
28	87	85	(\$266,553.07)	\$0.00	\$0.00	\$27,753.43	(\$238,799.64)
29	88	86	(\$274,549.66)	\$0.00	\$0.00	\$28,308.50	(\$246,241.16)
30	89	87	(\$282,786.15)	\$0.00	\$0.00	\$28,874.67	(\$253,911.48)
31	90	88	(\$291,269.73)	\$0.00	\$0.00	\$29,452.16	(\$261,817.57)
32	91	89	(\$300,007.82)	\$0.00	\$0.00	\$30,041.20	(\$269,966.62)
33	92	90	(\$309,008.06)	\$0.00	\$0.00	\$30,642.03	(\$278,366.03)
34	93	91	(\$318,278.30)	\$0.00	\$0.00	\$31,254.87	(\$287,023.43)
35	94	92	(\$327,826.65)	\$0.00	\$0.00	\$31,879.96	(\$295,946.69)
36	95	93	(\$281,384.04)	\$0.00	\$0.00	\$32,517.56	(\$248,866.47)
37	96	94	(\$289,825.56)	\$0.00	\$0.00	\$33,167.91	(\$256,657.64)

# Plan Summary

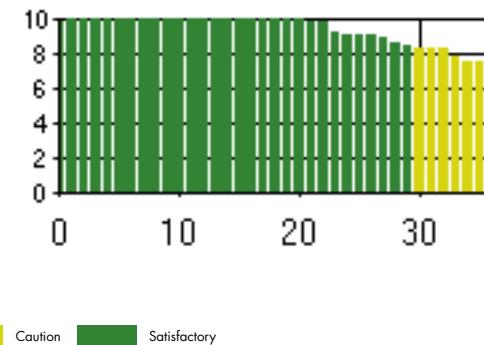
\*Total Weighted Beginning Portfolio Benchmark



\*\*Overall Historical Probability of Not Depleting Capital Balance



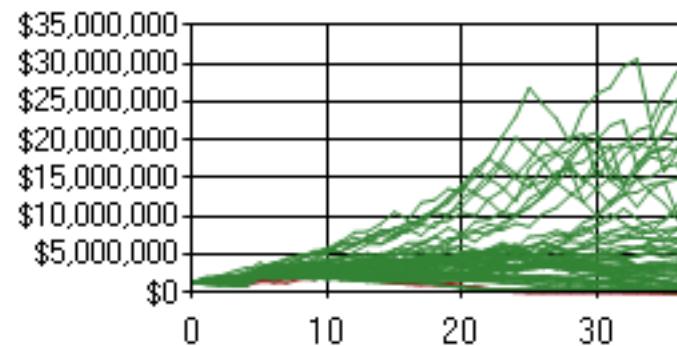
\*\*Spendable Goals Confidence Index



## Plan Summary Details

Beginning Balance:	\$1,410,000.00
Plan Duration:	37
Rolling Plan Periods Analyzed:	55
Overall High-End Value:	\$28,439,812.88
Overall Positive Median-End Value:	\$3,448,649.78
Overall Low-End Value:	\$0.00
Overall Earliest Depletion Year:	25
Overall Latest Depletion Year:	37

## \*\*Overall Historical Rolling Period End Values



\*Total Weighted Beginning Portfolio Benchmark represents benchmark asset classes in Plan Year 1 and may not reflect your overall actual investment allocation. Therefore actual future outcomes may differ from those analyzed.

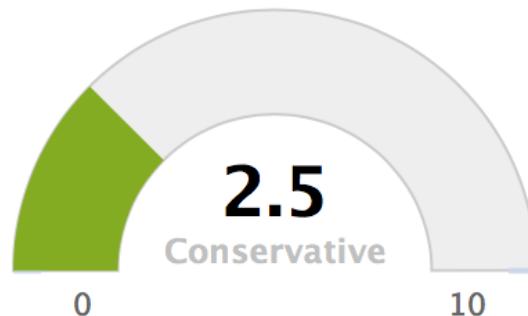
\*\*For complete descriptions of the "Overall Historical Probability of Not Depleting Capital Balance" Chart, the "Spendable Goals Confidence Index" Chart, and the "Overall Historical Rolling Period End Values" Chart, please see the Glossary section of the reports.

Loss of principal could occur. Resulting historical probabilities of success such as 100% or a spendable goal confidence indices of 10 do not imply or guarantee absolute future success.

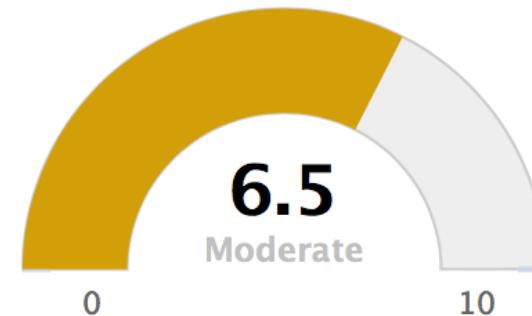
# Risk Assessment

## \*Volatility Analysis

Your Desired Volatility



Benchmark Volatility Score



## \*\*Benchmark Statistics for the Last 25 Calendar Years (1992-2016)

Average Return:	8.01%
Standard Deviation:	12.53%
Worst Year Return:	-21.56%
Best Year Return:	28.70%

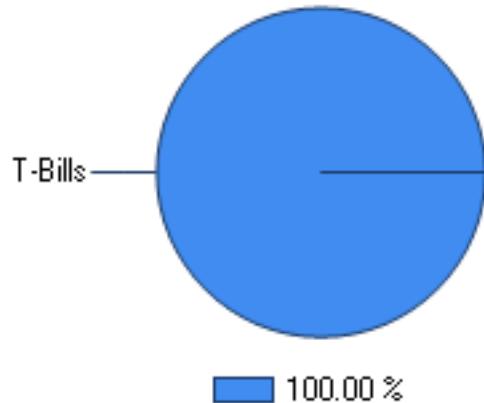
\*Your Desired Volatility is determined by your answers to the Risk Assessment Questionnaire. The Benchmark Volatility Score is determined using the Benchmark Statistics relative to the worst calendar year return for the last 25 years.

\*\*The Benchmark Statistics uses your Total Weighted Beginning Portfolio Benchmark and analyzes the last 25 calendar years because they included significant bull and bear market periods which would have adequately reflected cyclical market behavior.

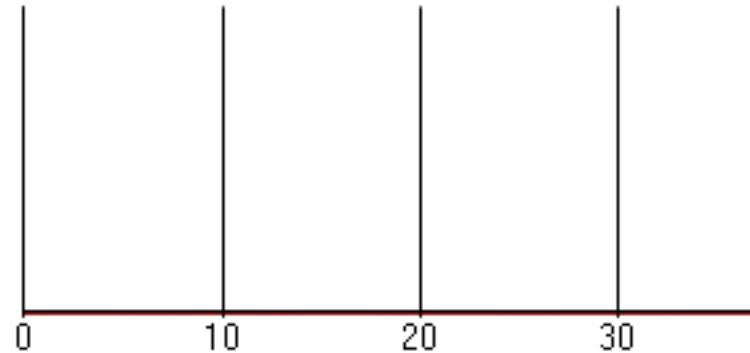
Loss of principal could occur. Resulting risk scores do not imply or guarantee absolute future success.

# Surplus Income / Non-Qualified / John Dollar

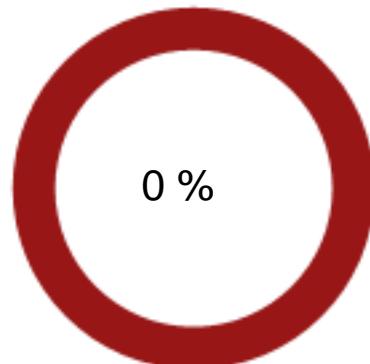
\*Portfolio Benchmark



\*\*Historical Rolling Period End Values



\*\*Historical Probability of Not Depleting Capital Balance



Hazard     Warning     Caution     Satisfactory

Portfolio Summary Details

Beginning Balance:	\$0
Effective Tax Rate:	20.00 %
Plan Duration:	37
Rolling Plan Periods Analyzed:	55
High-End Value:	\$0
Positive Median-End Value:	\$0
Low-End Value:	\$0
Earliest Depletion Year:	0
Latest Depletion Year:	0

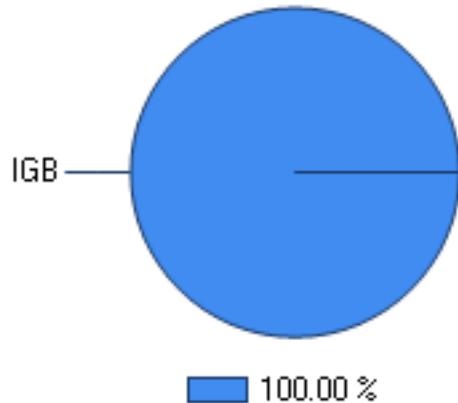
\*Portfolio Benchmark represents benchmark asset classes in Plan Year 1 for a single portfolio and may not reflect your actual investment allocation. Therefore actual future outcomes may differ from those analyzed.

\*\*For complete descriptions of the "Historical Probability of Not Depleting Capital Balance" Chart and the "Historical Rolling Period End Values" Chart, please see the Glossary section of the reports.

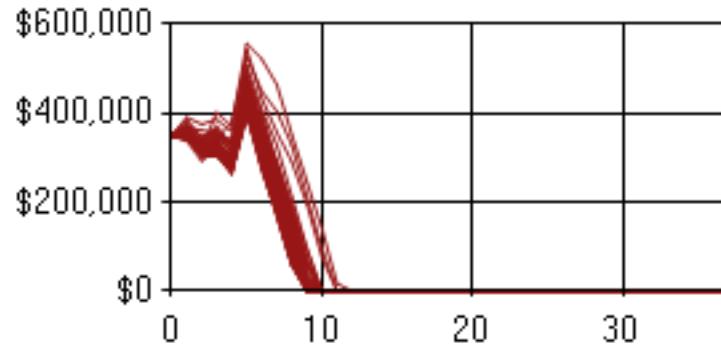
Loss of principal could occur. Resulting historical probabilities of success such as 100% do not imply or guarantee absolute future success.

# Brokerage / Non-Qualified / Joint Account

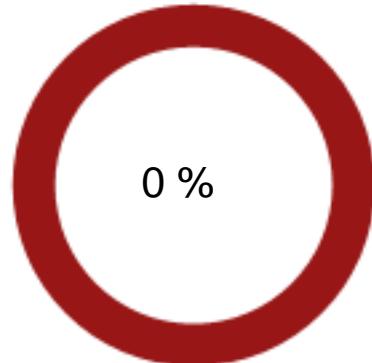
\*Portfolio Benchmark



\*\*Historical Rolling Period End Values



\*\*Historical Probability of Not Depleting Capital Balance



Portfolio Summary Details

Beginning Balance:	\$350,000
Effective Tax Rate:	20.00 %
Plan Duration:	37
Rolling Plan Periods Analyzed:	55
High-End Value:	\$0
Positive Median-End Value:	\$0
Low-End Value:	\$0
Earliest Depletion Year:	9
Latest Depletion Year:	12

  Hazard     Warning     Caution     Satisfactory

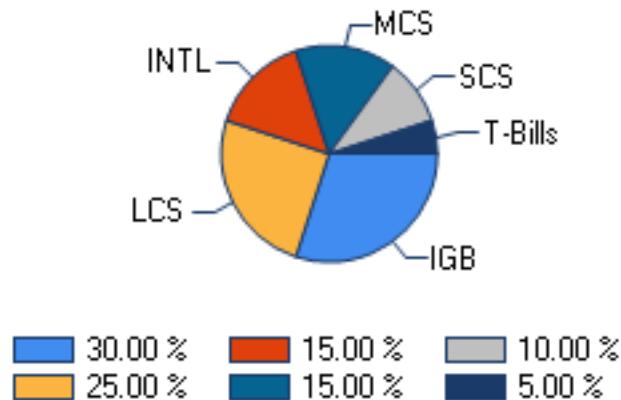
\*Portfolio Benchmark represents benchmark asset classes in Plan Year 1 for a single portfolio and may not reflect your actual investment allocation. Therefore actual future outcomes may differ from those analyzed.

\*\*For complete descriptions of the "Historical Probability of Not Depleting Capital Balance" Chart and the "Historical Rolling Period End Values" Chart, please see the Glossary section of the reports.

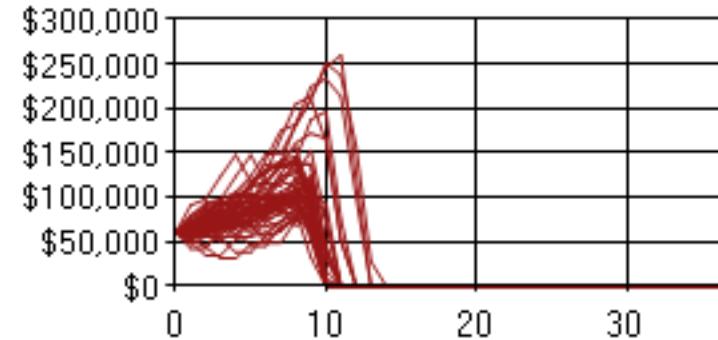
Loss of principal could occur. Resulting historical probabilities of success such as 100% do not imply or guarantee absolute future success.

# Roth IRA / Roth / John Dollar

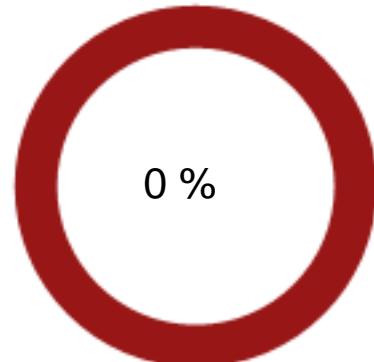
\*Portfolio Benchmark



\*\*Historical Rolling Period End Values



\*\*Historical Probability of Not Depleting Capital Balance



Hazard      Warning      Caution      Satisfactory

Portfolio Summary Details

Beginning Balance:	\$60,000
Effective Tax Rate:	20.00 %
Plan Duration:	37
Rolling Plan Periods Analyzed:	55
High-End Value:	\$0
Positive Median-End Value:	\$0
Low-End Value:	\$0
Earliest Depletion Year:	10
Latest Depletion Year:	14

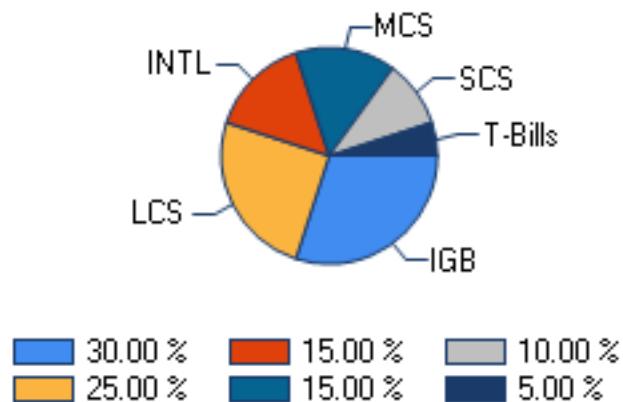
\*Portfolio Benchmark represents benchmark asset classes in Plan Year 1 for a single portfolio and may not reflect your actual investment allocation. Therefore actual future outcomes may differ from those analyzed.

\*\*For complete descriptions of the "Historical Probability of Not Depleting Capital Balance" Chart and the "Historical Rolling Period End Values" Chart, please see the Glossary section of the reports.

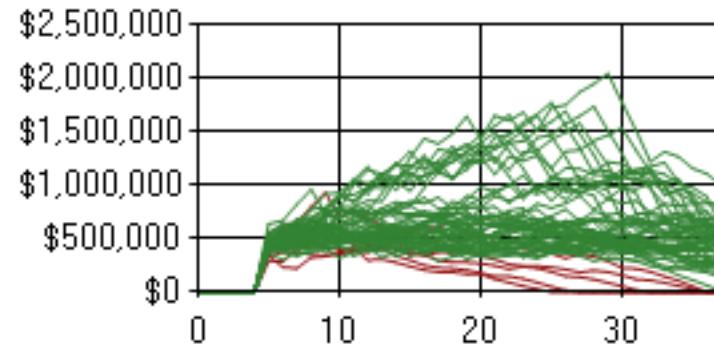
Loss of principal could occur. Resulting historical probabilities of success such as 100% do not imply or guarantee absolute future success.

# Pension Rollover / Qualified / John Dollar

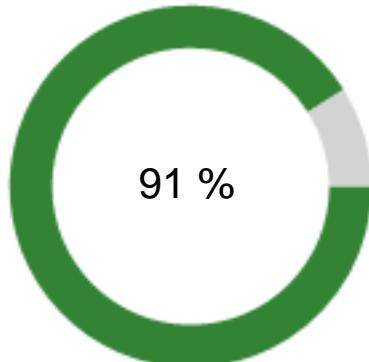
\*Portfolio Benchmark



\*\*Historical Rolling Period End Values



\*\*Historical Probability of Not Depleting Capital Balance



Hazard      Warning      Caution      Satisfactory

Portfolio Summary Details

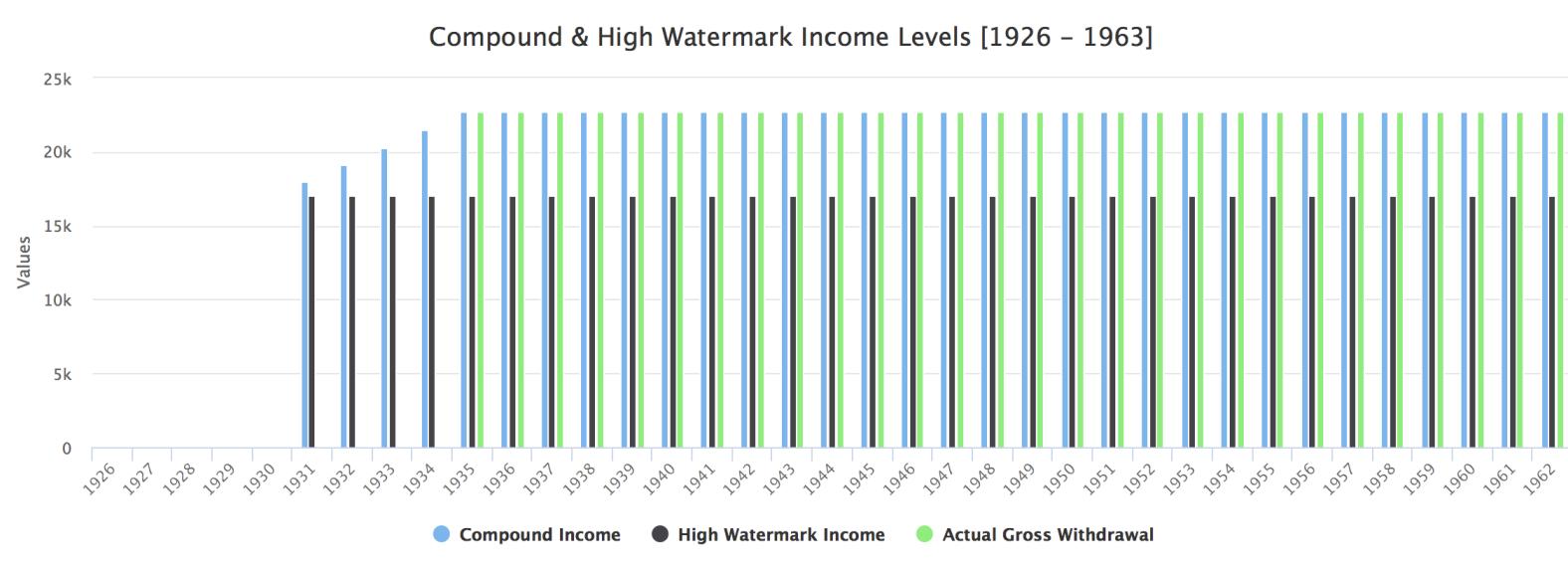
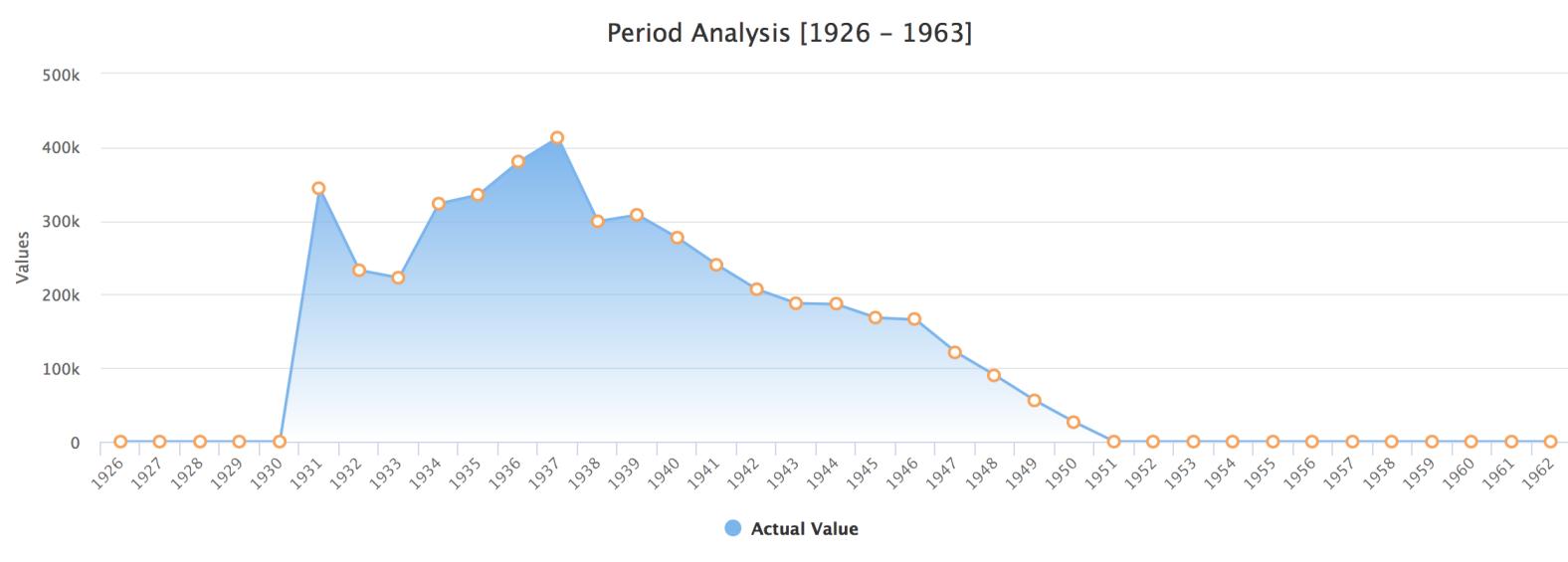
Beginning Balance:	\$0
Effective Tax Rate:	20.00 %
Plan Duration:	37
Rolling Plan Periods Analyzed:	55
High-End Value:	\$1,005,351
Positive Median-End Value:	\$459,152
Low-End Value:	\$0
Earliest Depletion Year:	25
Latest Depletion Year:	37

\*Portfolio Benchmark represents benchmark asset classes in Plan Year 1 for a single portfolio and may not reflect your actual investment allocation. Therefore actual future outcomes may differ from those analyzed.

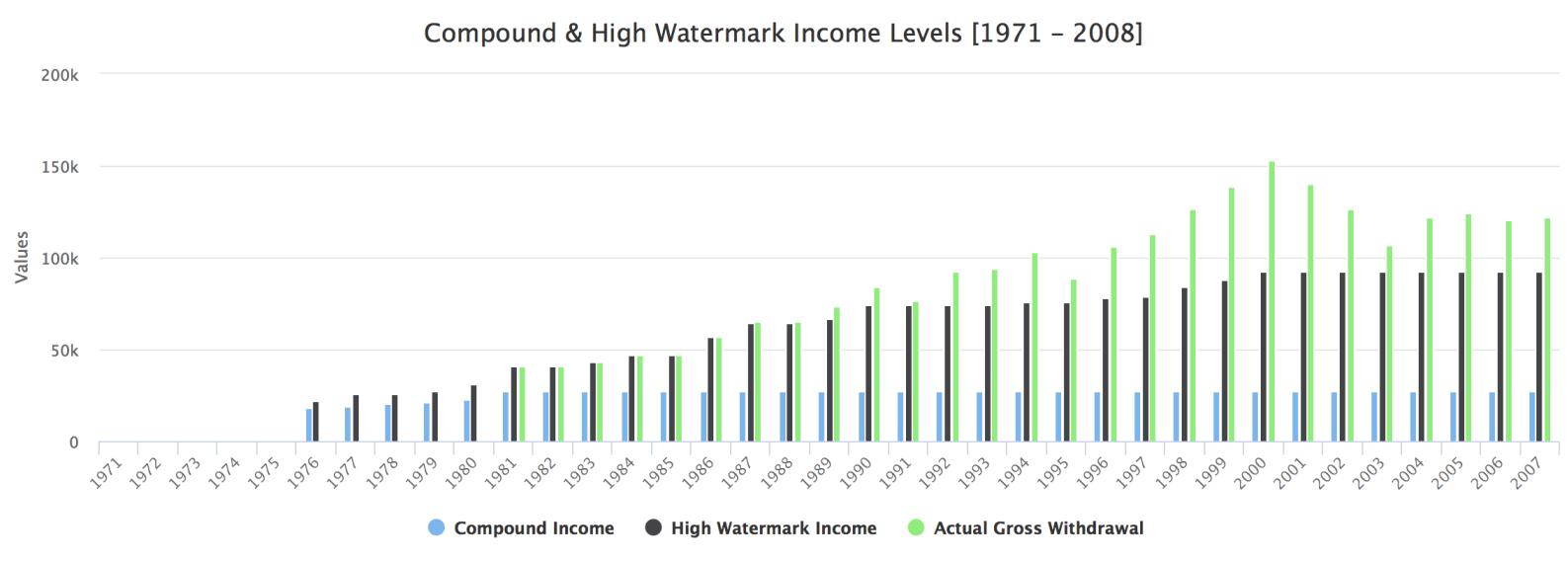
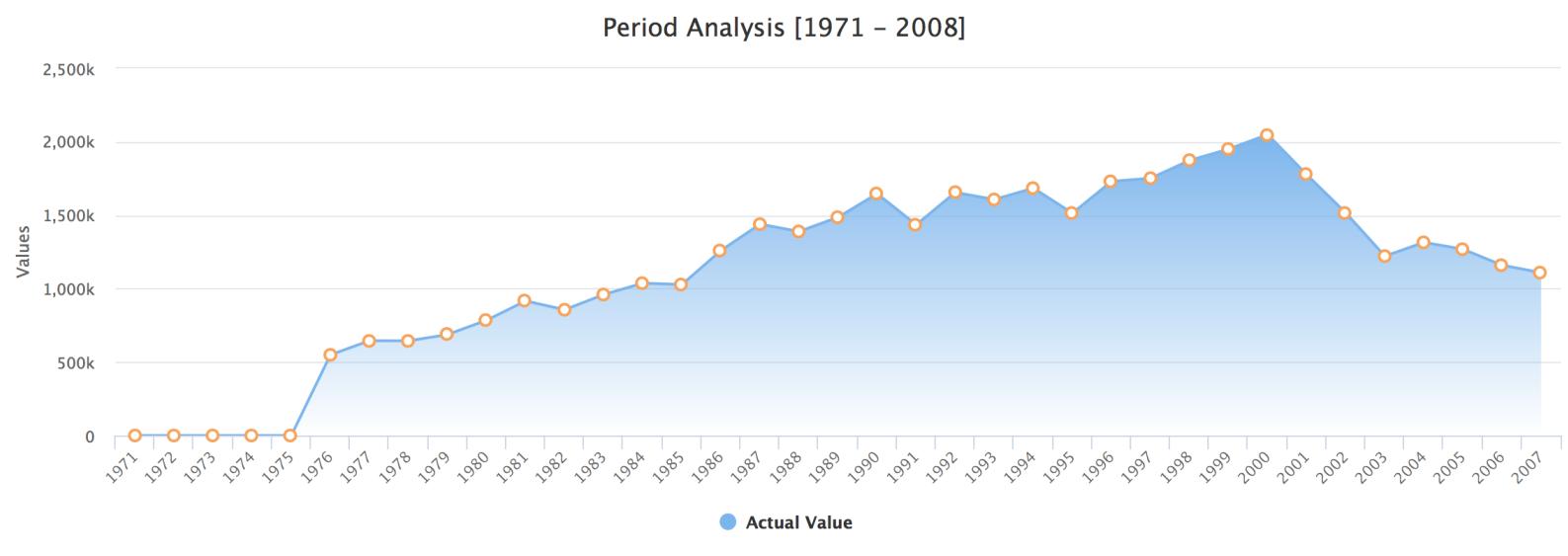
\*\*For complete descriptions of the "Historical Probability of Not Depleting Capital Balance" Chart and the "Historical Rolling Period End Values" Chart, please see the Glossary section of the reports.

Loss of principal could occur. Resulting historical probabilities of success such as 100% do not imply or guarantee absolute future success.

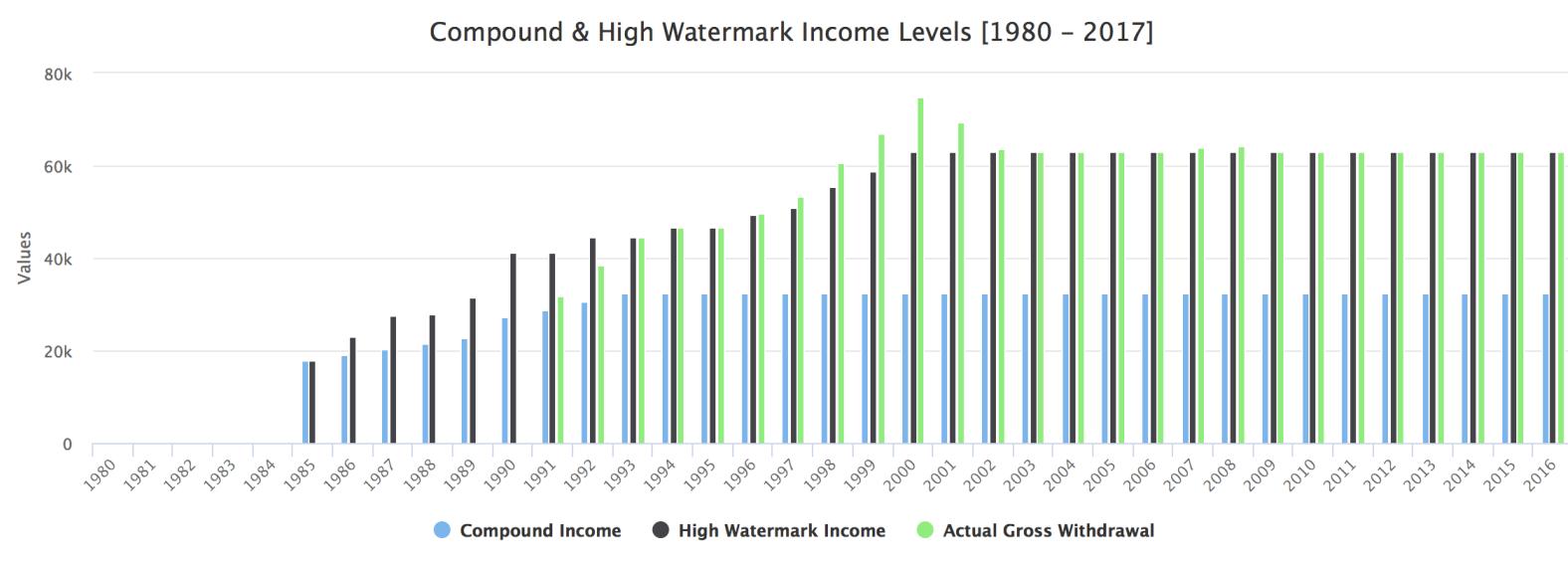
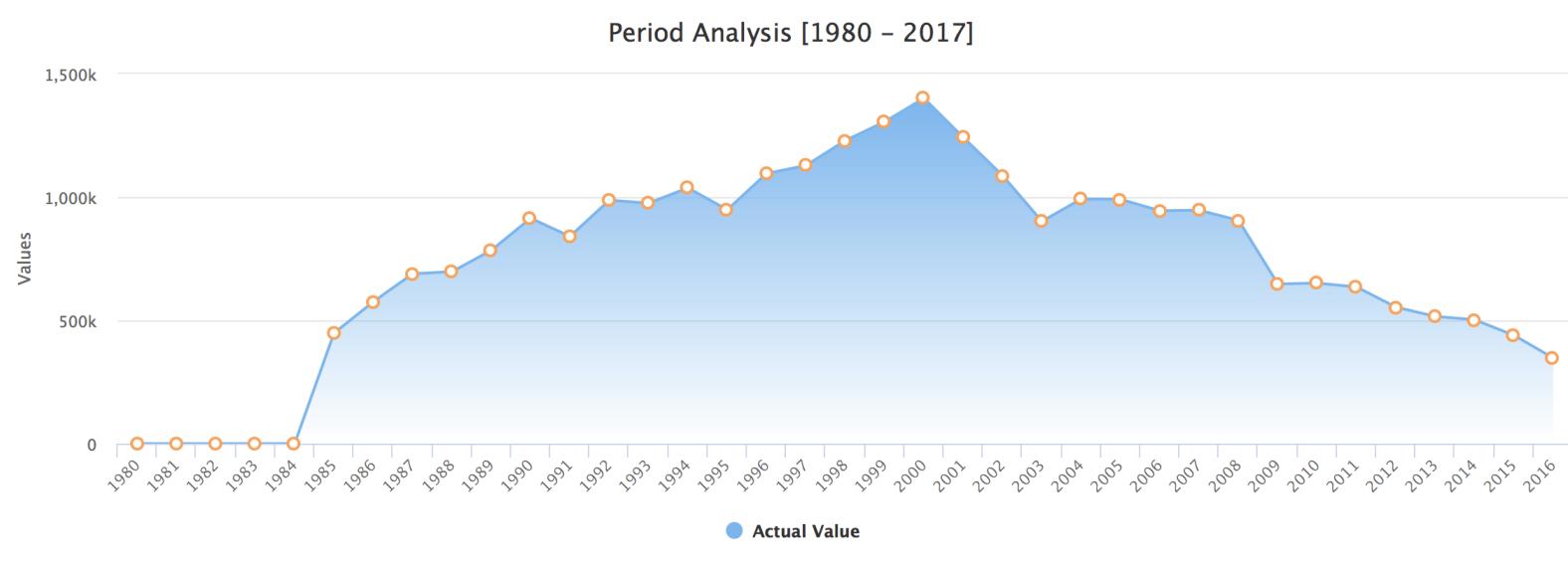
# Pension Rollover - Worst Rolling Period Analysis



# Pension Rollover - Best Rolling Period Analysis



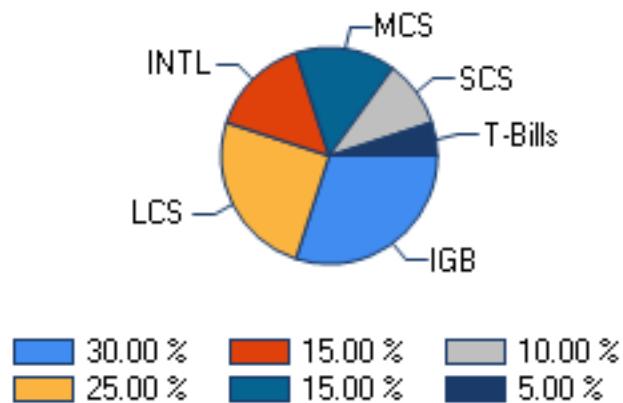
# Pension Rollover - Latest Rolling Period Analysis



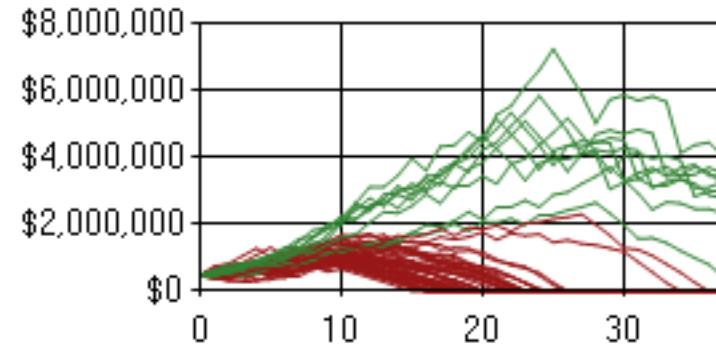
This report is not valid unless accompanied by the Disclosure & Consent, Data Sources, and Glossary Terms & Disclosure pages.  
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# John's 401(k) / Qualified / John Dollar

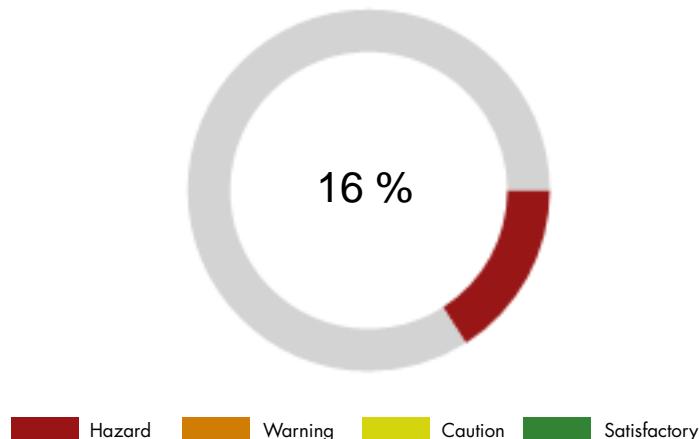
\*Portfolio Benchmark



\*\*Historical Rolling Period End Values



\*\*Historical Probability of Not Depleting Capital Balance



Portfolio Summary Details

Beginning Balance:	\$475,000
Effective Tax Rate:	25.00 %
Plan Duration:	37
Rolling Plan Periods Analyzed:	55
High-End Value:	\$4,051,284
Positive Median-End Value:	\$3,161,683
Low-End Value:	\$0
Earliest Depletion Year:	15
Latest Depletion Year:	36

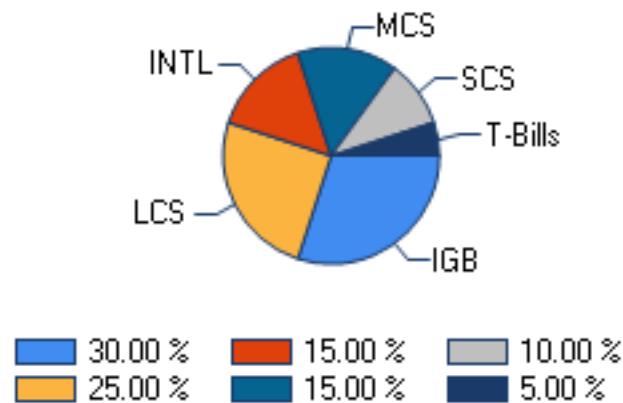
\*Portfolio Benchmark represents benchmark asset classes in Plan Year 1 for a single portfolio and may not reflect your actual investment allocation. Therefore actual future outcomes may differ from those analyzed.

\*\*For complete descriptions of the "Historical Probability of Not Depleting Capital Balance" Chart and the "Historical Rolling Period End Values" Chart, please see the Glossary section of the reports.

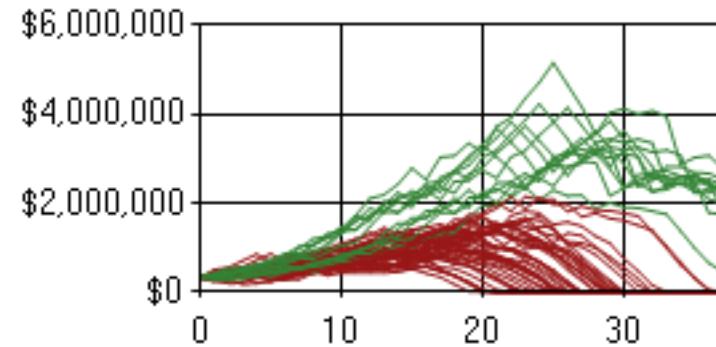
Loss of principal could occur. Resulting historical probabilities of success such as 100% do not imply or guarantee absolute future success.

# Mary's 401(k) / Qualified / Mary Dollar

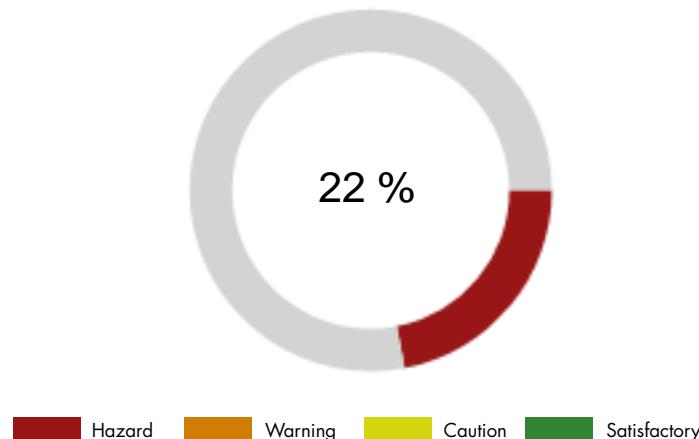
\*Portfolio Benchmark



\*\*Historical Rolling Period End Values



\*\*Historical Probability of Not Depleting Capital Balance



Portfolio Summary Details

Beginning Balance:	\$325,000
Effective Tax Rate:	25.00 %
Plan Duration:	37
Rolling Plan Periods Analyzed:	55
High-End Value:	\$2,778,496
Positive Median-End Value:	\$2,342,544
Low-End Value:	\$0
Earliest Depletion Year:	20
Latest Depletion Year:	37

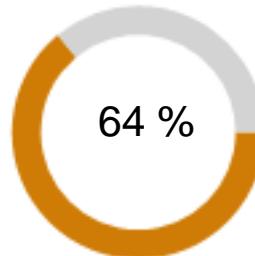
\*Portfolio Benchmark represents benchmark asset classes in Plan Year 1 for a single portfolio and may not reflect your actual investment allocation. Therefore actual future outcomes may differ from those analyzed.

\*\*For complete descriptions of the "Historical Probability of Not Depleting Capital Balance" Chart and the "Historical Rolling Period End Values" Chart, please see the Glossary section of the reports.

Loss of principal could occur. Resulting historical probabilities of success such as 100% do not imply or guarantee absolute future success.

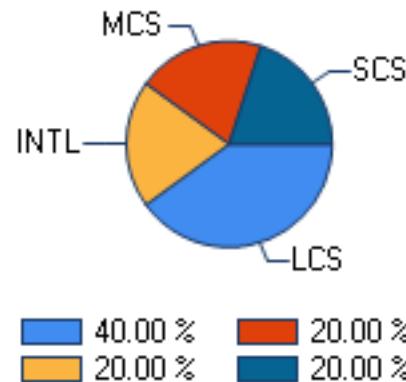
# Variable Annuity / Non-Qualified Deferred / John Dollar

\*Historical Probability of Not Depleting Capital Balance

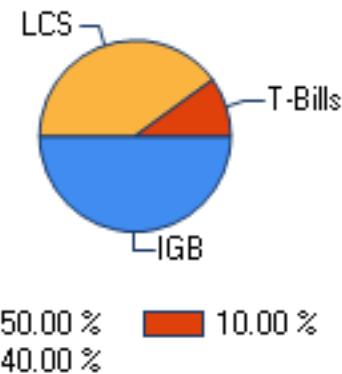


Hazard Warning Caution Satisfactory

\*\*Accumulation Benchmark



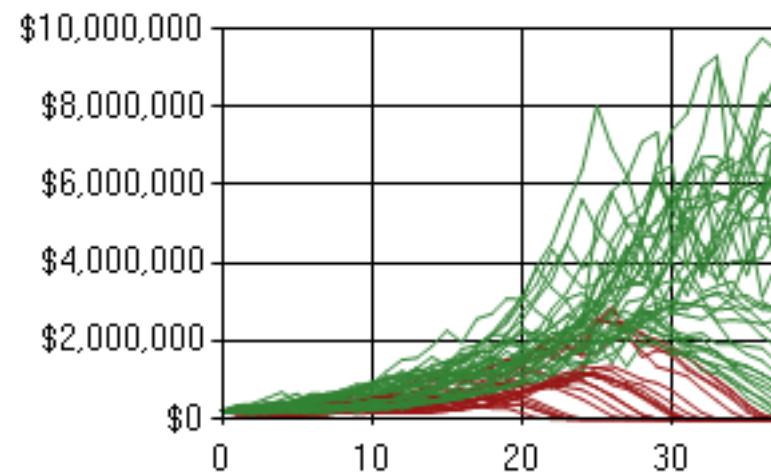
\*\*Draw-Down Benchmark



## Portfolio Summary Details

Beginning Balance:	\$200,000
Effective Tax Rate:	20.00 %
Plan Duration:	37
Rolling Plan Periods Analyzed:	55
High-End Value:	\$9,443,274
Positive Median-End Value:	\$4,597,777
Low-End Value:	\$0
Earliest Depletion Year:	22
Latest Depletion Year:	37

## \*Historical Rolling Period End Values



\*For complete descriptions of the "Historical Probability of Not Depleting Capital Balance" Chart and the "Historical Rolling Period End Values" Chart, please see the Glossary section of the reports

\*\*Portfolio Benchmark represents benchmark asset classes in Plan Year 1 for a single portfolio and may not reflect your actual investment allocation. Therefore actual future outcomes may differ from those analyzed.

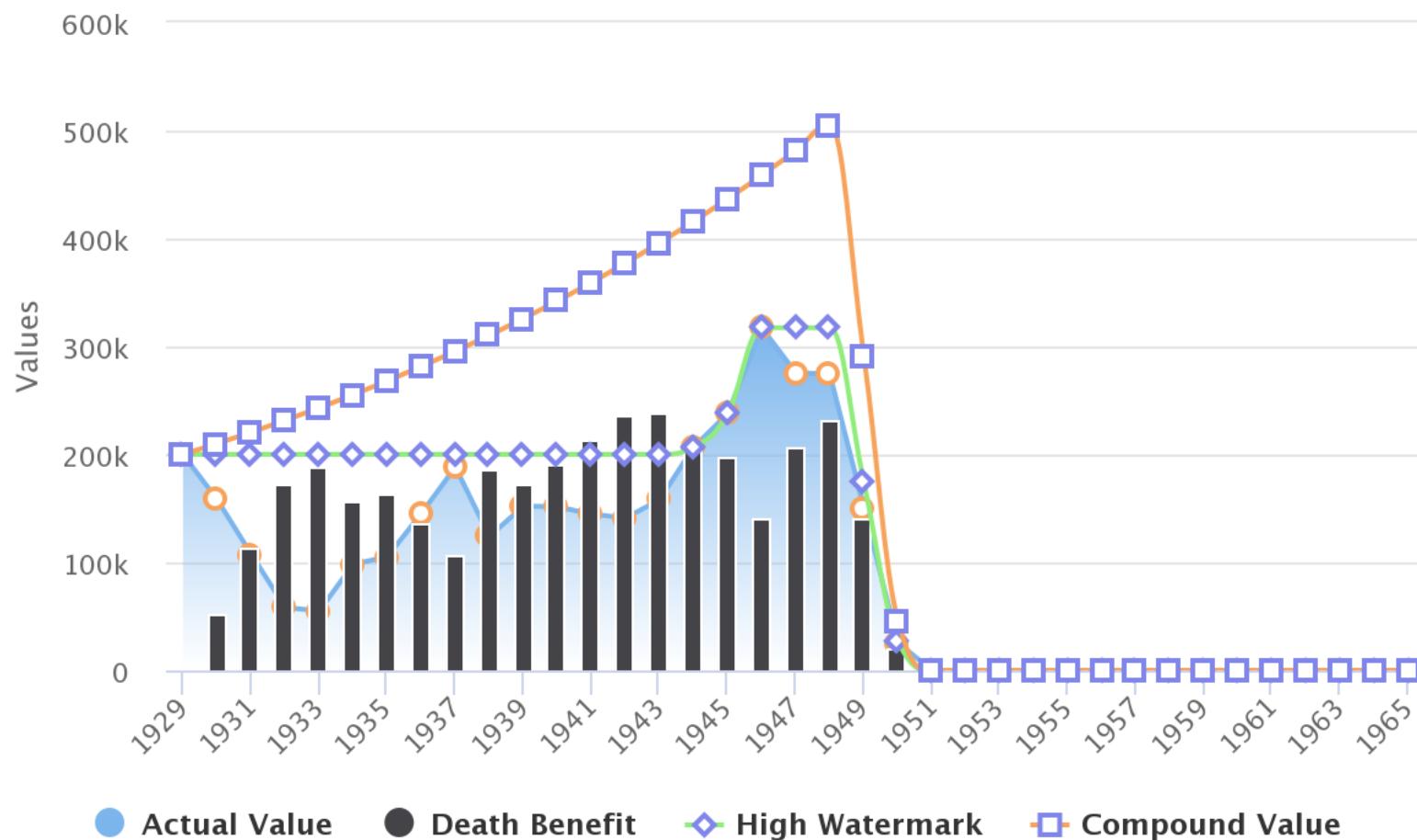
Loss of principal could occur. Resulting historical probabilities of success such as 100% do not imply or guarantee absolute future success.

This report is not valid unless accompanied by the Disclosure & Consent, Data Sources, and Glossary Terms & Disclosure pages.

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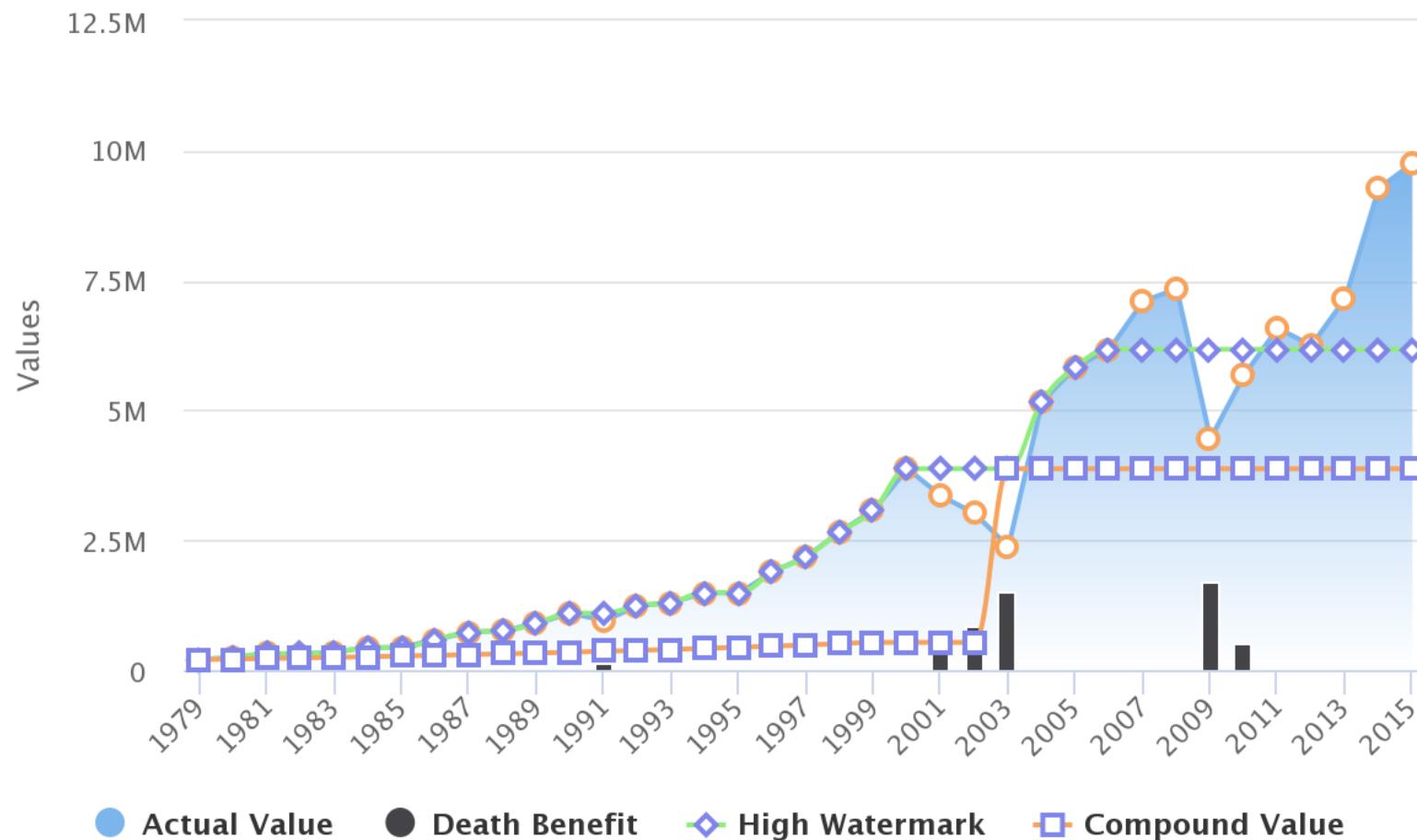
# Variable Annuity - Worst Rolling Period Analysis

## Period Analysis [1929 – 1966]



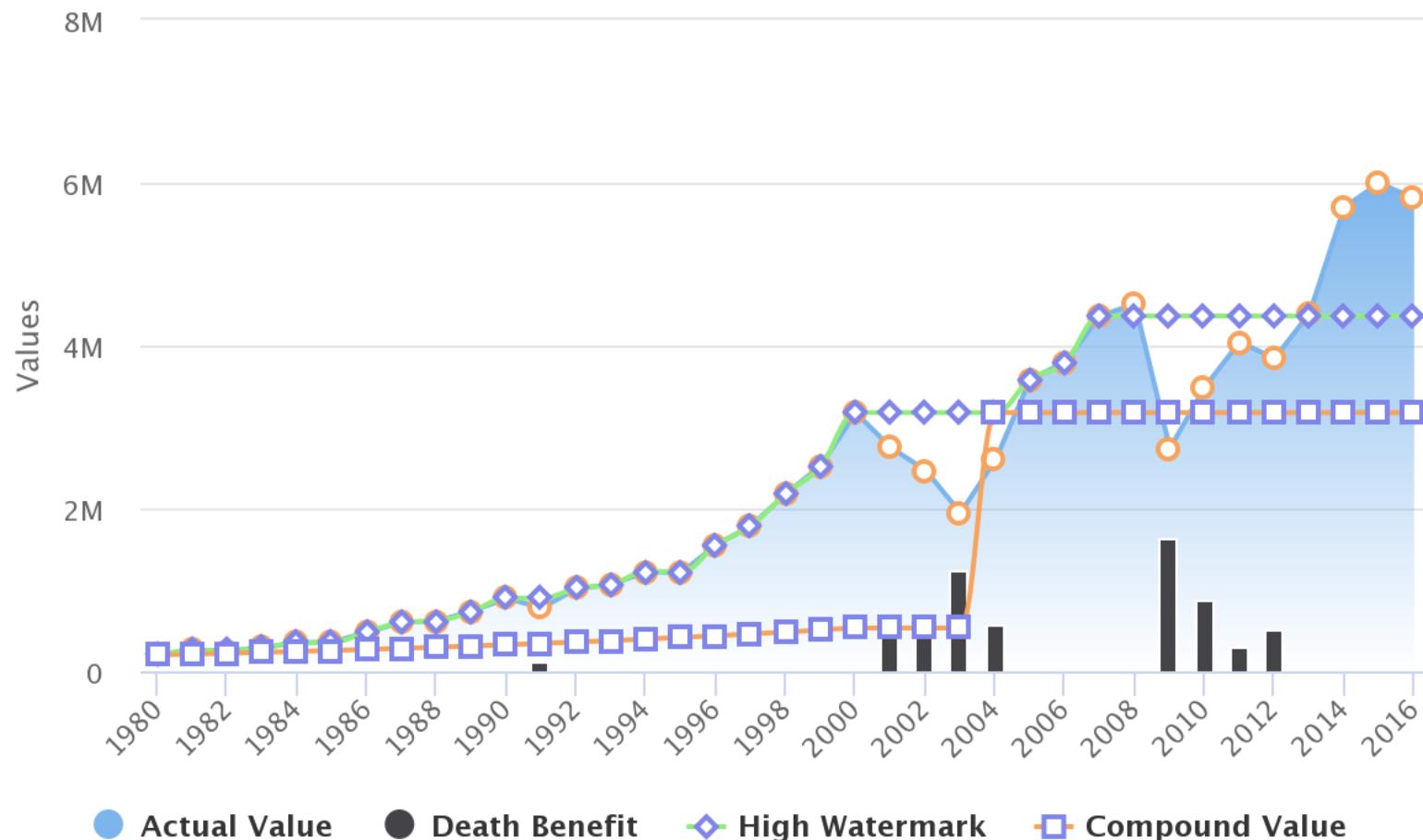
# Variable Annuity - Best Rolling Period Analysis

## Period Analysis [1979 – 2016]



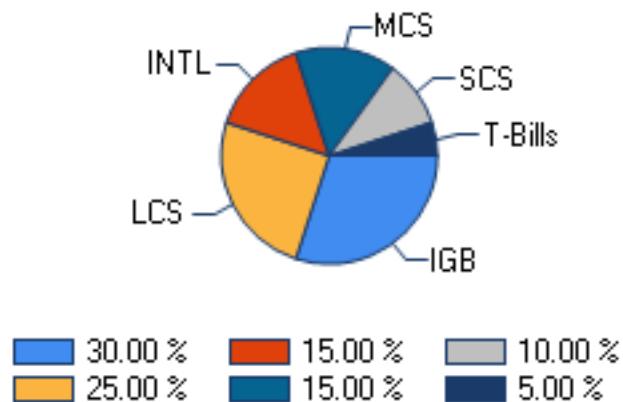
# Variable Annuity - Latest Rolling Period Analysis

## Period Analysis [1980 – 2017]

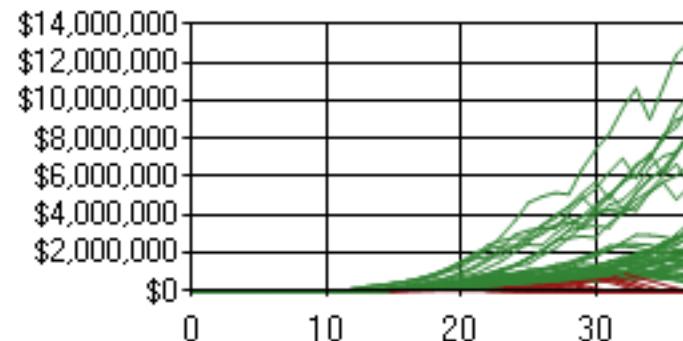


# Excess RMD / Non-Qualified / John Dollar

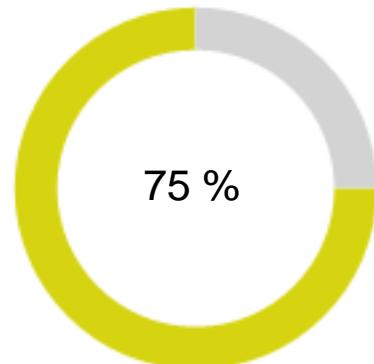
\*Portfolio Benchmark



\*\*Historical Rolling Period End Values



\*\*Historical Probability of Not Depleting Capital Balance



Hazard      Warning      Caution      Satisfactory

Portfolio Summary Details

Beginning Balance:	\$0
Effective Tax Rate:	15.00 %
Plan Duration:	37
Rolling Plan Periods Analyzed:	55
High-End Value:	\$13,124,646
Positive Median-End Value:	\$2,297,843
Low-End Value:	\$0
Earliest Depletion Year:	22
Latest Depletion Year:	37

\*Portfolio Benchmark represents benchmark asset classes in Plan Year 1 for a single portfolio and may not reflect your actual investment allocation. Therefore actual future outcomes may differ from those analyzed.

\*\*For complete descriptions of the "Historical Probability of Not Depleting Capital Balance" Chart and the "Historical Rolling Period End Values" Chart, please see the Glossary section of the reports.

Loss of principal could occur. Resulting historical probabilities of success such as 100% do not imply or guarantee absolute future success.

# Disclosure

**IMPORTANT:** The projections or other information generated by the BetaVest clearPATH Online software regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results and are not guarantees of future results. Resulting historical probabilities of success such as 100 % do not imply or guarantee absolute future success.

This simulation is intended to serve as an educational tool, not investment advice. Your circumstances are unique; therefore, you need to assess your own situation and consult an investment professional for more personal advice. Also, your circumstances will probably change over time, so review your financial strategy periodically to be sure it continues to fit your situation. All examples are hypothetical, are intended for illustrative purposes only, and do not represent the performance of any security or economic condition. You alone are responsible for determining whether any withdrawal strategy is appropriate for you. The software is made available on an as-is, as-available basis. We cannot guarantee that the content is accurate, complete, or timely, or that the analysis tool produces accurate and/or complete results. The results or output may vary with each use and over time. Laws of a particular state or laws that may be applicable to a particular situation may have an impact on the applicability, accuracy, or completeness of information provided. Federal and state laws and regulations may have a material impact on pre- and/or after-tax investment results.

Information contained herein is based on sources and data believed reliable, but is not guaranteed, and is not to be construed as an offer or the solicitation of an offer to buy or sell securities mentioned herein. This is for information purposes only and is not intended to satisfy any compliance or regulatory conditions set forth by any governing body of the securities industry unless otherwise stated.

Investor needs to be aware that no investment plan/asset allocation can eliminate the risk of fluctuating prices and uncertain returns.

This analysis does not incorporate a complete universe of investments and those not considered may have characteristics similar or superior to those analyzed. The clearPATH Online software does not select any particular securities or favor any particular securities. The general asset classes used are the entire universe analyzed and were selected since there was sufficient historical data available commencing in 1926. Other asset classes not included in the Data Sources did not provide sufficient historical data (See Data Sources for specific references).

An Index is a portfolio of specific securities (common examples are the S&P, DJIA, NASDAQ), the performance of which is often used as a benchmark in judging the relative performance of certain asset classes. Indices are unmanaged portfolios and investors cannot invest directly in an index. Past performance is not indicative of future results. Investing in a security which tracks an index may result in loss of principal.

Each cash flow simulation assumes that all deposits are made at the beginning of each analysis period and all withdrawals are made at beginning of each analysis period per asset class portfolio mix analyzed. All illustrated portfolios assume annual rebalancing. It should not be construed that the chosen or optimized portfolio will guarantee future results. All calculations and results are before management fees and taxes unless noted otherwise in the reports, and that, if reflected, investment results would be lower.

This report is intended to provide you with an analysis of your major financial goals. It is based on the data and assumptions you have provided or instructed us

# Disclosure (continued)

to make. Consequently, the outcome of the analysis will be dependent upon the accuracy of your data and reasonableness of your assumptions. Assumed rates of return may also either be assigned by your Adviser, or if utilizing Asset Allocation, be based on the historical returns of the benchmark indexes for the asset class. Please review all assumptions before reviewing the rest of the report to ensure the accuracy and reasonableness of the assumptions. Inaccurate or unreasonable assumptions may materially impact the results of the plan. It is important to note that actual results may differ due to any number of events. Some events are within your control, such as your spending habits, while other events, such as market performance, interest rates and tax policies, are not. To the extent that any of the referenced assets represent current account holdings there is no guarantee that these rates will be achieved.

In addition, we have made no attempt to review your property and liability insurance policies (auto and homeowners, for example). We strongly recommend that in conjunction with this financial plan, you consult with your property and liability agent to review your current coverage to ensure it continues to be appropriate. In doing so, you may wish to review the dollar amount of your coverage, the deductibles, the liability coverage (including an umbrella policy), and the premium amounts.

While assumptions are based on historical index data, past performance is no guarantee of future results. Indexes are unmanaged and cannot be invested into directly. Assumed rates of return are hypothetical which do not reflect the deduction of fees and charges inherent to investing in securities are not representative of any specific securities. Your results will vary.

Growth assumptions for business assets and stock options are speculative and should be discussed and agreed upon by you and your financial advisor. Assumed rates of return and standard deviation assumptions used in the Rolling Period analysis are based on historical asset class return data.

Variable annuities are suitable for long term investing, particularly for retirement, and as such charge separate account management fees as well as additional asset based insurance cost for income guarantees and death benefits. These include mortality and expense charges as well as potential surrender charges for early withdrawals prior to any specified number of years. These are all contract specific and should be understood before investing. Any withdrawals prior to age 59½ are subject to a 10 percent tax penalty in addition to ordinary tax rates.

The information contained in this report should be used for informational purposes only. The appropriate professionals should be consulted on all legal, tax and accounting matters prior to or in conjunction with implementation of the plan.

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## **Disclosure (*continued*)**

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# Methodology

Central to the workings of these analyses is the concept of rolling periods. Rolling periods are sequential time intervals. The analysis period most often selected is the longest life expectancy or individual goal term. If a 25-year analysis period was chosen, the first 25-year period would be from 1926 to 1951. For the next period, the first and last year of the periods would be advanced by one year (i.e. 1927 through 1952). This process of generating rolling periods would be continued until all possible analysis periods were used through the most recent full calendar year. The number of rolling periods equals the current year less the number of years in the analysis period, then by subtracting 1926 from the previous sum plus one (1) results in the number of rolling periods. For example, 2004 minus an analysis period of 25 years, would be determined as follows: 2004 minus 25yrs = 1979. 1979+1-1926 results in 54 rolling periods being analyzed. These rolling periods are used in determining the sequence of returns used to determine historical asset class outcomes.

All analyses within clearPATH Online are limited to the available data for the chosen asset classes; generally data is available from 1926 thru the last completed calendar year. Asset class return information is available back to 1926 for the asset class used. (See definition of Asset Classes used in Data Sources above). The rates of return are computed for each year as a function of the portfolio percentage weightings times the asset classes' return for that particular year. Deposits and withdrawals are applied to the beginning annual balances to compute a final portfolio balance for each year.

Probabilities are calculated by the number of times a threshold amount is equaled or surpassed. The software calculation results reflect the historical performance of the chosen asset classes combined with cash flow data. Probabilities are determined by this historic performance for the number of periods that a specific goal was met divided by the total number of periods analyzed.

Beginning portfolio balance, chosen analysis period, cash flow strategy, and asset class allocations influences the results. The results further depend on the information supplied, i.e., income expectations, risk tolerance, when deposits and withdrawals occur, analysis period and asset class choice. Furthermore, one can create a distribution order or sequence of withdrawal among various accounts or portfolios and allow for different portfolio asset allocations among various accounts. Tax assumptions are estimates only. Applicable tax estimates are computed annually and depend on the applicable tax status of each portfolio analyzed i.e., nonqualified, qualified, nonqualified deferred, and Roth by using an effective tax rate estimate. Actual tax rates may differ from those analyzed. Annual increases in both future spending goals, deposits, and non-investment sources of income can be assumed as static or variable over the analysis simulation or may be elected to reflect the historical and sequential annual CPI (consumer price index) since 1925 thru the most recent ended calendar year.

Risk is divided into two categories, namely volatility and capital depletion risk. Generally, lower volatility increases the probability of capital depletion but may extend the time period for early depletion. The user of clearPATH Online must properly understand the two-risk trade-off and should carefully balance these risks with each individual case considering beginning capital balance, future deposits and withdrawals, investment time horizon, and asset class allocation.

Generally, clearPATH Online measures outcome goals historically by probability of success (i.e. having at least \$1 remaining at life expectancy); historical end value; median end value; and low-end value. Within each simulation an historical earliest year depletion of capital as well as a latest year capital depletion is indicated.

The future sequence of return patterns may or may not repeat for chosen asset class combinations. Asset class returns may or may not be influenced by the same factors or to the extent such asset classes were previously influenced. External events may or may not affect markets and asset classes as in the past.

# Glossary

<b>Deposits and Withdrawals</b>	Sources of future additional capital contributions and spending needs.
<b>High End Value</b>	Highest historical end value calculated for all periods analyzed.
<b>End Goal Value Probability</b>	Historical probability of retaining an end value above a specified dollar amount.
<b>End Goal Value</b>	Specified end balance desired at end of analysis period.
<b>Low End Value</b>	Lowest historical end value calculated for all periods analyzed.
<b>Median End Value</b>	Value where half of the positive end values are greater than this amount and half are lower than this amount.
<b>Earliest/Latest Depletion</b>	Comparison of earliest year capital depletion and latest year capital depletion among all periods analyzed.
<b>Non-Investment Income Sources</b>	Sources of income not derived from investment balance such as social security, pension, part-time income etc.
<b>Probability of Failure</b>	The historical percentage chance of depleting principal balance prior to the end of analysis periods.
<b>Historical Probability of Not Depleting Capital Balance</b>	The historical percentage chance of not depleting principal balance prior to the end of analysis periods. Historical probability of success does not guarantee future investment success because historical probabilities are calculated using historical events and market conditions that occurred in the past but may not occur in the future. This is significant in that it only illustrates how market conditions have impacted investment performance in the past and does not indicate that these probabilities provide sufficient evidence to make future investment decisions. Loss of principal could occur. Resulting historical probabilities of success such as 100% do not imply or guarantee absolute future success.
<b>Spendable Goals Confidence Index</b>	This examines all years in all rolling periods analyzed. This gives a year-by-year analysis of achieving all spendable goals. Each column in the bar chart represents one plan year for all rolling periods analyzed. For example, Plan Year 1 would show the confidence of achieving all spendable goals in plan year 1 of every rolling period, Plan Year 2 would show the confidence of achieving all spendable goals in plan year 2 of every rolling period, etc. A maximum confidence index of 10 indicates all spendable goals were achieved for the plan year in all rolling periods. Any confidence index of less than 10 would indicate that not all spendable goals were achieved for that plan year in every rolling period. The lower the confidence index score indicates a higher risk of not meeting all spendable goals for that plan year.

# Glossary

## Unfunded Spendable Goals

This analyzes the historical plan year range in which spendable goal shortfalls occurred in all rolling periods. The bars in the graph represent the count, which is the number of individual rolling periods in which a spendable goal shortfall occurred during each plan year. For example, if the count is 3 in Plan Year 20, this means that of all rolling periods analyzed, there were 3 rolling periods that experienced a spendable goal shortfall in Plan Year 20. The black dots within each bar represent the actual shortfall amount for every plan year where a spendable goal shortfall occurred. There can be multiple black dots per plan year because the the number of different black dots may be equal to the count for that plan year. In some instances, the spendable goal shortfall amount will be the same in a given plan year for different rolling periods. In this case, the number of black dots will not appear to equal the count due to the black dots overlapping each other.

## Historical Rolling Period End Values

All possible individual historical rolling period outcomes resulting from original investment balance, all future deposits, non-investment income sources, withdrawals, and asset allocation per chosen analysis period illustrating the probability of success and failure. Green lines represent rolling periods that ended with capital remaining of at least \$1. Red lines represent rolling periods that ran out of capital before the end of the plan duration.

## Rolling Period Analysis

The chosen period in years necessary to represent the client's goal term (i.e., life expectancy, number of years to retirement, number of years to goal requirement) that is simulated by evaluating each successive historical goal term period since 1926 to current date.

## Surplus Income

Excess non-investment income not currently needed which is added to investment balance when received.

## Alternative Investment

An investment that is not one of the three traditional asset types (stocks, bonds and cash). Most alternative investment assets are held by institutional investors or accredited, high-net-worth individuals because of their complex nature, limited regulations and relative lack of liquidity. Alternative investments include hedge funds, managed futures, real estate, commodities and derivatives contracts. Many alternative investments also have high minimum investments and fee structures compared to mutual funds and ETFs. While they are subject to less regulation, they also have less opportunity to publish verifiable performance data and advertise to potential investors.

Alternative investments are favored mainly because their returns have a low correlation with those of standard asset classes. Because of this, many large institutional funds such as pensions and private endowments have begun to allocate a small portion (typically less than 10%) of their portfolios to alternative investments such as hedge funds.

While the small investor may be shut out of some alternative investment opportunities, real estate and commodities such as precious metals are widely available.

# Glossary

<b>Tactical Allocation</b>	Portfolio strategy that allows active departures from the normal asset mix according to specified objective measures of value. Often called active management. It involves forecasting asset returns, volatilities, and correlations. The forecasted variables may be functions of fundamental variables, economic variables, or even technical variables.
<b>Strategic Allocation</b>	A portfolio strategy that involves periodically rebalancing the portfolio in order to maintain a long-term goal for asset allocation or risk tolerance. At the inception of the portfolio, a "base policy mix" is established based on expected returns. Because the value of assets can change given market conditions, the portfolio constantly needs to be re-adjusted to meet the policy.
<b>Non-Qualified Investment</b>	An investment that does not qualify for any level of tax-deferred or tax-exempt status. Investments of this sort are made with after-tax money. They are purchased and held in tax-deferred accounts, plans or trusts. Returns from these investments are taxed on an annual basis.
<b>Non-Qualified Deferred Annuity</b>	An annuity you buy on your own, rather than through a qualified employer sponsored retirement plan or individual retirement arrangement, is a non-qualified annuity. Nonqualified annuities aren't governed by the federal rules that apply to qualified contracts, such as annual contribution caps and mandatory withdrawals after you turn 70 ½. While there may be a 10% tax penalty for withdrawals before you turn 59 ½, all earnings greater than contributions are tax deferred until withdrawn. In other ways, though, qualified and nonqualified annuities are alike. You can choose between fixed or variable contracts, and the annuity can be either deferred or immediate.
<b>Roth IRA</b>	An individual retirement plan that bears many similarities to the traditional IRA, but contributions are not tax deductible and qualified distributions are tax free. Similar to other retirement plan accounts, non-qualified distributions from a Roth IRA may be subject to a penalty upon withdrawal. A qualified distribution is one that is taken at least five years after the taxpayer establishes his or her first Roth IRA and when he or she is age 59.5, disabled, using the withdrawal to purchase a first home (limit \$10,000), or deceased (in which case the beneficiary collects). Since qualified distributions from a Roth IRA are always tax free, some argue that a Roth IRA may be more advantageous than a Traditional IRA, however this is depended up ones individual tax circumstances.
<b>Total Weighted Beginning Portfolio Benchmark</b>	This represents benchmark asset classes in Plan Year 1 and may not reflect your overall actual investment allocation. Therefore actual future outcomes may differ from those analyzed.
<b>Portfolio Benchmark</b>	This represents benchmark asset classes in Plan Year 1 for a single portfolio and may not reflect your actual investment allocation. Therefore actual future outcomes may differ from those analyzed.
<b>Single Rebalanced Benchmark</b>	The portfolio uses one allocation for the selected portfolio for the entire plan duration.

# Glossary

<b>Accumulation Benchmark Phase</b>	The portfolio will use this allocation benchmark as long as it does not take any withdrawals during any given historical rolling period.
<b>Draw-Down Benchmark Phase</b>	Once the portfolio begins to take withdrawals, the allocation will automatically switch to this benchmark for any given historical rolling period.

# Data Sources

## Market Capitalization:

First, we need to define "cap," which refers to market capitalization and is calculated by multiplying the price of a stock by the number of shares outstanding. Generally speaking, this represents the market's estimate of the "value" of the company; however, it should be noted that while this is the common conception of market capitalization, to calculate the total market value of a company, you actually need to add the market value of any of the company's publicly traded bonds. The definitions of big and small cap differ slightly between the brokerage houses and have changed over time. The differences between the brokerage definitions are relatively superficial and only matter for the companies that lie on the edges. The classification is important for borderline companies because mutual funds use it to determine which stocks to buy.

## STANDARD ASSET CLASSES

### Large-Cap Stocks (LCS):

NYSE Large Cap Based Portfolios 1-2 Index performance data. Source: CRSP, Center for Research in Security Prices. Graduate School of Business, The University of Chicago (2003). Used with permission. All rights reserved.

[www.crsp.uchicago.edu](http://www.crsp.uchicago.edu). Annual total returns were calculated from data provided for monthly periods beginning 1926 through 2001. Post 2001 asset class returns were obtained from the S&P 500 Index Fund (Symbol: IVV) net of fees. This asset class seeks long-term capital preservation by investing in stocks of large size companies, as determined by market capitalization. Typically, this asset classification is generally defined to include the top 70% of U.S. stocks in terms of market capitalization. Large Cap stocks generally include some of the biggest and most established companies in America. One of the biggest advantages of investing in large-cap stocks is the amount of research by the market analyst, which concentrates on the large-cap market. Since a larger cap stock often has more money available to it and its earnings are generally more stable, it can present less risk than a Mid or Small Cap stock. Although, large in of itself does not mean most profitable, highest rate of return or risk free. Keep in mind that classifications such as "large cap", "mid cap", or "small cap" are only approximations that change over time. Also, the exact definition can vary between brokerage houses. The stocks involve investment risks that may include the loss of principal invested.

### Mid-Cap Stocks (MCS):

AMEX Mid-Cap based portfolios 3-5 Index performance data. Source: CRSP, Center for Research in Security Prices. Graduate School of Business, The University of Chicago (2003). Used with permission. All rights reserved.

[www.crsp.uchicago.edu](http://www.crsp.uchicago.edu). Annual total returns were calculated from data provided for monthly periods beginning 1926 through 2001. Post 2001 asset class returns were obtained from the S&P Mid-Cap 400 Index Fund (Symbol: IJH) net of fees. This asset class seeks long-term capital appreciation by investing in stocks of medium size companies, as determined by market capitalization. Typically, capitalization between \$1 billion and \$5 billion are considered medium capitalization. Mid Caps are all the stocks too large and established to be Small Caps, but not large enough or established long enough to be Large Caps. Keep in mind that classifications such as "large cap", "mid cap", or "small cap" are only approximations that change over time. Also, the exact definition can vary between brokerage houses.

# Data Sources

The stocks involve investment risks that may include the loss of principal invested.

**Small-Cap Stocks (SCS):**

NASDAQ Small Cap based portfolios 6-8 Index performance data. Source: CRSP, Center for Research in Security Prices. Graduate School of Business, The University of Chicago (2003). Used with permission. All rights reserved. [www.crsp.uchicago.edu](http://www.crsp.uchicago.edu). Annual total returns were calculated from data provided for monthly periods beginning 1926 through 2001. Post 2001 asset class returns were obtained from the Russell 2000 Index Fund (Symbol: IWM) net of fees. Stocks of small or emerging companies may have less liquidity than those of larger established companies and may be subject to greater price volatility and risk than the overall stock market. This asset class seeks maximum capital appreciation by investing primarily in stocks of domestic small companies, as determined by market capitalization. Typically, this asset classification is generally defined to include stocks with a capitalization under \$1 billion are classified as small capitalization stocks. Small Cap stocks tend to be newer companies. Quite often Small Caps are young companies in newer markets and industries. One of the biggest advantages of investing in small-cap stocks is the opportunity to achieve higher returns than institutional investors. Investing in these companies generally incurs more risk than investing in a large or mid cap stock. Keep in mind that classifications such as "large cap", "mid cap", or "small cap" are only approximations that change over time. Also, the exact definition can vary between brokerage houses. The stocks involve investment risks that may include the loss of principal invested.

**Intermediate Government Bonds (IGB):**

Index of Intermediate Maturity Government Bonds (7 years) performance data. Source: CRSP, Center for Research in Security Prices. Graduate School of Business, The University of Chicago (2003). Used with permission. All rights reserved. [www.crsp.uchicago.edu](http://www.crsp.uchicago.edu). Annual total returns were calculated from data provided for monthly periods beginning 1926 through 2001. The 2002 asset class return was obtained from the Barclays U.S. 5-10 Year Treasury Bond Index. Post 2002 asset class returns were obtained from the Barclays 7-10 Year Treasury Bond Fund (Symbol: IEF) net of fees. While the asset class invests primarily in securities of the U.S. government and its agencies, the market value is not guaranteed by these entities. This investment category contains a significant percentage of securities issued or guaranteed by the Government, its agencies or instrumentalities and generally have maturities under 10 years. The securities involve investment risks that may include the loss of principal invested.

**United States T-Bills (UTB):**

Index of 90 Day Maturity United States Treasury Bill performance data. Source: CRSP, Center for Research in Security Prices. Graduate School of Business, The University of Chicago (2003). Used with permission. All rights reserved. [www.crsp.uchicago.edu](http://www.crsp.uchicago.edu). Annual total returns were calculated from data provided for monthly periods beginning 1926 through 2001. Data from 2002-2007 obtained from the Barclays 1-3 month US Treasury Index. Post 2007 asset class returns were obtained from the SPDR Barclays Capital 1-3 Month T-Bill ETF (Symbol: BIL) net of fees. 13-Week Treasury Bill (Symbol: ^IRX) net of fees. 90-Day Treasury Bills based upon the average monthly yield of 90-day Treasury Bills. Treasury Bills are secured by the full faith and credit of the U.S. Government and offer fixed rates of return.

# Data Sources

## Real Estate (RE):

Data courtesy of Robert Shiller (<http://www.econ.yale.edu/~shiller/data.htm>) from his book, *Irrational Exuberance*. The S&P/Case-Shiller Home Price Indices are designed to be a reliable and consistent benchmark of housing prices in the United States. Their purpose is to measure the average change in home prices in a particular geographic market. They are calculated monthly and cover 20 major metropolitan areas (Metropolitan Statistical Areas or MSAs), which are also aggregated to form two composites – one comprising 10 of the metro areas, the other comprising all 20.

The S&P/Case-Shiller U.S. National Home Price Index (“the U.S. national index”) tracks the value of single-family housing within the United States. The index is a composite of single-family home price indices for the nine U.S. Census divisions and is calculated quarterly, however, annual price changes are used for all calculations. The indices measure changes in housing market prices given a constant level of quality. Changes in the types and sizes of houses or changes in the physical characteristics of houses are specifically excluded from the calculations to avoid incorrectly affecting the index value yearly. This housing price index is used prior to 1972 to represent a potential real estate investment vehicle since REITs were not available as an investment security prior to this date. Data from 1972-2001 obtained from FTSE NAREIT All REITS (<http://www.reit.com>). Post 2001 asset class returns were obtained from the Dow Jones U.S. Real Estate Index Fund (Symbol: IYR) net of fees.

## International (INTL):

Global Financial Data has used its database to calculate global indices going back as far as possible. To calculate these indices, the broadest domestic index available was used as the basis for the index, and if the index was in dollars, the local index values were converted into a dollar index by dividing the local index by the exchange rate. Some methodological notes need to be made. All of the historical indices are monthly. Although all stock markets provide daily indices today, for most of the world's stock markets, only monthly index calculations were made prior to the 1960s for developing countries and the 1930s for developed countries. Consequently, in order to make long-term comparisons, the indices must be monthly. One unavoidable problem is that stock markets occasionally close, and there are no data available for those months. To provide continuity to the indices, we have used the previous month's value for the index during that month, although we have used the current month's exchange rate rather than the previous month's exchange rate. The one period of time when the dollar values for these indices should not be taken as very reliable is the period around World War II. President Roosevelt suspended exchange rate quotations during the war, so no reliable source for exchange rates is available, and exchange rates often changed dramatically when economic reforms were introduced. Consequently, there are sudden changes in the values of the indices when, for example, the United States introduced an exchange rate of 360 yen to the dollar. For the three stock markets that have data back to the civil war period, the gold dollar exchange rate is used rather than the paper dollar exchange rate to remove the distortions that would have been created by the index values when the U.S. left the gold standard during the civil war. Of course, these indices can easily be adjusted to paper values by using the paper exchange rate. During the Bretton Woods period (1946-1970) when exchange rates were fixed, we have used Pick's black market

# Data Sources

exchange rates since we felt these would better reflect the market value of the foreign stock market to a U.S. investor than the official exchange rate. In order to compare the performance of foreign stock markets to one another, Global Financial Data has calculated world/ world excluding the US and Europe indices back to 1919. We have weighted each country according to their relative Gross Domestic Products and Stock Market capitalizations. GDP and stock market capitalization data are not available back to 1919, so we have approximated what these relative values would have been. We have chosen not to rebalance the indices with different weights because we feel this would create greater fluctuations in the indices' values. Since the Morgan Stanley World index was not calculated before 1970, an index has been put together to simulate how a World Index would have performed had it been calculated back to 1919. The indices were weighted in January 1919 as follows: North America 44% (USA 41%, Canada 3%), Europe 44% (United Kingdom 12%, Germany 8%, France 8%, Italy 4%, Switzerland 2.5%, Netherlands 2.5%, Belgium 2%, Spain 2%, Denmark 1%, Norway 1% and Sweden 1%), Asia and the Far East 12% (Japan 6%, India 2%, Australia 2%, South Africa Gold 1%, South Africa Industrials 1%). It was assumed that the country weights did not change until 1970. The EAFE, Europe, and Asia indices use the same relative weights. Capitalization weightings are used beginning in 1970 using the same countries that are included in the MSCI indices. In several cases, such as Germany or Japan, hyperinflations caused their stock markets to lose over 90% of their value. Rebalancing the portfolio would have created a ten-fold or greater adjustment in an investor's weighting of that country in their portfolio. To simplify matters, we have taken a true buy-and-hold approach, setting the country weights in 1919, and leaving them unchanged until 1970. We have taken the total return series for Australia, Belgium, Canada, France, Germany, Italy, Japan, Netherlands, Spain, the United Kingdom and the United States to extend the total return indices back to December 1925. The World x/USA index is divided between Europe (80%) and Pacific (20%). Europe's weightings are France 25%, Germany 25%, Italy 12.5% and the United Kingdom 37.5% from 1925 through 1950; Europe's weightings are Belgium 7.5%, France 17.5%, Germany 17.5%, Netherlands, 7.5%, Spain 7.5%, and the United Kingdom 30% from 1951 through 1969. The Pacific region's weights are Australia 50% and Japan 50% from 1925 through 1950, and Australia 30%, Japan 70% from 1951 through 1969. Canada is included in the index beginning in 1934. From 1970 on, the indices are capitalization weighted and include the same 20 countries as are included in the MSCI World Index. Source: Global Financial Data used with permission. Post 2001 asset class returns were obtained from the MSCI EAFE Index Fund (Symbol: EFA) net of fees.

## Commodities (COM):

This index was first calculated in September 1956 by CRB because of dissatisfaction with the BLS index whose composition had gone unchanged for several decades. The BLS index was discontinued in 1981 and has been largely replaced by the CRB index. To give a more complete index, the BLS data have been appended onto the CRB index on a monthly basis for the period August 1918 through August 1956. Beginning in September 1956, the actual CRB data are used. The CRB index was revised in December 1995 to reduce the influence of grains. Soybean meal, soybean oil, lumber and pork bellies were removed from the index, and natural gas replaced unleaded gasoline leaving the index with 17 components. This was the ninth revision since its inception in 1956. The current index includes energy 18%

# Data Sources

(crude oil, heating oil, natural gas), grains and oilseed 18% (corn, soybeans, wheat), industrials 11% (copper, cotton), livestock 11% (live cattle, live hogs), precious metals 18% (gold, platinum, silver), softs 24% (cocoa, coffee, orange juice, sugar). As early as January 1934, at the request of the U.S. Department of the Treasury, the Bureau of Labor Statistics began the computation of a daily commodity price index, using quotations for sensitive commodities. It was released first to the general public in January 1940. In 1952, in connection with the revision of all its major price index series, the Bureau issued a new Daily Index of Spot Market Prices. The new index was not a continuation of the old series, but was based on a new sample of 22 commodities and was calculated on a 1947-49 base; in contrast, the old index was based on 28 commodities and was calculated with August 1939 as base. In January 1962, the 22-commodity index was recalculated on a 1957-59 = 100 base to correspond to the base period adopted for other Federal Government general purpose indices. In January 1971, the index was rebased again in accordance with government-wide practice, this time to a 1967 = 100 base. In 1969, computation of the index on a daily basis was discontinued. The index was then prepared for Tuesday of each week until May 1981 when Commodity Research Bureau (CRB) began calculating the index on a daily basis. The 22 commodities are combined into an "All Commodities" grouping, with two major subdivisions: Raw Industrials, and Foodstuffs. Raw Industrials include burlap, copper scrap, cotton, hides, lead scrap, print cloth, rosin, rubber, steel scrap, tallow, tin, wool tops, and zinc. Foodstuffs include butter, cocoa beans, corn, cottonseed oil, hogs, lard, steers, sugar, and wheat. The items upon which the index is based are classified further into four smaller groups: Metals, Textiles and Fibers, Livestock and Products, and Fats and Oils. However, some of the 22 commodities do not fall into one of these four groupings. For example, sugar is not included in any special group. Furthermore, the groupings are not mutually exclusive. Lard, for instance, is in both the Livestock and Products Index and in the Fats and Oils Index. Source: Global Financial Data used with permission. The 2006 asset class return was obtained from the Reuters/Jefferies CRB Index. Post 2006 asset class return were obtained from the S&P GSCI(R) Commodity-Indexed Trust (Symbol: GSG) net of fees.

## DYNAMIC ASSET CLASSES

### P/E Adjusted (PE/ADJ):

The P/E Adjusted Asset Class is a hypothetical combination of five assets classes defined above, i.e., large-cap (LCS), small-cap (SCS), mid-cap (MCS), Intermediate Government Bonds (IGB), and US T-Bills (UTB). Each year's allocation among these five asset classes was determined by using the historical value of the ten-year trailing average P/E ratio. On January 1<sup>st</sup> of each year beginning in 1926 and every anniversary thereafter, the trailing average 10-year P/E ratio was observed and the asset allocation using these five asset classes (LCS, SCS, MCS, IGB, & UTB) was determined relative to the P/E ratio as follows:

# Data Sources

Historical 10 year trailing average P/E Ratio Value	LCS	SCS	MCS	IGB	UTB
10 or less	34%	33%	33%	--	--
Greater than 10 less than or equal to 15	30%	25%	25%	15%	5%
Greater than 15 less than or equal to 20	30%	20%	20%	25%	5%
Greater than 20 less than or equal to 22	20%	15%	15%	35%	15%
Greater than 22 less than or equal to 25	20%	10%	10%	40%	20%
Greater than 25 less than or equal to 30	10%	10%	10%	50%	20%
Greater than 30	5%	5%	5%	65%	20%

To calculate the 10 year trailing average P/E ratio value:

1. Look at the yearly earnings of the S&P 500 for each of the past ten years.
2. Adjust these earnings for inflation, using the [CPI](#) (discount each earnings figure in current year dollars)
3. Average these values (add them up and divide by ten), resulting in a moving 10-year average.
4. Then take the current Price of the S&P 500 and divide by the above moving ten year average.

Price earnings ratio is based on average inflation-adjusted earnings from the previous 10 years, known as the Cyclically Adjusted PE Ratio (CAPE Ratio), Shiller PE Ratio, or PE 10. The Shiller 10-year average P/E ratio was calculated from Stock market data used in *Irrational Exuberance* [Princeton University Press 2000, Broadway Books 2001, 2nd ed., 2005]. This data set consists of monthly stock price, dividends, and earnings data and the consumer price index (to allow conversion to real values), all starting January 1871. The price, dividend, and earnings series are from the same sources as described in Chapter 26 of (*Market Volatility* [Cambridge, MA: MIT Press, 1989]), although monthly data, rather than annual data is now used. Monthly dividend and earnings data are computed from the S&P four-quarter totals for the quarter since 1926, with linear interpolation to monthly figures. Dividend and earnings data before 1926 are from Cowles and associates (*Common Stock Indexes*, 2nd ed. [Bloomington, Ind.: Principia Press, 1939]), interpolated from annual data. Stock price data are monthly averages of daily closing prices through January 2000, the last month available as this book goes to press. The CPI-U (Consumer Price Index-All Urban Consumers) published by the U.S. Bureau of Labor Statistics begins in 1913; for years before 1913 spliced to the CPI Warren and Pearson's price index, by multiplying it by the ratio of the indexes in January 1913. December 1999 and January 2000 values for the CPI-U are extrapolated. See George F. Warren and Frank A. Pearson, *Gold and Prices* (New York: John Wiley and Sons, 1935). Data are from their Table 1, pp. 11–14. The Plots, have been multiplied by the inflation-corrected series by a constant so that their value in January 2000 equals their nominal value, i.e., so that all prices are effectively in January 2000 dollars.

# Data Sources

The selection of asset classes within the P/E adjusted Portfolio from year to year have not been determined nor recommended by the provider of the Shiller 10-year average P/E ratio.

Past performance is not intended to predict future performance. Loss of principal has occurred historically and may also occur in the future. One cannot invest directly in an index therefore actual results may have been different than those illustrated.

## Select Asset Class (SAC):

The Select Asset Class annual returns were hypothetically determined by using the actual historical annual returns for the following asset classes: Large-Cap (LCS), Small-Cap (SCS), and International Stocks (INTL). The annual return for The Select Asset Class is further determined by annually selecting the previous year's highest returning asset class among these three asset classes on January 1<sup>st</sup> of each year since 1926. Each calendar year there was only one of the three asset classes held for the following 12 months. The selected asset class may have been retained or repeated in successive years, or substituted by another of the three asset classes.

Since only one asset class is selected and held each 12 months then no diversification is achieved, therefore this strategy is only recommended for a small percentage of one's total portfolio. Because of the potential price volatility of any stock market investment, this strategy should not be used for immediate liquidity needs and should be considered a long-term investment subject to each investor's risk tolerance.

Past performance is not intended to predict future performance. Loss of principal has occurred historically and may also occur in the future. One cannot invest directly in an index therefore actual results may have been different than those illustrated.