

Benchmarking and Monitoring Retirement Readiness

401(k) Workshop: Financial Wellness and Beyond

May 10, 2017

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Retirement Readiness

Investopedia's Definition

The state and/or degree of being ready for retirement.

Retirement readiness typically refers to being financially prepared for retirement, or the degree to which an individual is on target to meet his or her **retirement-income goals** so that the standard of living enjoyed while working will be maintained after retirement.

A Benchmark

Investopedia's Definition

A benchmark is a standard against which the performance of a security, mutual fund or investment manager can be measured...

...Setting a benchmark can help an investor communicate with their portfolio manager what they're hoping to achieve with their investment, so that the portfolio manager will make decisions with the investor's goals in mind. While a benchmark can help a portfolio manager, it's important that the benchmark being set is right for the investors goals...

Types of Target Date Fund Benchmarks

Single index-relative
benchmark

Custom
benchmark

Blended index
benchmark

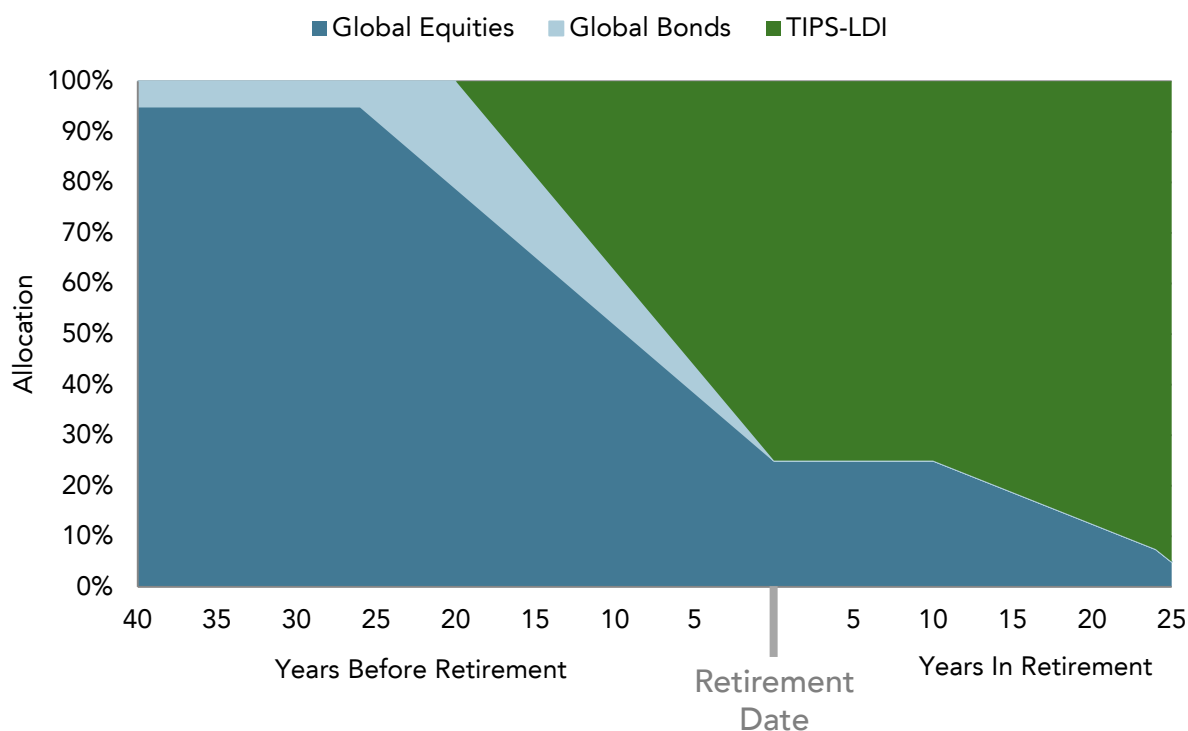
Peer group
(universe)
benchmark

Today's Topics

- Present a framework for evaluating, monitoring and benchmarking retirement readiness
- Introduce an index series designed to benchmark income focused retirement solutions
- Evaluate the performance of an income focused retirement solution
...in terms we are all familiar (account balance units)
...and in this new retirement income framework

S&P STRIDE Indices

A target date glide path focused on retirement income risk management



- The S&P STRIDE Indices combine a target date glide path with a new risk management framework to serve as a benchmark for investors saving to fund consumption in retirement.
- Over time, each index in the series increases its allocation to hedging assets designed to support a stream of inflation-adjusted retirement income.¹
- It includes twelve multi-asset class indices, each corresponding to a particular target retirement date.²

1. "Introducing the S&P STRIDE Index Series," S&P Global, 2015.

2. See S&P STRIDE Index Series Methodology. For each series, the following vintages (at 5 year intervals) are calculated: 2005, 2010, ..., 2060. Each date correspond to a target retirement date. See "S&P STRIDE Index Series Description and Disclosures" in Appendix.

The Case Study

Compare an income focused approach to traditional method of investing for retirement

Average 2010 Target Date Funds

Designed to focus on wealth accumulation within risk constraints:

- ✓ Easy-to-use, comprehensive, and well-diversified investment solution
- ✗ Generally not designed to manage uncertainty of in-retirement income
- ✗ Most do not bridge the savings and consumption phases of retirement planning

S&P Shift to Retirement Income DEcumulation (STRIDE) 2010 Index

Designed to help grow the value of investors' savings and manage income uncertainty as investors prepare for retirement by seeking to:

- ✓ Provide savings growth potential through value-added global equity and fixed income solutions
- ✓ Manage market, interest rates, and inflation risks during **both** the accumulation and decumulation phase
- ✓ Provide better estimates of expected retirement income
- ✓ Encourage better retirement decision making

Understanding Sources of Differences in Performance

When comparing two investment alternatives

Differences in equity vs. fixed income ratios

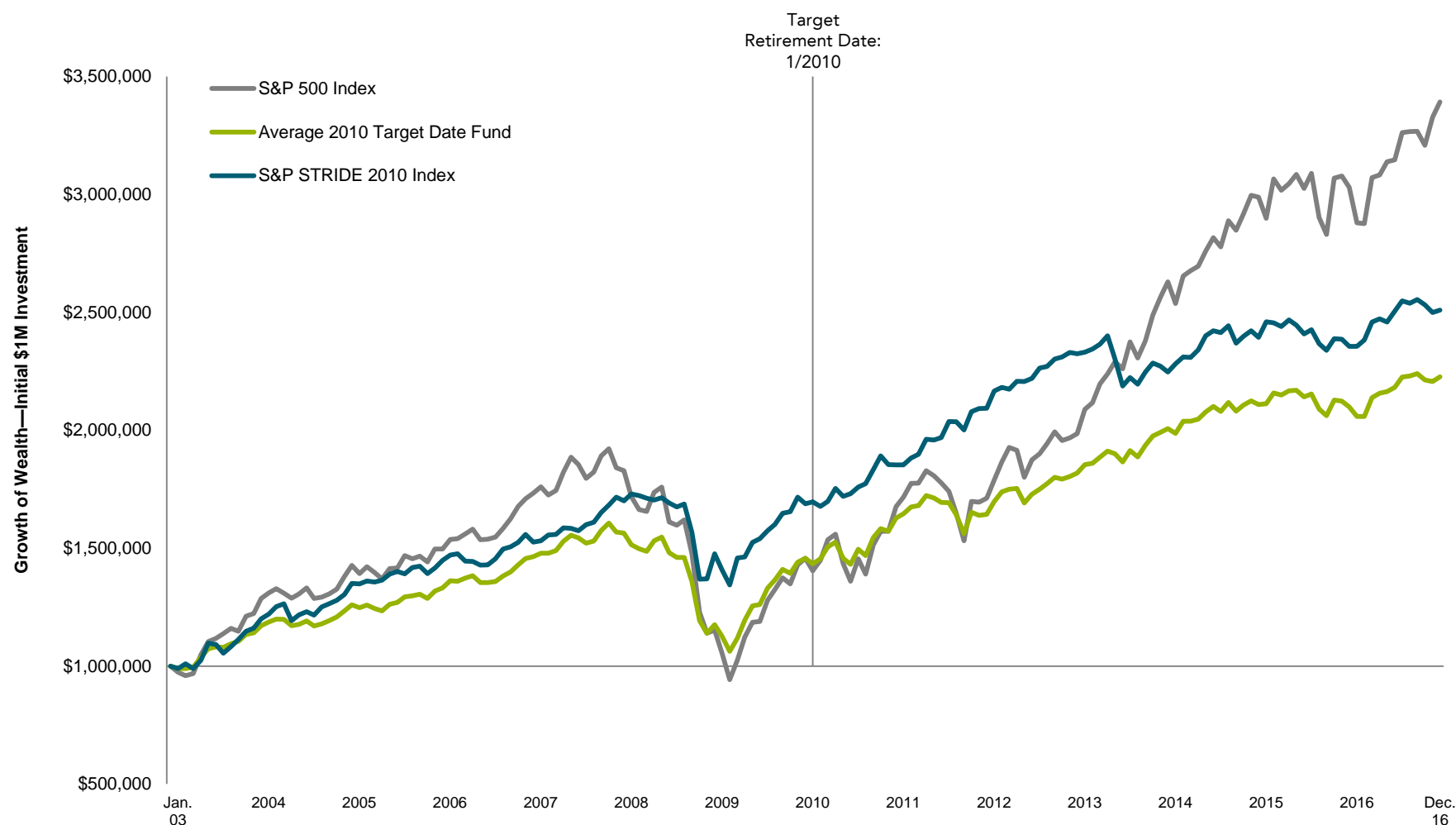
- At retirement¹...
 - Average 2010 TDF held 51% of assets in equity
 - S&P STRIDE 2010 Index held 25% of assets in equity

Composition of fixed income

- Average 2010 TDF utilizes shorter term fixed income to manage volatility of wealth
- S&P STRIDE 2010 implements a inflation-protected liability-driven approach to manage volatility of income in retirement

Growth of Wealth—Initial \$1M Investment

2010 Vintage Target Date Series



Past performance is not a guarantee of future results.

Notes and Sources: S&P 500 Index and S&P STRIDE data from S&P Dow Jones Indices. Average 2010 Target Date Fund is the asset weighted average across the 2010 target date fund families included in the Morningstar universe. As of December 2016 the data included 57 target date fund families. Data from Morningstar. Interest rates represented by the 10-year par yield published by the Federal Reserve Board.

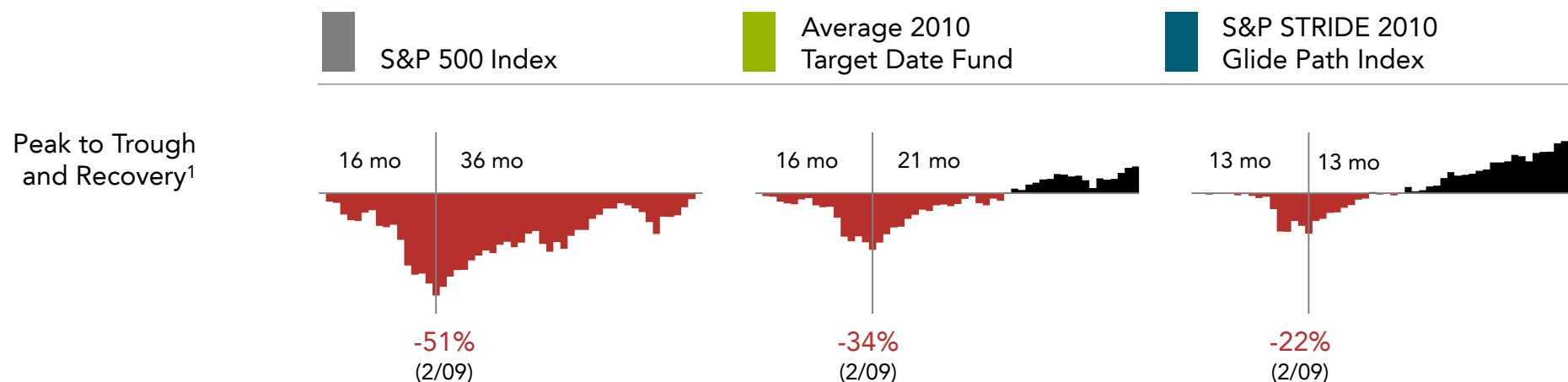
Indices are not available for direct investment. Performance does not reflect the expenses associated with the management of an actual portfolio. See "S&P STRIDE Index Series Description and Disclosures" and "S&P Stride Index Series Hypothetical Performance Disclosure" in Appendix.

Impact of Equity vs. Fixed Income Allocation

Comparing 2010 Vintage Target Date Funds (2003–2016)

In February 2009...

49% of the Average 2010 Target Date Fund was invested in **equity**.
27% of S&P STRIDE 2010 Index was invested in **equity**.



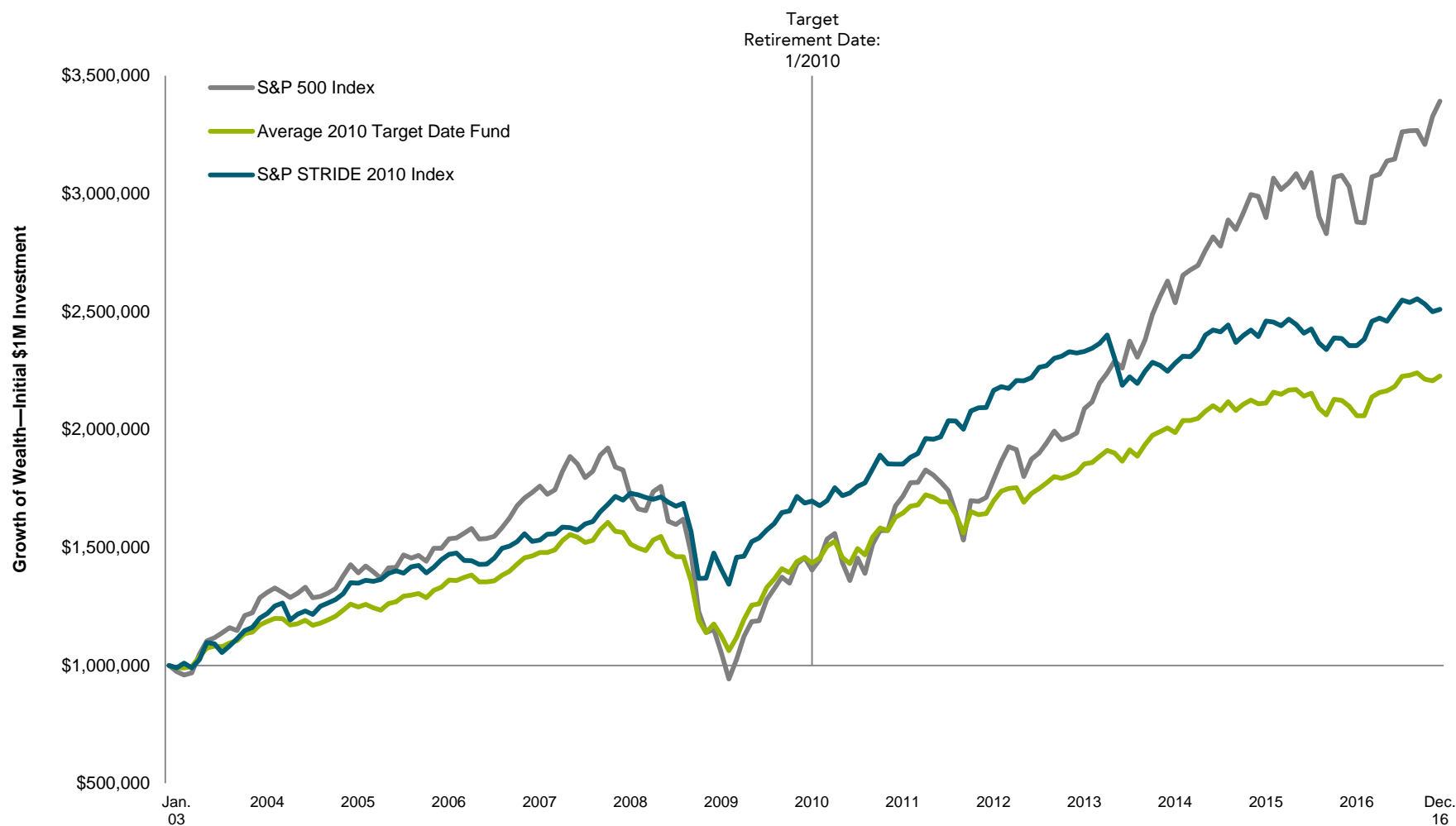
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1. Represents maximum loss/drawdown for peak to trough of each index over the time period January 2003–December 2016.

Notes and Sources: S&P 500 Index and S&P STRIDE data from S&P Dow Jones Indices. Average 2010 Target Date Fund is the asset weighted average across the 2010 target date fund families included in the Morningstar universe. As of December 2016 the data included 57 target date fund families. Data from Morningstar. Indices are not available for direct investment. Performance does not reflect the expenses associated with the management of an actual portfolio. See "S&P STRIDE Index Series Description and Disclosures" and "S&P Stride Index Series Hypothetical Performance Disclosure" in Appendix.

Growth of Wealth—Initial \$1M Investment

2010 Vintage Target Date Series



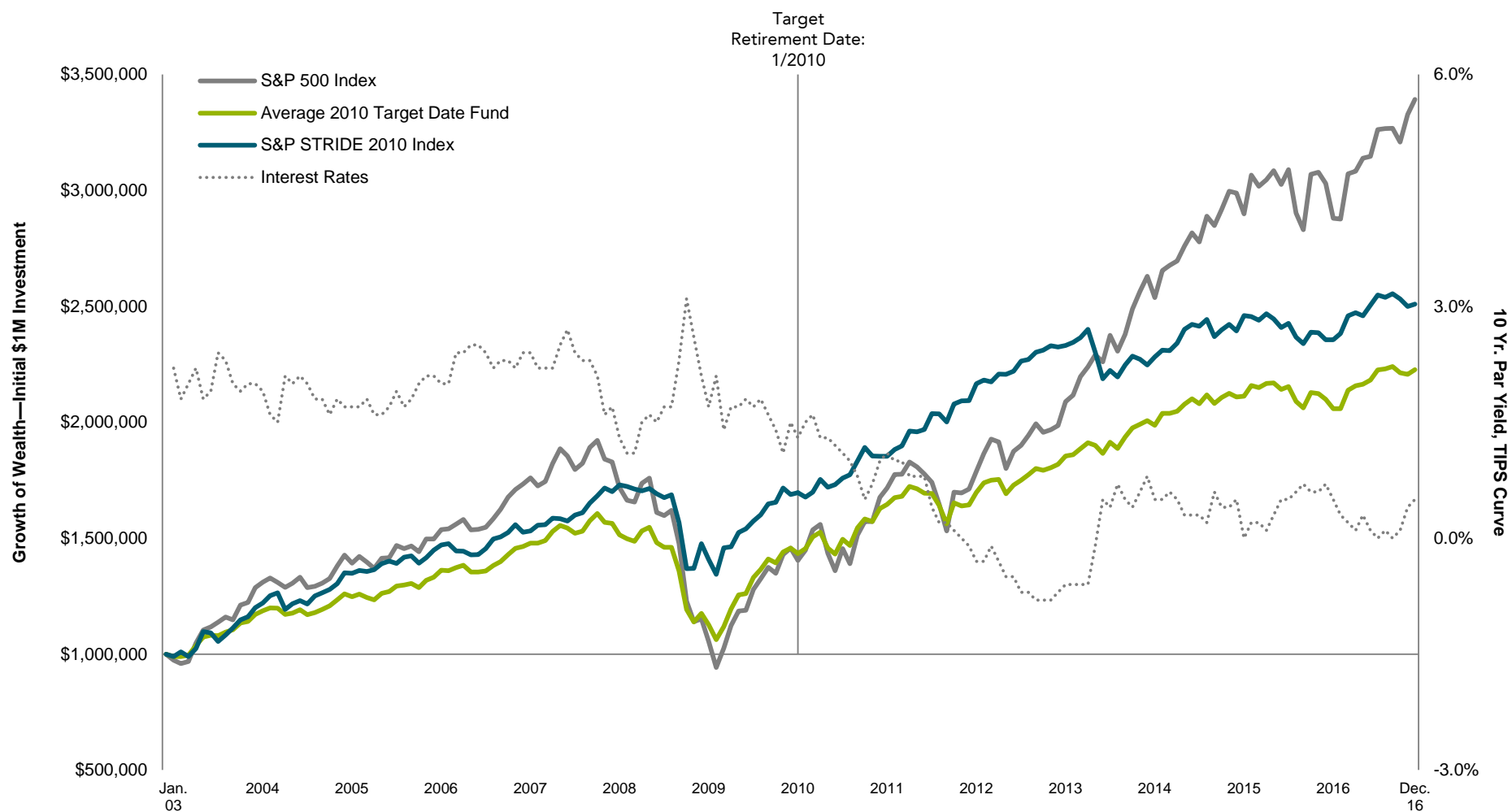
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Growth of Wealth—Initial \$1M Investment

2010 Vintage Target Date Series






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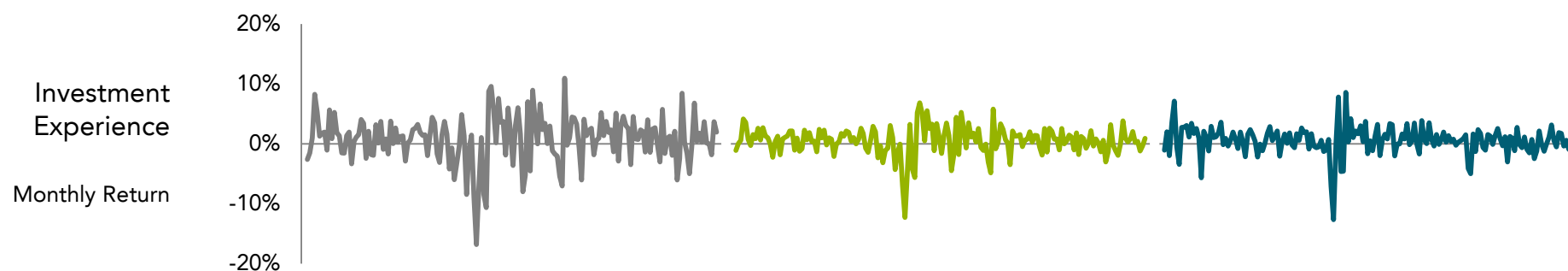
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Summary Statistics: Account Balance Units

Comparing 2010 Vintage Target Date Funds (2003–2016)

	 S&P 500 Index	 Average 2010 Target Date Fund	 S&P STRIDE 2010 Index
Return	9.1%	5.8%	6.8%
Standard Deviation	13.7%	8.2%	8.1%



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Reframing the Conversation

Relating Performance to the Goal

If the goal is to provide **retirement income**...

How should we evaluate performance?

In units consistent with the goal, income units

The Goal

Case Study: Retirement Income

25 years of equal annual
inflation-adjusted payments

Converting an Account Balance into an Income Stream

Step 1:

Define the Relevant
Income Stream

25 years of \$1
inflation-adjusted
income

Step 2:

Calculate the Cost
of Income

Step 3:

Convert an Accumulated
Balance into an Estimated
Income Stream

The Question

Hypothetical Case Study

If I want to retire in one year...
What does my \$1M in savings
mean in terms of income?

Calculating the Cost of Income

Timeline diagram showing cash flows from year 0 to year 25. Annual income (FV, \$) is represented by green boxes with '1' inside, starting from year 1 to year 25. Time (Year) is labeled from 0 to 25. Cost (PV, \$) is indicated by a red label at year 0.

Calculating the Cost of Income

Annual Income (FV,\$):		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Time (Year):	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Cost (PV, \$):																										

$$\text{Present Value} = \frac{\text{Future Value}}{(1 + \text{discount rate})^{\text{time}}}$$

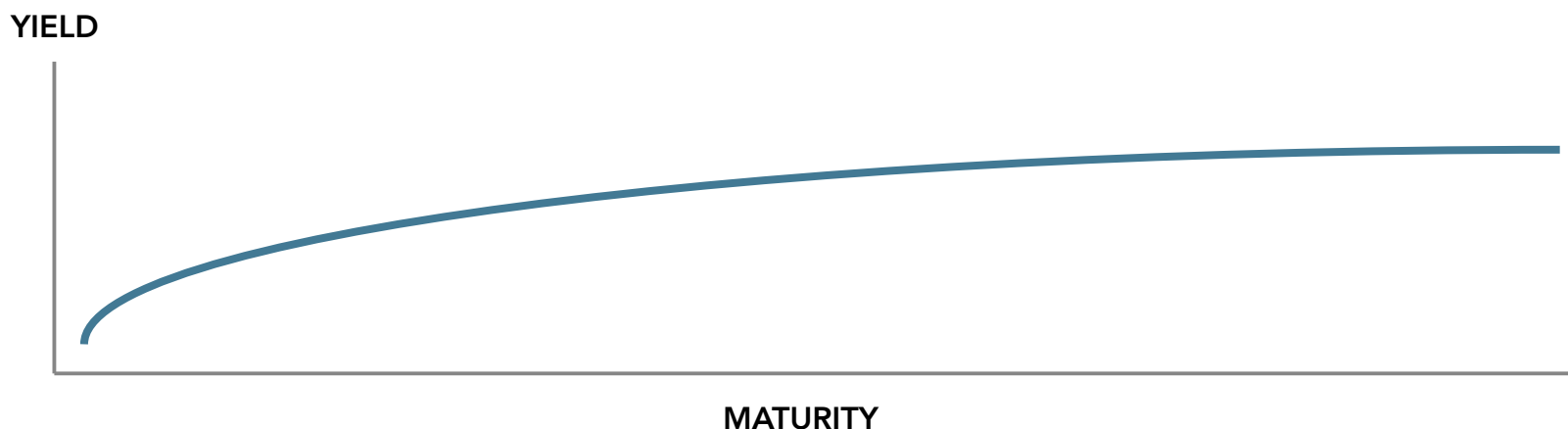
Calculating the Cost of Income



Annual Income (FV,\$):		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Time (Year):	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Cost (PV, \$):																										

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Calculating the Cost of Income

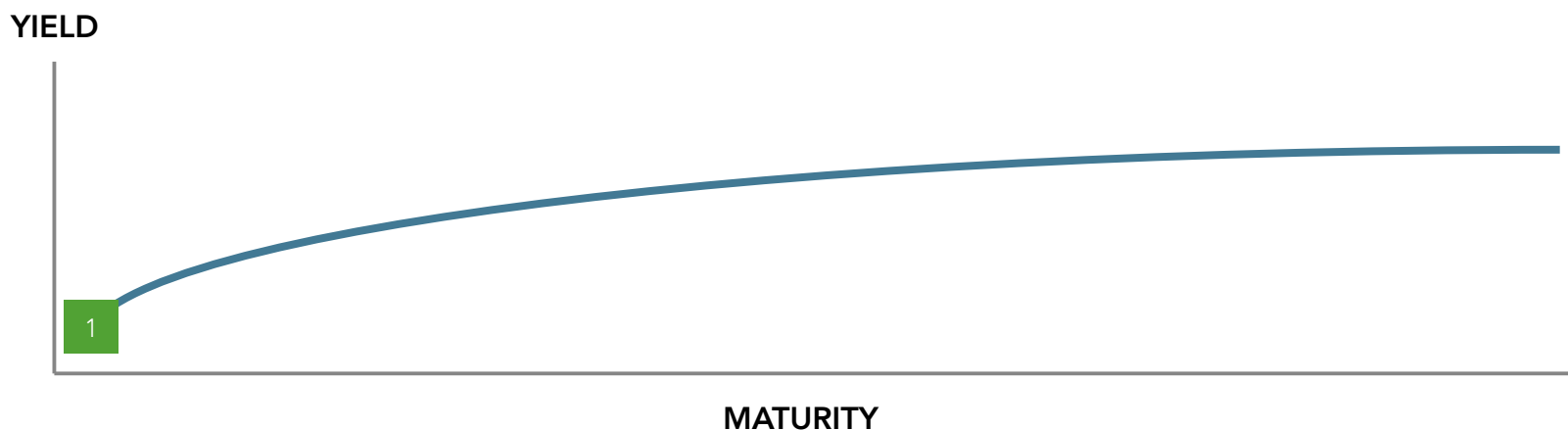


Annual Income (FV,\$):	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Time (Year):	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Cost (PV, \$):																										

$$\text{Present Value} = \frac{\text{Future Value}}{(1 + \text{discount rate})^{\text{time}}}$$

Calculating the Cost of Income

Year 1



Annual Income (FV,\$):



Time (Year):

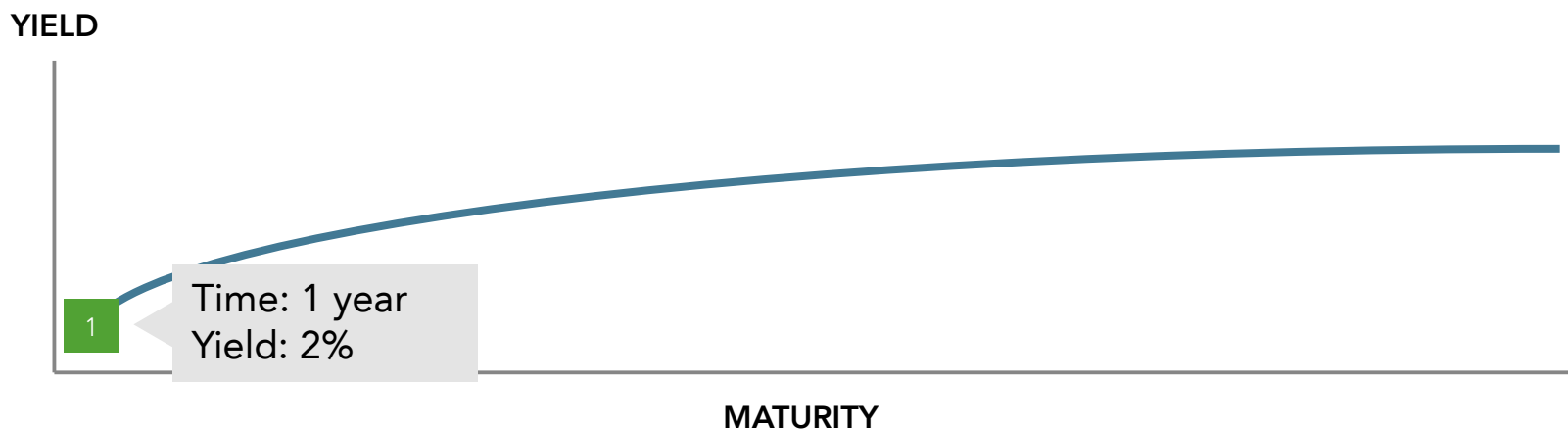
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

Cost (PV, \$):

$$\text{Present Value} = \frac{\text{Future Value}}{(1 + \text{discount rate})^{\text{time}}}$$

Calculating the Cost of Income

Year 1



Annual Income (FV,\$):



Time (Year):

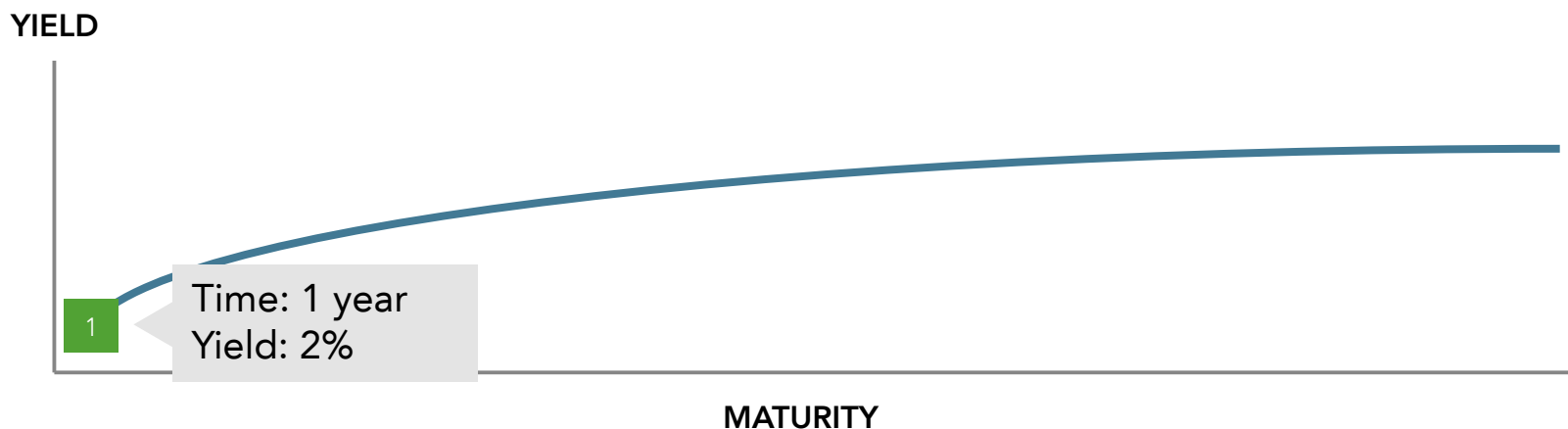
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

Cost (PV, \$):

$$\text{Present Value} = \frac{\text{Future Value}}{(1 + \text{discount rate})^{\text{time}}}$$

Calculating the Cost of Income

Year 1



Annual Income (FV,\$):



Time (Year):

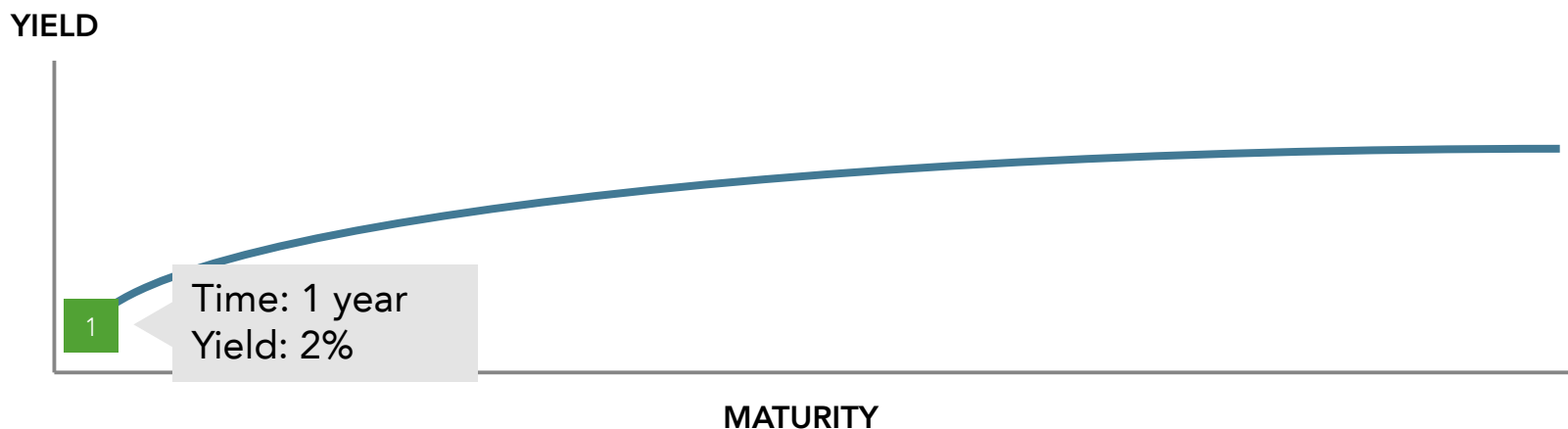
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

Cost (PV, \$):

$$\text{Present Value} = \frac{\$1.00}{(1 + 2\%)^1}$$

Calculating the Cost of Income

Year 1



Annual Income (FV,\$):



Time (Year):

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

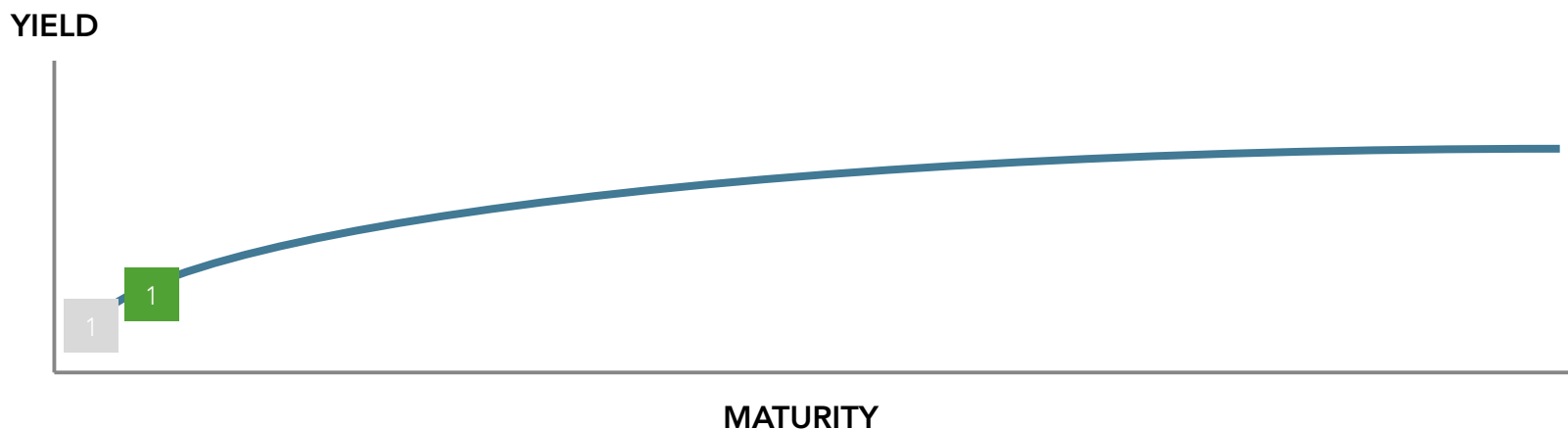
Cost (PV, \$):

.98

$$\text{Present Value} = \frac{\$1.00}{(1 + 2\%)^1} = \$0.98$$

Calculating the Cost of Income

Year 2



Annual Income (FV,\$):



Time (Year):

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

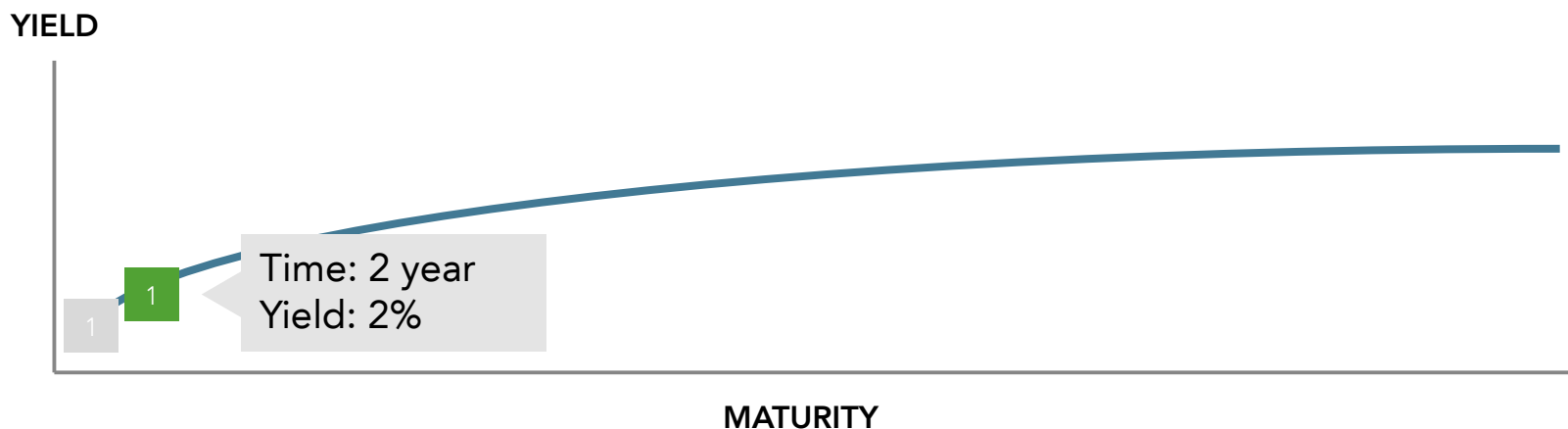
Cost (PV, \$):

.98

$$\text{Present Value} = \frac{\text{Future Value}}{(1 + \text{discount rate})^{\text{time}}}$$

Calculating the Cost of Income

Year 2



Annual Income (FV,\$):



Time (Year):

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

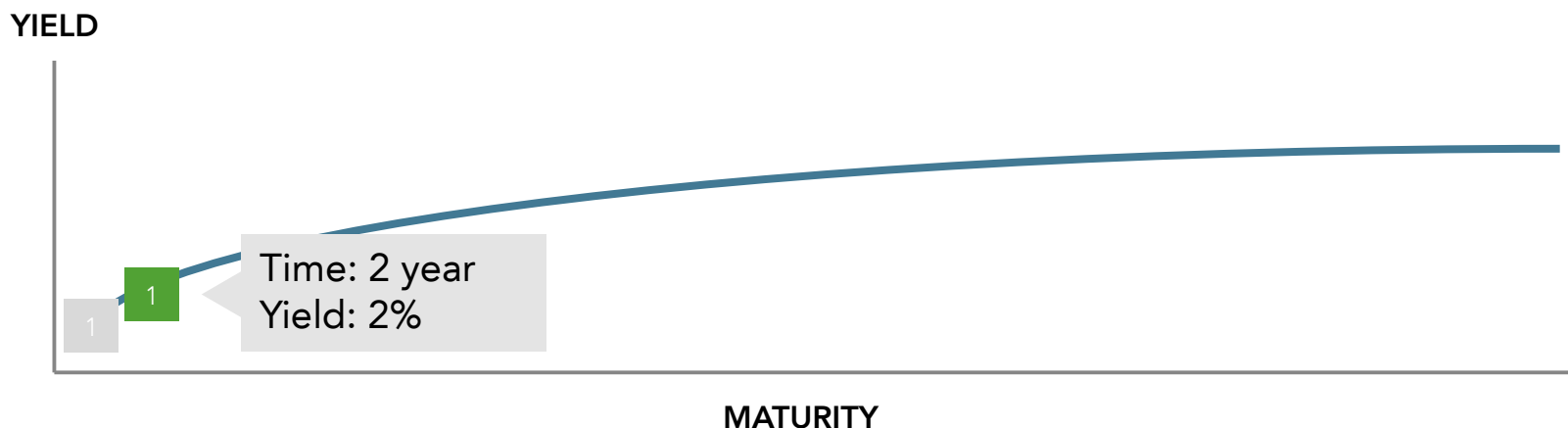
Cost (PV, \$):

.98

$$\text{Present Value} = \frac{\text{Future Value}}{(1 + \text{discount rate})^{\text{time}}}$$

Calculating the Cost of Income

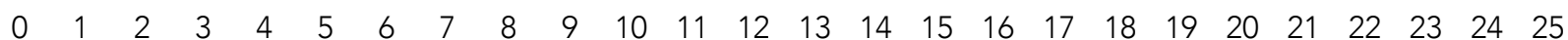
Year 2



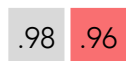
Annual Income (FV,\$):



Time (Year):



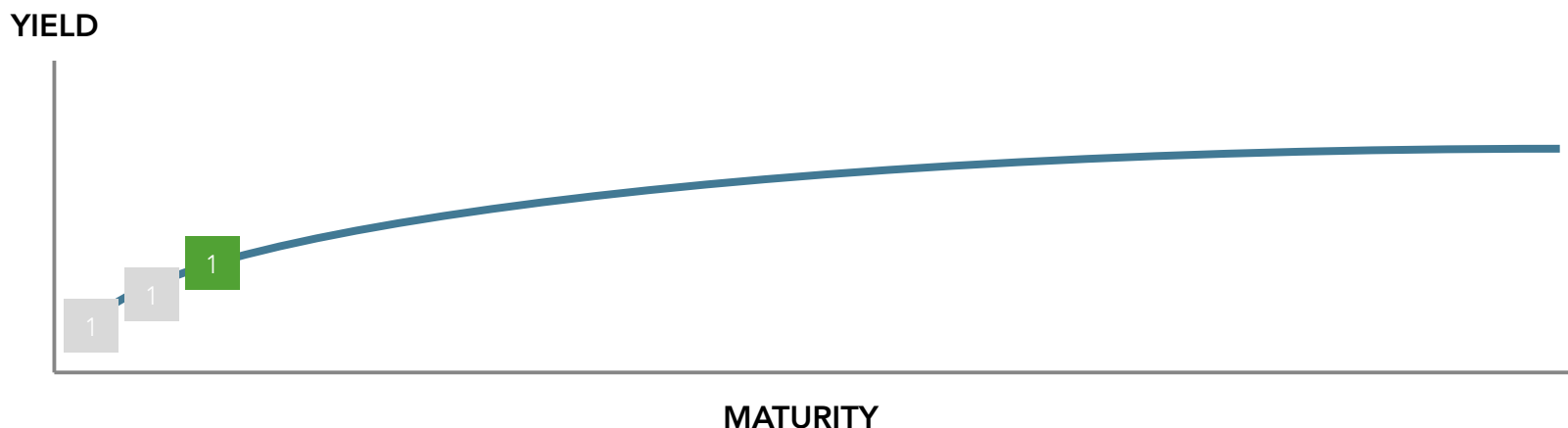
Cost (PV, \$):



$$\text{Present Value} = \frac{\$1.00}{(1 + 2\%)^2} = \$0.96$$

Calculating the Cost of Income

Year 3



Annual Income (FV,\$):



Time (Year):

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

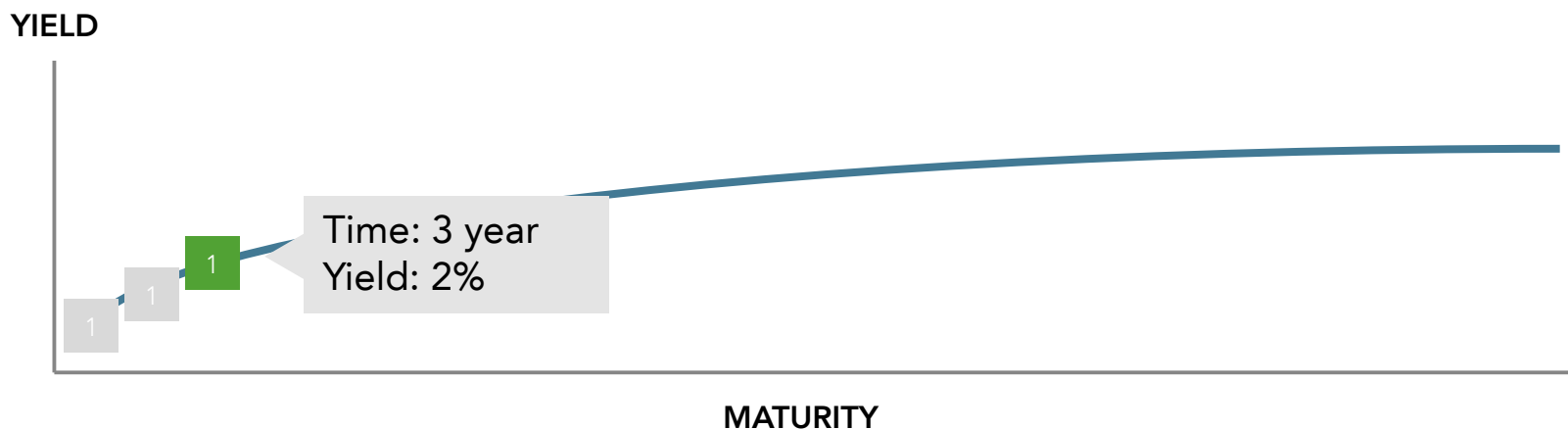
Cost (PV, \$):

.98 .96

$$\text{Present Value} = \frac{\text{Future Value}}{(1 + \text{discount rate})^{\text{time}}}$$

Calculating the Cost of Income

Year 3



Annual Income (FV,\$):



Time (Year):

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

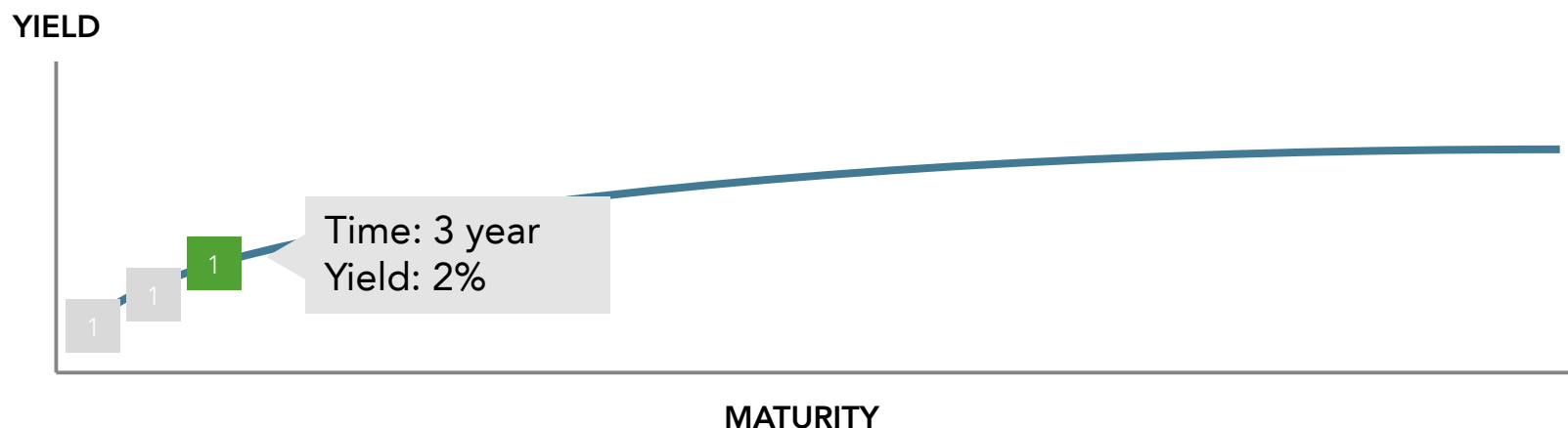
Cost (PV, \$):

.98 .96

$$\text{Present Value} = \frac{\text{Future Value}}{(1 + \text{discount rate})^{\text{time}}}$$

Calculating the Cost of Income

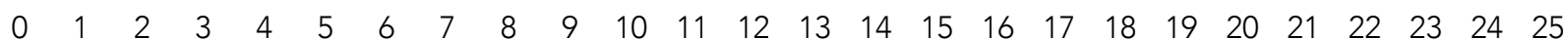
Year 3



Annual Income (FV,\$):



Time (Year):

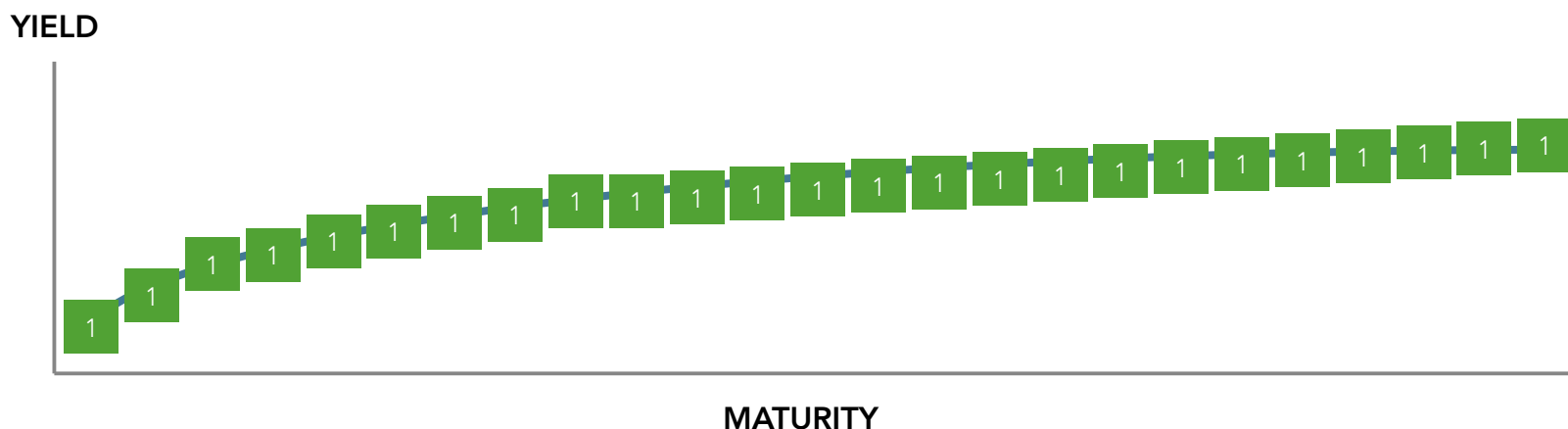


Cost (PV, \$):



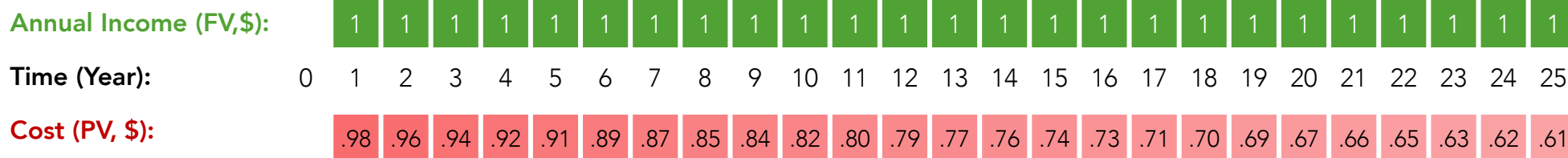
$$\text{Present Value} = \frac{\$1.00}{(1 + 2\%)^3} = \$0.94$$

Calculating the Cost of Income



Annual Income (FV,\$):		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Time (Year):	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Cost (PV, \$):		.98	.96	.94	.92	.91	.89	.87	.85	.84	.82	.80	.79	.77	.76	.74	.73	.71	.70	.69	.67	.66	.65	.63	.62	.61

$$\text{Present Value} = \frac{\text{Future Value}}{(1 + \text{discount rate})^{\text{time}}}$$



Total cost today:
\$19.52

Converting an Account Balance into an Income Stream

Step 1:

Define the Relevant
Income Stream

25 years of \$1
inflation-adjusted
income

Step 2:

Calculate the Cost
of Income

Total cost
today:

Step 3:

Convert an Accumulated
Balance into an Estimated
Income Stream

Estimated Annual
Income Stream:

Converting an Account Balance into an Income Stream

Step 1:

Define the Relevant
Income Stream

25 years of \$1
inflation-adjusted
income

Step 2:

Calculate the Cost
of Income

Total cost
today:
\$19.52

present value
of the stream
of income

Step 3:

Convert an Accumulated
Balance into an Estimated
Income Stream

Estimated Annual
Income Stream:

$$\text{Estimated Annual Income Stream} = \frac{\text{Account Balance}}{\text{Cost of Income}}$$

Converting an Account Balance into an Income Stream

Step 1:

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25 years of \$1
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Step 2:

Calculate the Cost
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Total cost
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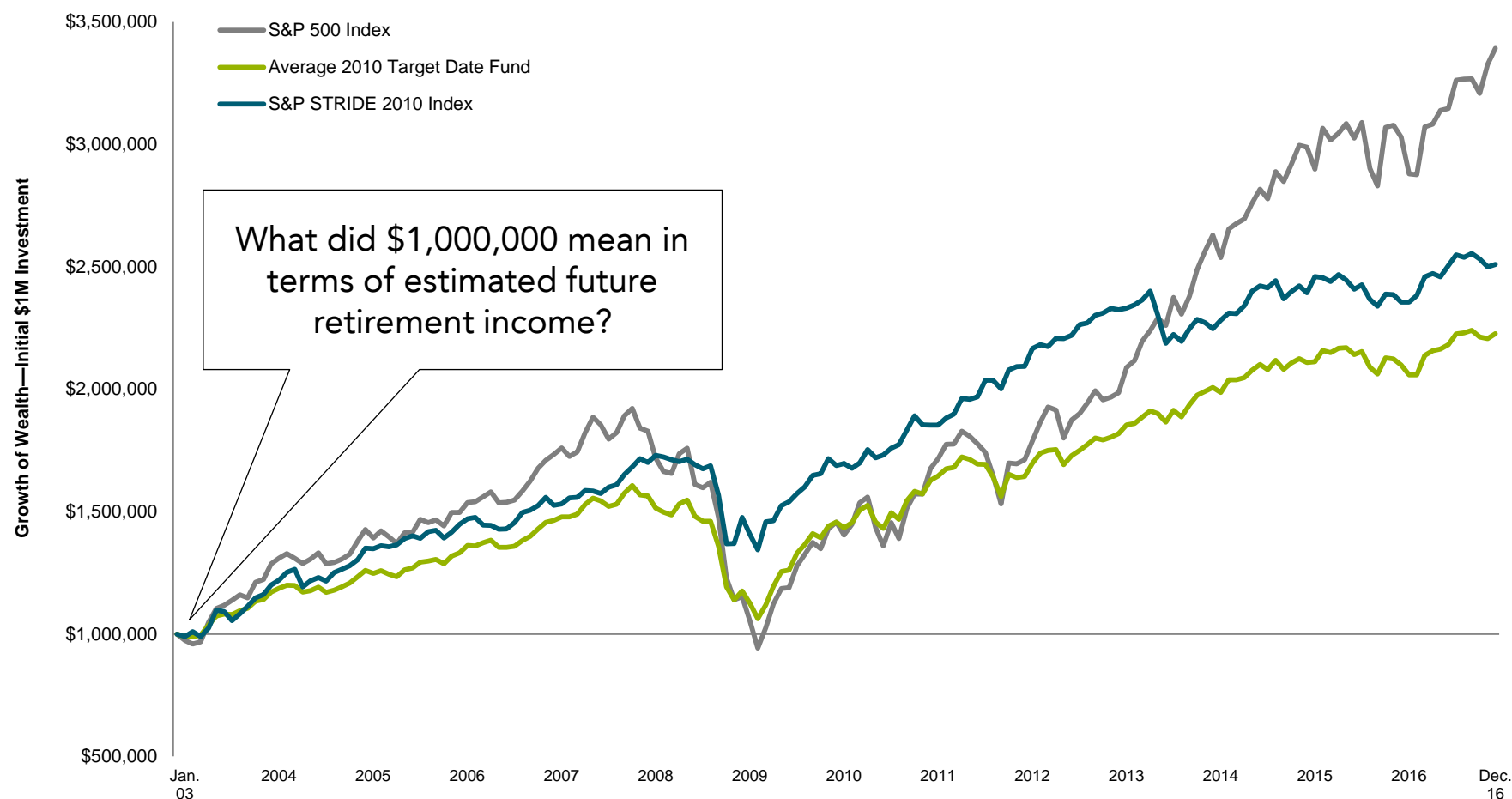
Convert an Accumulated
Balance into an Estimated
Income Stream

Estimated Annual
Income Stream:
\$51,220

$$\$51,220 = \frac{\$1,000,000}{\$19.52}$$

Assessing Retirement Readiness

Plan to retire in 2010, need \$75,000 per year in retirement to maintain standard of living



Past performance is not a guarantee of future results.

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Translating Wealth Into Estimated Retirement Income

Assuming Target Retirement Date of 2010 & the Goal is 25 Years Inflation-Adjusted Income

Account Balance ÷ Cost of Income = Estimated Annual Retirement Income

12/2002

Account Balance (Wealth Units)	
S&P 500 Index	\$1,000,000
Average 2010 Target Date Fund	\$1,000,000
S&P STRIDE 2010 Index	\$1,000,000

Account balance.

Translating Wealth Into Estimated Retirement Income

Assuming Target Retirement Date of 2010 & the Goal is 25 Years Inflation-Adjusted Income

Account Balance ÷ Cost of Income = Estimated Annual Retirement Income

	12/2002	
Account Balance (Wealth Units)		
S&P 500 Index	\$1,000,000	
Average 2010 Target Date Fund	\$1,000,000	Account balance.
S&P STRIDE 2010 Index	\$1,000,000	
Cost of Income	\$15.26	Present value of a 25-year \$1 inflation-adjusted income stream starting at retirement.

Translating Wealth Into Estimated Retirement Income

Assuming Target Retirement Date of 2010 & the Goal is 25 Years Inflation-Adjusted Income

Account Balance ÷ Cost of Income = Estimated Annual Retirement Income

12/2002

Account Balance (Wealth Units)	
S&P 500 Index	\$1,000,000
Average 2010 Target Date Fund	\$1,000,000
S&P STRIDE 2010 Index	\$1,000,000

Account balance.

Cost of Income	\$15.26
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Present value of a 25-year \$1 inflation-adjusted income stream starting at retirement.

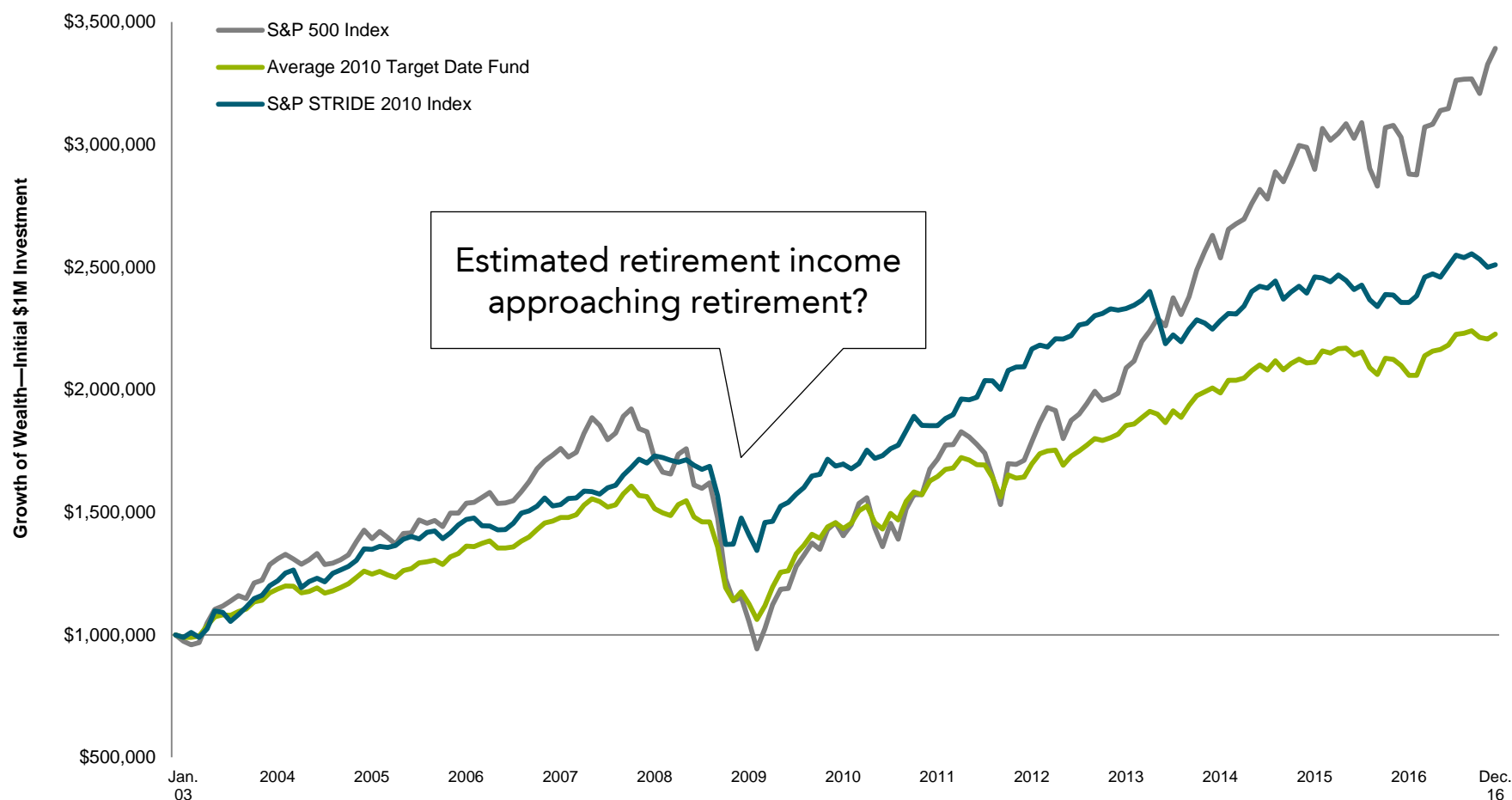
Estimated Retirement Income ¹	
S&P 500 Index	\$65,514
Average 2010 Target Date Fund	\$65,514
S&P STRIDE 2010 Index	\$65,514

Based on account balance and cost of income. Represents estimated 25 years of inflation-adjusted income the balance could provide starting in retirement.

1. Estimated retirement income represents 25 years of inflation-adjusted income consumed from the accumulated balance starting at retirement.

Monitoring Progress Over Time

Plan to retire in 2010, need \$75,000 per year in retirement to maintain standard of living



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Translating Wealth Into Estimated Retirement Income

Assuming Target Retirement Date of 2010 & the Goal is 25 Years Inflation-Adjusted Income

Account Balance ÷ Cost of Income = Estimated Annual Retirement Income

	12/2002	10/2007	
Account Balance (Wealth Units)			
S&P 500 Index	\$1,000,000	\$1,921,831	Account balances changed.
Average 2010 Target Date Fund	\$1,000,000	\$1,603,879	
S&P STRIDE 2010 Index	\$1,000,000	\$1,682,908	
Cost of Income	\$15.26		
Estimated Retirement Income ¹			
S&P 500 Index	\$65,514		
Average 2010 Target Date Fund	\$65,514		
S&P STRIDE 2010 Index	\$65,514		

1. Estimated retirement income represents 25 years of inflation-adjusted income consumed from the accumulated balance starting at retirement.

Translating Wealth Into Estimated Retirement Income

Assuming Target Retirement Date of 2010 & the Goal is 25 Years Inflation-Adjusted Income

Account Balance ÷ Cost of Income = Estimated Annual Retirement Income

	12/2002	10/2007	
Account Balance (Wealth Units)			
S&P 500 Index	\$1,000,000	\$1,921,831	
Average 2010 Target Date Fund	\$1,000,000	\$1,603,879	Account balances changed.
S&P STRIDE 2010 Index	\$1,000,000	\$1,682,908	
Cost of Income	\$15.26	\$18.40	Cost of income changed.
Estimated Retirement Income ¹			
S&P 500 Index	\$65,514		
Average 2010 Target Date Fund	\$65,514		
S&P STRIDE 2010 Index	\$65,514		

1. Estimated retirement income represents 25 years of inflation-adjusted income consumed from the accumulated balance starting at retirement.

Translating Wealth Into Estimated Retirement Income

Assuming Target Retirement Date of 2010 & the Goal is 25 Years Inflation-Adjusted Income

Account Balance ÷ Cost of Income = Estimated Annual Retirement Income

	12/2002	10/2007	
Account Balance (Wealth Units)			
S&P 500 Index	\$1,000,000	\$1,921,831	
Average 2010 Target Date Fund	\$1,000,000	\$1,603,879	Account balances changed.
S&P STRIDE 2010 Index	\$1,000,000	\$1,682,908	
Cost of Income	\$15.26	\$18.40	Cost of income changed.
Estimated Retirement Income ¹			
S&P 500 Index	\$65,514	\$104,435	
Average 2010 Target Date Fund	\$65,514	\$87,157	Estimated retirement income changed.
S&P STRIDE 2010 Index	\$65,514	\$91,452	

1. Estimated retirement income represents 25 years of inflation-adjusted income consumed from the accumulated balance starting at retirement.

Translating Wealth Into Estimated Retirement Income

Assuming Target Retirement Date of 2010 & the Goal is 25 Years Inflation-Adjusted Income

Account Balance ÷ Cost of Income = Estimated Annual Retirement Income

	12/2002	10/2007	2/2009
Account Balance (Wealth Units)			
S&P 500 Index	\$1,000,000	\$1,921,831	\$942,686
Average 2010 Target Date Fund	\$1,000,000	\$1,603,879	\$1,059,498
S&P STRIDE 2010 Index	\$1,000,000	\$1,682,908	\$1,343,495
Cost of Income	\$15.26	\$18.40	
Estimated Retirement Income ¹			
S&P 500 Index	\$65,514	\$104,435	
Average 2010 Target Date Fund	\$65,514	\$87,157	
S&P STRIDE 2010 Index	\$65,514	\$91,452	

1. Estimated retirement income represents 25 years of inflation-adjusted income consumed from the accumulated balance starting at retirement.

Translating Wealth Into Estimated Retirement Income

Assuming Target Retirement Date of 2010 & the Goal is 25 Years Inflation-Adjusted Income

Account Balance ÷ Cost of Income = Estimated Annual Retirement Income

	12/2002	10/2007	2/2009
Account Balance (Wealth Units)			
S&P 500 Index	\$1,000,000	\$1,921,831	\$942,686
Average 2010 Target Date Fund	\$1,000,000	\$1,603,879	\$1,059,498
S&P STRIDE 2010 Index	\$1,000,000	\$1,682,908	\$1,343,495
Cost of Income	\$15.26	\$18.40	\$18.10
Estimated Retirement Income ¹			
S&P 500 Index	\$65,514	\$104,435	
Average 2010 Target Date Fund	\$65,514	\$87,157	
S&P STRIDE 2010 Index	\$65,514	\$91,452	

1. Estimated retirement income represents 25 years of inflation-adjusted income consumed from the accumulated balance starting at retirement.

Translating Wealth Into Estimated Retirement Income

Assuming Target Retirement Date of 2010 & the Goal is 25 Years Inflation-Adjusted Income

Account Balance ÷ Cost of Income = Estimated Annual Retirement Income

	12/2002	10/2007	2/2009
Account Balance (Wealth Units)			
S&P 500 Index	\$1,000,000	\$1,921,831	\$942,686
Average 2010 Target Date Fund	\$1,000,000	\$1,603,879	\$1,059,498
S&P STRIDE 2010 Index	\$1,000,000	\$1,682,908	\$1,343,495
Cost of Income	\$15.26	\$18.40	\$18.10
Estimated Retirement Income ¹			
S&P 500 Index	\$65,514	\$104,435	\$52,068
Average 2010 Target Date Fund	\$65,514	\$87,157	\$58,520
S&P STRIDE 2010 Index	\$65,514	\$91,452	\$74,206

Income goal is
\$75,000 per year.

1. Estimated retirement income represents 25 years of inflation-adjusted income consumed from the accumulated balance starting at retirement.

Translating Wealth Into Estimated Retirement Income

Assuming Target Retirement Date of 2010 & the Goal is 25 Years Inflation-Adjusted Income

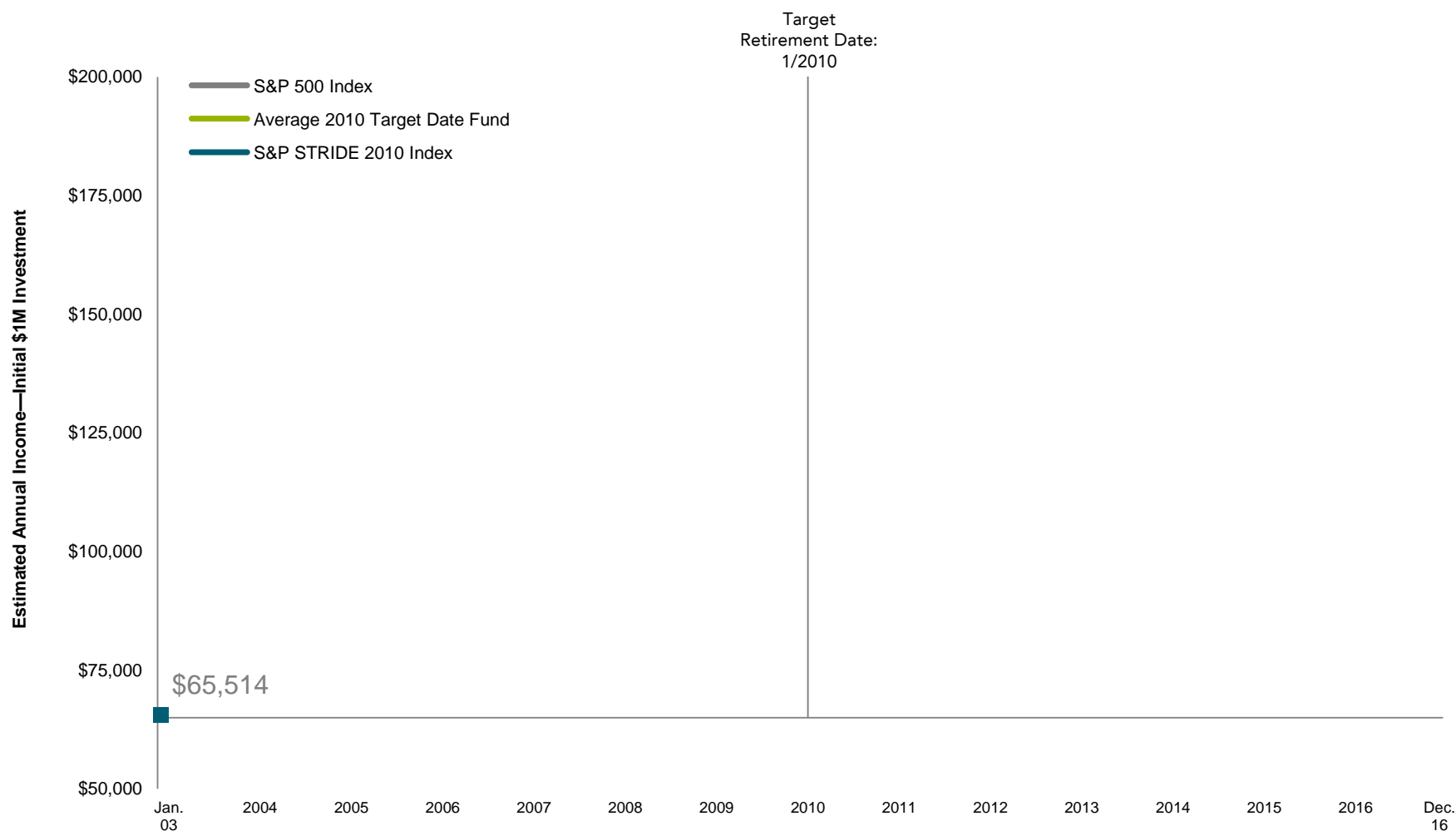
Account Balance ÷ Cost of Income = Estimated Annual Retirement Income

	12/2002	10/2007	2/2009	1/2010
Account Balance (Wealth Units)				
S&P 500 Index	\$1,000,000	\$1,921,831	\$942,686	\$1,404,622
Average 2010 Target Date Fund	\$1,000,000	\$1,603,879	\$1,059,498	\$1,432,354
S&P STRIDE 2010 Index	\$1,000,000	\$1,682,908	\$1,343,495	\$1,696,534
Cost of Income	\$15.26	\$18.40	\$18.10	\$20.27
Estimated Retirement Income¹				
S&P 500 Index	\$65,514	\$104,435	\$52,068	\$69,285
Average 2010 Target Date Fund	\$65,514	\$87,157	\$58,520	\$70,652
S&P STRIDE 2010 Index	\$65,514	\$91,452	\$74,206	\$83,683

1. Estimated retirement income represents 25 years of inflation-adjusted income consumed from the accumulated balance starting at retirement.

Growth of Income—Initial \$1M Investment

2010 Vintage Target Date Series



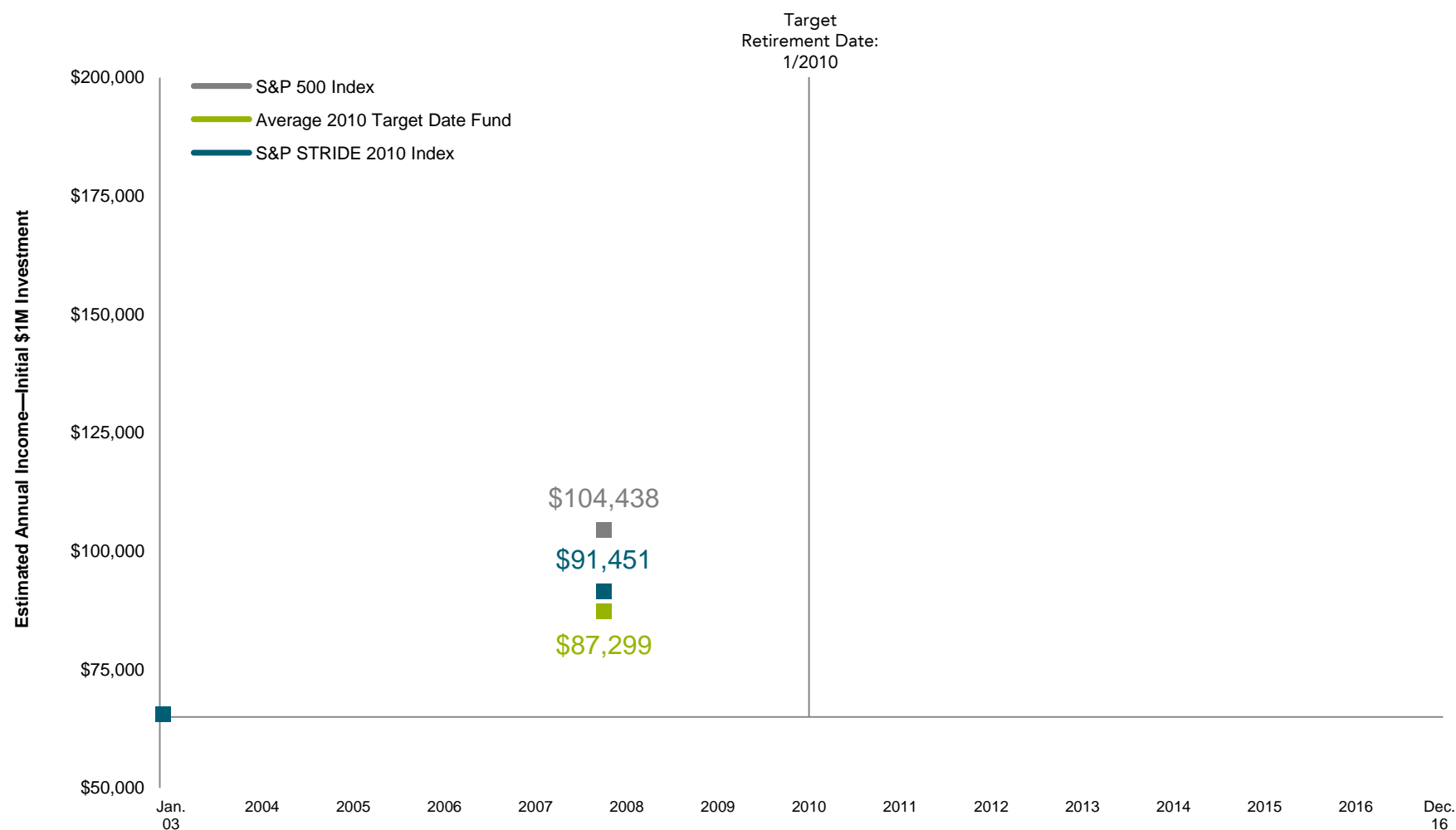
Past performance is not a guarantee of future results.

Notes and Sources: Growth of income computed by dividing growth of wealth by the S&P STRIDE 2010 Cost of Income. S&P 500 Index and S&P STRIDE data from S&P Dow Jones Indices. Average 2010 Target Date Fund is the asset weighted average across the 2010 target date fund families included in the Morningstar universe. As of December 2016 the data included 57 target date fund families. Data from Morningstar.

Indices are not available for direct investment. Performance does not reflect the expenses associated with the management of an actual portfolio. See "S&P STRIDE Index Series Description and Disclosures" and "S&P Stride Index Series Hypothetical Performance Disclosure" in Appendix.

Growth of Income—Initial \$1M Investment

2010 Vintage Target Date Series



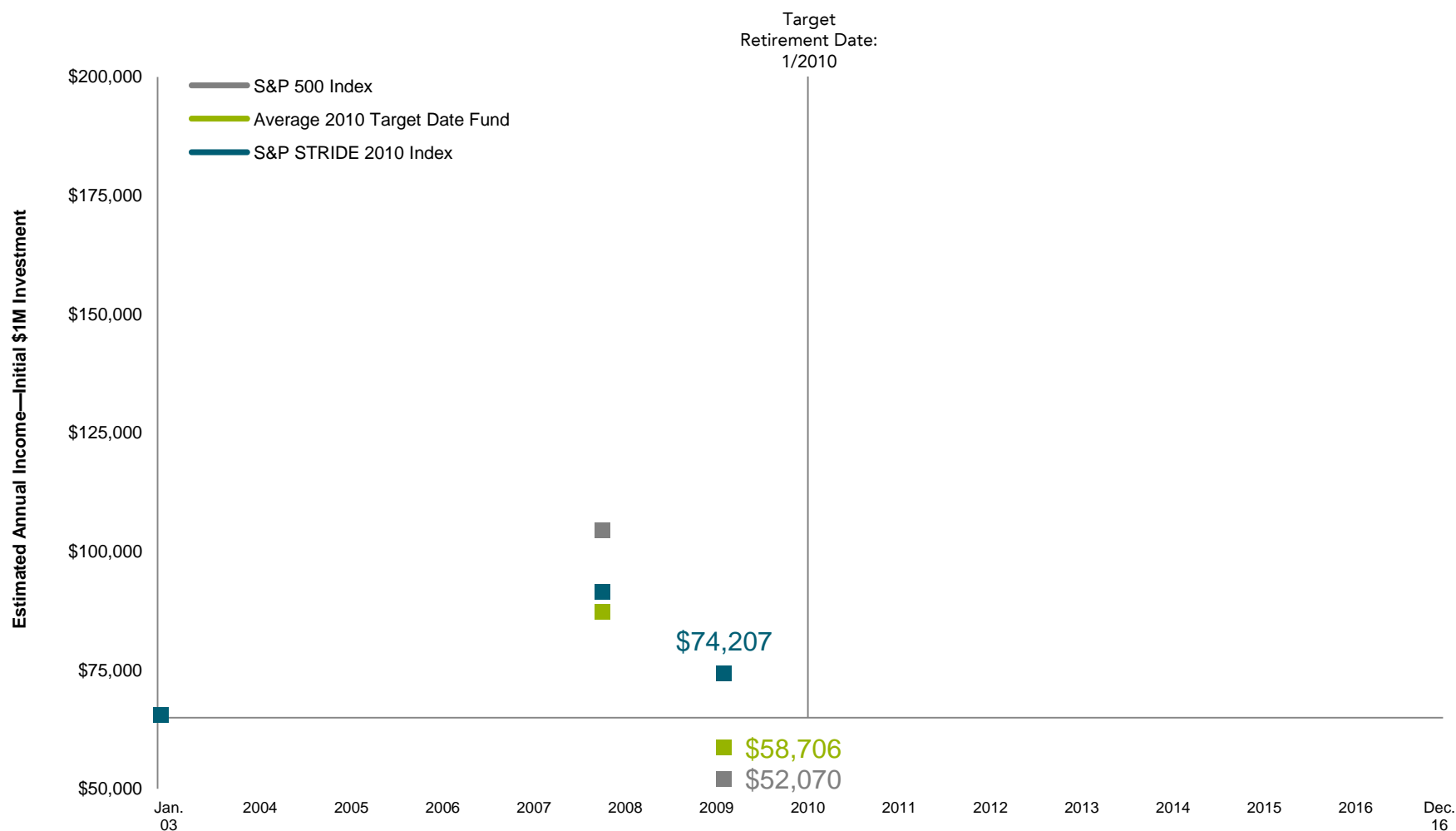
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Growth of Income—Initial \$1M Investment

2010 Vintage Target Date Series



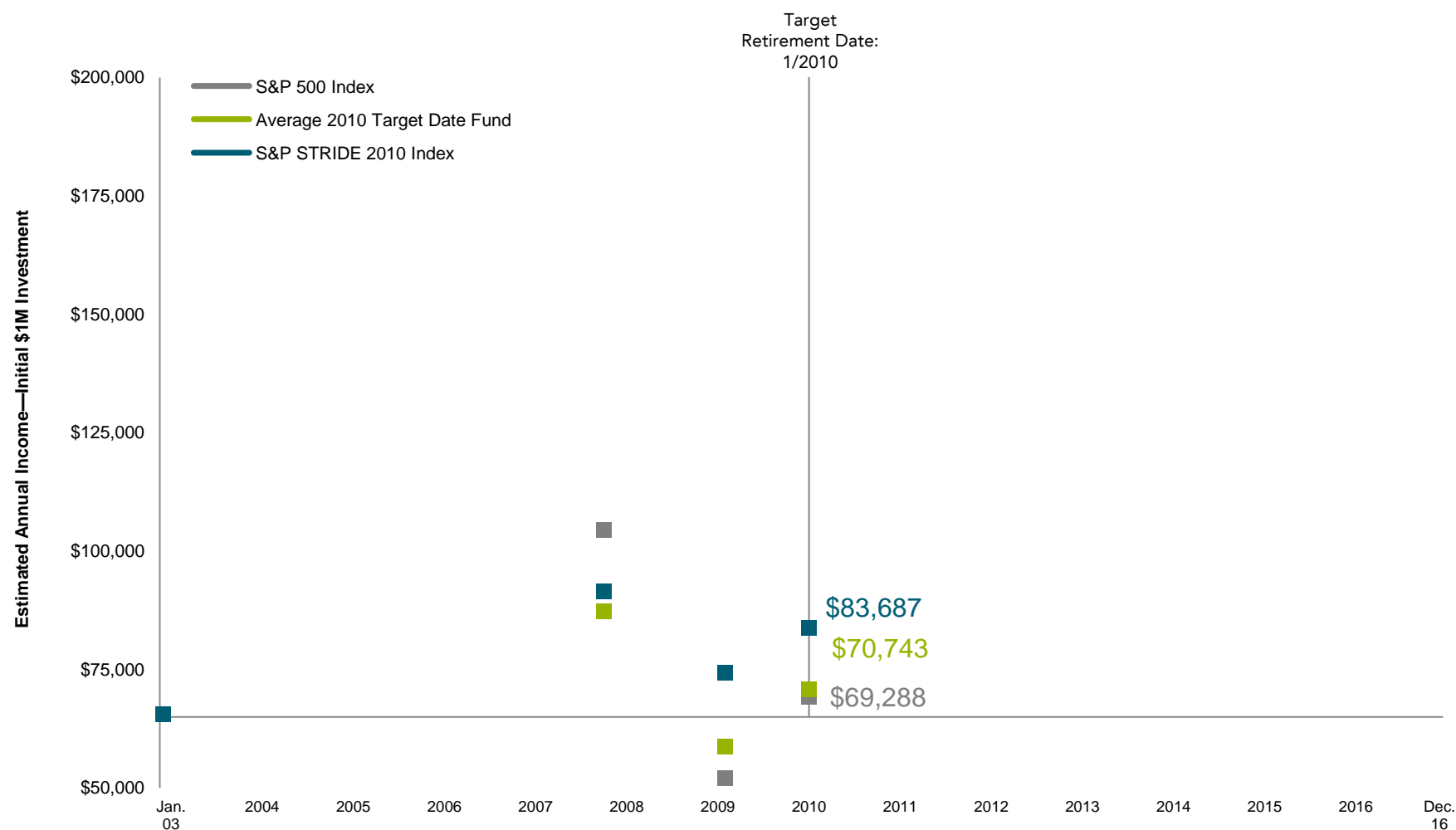
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Growth of Income—Initial \$1M Investment

2010 Vintage Target Date Series



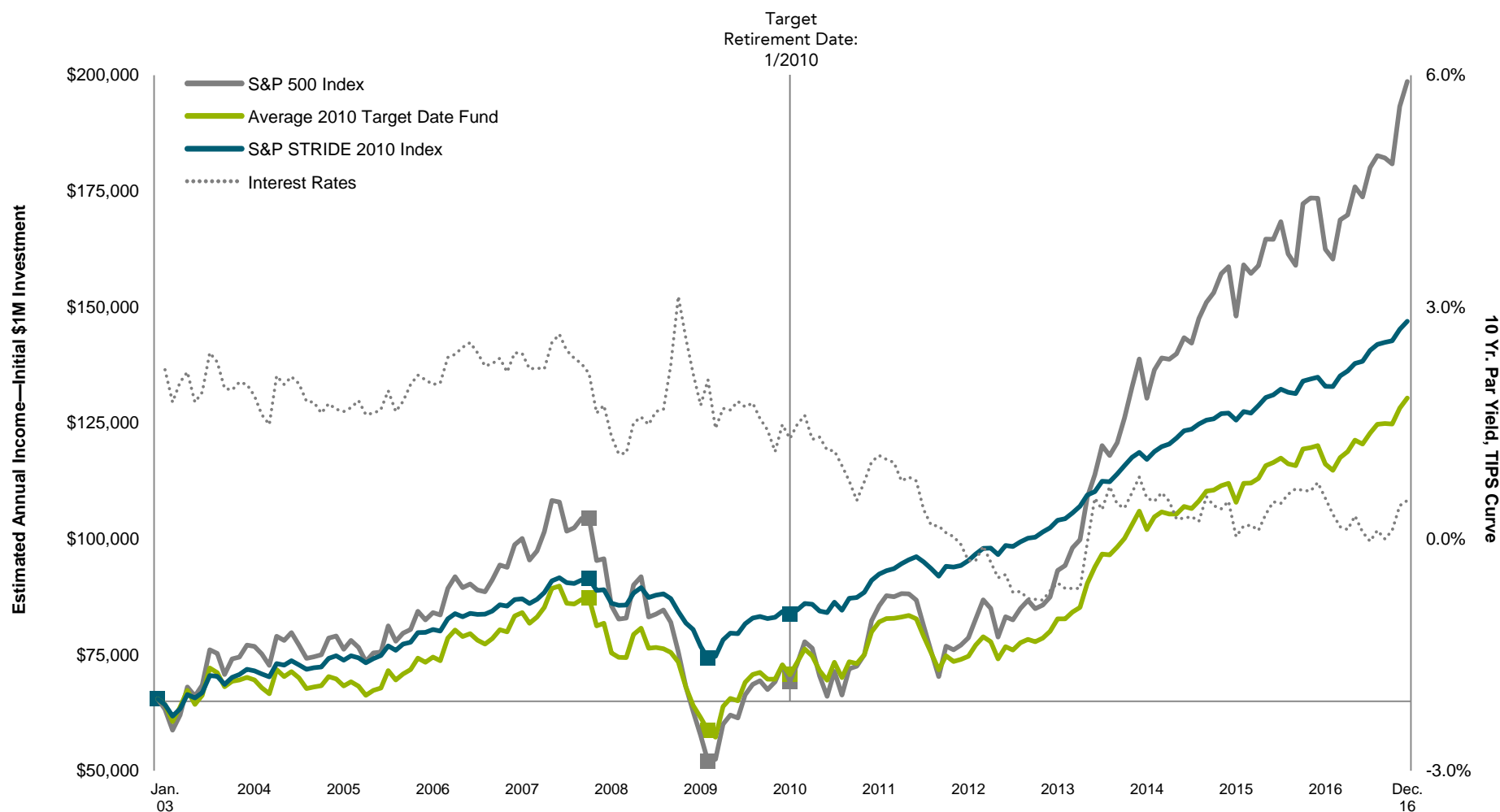
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Growth of Income—Initial \$1M Investment

2010 Vintage Target Date Series



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Tools and Resources

Enabling Meaningful Engagement

My Retirement Calculator

How much income should you expect your retirement savings to generate once you stop working? It is a question many people ask in different ways. When thinking about retirement, understanding how much income you can expect makes planning easier, and having a clear picture of where you are today can help you make informed decisions that can influence your future. This calculator is designed to help give you a sense of how much income you can expect to be able to afford at retirement based on several inputs and an assumed asset allocation that shifts over time.

How to read this calculator

Account Balance

\$75,000

Current Annual Income

\$50,000

Each month I contribute

\$500

%

Each month my employer contributes

\$250

%

Retirement Age

65

Withdrawal Period

25

Social Security

\$0

+

Other Income

\$0

Recalculate

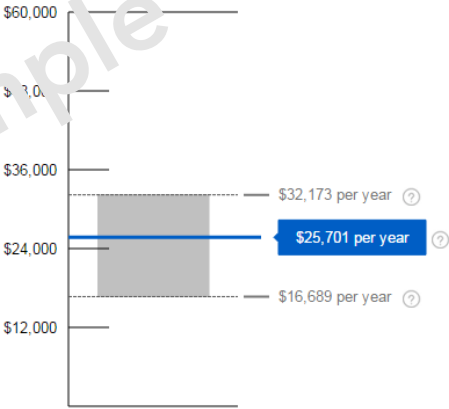
Select a chart

Total

Balance

Future Contributions

TOTAL ANNUAL PROJECTED RETIREMENT INCOME



Your Estimated Retirement Income Report

First Name, Last Name
Account Number: XXXXXX

REPORT AS OF: 10/15/2020

PAGE: 1 OF 3

How much income should you expect your retirement savings to generate once you stop working? It is a question many people ask in different ways. When thinking about retirement, understanding how much income you can expect makes planning easier, and having a clear picture of where you are today can help you make informed decisions that can influence your future. This report is designed to help give you a sense of how much income you can expect to be able to afford at retirement based on several inputs and an assumed asset allocation that shifts over time. In order to see how decisions you can make today may impact your retirement readiness—for example, increasing your contributions—visit [JURU/LINK](#).

INPUTS			
Current Balance	\$100,000		
Current Total Annual Contributions	\$100,000		
Target Retirement Year	2030		
Withdrawal Period	25 Years		
1. Includes contributions made for you and your employer.			


ASSET ALLOCATION			
	Global Equities	Global Bonds	International Bonds
Current Hypothetical Asset Allocation	XX%	XX%	XX%

The current hypothetical asset allocation is based on the number of years until your targeted retirement year. The asset allocation shifts as the retirement year approaches, with a larger proportion of assets assumed to be invested in inflation-protected bonds. For more information on the asset allocation, please see the important disclosures on the following page.

Based on the above inputs and asset allocation, your total annual projected retirement income is **\$XXX,XXX**.

This is the sum of your median projected income from your current balance and your median projected income from future contributions (based on your current annual contributions). The chart below includes more information about the range of your projected retirement income. Additional details on your projected income range from your current balance and future contributions can be found on the following page.

TOTAL PROJECTED RETIREMENT INCOME



How to Read the Charts

NUMBERS ATTACHED TO TOP OF CHART BOX: This is the sum of the 75th percentile of estimated retirement income from balance and the 75th percentile of estimated retirement income from contributions. The 75th percentile of a distribution represents the amount at which 25% of one set of outcomes was larger than or equal to the corresponding amount shown.

MEDIAN NUMBER IN MIDDLE: This is the sum of the median estimated retirement income from balance and the median estimated retirement income from contributions. The median of a distribution represents the amount at which half of the expected outcomes were larger and half of the expected outcomes were smaller than the corresponding amount shown.

NUMBERS ATTACHED TO THE BOTTOM OF THE CHART BOX: This is the sum of the 25th percentile of estimated retirement income from balance and the 25th percentile of estimated retirement income from contributions. The 25th percentile of a distribution represents the amount at which 75% of one set of outcomes were larger than or equal to the corresponding amount shown.

Please see the following pages for important details about assumptions and disclosures.

For illustrative purposes only. The estimated retirement income projections of the calculator are hypothetical in nature and are not a guarantee of future results. Since past performance is not an accurate predictor of the future and reliance on historical and current data involves inherent limitations, it is important to understand that the estimates are only a tool to be used in evaluating your retirement portfolio. Actual results will vary.

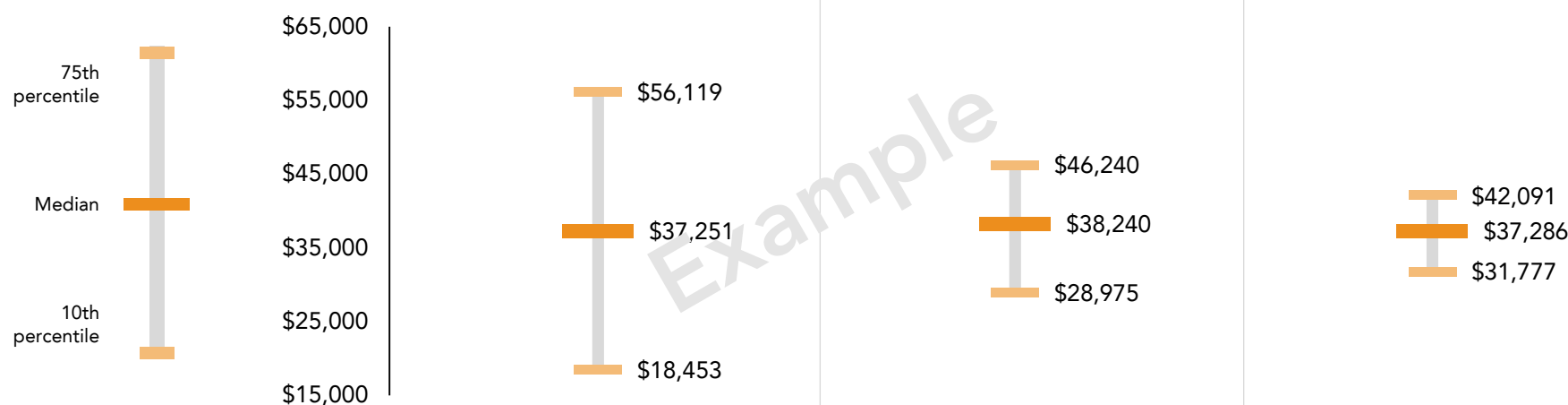
My Retirement Income Calculator

Increasing levels of clarity around how much income your savings may provide in retirement

Inputs:

	EARLY YEARS	APPROACHING RETIREMENT	IN RETIREMENT
Current Age	35	60	65
Retirement Age	65	65	65
Current Account Balance	\$80,000	\$700,000	\$860,000
Current Annual Income	\$100,000	\$100,000	—
Monthly Contributions ¹	12%	12%	—
Withdrawal Period	25 years	25 years	25 years

Estimated Annual Retirement Income:



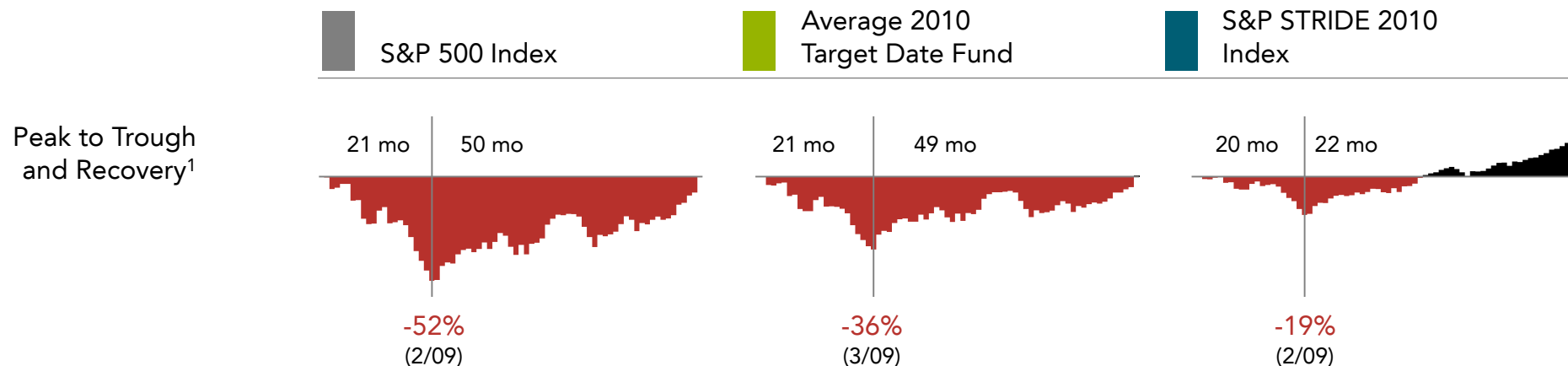
As of March 31, 2016. For illustrative purposes only. The estimated retirement income projections of the calculator are hypothetical in nature and are not a guarantee of future results. Since past performance is not an accurate predictor of the future and reliance on historical and current data involves inherent limitations, it is important to understand that the estimates are only a tool to be used in evaluating your retirement portfolio. Actual results will vary.

1. Includes employee contributions of 8% and employer contributions of 4%.

Appendix

Estimated Income: Peak to Trough and Recovery

Comparing 2010 Vintage Target Date Funds (2003–2016)



Past performance is not a guarantee of future results.




1. Represents performance of each index over the period of the maximum peak to trough loss of the S&P 500 Index over the time period January 2003–December 2016.

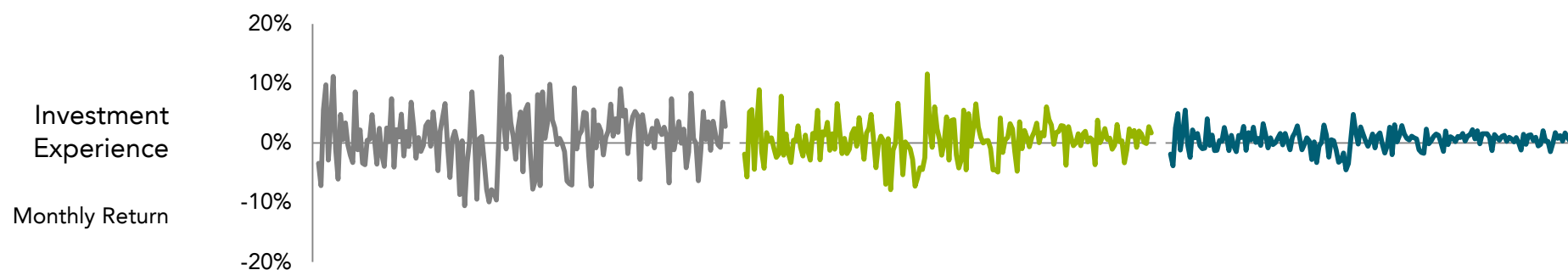
Notes and Sources: Growth of income computed by dividing growth of wealth by the S&P STRIDE 2010 Cost of Income. S&P 500 Index and S&P STRIDE data from S&P Dow Jones Indices. Average 2010 Target Date Fund is the asset weighted average across the 2010 target date fund families included in the Morningstar universe. As of December 2016 the data included 57 target date fund families. Data from Morningstar.

Indices are not available for direct investment. Performance does not reflect the expenses associated with the management of an actual portfolio. See "S&P STRIDE Index Series Description and Disclosures" and "S&P Stride Index Series Hypothetical Performance Disclosure" in Appendix.

Summary Statistics: Income Units

Comparing 2010 Vintage Target Date Funds (2003–2016)

	 S&P 500 Index	 Average 2010 Target Date Fund	 S&P STRIDE 2010 Index
Return	8.2%	5.0%	5.9%
Standard Deviation	16.1%	10.8%	5.5%



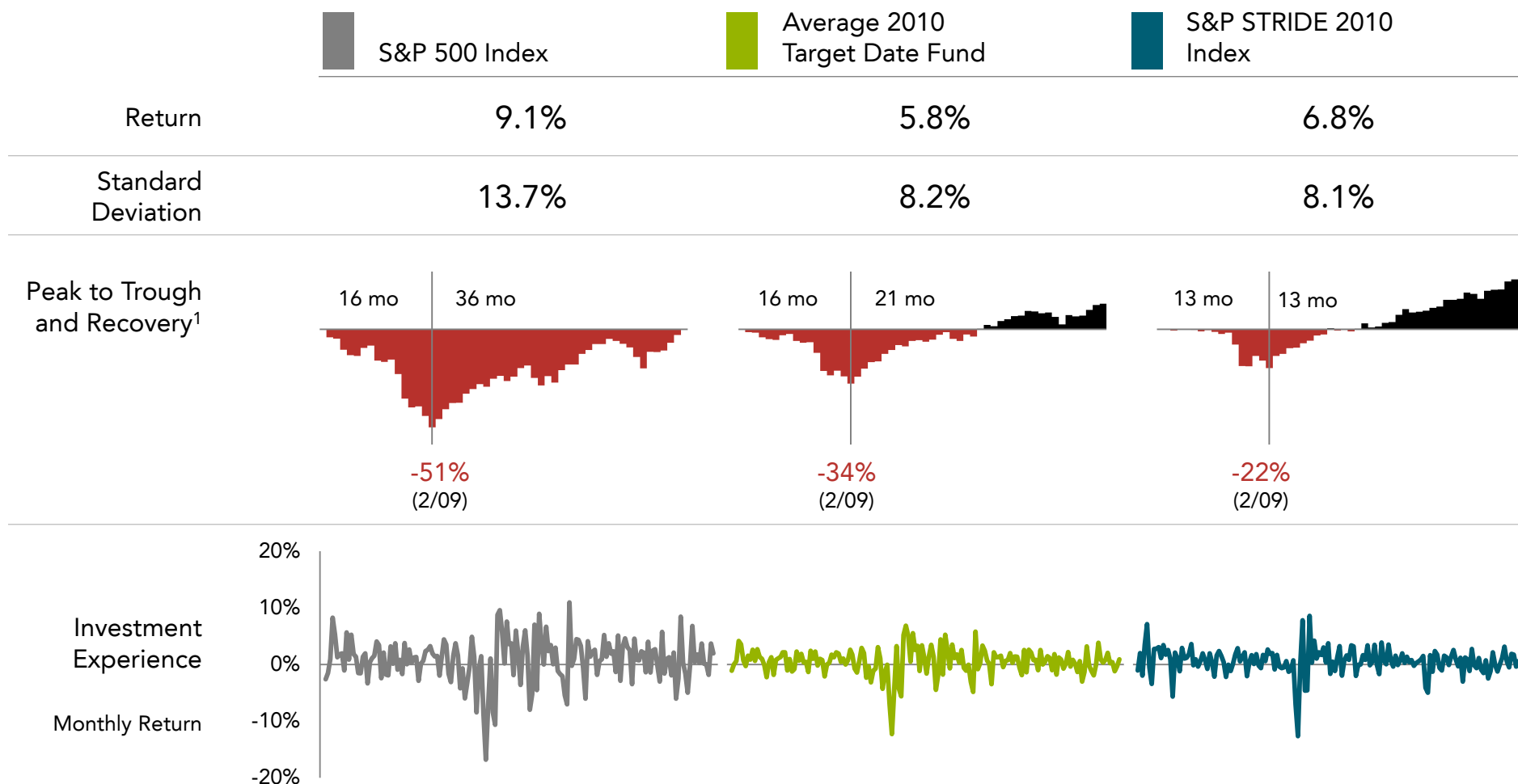
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Summary Statistics: Wealth Units

Comparing 2010 Vintage Target Date Funds (2003–2016)



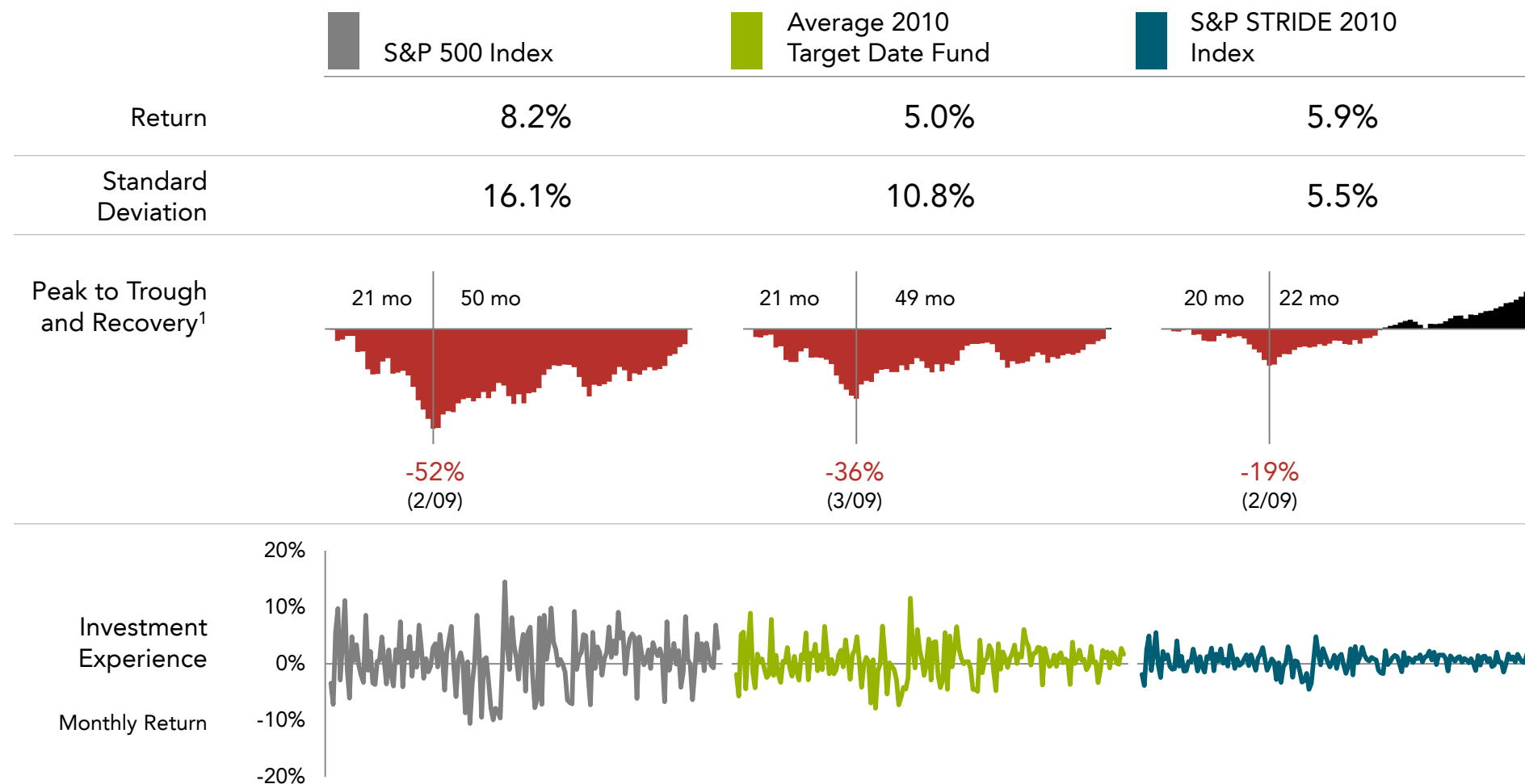
Past performance is not a guarantee of future results.

1. Represents maximum loss/drawdown for peak to trough of each index over the time period January 2003–December 2016.

Notes and Sources: S&P 500 Index and S&P STRIDE data from S&P Dow Jones Indices Average 2010 Target Date Fund is the asset weighted average across the 2010 target date fund families included in the Morningstar universe. As of December 2016 the data included 57 target date fund families. Data from Morningstar. Indices are not available for direct investment. Performance does not reflect the expenses associated with the management of an actual portfolio. See "S&P STRIDE Index Series Description and Disclosures" and "S&P Stride Index Series Hypothetical Performance Disclosure" in Appendix.

Summary Statistics: Income Units

Comparing 2010 Vintage Target Date Funds (2003–2016)



Past performance is not a guarantee of future results.

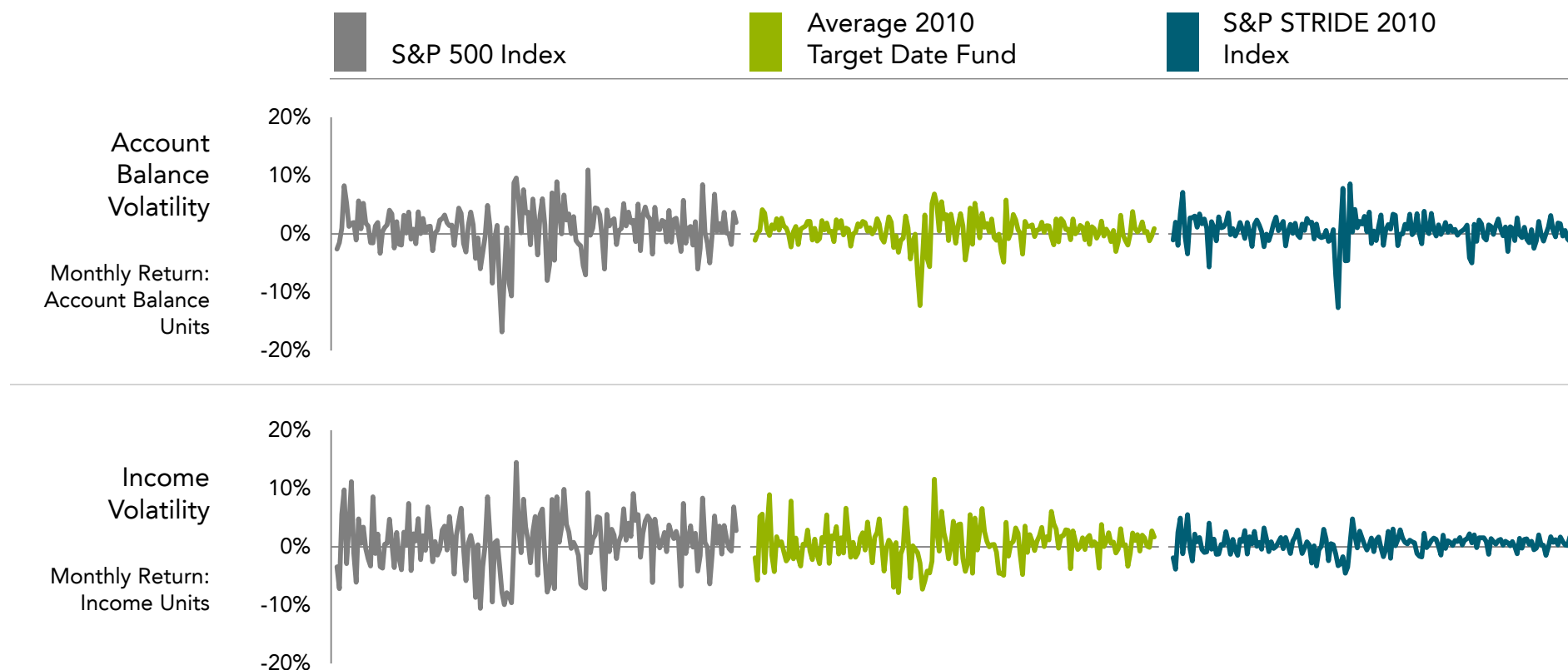
1. Represents performance of each index over the period of the maximum peak to trough loss of the S&P 500 Index over the time period January 2003–December 2016.

Notes and Sources: Growth of income computed by dividing growth of wealth by the S&P STRIDE 2010 Cost of Income. S&P 500 Index and S&P STRIDE data from S&P Dow Jones Indices. Average 2010 Target Date Fund is the asset weighted average across the 2010 target date fund families included in the Morningstar universe. As of December 2016 the data included 57 target date fund families. Data from Morningstar.

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Account Balance vs. Income Volatility

Comparing 2010 Vintage Target Date Funds (2003–2016)



Past performance is not a guarantee of future results.

Notes and Sources: S&P 500 Index and S&P STRIDE data from S&P Dow Jones Indices Average 2010 Target Date Fund is the asset weighted average across the 2010 target date fund families included in the Morningstar universe. As of December 2016 the data included 57 target date fund families. Data from Morningstar. Indices are not available for direct investment. Performance does not reflect the expenses associated with the management of an actual portfolio. See "S&P STRIDE Index Series Description and Disclosures" and "S&P Stride Index Series Hypothetical Performance Disclosure" in Appendix.

S&P STRIDE Index Series Description and Disclosures

In response to the need for income-focused benchmarks within defined contribution plans, on January 11, 2016 S&P Dow Jones Indices (S&P DJI) launched the S&P Shift to Retirement Income and DEcumulation (STRIDE) Index Series.¹

The series features multi-asset class income-based indices tied to target retirement dates. Dimensional Fund Advisors worked collaboratively with S&P DJI to develop the glide path, inflation hedging, and duration hedging techniques used in these indices.

INDEX SERIES DESCRIPTION

The S&P Shift To Retirement Income and Decumulation (STRIDE) Index Series comprises twelve multi-asset class indices, each corresponding to a particular target retirement date. The asset allocation for each index in the series is based on a predetermined life-cycle glide-path. Each index is fully investable, with varying levels of exposure to equities, nominal fixed income securities and inflation-adjusted bonds.

The S&P STRIDE Index Series represents a strategy that builds a portfolio of assets to support a hedged stream of inflation-adjusted retirement income. The indices also provide a new framework for benchmarking target date funds that focus on delivering similar results. The indices are individually composed of asset class indices (an index of indices), and the index series includes target date years in five-year increments (vintages). Each index vintage covers a full life cycle of accumulation (during what are generally considered working years), and decumulation in retirement years. Beginning 20 years before each target date, the indices gradually re-allocate some of their weight from accumulation constituents to inflation-adjusted income constituents. This process is analogous to dollar cost averaging into income producing assets. The income portion consists of a duration-hedged combination of Treasury Inflation Protection

Securities (TIPS) indices. The duration of the combined TIPS indices is matched monthly to the duration of a hypothetical retirement income cash flow stream that begins at the target date and lasts for twenty five years.

FOR MORE INFORMATION

General: <http://us.spindices.com/index-family/multi-asset/sp-stride>

Index Series Methodology:
http://us.spindices.com/documents/methodologies/methodology-sp-stride-index-series.pdf?force_download=true

Example and more data: <http://us.spindices.com/indices/multi-asset/sp-stride-glide-path-2005-index-total-return>

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1. Introducing the S&P STRIDE Index Series," S&P Dow Jones Indices, January 2016.

S&P STRIDE Index Series

Hypothetical Performance Disclosure

S&P STRIDE (the "Index") was launched on January 11, 2016. All information presented prior to the launch date is back-tested. Back-tested performance is not actual performance, but is hypothetical. The back-test calculations are based on the same methodology that was in effect when the index was officially launched. Complete index methodology details are available at www.spdji.com. It is not possible to invest directly in an index.

S&P Dow Jones Indices defines various dates to assist clients in providing transparency on their products. The First Value Date is the first day for which there is a calculated value (either live or back-tested) for a given index. The Base Date is the date at which the Index is set at a fixed value for calculation purposes. The Launch Date designates the date upon which the values of an index are first considered live: index values provided for any date or time period prior to the index's Launch Date are considered back-tested. S&P Dow Jones Indices defines the Launch Date as the date by which the values of an index are known to have been released to the public, for example via the company's public website or its datafeed to external parties. For Dow Jones-branded indices introduced prior to May 31, 2013, the Launch Date (which prior to May 31, 2013, was termed "Date of introduction") is set at a date upon which no further changes were permitted to be made to the index methodology, but that may have been prior to the Index's public release date.

Past performance of the Index is not an indication of future results. Prospective application of the methodology used to construct the Index may not result in performance commensurate with the back-test returns shown. The back-test period does not necessarily correspond to the entire available history of the Index. Please refer to the methodology paper for the Index, available at www.spdji.com for more details about the index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations.

Another limitation of using back-tested information is that the back-tested calculation is generally prepared with the benefit of hindsight. Back-tested information reflects the application of the index methodology and selection of index constituents in hindsight. No hypothetical record can completely account for the impact of financial risk in actual trading. For example, there are numerous factors related to the equities, fixed income, or commodities markets in general which cannot be, and have not been accounted for in the preparation of the index information set forth, all of which can affect actual performance.

The Index returns shown do not represent the results of actual trading of investable assets/securities. S&P Dow Jones Indices LLC maintains the Index and calculates the Index levels and performance shown or discussed, but does not manage actual assets. Index returns do not reflect payment of any sales charges or fees an investor may pay to purchase the securities underlying the Index or investment funds that are intended to track the performance of the Index. The imposition of these fees and charges would cause actual and back-tested performance of the securities/fund to be lower than the Index performance shown. As a simple example, if an index returned 10% on a US \$100,000 investment for a 12-month period (or US \$10,000) and an actual asset-based fee of 1.5% was imposed at the end of the period on the investment plus accrued interest (or US \$1,650), the net return would be 8.35% (or US \$8,350) for the year. Over a three year period, an annual 1.5% fee taken at year end with an assumed 10% return per year would result in a cumulative gross return of 33.10%, a total fee of US \$5,375, and a cumulative net return of 27.2% (or US \$27,200).