

Planning Standards

# Wealth Planning Assumptions

Wealth Planning Group



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# 1. Purpose



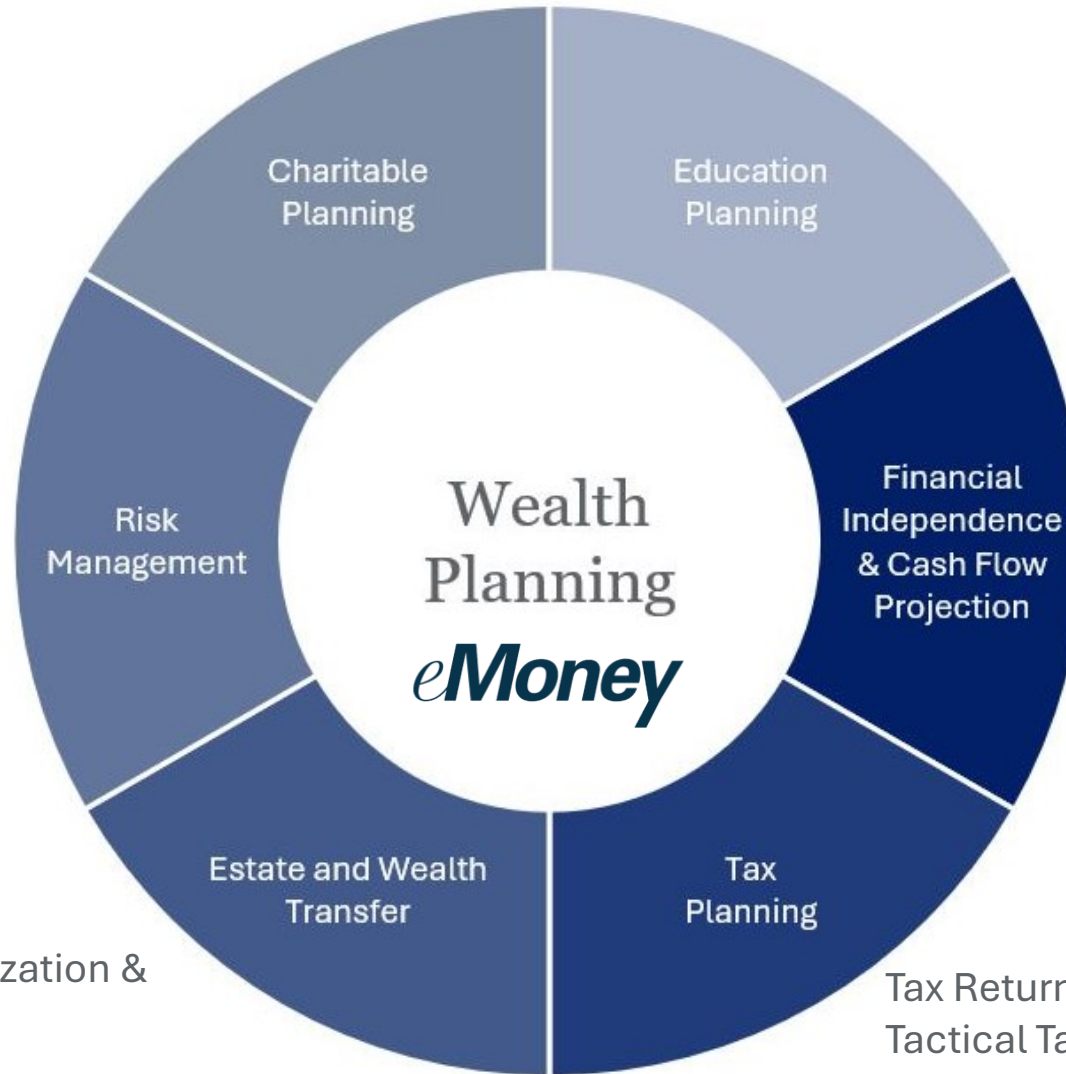
# Corient Wealth Planning

**EVERY CLIENT HAS ACCESS TO A  
FINANCIAL PLAN**

- Comprehensive
  - Financial Independence & Cash Flow
  - Tax
  - Estate/Wealth Transfer
  - Insurance and Risk Management
- On-Going
- Collaborative and Engaging
- Proactive
- Differentiated Expertise
- **Consistent**

# Planning Infrastructure

Health  
 Chapter



- Workflow Management
- Client Priorities
- Analytics



Estate Visualization &  
Summary

**Vanilla**

Tax Return Summary &  
Tactical Tax Planning



CORIENT



# Standard Assumptions

## Importance in Financial Planning

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### KEY ELEMENTS

- **Financial Planning is a collaborative and ongoing process** which helps clients assess their current financial situation, develop strategies and make informed decisions to achieve their financial goals, while also preparing for unexpected events as they build wealth over time.
  - Planning assumptions are the foundational elements used to forecast possible outcomes within the planning process. Assumptions should be **realistic, reliable and relevant** to current and prospective conditions.
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### ENHANCING RELIABILITY

- Standardizing our planning assumptions (used in our planning process) will improve the quality of our advice, instill confidence in our recommendations and ensure:
  - **Consistency** –all plans are based on the same core metrics which will promote consistent projections and recommendations.
  - **Accuracy** – base assumptions on current & historical data, industry research and decades of experience serving clients
  - **Transparency** – having clearly defined assumptions enables clients to better understand the underlying rationale used to develop their plans.

## 2. Sources and Description



# Standard Assumptions

## Distinction: Sources

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### **CORIENT-PROVIDED ASSUMPTIONS**

- Objective, and drawn from professional knowledge & experience
- Aggregated from the systematic assessment of the clients' financial situation
- Unbiased and tailored from the evaluation of relevant factors

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### **CLIENT-PROVIDED ASSUMPTIONS**

- Based on practical knowledge of their own situation
- Expression of their personal goals and objectives
- Influenced by perceptions, preferences and subjective viewpoints



# Standard Assumptions

## Distinction: Core Examples

### CORIENT-PROVIDED ASSUMPTIONS



- Capital Market Components
  - Baseline Inflation
  - Portfolio Growth Rates
  - Standard Deviation and Correlations
  - Portfolio Income and Turnover Metrics
- Planning Related Components
  - Inflation of Pre/Post Retirement Expenses
  - Healthcare Costs
  - Social Security
  - College Costs
  - Life Expectancy & Longevity
  - Marginal Income & Estate Tax Rates and Exemptions

### CLIENT-PROVIDED ASSUMPTIONS



- Assets/Liabilities
- Income
- Lifestyle Expenses
- Savings
- Business Investments
- Equity Compensation Treatment
- Wealth Transfer and Philanthropic Goals
- Inheritance

# 3. Discovery & Research



# Discovery

## Sample Legacy Assumptions

|                      | Ohio             | Chicago | Dallas | Morristown | Atlanta | San Diego |
|----------------------|------------------|---------|--------|------------|---------|-----------|
| Base CPI             | 3.5%             | 3%      | 2.2%   | 2.25%      | 2.5%    | 2.5%      |
| Spending Inflation   | 3.5%             | 2%      | 2.2%   | 1.25%      | 2.5%    | 2.5%      |
| Healthcare Inflation | 2x Inflation -7% | 4%      | 2.2%   | 5.05%      | 5%      | 5.3%      |
| SS Inflation         | 3.5%             | 2%      | 1.0%   | 2.25%      | 1.5%    | 2.5%      |
| Education Inflation  | 2x Inflation -7% | 4%      | 3.0%   | 4.75%      | 5%      | 6.3%      |
| Life Expectancy      | 95               | 93      | 95     | M92 - F94  | 95      | M92 – F94 |
| 60% Equity –Return   | *7.5%/7.0%       | 7.53%   | 6.10%  | 5.70%      | 5.02%   | 6.96%     |
| 60% Equity - SD      | *13.9%/12.9%     | 11.95%  | 10.4%  | 8.30%      | 10.14%  | 10.73%    |
| FP Software          | eMoney           | MGP     | eMoney | MGP        | eMoney  | MGP       |

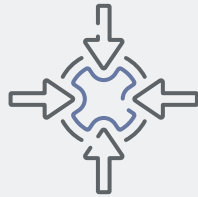
**\*\*Same client's plan results ranged from successful to lifestyle adjustments needed**

# Assumption Sub-Committee

## Objectives



**IDENTIFY LEADING  
RESOURCES TO DEVELOP  
AND INFORM CORIENT-  
PROVIDED PLANNING  
ASSUMPTIONS**



**CONSIDER IMPACT OF  
ASSUMPTIONS ON  
PROJECTIONS**



**PROVIDE BASELINE  
RECOMMENDATIONS FOR  
BROAD APPLICATION  
ACROSS CORIENT  
PLATFORM**



**ADVISE ON HOW  
ASSUMPTIONS WILL BE  
MONITORED AND  
ADJUSTED**

# Assumption Sub-Committee and Contributors

## Formation



**AMANDA VALENTI**

Regional Planning Director,  
Wealth Advisor



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Head of Portfolio  
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Regional Planning Director,  
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Wealth Advisor

# Assumption Sub-Committee

## Key Research Sources

- ✓ U.S. Bureau of Labor Statistics
- ✓ U.S. Inflation Calculator
- ✓ CMS Office of Actuary
- ✓ Society of Actuaries Research Institute
- ✓ Congressional Research Service
- ✓ Centers for Disease Control and Prevention
- ✓ Social Security Administration
- ✓ National Committee to Preserve Social Security & Medicare
- ✓ College Board
- ✓ National Center for Education Statistics
- ✓ Milliman Retiree Health Cost Index
- ✓ National Library of Medicine
- ✓ Internal Revenue Service
- ✓ Jpmorgan Guide to Retirement
- ✓ Center for Retirement Research at Boston College

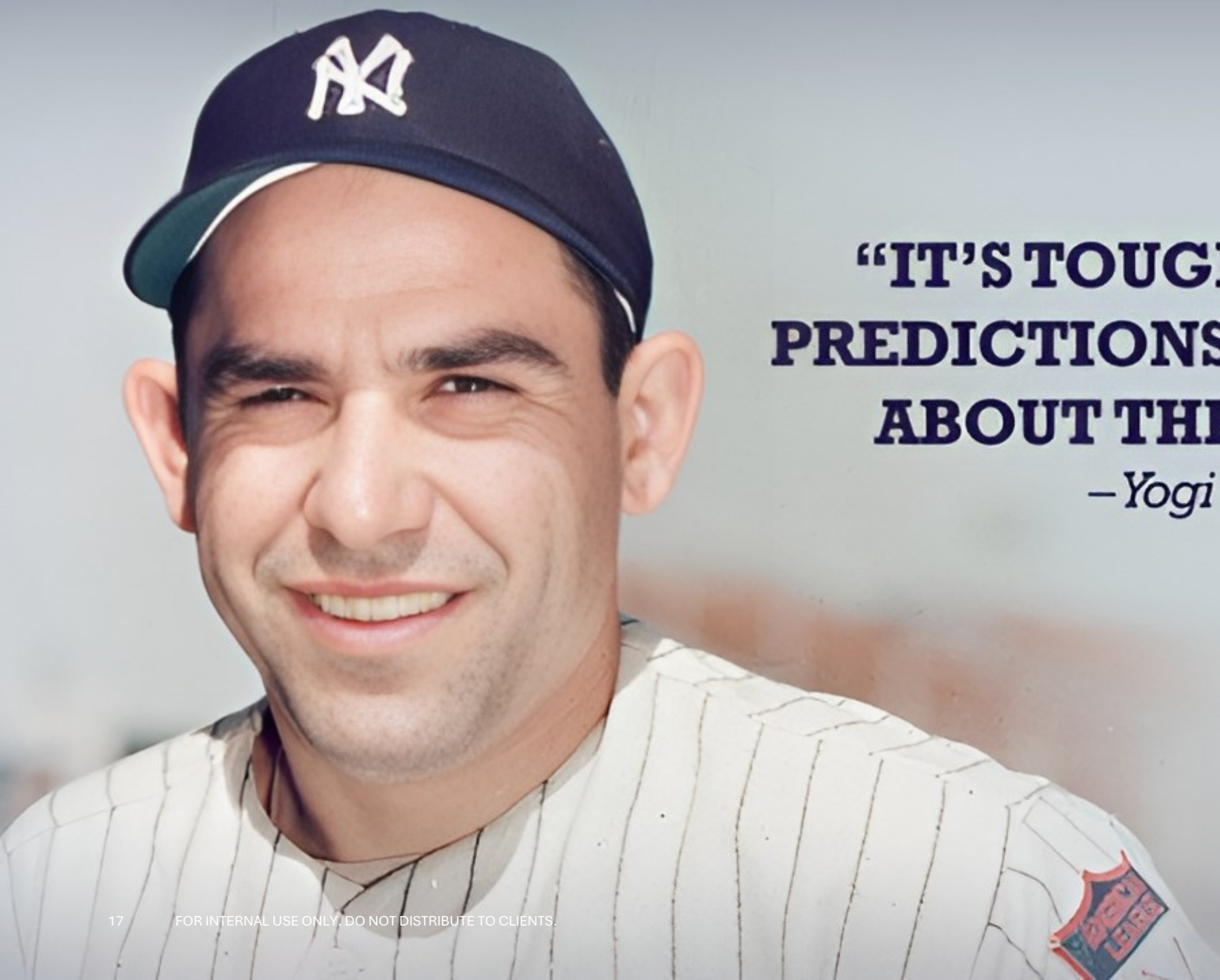


## 4. Recommendations & Rationale



# Capital Market Components





**“IT’S TOUGH TO MAKE  
PREDICTIONS, ESPECIALLY  
ABOUT THE FUTURE.”**

*—Yogi Berra*

# Goals and Structure

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## Financial Planning Assumptions for a typical client case

- Forecast horizon of 20-30 year

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## Inputs

- Market observable/valuations
- History
- Third Party Estimates

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## Goals for output

- Simplicity, fewer inputs
- Defensible on current valuations/yields
- Smoothed – year to year changes should be minimal except when there is a “sea change”
- Neither conservative nor aggressive in assumptions
- Conservative assumptions compound on each other
- This is the most important client decision - better controlled by probability of success using reasonable inputs

# Estimates Produced



**BASELINE  
INFLATION**



**BOND RETURNS  
& RISK**



**STOCK  
RETURNS  
& RISK**



**ALTERNATIVES  
RETURNS  
& RISK**



**CORRELATIONS  
OF STOCKS &  
BONDS**



**TAX  
CHARACTERISTIC  
/EFFICIENCY**



# Estimates Produced

## INFLATION

Arithmetic Average = 2.6%

CAGR = 2.3%

St. Dev = 2.0%

## BOND RETURNS & RISK

Arithmetic Average = 4.5%

CAGR = 4.4%

St. Dev = 5.0%

## STOCK RETURNS & RISK

Assume 70 US/  
30 Int'l

Arithmetic Average = 9.4%

CAGR = 7.6%

St. Dev = 17.0%

## CORRELATION OF STOCK AND BOND RETURNS

Correlation = 0.2

## TAX CHARACTER/TAX EFFICIENCY

For a Balanced 60/40 Portfolio

- 12% Tax Exempt Income
- 16% Ordinary Income
- 28% Dividend Income/Recognized LTCG
- 44% Deferred Cap Gain

MORE DETAILED RETURN/RISK BY ASSET CLASS – SEE SLIDES AT THE END OF THIS SECTION

# Considerations

## Portfolio Assumptions



### MANAGER EXPENSE RATIOS

- Recommend no adjustment for expense ratios
- Passive implementations have underlying fees ~0.1%
- Active implementations higher, but on reasonable expectation of above benchmark returns



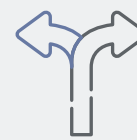
### CORIENT FEE/EXPENSE

- Recommend a plan-by-plan approach
- A lot of variability in our fee rate based on portfolio size and suite of services
- Over-conservative to assume 1% for portfolios paying substantially less



### REGULAR ASSESSMENTS

- Recommend annual review with a “presumption of innocence”
- Prior year’s assumptions should be presumed to be good for the coming year, with exceptions for major changes in market conditions



### ALTERNATIVES

- The assumptions team reviewed historical alts returns and risk and has embedded them into our capital markets assumptions
- Recommend assuming the returns/risk of the funding source (i.e. Income focused, etc.. to Preservation Alts)



# Capital Market Assumptions

## Bonds

Our goal is to develop Capital Markets Bond Assumptions – expected real (in excess of inflation) return and standard deviation, along with correlation relative to U.S. investment grade fixed income. We have developed a framework using historical data and modest valuation-based adjustments to arrive at stable but flexible expected return assumptions. For simplicity, assumed a 50/50 ratio between taxable and tax exempt bonds.

### Corient Broad Financial Planning Recommendations - Bonds

Based on a review of market-based return forecasts, historical returns and the financial planning/capital markets assumptions of major asset managers, the Corient investment team recommends the following high-level assumptions for financial planning simulations.

| Taxable Bond Portfolio Return<br>(Arithmetic) | Taxable Bond Portfolio Return<br>(Geometric/CAGR) | Standard Deviation of Annual<br>Returns | Correlation of Global Equities<br>and Fixed Income |
|-----------------------------------------------|---------------------------------------------------|-----------------------------------------|----------------------------------------------------|
| 4.50%                                         | 4.40%                                             | 5.00%                                   | 0.2                                                |

# Bonds - Market Based

- Starting Yields are predictive of Realized Long Term Returns
- Challenge – reinvestment rates can be different from starting yields.
- Planning horizon is 30 years, portfolio average maturity closer to 7 years.

## **Correlation of starting yields for the Ibbotson Intermediate Govt. Index and forward returns: returns..**

- 20-year r-squared: 0.71
- 25-year r-squared: 0.56
- 30-year r-squared: 0.45

## **Linear regression predicted forward returns based on current YTM**

- 20-year forward total return: 4.87%
- 25-year forward total return: 5.07%
- 30-year forward total return: 5.31%

# Bonds - Historical

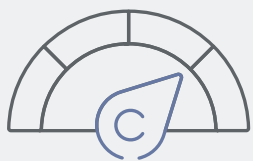
| Historical Ibbotson Itrm. Govt. Index TR | Nominal | Real   |
|------------------------------------------|---------|--------|
| 10 Years                                 | 1.13%   | -1.52% |
| 15 Years                                 | 2.28%   | 0.11%  |
| 20 Years                                 | 2.81%   | 0.28%  |
| 30 Years                                 | 4.00%   | 1.46%  |
| 50 Years                                 | 6.39%   | 2.37%  |
| 75 Years                                 | 5.30%   | 1.82%  |

| Historical Ibbotson Itrm. Govt. Index Std Dev | Nominal | Real  |
|-----------------------------------------------|---------|-------|
| 30 Years                                      | 4.36%   | 4.71% |
| 50 Years                                      | 5.34%   | 5.59% |
| Full History (since 1926)                     | 4.37%   | 4.79% |

Source: Ibbotson Associates

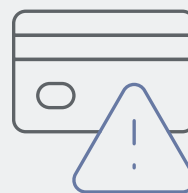
# Bonds – Historical

## Credit Risk Premium



### CREDIT YIELD SPREAD

- Current BofA US Corp. Idx Spread 1.22%
- Historical Avg spread (BofA US Corp. Idx) 1.52%
- Historical Med spread (BofA US Corp. Idx) 1.34%



### REALIZED CREDIT RISK PREMIUM

- 20 yr Corp. Idx Return Premium (Ibbotson LT Idx) 0.82%
- 50 yr Corp. Idx Return Premium (Ibbotson LT Idx) 0.38%
- 96 yr Corp. Idx Return Premium (Ibbotson LT Idx) 0.54%

Source: Ibbotson Associates

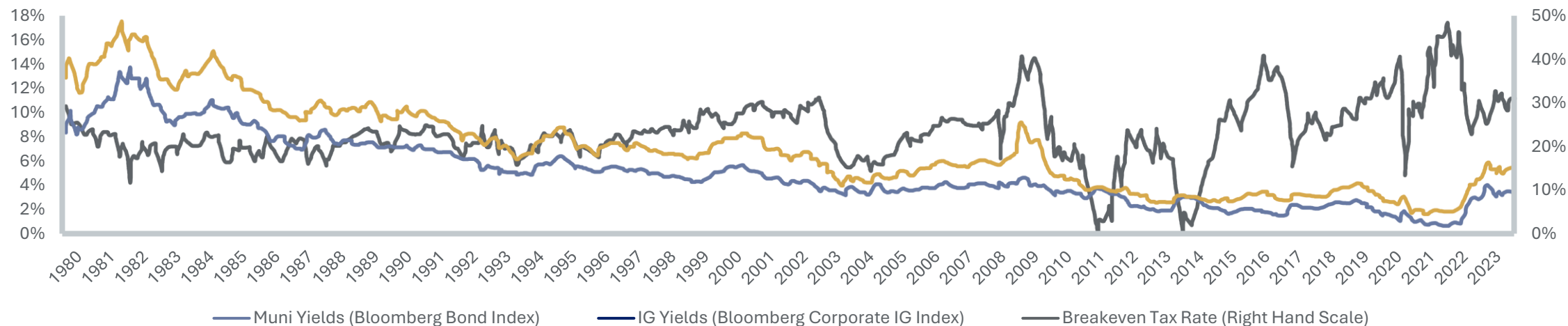
# Bonds – Muni Bonds

Muni Bonds trade at a breakeven tax rate of about **28% on average**

That means that if we **predict a 5.0% rate** of return on taxable bonds, our **expected rate of return on munis should be 3.6%**

Munis also have interest rate shifts that are muted relative to taxable bonds (for the same reason, they trade on a taxable equivalent basis). **Large duration driven moves tends to be 20% smaller for munis** than for the agg bond index. So, I recommend a **4.0 st. dev for tax exempt muni bonds**.

For simplicity, assume a 50/50 ratio between taxable and tax exempt bond assumptions to arrive at a 4.



Source: Bloomberg

# Bonds – Third Party

| Capital Market Assumptions | Arithmetic | Compound/CAGR |
|----------------------------|------------|---------------|
| Morgan Stanley (20 yr)     | N/A        | 4.80%         |
| Blackrock (30 yr)          | N/A        | 3.60%         |
| JP Morgan (10 Yr)          | 4.70%      | 4.60%         |
| Vanguard (10 Yr)           | N/A        | 4.10%         |

| Capital Market Assumptions (st. dev) | St. Dev |
|--------------------------------------|---------|
| Morgan Stanley                       | 5.20%   |
| JP Morgan                            | 4.10%   |

Source: Morgan Stanley, Blackrock, JP Morgan, Vanguard



# Capital Market Component Summary - Update

## Portfolio Assumptions – Asset Class Breakdown

| Equity                   | Return | Risk   |
|--------------------------|--------|--------|
| Global Equity            | 7.60%  | 17.73% |
| Global Equity w Muni     | 7.60%  | 17.73% |
| Global Equity Muni +Alts | 8.14%  | 18.31% |

| Bonds                    | Return | Risk  |
|--------------------------|--------|-------|
| Global Equity            | 4.89%  | 3.77% |
| Global Equity w Muni     | 4.35%  | 4.53% |
| Global Equity Muni +Alts | 5.48%  | 5.94% |

| 60/40 Portfolio          | Return | Risk   |
|--------------------------|--------|--------|
| Global Equity            | 6.52%  | 11.37% |
| Global Equity w Muni     | 6.30%  | 11.40% |
| Global Equity Muni +Alts | 7.14%  | 12.06% |

*\*All returns above are gross of Corient management fees*

## 3 Models

- Global Equity (all taxable bonds)
- Global Equity w Muni (50% Muni /50% Taxable)
- Global Equity Muni +Alts
  - 20% Alts allocated by risk (Ex 100% Equity = 20% Appreciation Alts)

## 24 asset classes

|                           |                     |
|---------------------------|---------------------|
| Large Cap Growth          | Int Term Muni       |
| Large Cap Blend           | Long Term Muni      |
| Large Cap Value           | Short Term Muni     |
| Small Cap Growth          | Short Term Bond     |
| Small Cap Blend           | Inv Grade Bond      |
| Small Cap Value           | Tips                |
| Mid Cap Growth            | Commodities         |
| Mid Cap Blend             | High Yield Bonds    |
| Mid Cap Value             | Emerging Markets    |
| International Developed   | Hedge Funds         |
| Appreciation Alternatives | Cash & Money Market |
| Preservation Alternatives | Inv Real Estate     |

# Capital Market Component Summary

## Portfolio Assumptions – Asset Class Breakdown

| Asset Class         | Market Index Name                                   | CAGR  | Mean Return | Standard Dev. | Market Index                             |
|---------------------|-----------------------------------------------------|-------|-------------|---------------|------------------------------------------|
| Int Term Muni       | Barclays Capital 10 yr Muni (Projected)             | 3.6   | 3.744       | 5             | Bloomberg Muni Bond Index                |
| Long Term Muni      | Barclays Capital 10 yr Muni (Projected)             | 4     | 4.2         | 6.26          | Bloomberg Muni Bond Index                |
| Short Term Muni     | Barclays Capital 3 yr Muni (Projected)              | 2.664 | 2.808       | 2.01          | Bloomberg Muni Bond Index                |
| Short Term Bond     | Barclays Capital U.S. 1-2 Year Treasury (Projected) | 3.7   | 3.9         | 1.29          | Bloomberg U.S. Treasury: 1-3 Year TR USD |
| Inv Grade Bond      | Barclays Capital U.S. Aggregate Bond (Projected)    | 5     | 5.2         | 4.3           | Bloomberg US Agg Bond TR USD             |
| Tips                | Barclays Capital U.S. TIPS Index (Projected)        | 4.5   | 4.7         | 6.12          | Bloomberg US Treasury US TIPS TR USD     |
| Commodities         | Bloomberg Commodity TR Index (Projected)            | 4.5   | 6.2         | 17.13         | Bloomberg Commodity TR USD               |
| High Yield Bonds    | Bloomberg U.S. Corporate High Yield (Projected)     | 7     | 7.2         | 0.78          | Bloomberg US Corporate High Yield TR USD |
| Emerging Markets    | BNYM Emerging Markets Index (Projected)             | 9.3   | 11          | 24.66         | MSCI EM NR                               |
| Hedge Funds         | Credit Suisse Hedge Fund Index (Projected)          | 6.6   | 7.6         | 7.07          | Credit Suisse Hedge Fund USD             |
| Cash & Money Market | FTSE 1-Month Treasury Bill Index (Projected)        | 2.5   | 2.7         | 0.36          | FTSE Treasury Bill 1 Mon USD             |
| Inv Real Estate     | FTSE NAREIT All REITs Index (Projected)             | 7.3   | 9           | 20.01         | FTSE EPRA Nareit United States TR YSD    |
| International       | MSCI EAFE Index (Projected)                         | 7.3   | 9           | 18.79         | MSCI EAFE Index                          |
| Precious Metals     | NYSE ARCA Gold Miners Index (projected)             | 4     | 4.6         | 40.77         | CME Gold Spot Index                      |

Source: Morningstar, Bloomberg

# Capital Market Component Summary

## Portfolio Assumptions – Asset Class Breakdown

| Asset Class      | Market Index Name                       | CAGR | Mean Return | Standard Dev. | Market Index                                        |
|------------------|-----------------------------------------|------|-------------|---------------|-----------------------------------------------------|
| Large Cap Growth | Russell 1000 Growth Index (Projected)   | 6.8  | 8.5         | 19.74         | Russell 1000 Growth Index                           |
| Large Cap Blend  | Russell 1000 Index (Projected)          | 7.3  | 9           | 17.34         | S&P 500 Index                                       |
| Large Cap Value  | Russell 1000 Value Index (Projected)    | 7.8  | 9.5         | 17.09         | Russell 1000 Value Index                            |
| Small Cap Growth | Russell 2000 Growth Index (Projected)   | 8.5  | 10.2        | 25.32         | Russell 2000 Growth Index                           |
| Small Cap Blend  | Russell 2000 Index (Projected)          | 9    | 10.7        | 22.74         | Russell 2000 Index                                  |
| Small Cap Value  | Russell 2000 Value Index (Projected)    | 9.5  | 11.2        | 21.81         | Russell 2000 Value Index                            |
| Mid Cap Growth   | Russell Midcap Growth Index (Projected) | 7.65 | 9.35        | 23.68         | Russell Mid Cap Growth Index                        |
| Mid Cap Blend    | Russell Midcap Index (Projected)        | 8.15 | 9.85        | 19.75         | Russell Mid Cap Index                               |
| Mid Cap Value    | Russell Midcap Value Index (Projected)  | 9    | 10.7        | 19.48         | Russell Mid Cap Value Index                         |
| Inflation        | Consumer Price Index (Projected)        | 2.3  | 2.6         | 1.25          | Consumer Price Index                                |
| Private Equity   | Russell 2500 Index (Projected)          | 10.3 | 12          | 21.48         | Bloomberg Buyout Index,<br>NAV Time Weighted Return |
| Private Credit   | Bloomberg U.S. Long Credit (Projected)  | 10   | 10.2        | 11.89         | Cliffwater Direct Lending Index                     |

Source: Morningstar, Bloomberg

# Planning Related Components



# Inflation of Pre/Post Retirement Expenses

## RECOMMENDATIONS

# 2.1%

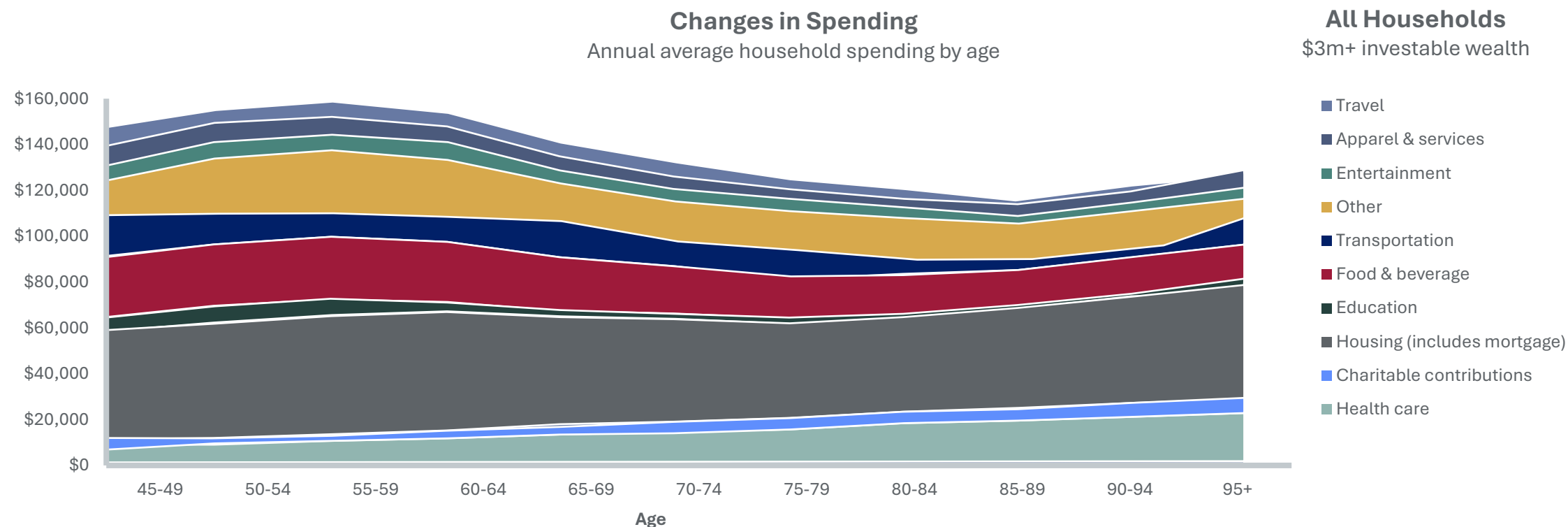
Baseline Inflation – 0.5% (2.6% - 0.5%)

- Conventional wisdom assumes that inflation adjusted spending remains constant or even increases in retirement.
- However, many studies show that spending declines in the first 2 decades of retirement. While some specific expenses begin to increase in the latter years (healthcare), total spending remains a net inflation adjusted decline throughout.
- A best practice is to segregate expenses such as mortgage, healthcare, education and travel. The remaining core living expenses should then increase by inflation less 0.5%.
- **Planning consideration:** Understanding clients actual spending and constantly revisiting that spending number and the plan is key to the Corient client planning experience. Spending will evolve over a client's life and each client will be different.

*If clients are more than 10 years from retirement, recommendation is to use 2.6% inflation*

# Inflation of Expenses

## Pre & Post Retirement

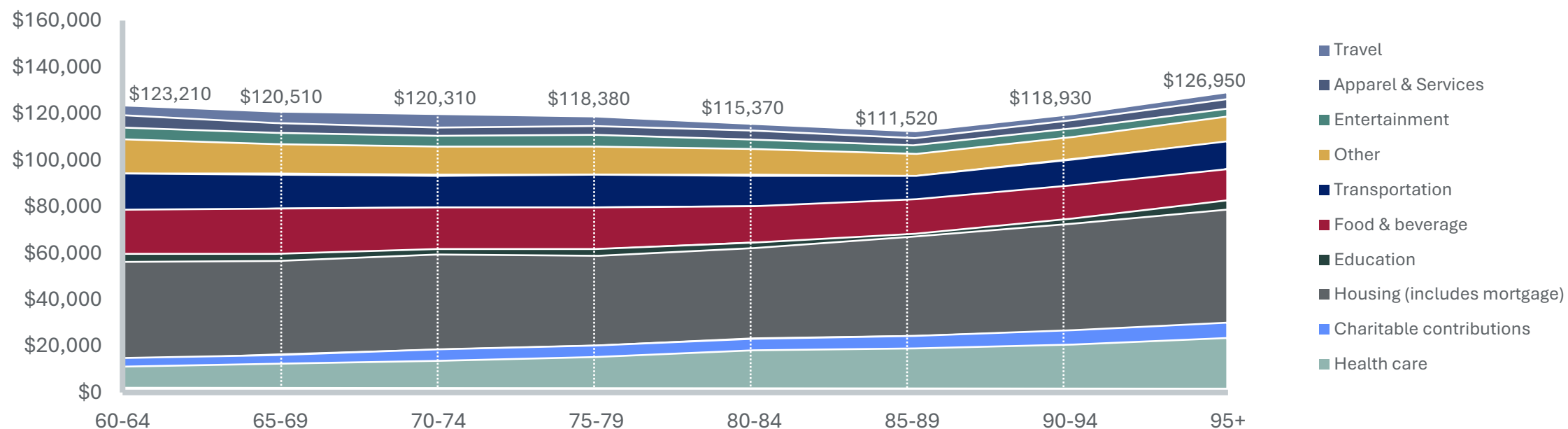


Source: J.P. Morgan Asset Management, based on international select data from JPMorgan Chase Bank, N.A. and its affiliates (collectively "Chase") including select Chase check, credit and debit card and electronic payment transactions from January 1, 2017 to December 31, 2023. Check and cash distribution: 2019 CE Survey; J.P. Morgan analysis. Information that would have allowed identification of specific customers was removed prior to the analysis. Other includes: tax payments, insurance, gambling, personal care, and uncategorized items. Asset estimates for de-identified and aggregated households supplied by IXL, an Equifax Company; estimated include all financial assets except employer-sponsored plans and do not include any home equity. Additional information on J.P. Morgan Asset Management's data privacy standards available at <https://am.jpmorgan.com/us/en/asset-management/mod/insights/retirement-insights/gtr-privdisc/>.

# Inflation of Expenses

## Post Retirement

Annual average household spending by age



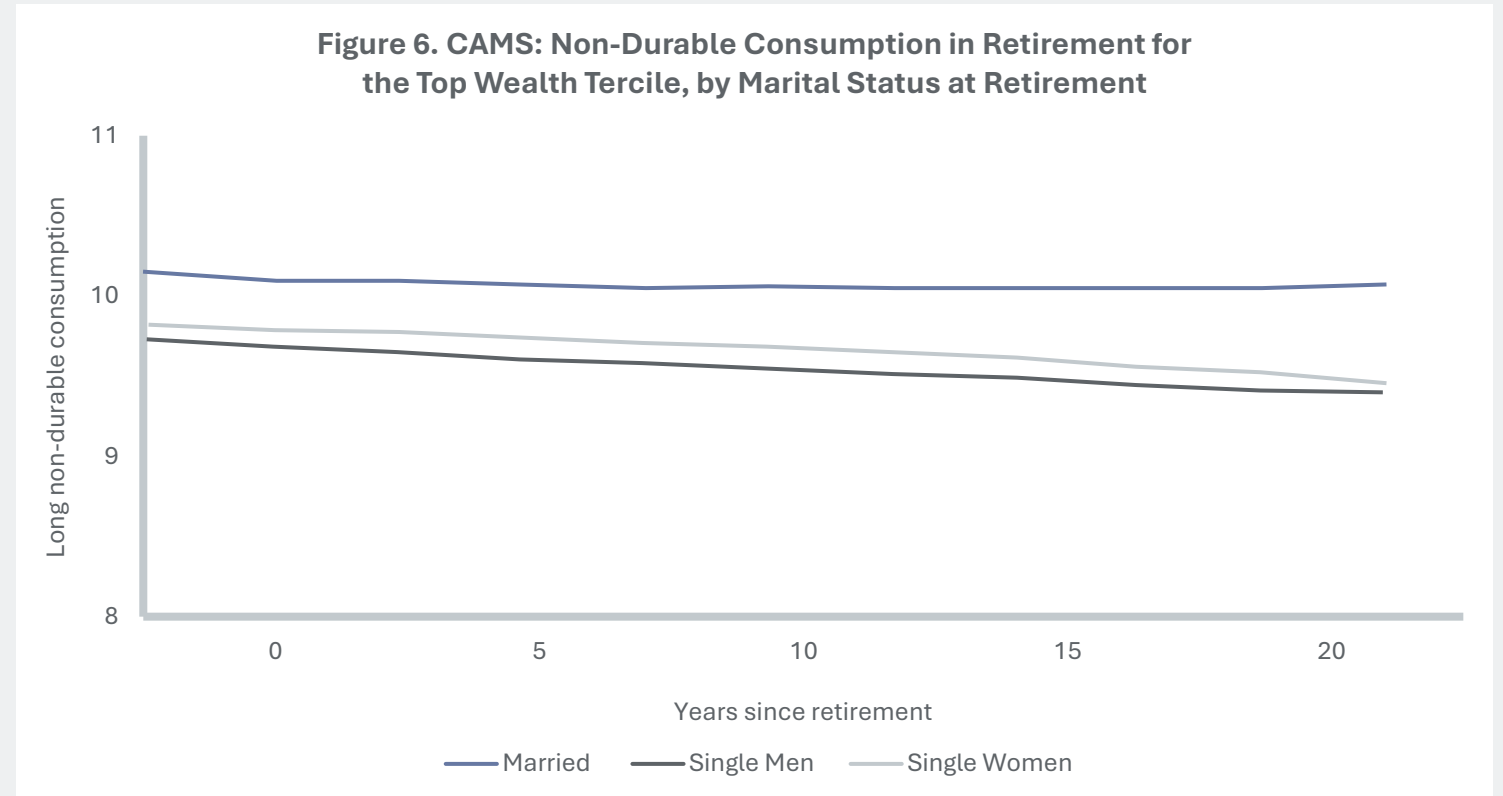
Source: J.P. Morgan Asset Management, based on international select data from JPMorgan Chase Bank, N.A. and its affiliates (collectively "Chase") including select Chase check, credit card and debit card and electronic payment transactions from January 1, 2017 to December 31, 2023. Check and cash distribution: 2019 CE Survey; J.P. Morgan Asset Management analysis. Information that would have allowed identification of specific customers was removed prior to the analysis. Other includes: tax payments, insurance, gambling, personal care, and uncategorized items. Asset estimates for de-identified and aggregated households supplied by IXL and Equifax Company; estimates include all financial assets except employer-sponsored plans and do not include home equity. Additional information on J.P. Morgan Asset Management's data privacy standards available at <https://am.jpmorgan.com/us/en/asset-management/mod/insights/retirement-insights/gtr-privdisc/>. Retired households receive retirement income only, including Social Security, pension and/or annuity payments.



# Inflation of Pre/Post Retirement Expenses

## FINANCIAL RESOURCES DRIVE SPENDING BEHAVIOR

While spending as a whole decreases for the retired population, the healthier and wealthier retirees prefer to maintain their consumption levels.



Center for Retirement Research at Boston College “Do Retirees Want to Consume More, Less, or the Same as They Age” by: Anqi Chen and Alicia H. Munnell; December 2021

# Healthcare Costs

## RECOMMENDATIONS

# 5.4%

Baseline inflation + 2.8%  
(2.6% + 2.8%)

2023 Milliman Retiree Health Cost Index: May 2023; 2022-2031:  
Growth to Stabilize Once Public Health Emergency Ends – June 2023

The National Health Expenditures report indicates a 5.1% average growth rate for healthcare costs which increases to 5.4% towards the end of the decade.

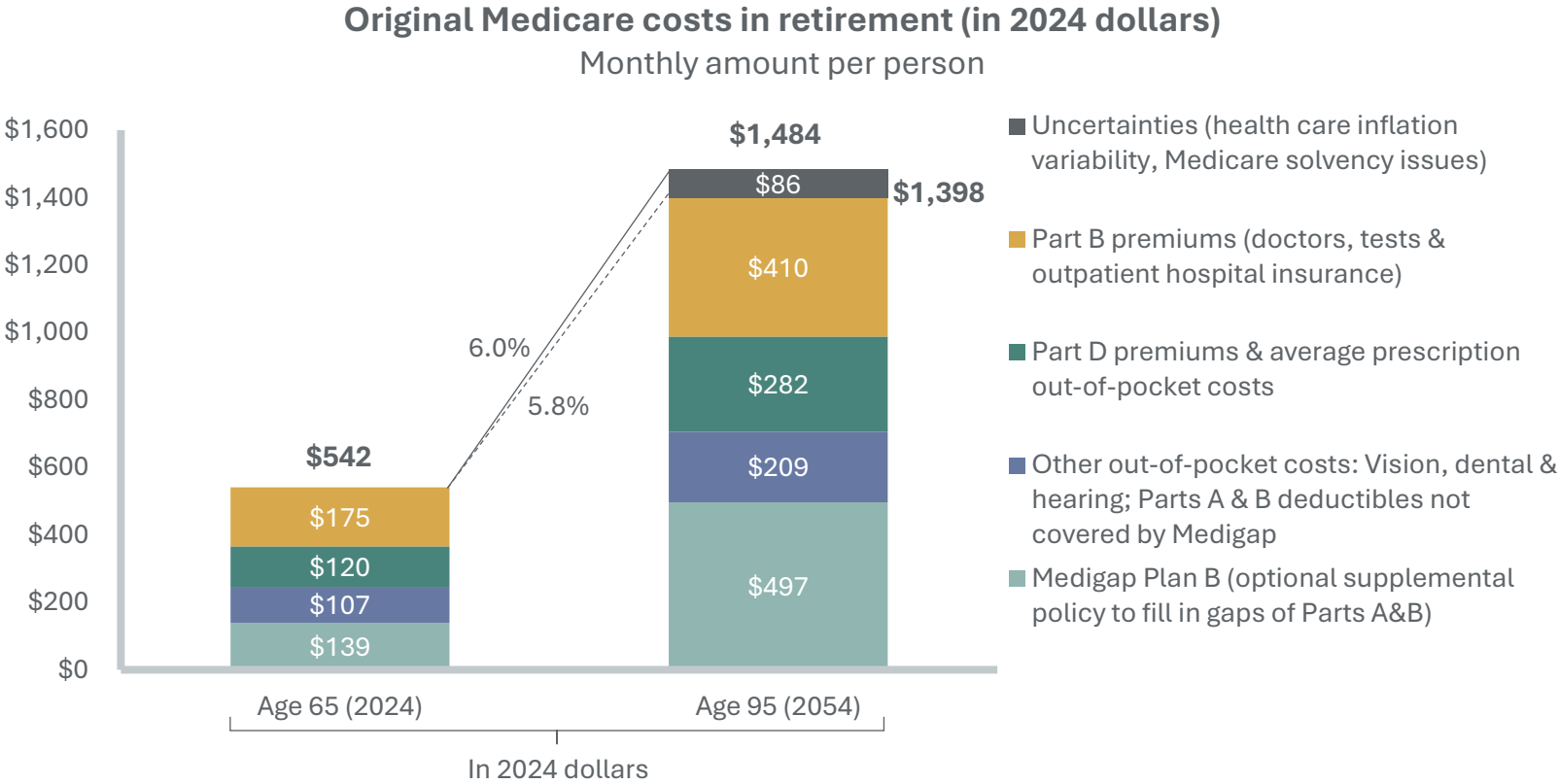
Contributing factors to what a client's actual health expenses will be in retirement include:

- When they retire
- Where they live in retirement
- What health insurance plan is chosen
- Underlying health status
- How long one will live

**Planning Consideration:** Model in clients' plans healthcare costs after retirement. Default assumptions of:

- Private insurance (pre-medicare): \$12,000 per person
- Medicare: \$6,000 per person (adjust based on income)

# Rising Health Care Costs in Retirement



## A Growing Concern

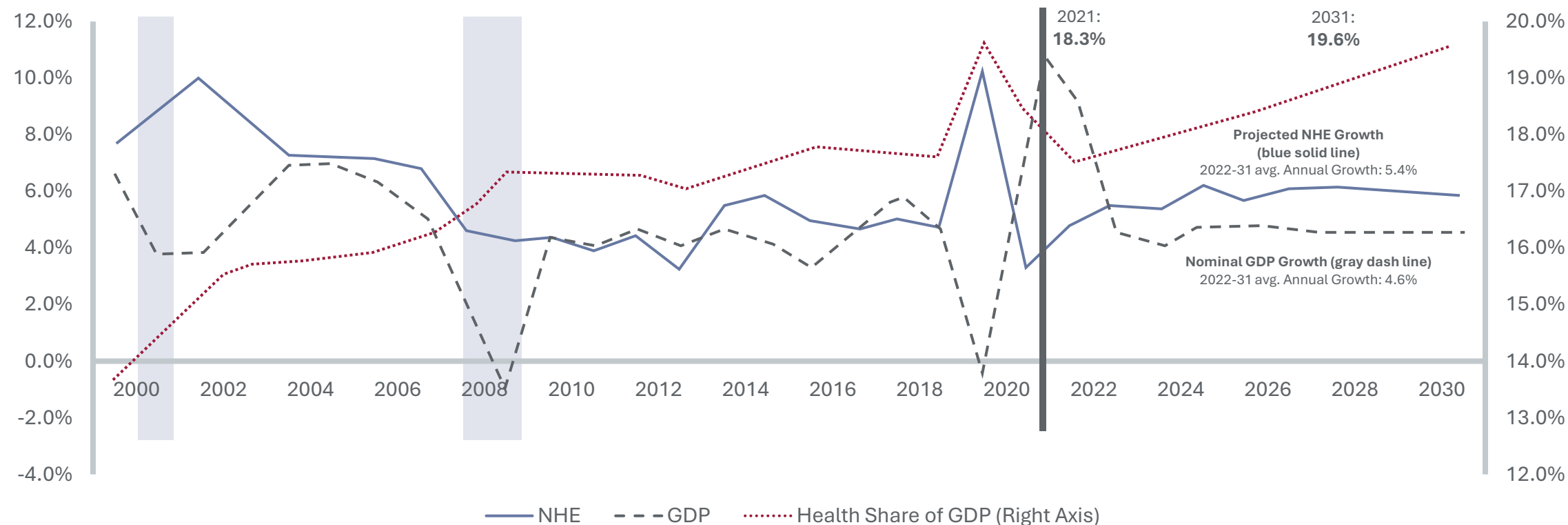
Annual expenses per person in 2024 are \$6,503.

Given variation in health care cost inflation from year to year, it may be prudent to assume an annual health care inflation rate of 6.0%, which may require growth as well as current income from your portfolio in retirement.

Estimated future value total average monthly cost at age 95 is \$3,112. Today's dollar calculation used a 2.5% discount rate to account for overall inflation. Medigap premiums typically increase with age, in addition to inflation, except for the following states: AR, CT, MA, ME, MN, NY, VT, WA. For local information, contact the State Health Insurance Assistance Program (SHIP) <https://www.shiptocenter.org/>. Plan G premium is nationwide average for non-smokers. If Plan G is not available, analysis includes the most comprehensive plan available. Source: HealthView Services proprietary data file received January 2024 used by permission.

# Healthcare Costs

NHE, GDP Growth; Health Share of GDP, 2000-2031



Sources: Centers for Medicare & Medicaid Services, Office of the Actuary, National Health Statistics Group; Bureau of Economic Analysis, and National Bureau of Economic Research. Note: Shaded areas represent recession periods. \*\*During 2020 there was a short economic recession in March and April.

# Social Security Benefits (COLA)

## RECOMMENDATIONS

2.1%

Baseline inflation -0.5% (2.6% - 0.5%)

- Social Security COLAs are based on increases in the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) and is intended to reflect the experience of Social Security benefit recipients.
- The ‘Older Americans Act of 1987 ‘ directed the Bureau of Labor Statistics to develop an index to track the spending patterns of older consumers (CPI-E).
  - One key element is the medical care component of the CPI-E, which has a substantially larger relative weight than CPI-W.
- Given this disparity, Social Security COLAs have been shown to lag actual increases for the elderly, so assumptions should be reduced slightly (0.5%) from baseline inflation.
- **Planning Consideration:** Due to Social Security financial pressures (see next slide) **for clients under 50** (born 1974 or later), **reduce benefits by 25%** to account for uncertain of future change and likelihood of impact on higher earning individuals.

# Social Security Benefits

## Potential Reduction of SS OASI (Retirement) Benefits

### SOCIAL SECURITY TRUSTEES REPORT

The Social Security Act established the Social Security and Medicare Boards of Trustees to oversee the financial operations of the Social Security and Medicare trust funds. Further, the Social Security Act requires that the Boards report annually to the Congress on the financial and actuarial status of the trust funds.

- 2023 report indicates that SS OASI benefits will be paid at 100% until 2033, then face reduction

Table 1: Key Findings of the 2023 Trustees Reports

|                                                                       | Social Security OASI             | DI                    | Medicare HI                                      | SMI                                                                  |
|-----------------------------------------------------------------------|----------------------------------|-----------------------|--------------------------------------------------|----------------------------------------------------------------------|
| Type of benefit paid from the trust fund                              | Retirement and survivor benefits | Disability benefits   | In-patient hospital and post-acute care (Part A) | Physician and out-patient care (Part B): prescription drugs (Part D) |
| Full scheduled benefits are expected to be payable until              | 2033                             | At least through 2097 | 2031                                             | Indefinitely                                                         |
| Percentage of scheduled benefits payable at time of reserve depletion | *77%                             | --                    | *89%                                             | --                                                                   |
| 75 years actuarial balance as a percent of taxable payroll            | -3.62                            | 0.01                  | -0.62                                            | --                                                                   |

<sup>A</sup> The percent of scheduled benefits payable is projected to decline to 71 percent by 2097. <sup>B</sup> The percent of scheduled benefits payable is projected to decline to 81 percent by 2047 before gradually increasing to 96 percent by 2097.

# College Costs

## RECOMMENDATION:

# 4.6%

Baseline inflation + 2%  
(2.6% + 2%)

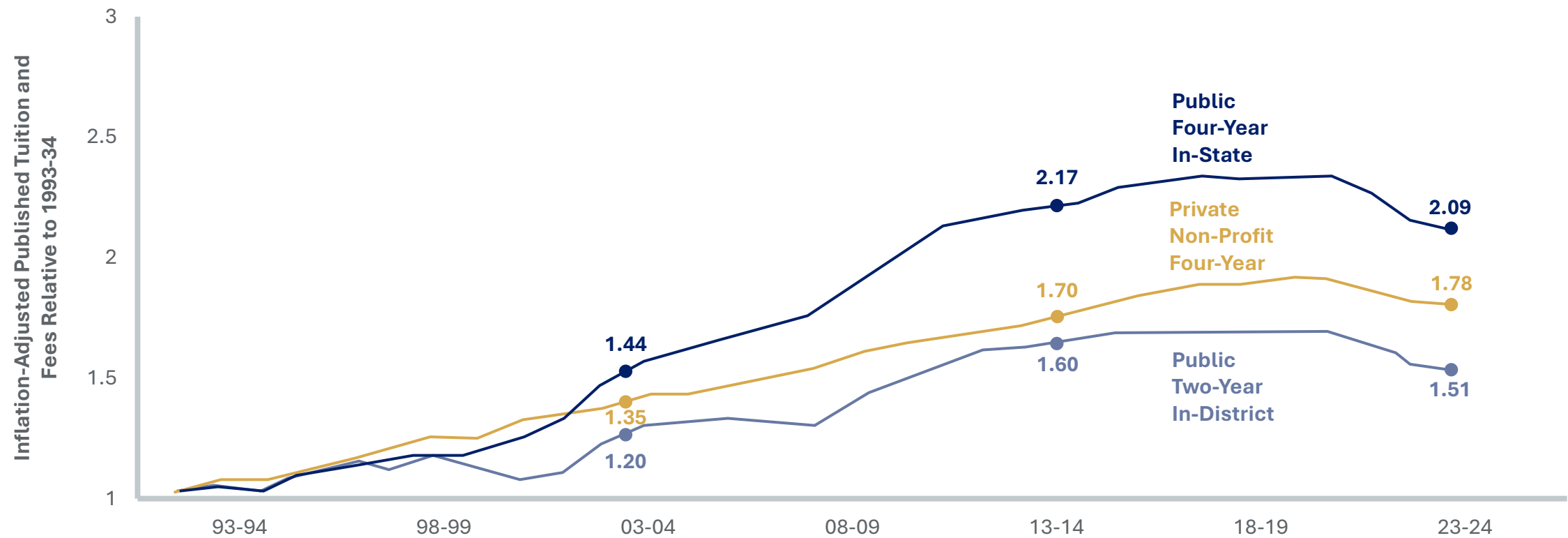
- Historical data exhibits an average annual increase in inflation-adjusted college costs of 6-7% over the last several decades.
- These increases are due to several drivers such as:
  - Professors are highly educated and require competitive wages for their talent
  - To drive enrollment, colleges and universities must meet a rising standard of educational care
  - Administrative “bloat” and the need to improve amenities to compete impacts costs
- Recent years have shown a deceleration of cost growth closer to 2% due to:
  - Returned subsidies
  - Pandemic prompted stimulus funding and tuition freezes which help mitigate rising

Source: Midwestern Higher Education Compact Policy Report August 2018 – Drivers of the Rising Price of a College Education; Robert B. Archibald and David H. Feldman



# College Costs

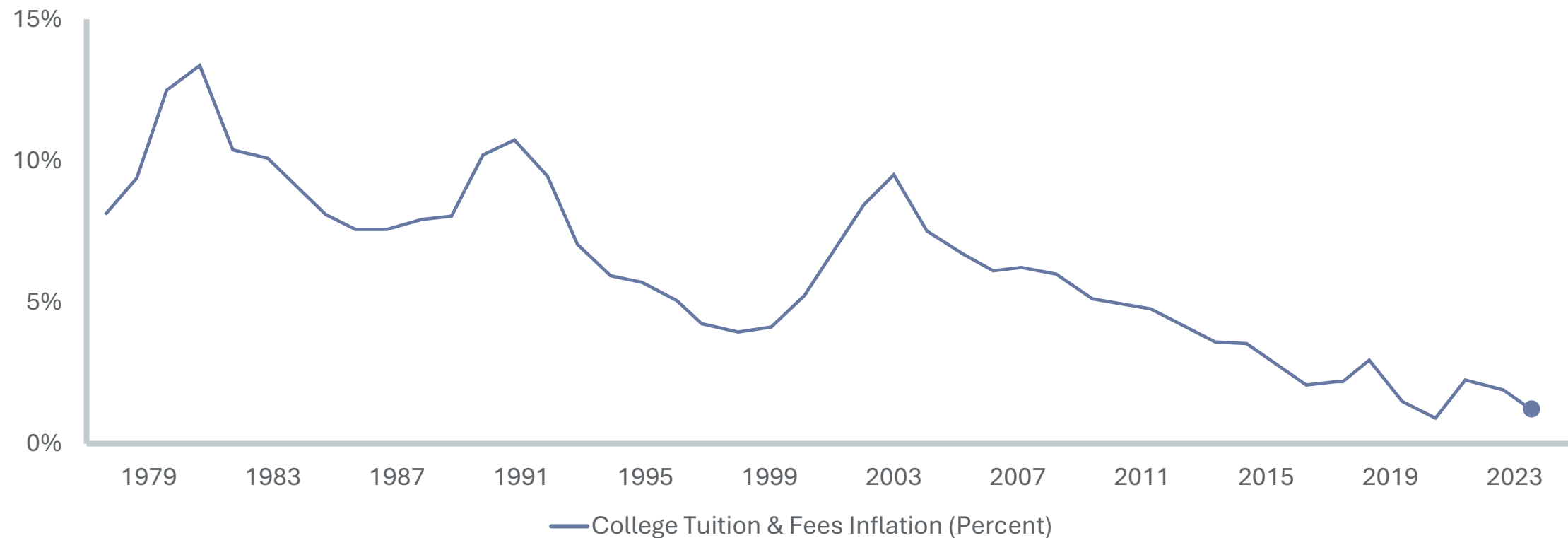
Inflation-Adjusted Published Tuition and Fees Relative to 1993-94 to 2023-24 (1993-94 = 1.0)



College Board, Trends in College Pricing and Student Aid 2023, Figure CP-3

# College Costs

Changes in Prices for College Tuition and Fees from 1979 to 2024



Source: College Inflation: Prices for Tuition and Fees (1978-2024); March 2024: US INFLATION CALCULATOR · COINNEWS MEDIA GROUP LL

# Life Expectancy & Longevity

## RECOMMENDATION:

# Age 95

Source: Congressional Research Service <https://crsreports.congress.gov/R44846>; The Growing Gap in Life Expectancy by Income: Recent Evidence and Implications for the Social Security Retirement Age Updated July 6, 2021; Time Magazine: There's No Such Thing as 'Old Age' Anymore, Joseph F. Coughlin, November 8, 2017 3:30pm

Two Factors supporting longevity for our clients...

### Medical and Public Health Improvements:

- Improvements in the prevention and control of chronic disease (heart disease and cerebrovascular diseases)
- Advances & innovations in medical technology (vaccines & antibiotics)
- Increased public health measures (clean water, sanitation, anti-smoking campaigns)

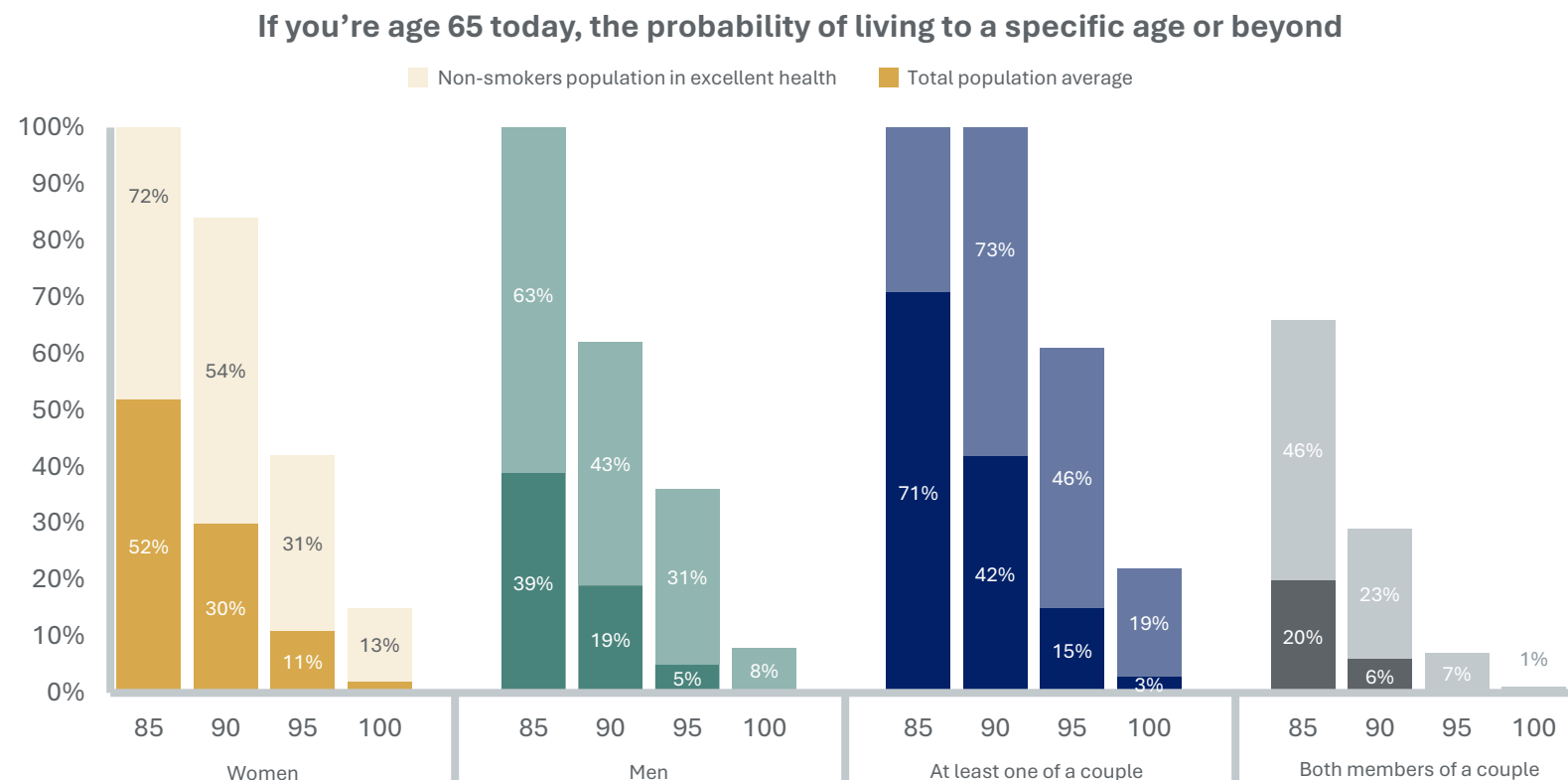
### Income and Education Significantly Increases Longevity

- The gap between Socioeconomic status and longevity has been growing and mortality rates have shown a greater inverse relationship to measures of income, education, occupation
- Dr. Joseph F. Coughlin, founder and director of MIT's AgeLab has found education and wealth are the biggest drivers of longevity

**Planning Consideration:** 95 is the baseline. If there are known health issues or longevity in the family the assumption may need to be adjusted.

# Life Expectancy & Longevity

## Life Expectancy Probabilities



### Plan for Longevity

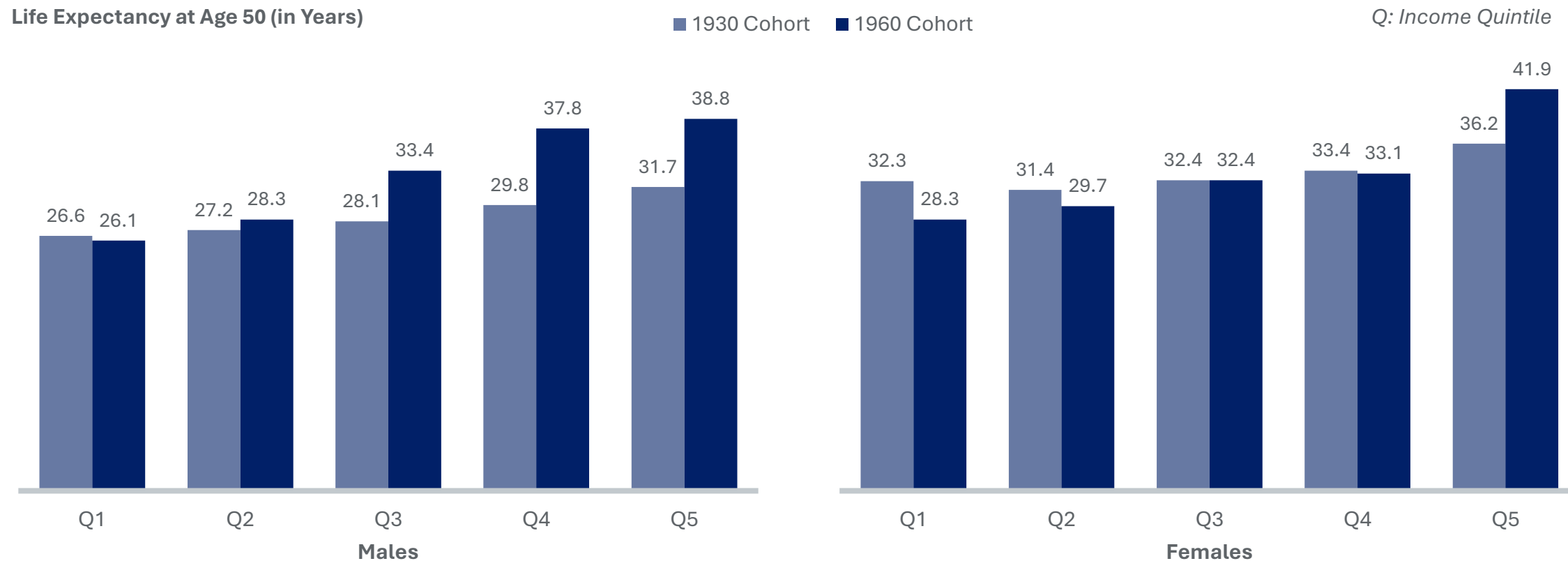
Average life expectancy is a mid-point not an end-point. You may need to plan on the probability of living much longer – perhaps 35 years in retirement – particularly if you are a non-smoker in excellent health.

Investing a portion of your portfolio for growth is important to maintain your purchasing power over time.

Source (chart): Social Security Administration, Period Life Table, 2020 (published in the 2023 OASDI Trustees Report); American Academy of Actuaries and Society of Actuaries, Actuaries Longevity Illustrator, <http://www.longevityillustrator.org/> (accessed January 2024), J.P. Morgan Asset Management

# Life Expectancy & Longevity

Figure 4: Life Expectancy at Age 50 for Males and Females Born in 1930 and 1960, by Income Quintile



Source: National Academy of Sciences, *The Growing Gap in Life Expectancy by Income: Implications for Federal Programs and Policy Responses* (Washington, DC: The National Academies Press, 2015), Figure 3-2. Notes: Cohort life expectancy estimates calculated using observed sample mortality where possible and projected mortality for younger sample individuals (i.e. older than age 78 for the 1930 birth cohort and for the entire 1960 birth cohort).

# Marginal Income and Estate Tax Rates and Exemptions

## RECOMMENDATION: PER TAX CUTS & JOBS ACT (TCJA) OF 2017

- Current tax law, as written
  - Set to expire in 2026
- Changes will include:
  - Individual tax rates
  - Personal Exemptions
  - Standard Deduction
  - Itemized Deductions
    - SALT
    - Mortgage Interest Deduction
    - Miscellaneous itemized Deductions
  - AMT
  - Child Tax Credit
  - Estate & Gift Tax exemptions

Congressional Research Service <https://crsreports.congress.gov> R47846

# Planning Related Component Summary

## **BASELINE INFLATION**

**2.6%**

Per Capital Market  
Assumptions

## **INFLATION OF POST RETIREMENT EXPENSES**

**2.1%**

Baseline inflation - 0.5%:  
(2.6% - 0.5%)

## **HEALTHCARE COSTS**

**5.4%**

Baseline inflation + 2.8%:  
(2.6% + 2.8%)

## **SOCIAL SECURITY BENEFITS (COLA)**

**2.1%**

Baseline inflation - 0.5%:  
(2.6% - 0.5%)

## **COLLEGE COSTS**

**4.6%**

Baseline inflation + 2.0%:  
(2.6% + 2.0%)

## **LIFE EXPECTANCY & LONGEVITY**

**95**

Age

## **MARGINAL & ESTATE INCOME TAX RATES AND EXEMPTIONS**

**2017**

Per tax cuts & jobs act (TCJA)

# 5. Implementation





# System Settings – eMoney

## Inputs



### **INCOME & ESTATE TAX ASSUMPTIONS**

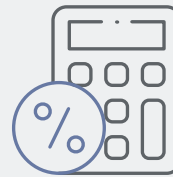
Tax Mode –  
Form 1040

Income/Estate Tax  
Sunset – Sunset Occurs  
for 2026



### **INFLATION**

2.6%, except  
for spending inflation



### **ADVISORE FEE CALCULATION**

Use a blended fee on  
managed assets based  
on client's fee schedule



### **PORTFOLIO CHARACTERISTICS**

Dividends  
Ordinary Income  
Capital gains  
Turnover Rate

# Timeline

| <u>Office</u>    | <u>Date</u> |
|------------------|-------------|
| Scottsdale       | 1/10/2025   |
| Inverness        | 1/10/2025   |
| Chicago/Itasca   | 1/15/2024   |
| Indy             | 1/15/2024   |
| Michigan         | 1/15/2024   |
| Morristown       | 1/23/2024   |
| San Diego        | 2/5/2025    |
| San Francisco    | 2/5/2025    |
| Brightworth      | 2/14/2025   |
| Avalon           | 2/14/2025   |
| Boston           | 2/21/2025   |
| Intercontinental | 2/21/2025   |
| BRR              | 2/28/2025   |
| Stavis           | 2/28/2025   |
| Dallas           | 3/7/2025    |
| Newport          | 3/7/2025    |
| Kore             | 3/7/2025    |
| CPWM             | 3/14/2025   |
| Doyle            | 3/14/2025   |
| Barrett          | 3/14/2025   |
| McCutchen        | 3/21/2025   |
| Ft Lauderdale    | 3/21/2025   |
| Radnor           | 3/21/2025   |
| Cabana           | 3/28/2025   |

# Implementation

## **Prior to move over planning team will help...**

- Compare current vs proposed assumptions
- Understand the impact of new assumptions on office's current financial plans
- Prepare messaging as needed

## **Assumptions will be implemented as follows...**

- Accounted for in eMoney automatically
  - Investment Returns by asset class
  - Model portfolios
  - Life expectancy
  - Base inflation – 2.6%
- Changes needed by the team
  - Inflation adjustments – Spending, Social security, Health care, Education
  - Advisor Fee deduction by client account

# Thank You



# Appendix

# Standard Assumptions

Description: Corient-Provided

---

## CAPITAL MARKET COMPONENTS

- Historical performance, market trends and asset class correlation help estimate portfolio investment growth.
- Investment returns and accompanying tax implications impact long-term planning projections.

---

## INFLATION OF PRE/POST RETIREMENT EXPENSES

- While base spending tends to increase at the pace of inflation pre-retirement, studies indicate that it slows during retirement years which should be reflected in our projections.
- Breaking out high inflation components separately (Health care, travel, college costs, etc..) further support lower inflation for base spending

---

## BASELINE INFLATION

- Inflation rates impact assumptions about investment returns in addition to projecting income and expense expectations.
- Many assumptions center around their relation to base inflation.
- How closely these assumptions are tied will help inform whether they are trending lower, on par, or excess of base inflation.

---

## HEALTHCARE COSTS

- Healthcare costs rise with age at a faster rate than inflation.
- Accounting for that greater increase leads to a more realistic assessment of how savings will be required to cover future medical costs.

# Standard Assumptions

Description: Corient-Provided

---

## SOCIAL SECURITY BENEFITS

- Evidence indicates that the COLA adjustment for Social Security benefits is lower than the rate at which costs are rising.
- Adjusting for this gives a more realistic expectation of this income source.

---

## LIFE EXPECTANCY/LONGEVITY

- Estimates on how long clients live impact assumptions for savings, withdrawals and insurance needs.
- Wealth and education directly correlate to higher longevity

---

## COLLEGE COSTS

- The cost of college has increased rapidly over time but has decelerated recently.
- This can alter the amount of savings required to fund future education expenses.

---

## MARGINAL INCOME & ESTATE TAX RATES and EXEMPTIONS

- Assumptions about future rates influence decisions related to tax strategies in the near term in addition to estimates on future cash flow.

# Capital Market Assumptions

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## **Inflation - Baseline**

Our goal is to model how an inflation rate to apply to spending growth in a modeled financial plan. We also model the variability in that change, as client financial plans are sensitive to sudden and unexpected changes in prices. To do so, we will look at a combination of market-based predictions and historical data, and we will validate those numbers against the estimates made by major asset managers.

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## **Break-even Inflation Rate – A Market Based Prediction**

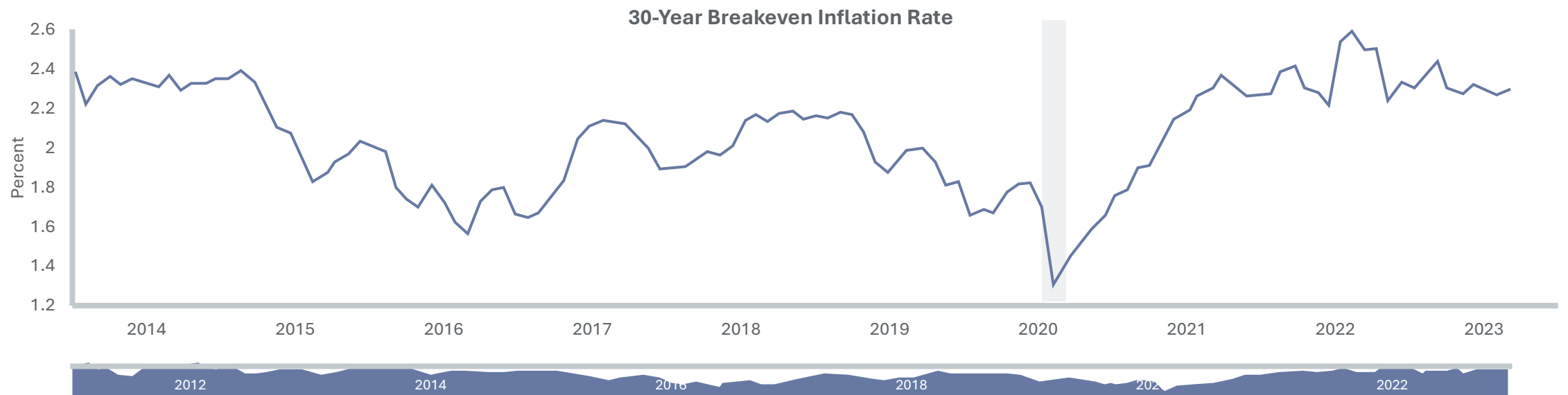
We plot the 30-year breakeven inflation rate, which can be thought of as a market-based expectation for the average rate of inflation over the next 30 years. It represents the difference in yield of nominal bond and an inflation-linked bond of the same maturity. More specifically, the 30-year breakeven inflation rate measures the difference between a 30-year US Treasury Security and a 30-year Treasury Inflation-Protected Security (TIPS). The breakeven rate is at 2.26% as of May 2023, meaning market participants expect an inflation rate of 2.26% over the next 30 years, on average. The TIPS market is an efficient one that represents \$1.65 trillion of value as of 2021, and it deals in highly liquid securities. Given the market's size and efficiency, the breakeven inflation rate could be looked at as one of the most reliable estimates for future inflation.



# Inflation - Baseline

## 30-year Breakeven Inflation Rate

| Observation                                                | Units                               | Frequency |
|------------------------------------------------------------|-------------------------------------|-----------|
| May 2023: <b>2.26</b><br>(+ more)<br>Updated: June 1, 2023 | Percent,<br>Not Seasonally Adjusted | Monthly   |



Shaded areas indicate U.S. recessions; Source: Federal Reserve Bank of St. Louis; fred.stlouisfed.org

# Inflation - Baseline

## Historical

We also look to historical inflation rates to help get a sense of what’s normal. Over the last 25 to 30 years, both the arithmetic mean of annual inflation rates and the compound annual growth rate have been within a few basis points of 2.5%. Longer-term numbers that include unusually high inflation rates in parts of the 1970s and 1980s can be a bit higher.

|                   | Arithmetic Mean | Geometric/CAGR | Standard Deviation of Inflation |
|-------------------|-----------------|----------------|---------------------------------|
| Trailing 25yr Avg | 2.51%           | 2.53%          | 1.92%                           |
| Trailing 30yr Avg | 2.52%           | 2.52%          | 1.76%                           |
| Trailing 50yr Avg | 3.99%           | 3.95%          | 3.05%                           |

Source: Federal Reserve Economic Data (FRED), St. Louis Fed.

# Inflation - Baseline

## Federal Reserve Target



The Federal Reserve manages monetary policy to run a balance between two sometimes competing goals – **price stability and full employment**. To make price stability a more tangible goal, the Fed has committed to an explicit **inflation target of 2.0%**. The Fed's preferred measure of inflation, **Personal Consumption Expenditures varies** from the most widely followed measure, the Consumer Price Index. PCE **reweights items quarterly** and is preferred by the Fed because the Fed believes a more frequent reweighting better captures consumer behavior in response to changing prices. Because consumers will tend to trade down in response to rising prices, PCE has **averaged 0.2-0.3% less**. This is important to note because most market based and third party sources for inflation model CPI rather than PCE.

We believe the Fed's desire to target PCE, however, is tempered by an **institutional bias for the central bank**. We expect that when the Fed undershoots its inflation target it will be by relatively small margins, whereas overshoots are likely to be by fairly high margins. The experience of **2021-2023 demonstrate the asymmetry in inflation targeting**, and we expect that it **will result in prices rising by more than the Fed's 2% target on average**.

# Inflation – Baseline

## Major Third-Party Asset Managers

Major asset managers will publicly share their long-term capital market assumptions. Inflation estimates are sometimes included in this, which we can use to check against our own estimates. The managers that share this are generally in line, and estimates are close to both historical rates and the current 30-year breakeven.

### Asset Manager Long-Term Inflation Assumptions

|              | Arithmetic Avg. | Compound Rate | Standard Deviation | Time Horizon        |
|--------------|-----------------|---------------|--------------------|---------------------|
| JP Morgan    | 2.62%           | 2.60%         | 1.77%              | 10-15 year forecast |
| State Street | 2.30%           | n/a           | n/a                | 10+ year forecast   |
| Vanguard     | 2%-3%           | n/a           | 2.30%              | 10 year forecast    |

<https://am.jpmorgan.com/us/en/asset-management/institutional/insights/portfolio-insights/lcma/>; <https://www.ssga.com/library-content/pdfs/long-term-asset-forecast-q3-2022.pdf>;  
<https://advisors.vanguard.com/insights/article/series/vanguardmarketperspectives#projected-returns>

# Inflation – Baseline

## Conclusion & Recommendations

Given the market-based assumptions, historical averages, and estimates provided by credible asset managers, we recommend using the numbers below for our own inflation assumptions.

| Arithmetic Average | Compound Annual Growth Rate | Standard Deviation |
|--------------------|-----------------------------|--------------------|
| 2.60%              | 2.30%                       | 2.00%              |

Source: JP Morgan, State Street, Vanguard Group

# Capital Market Assumptions

## Equities

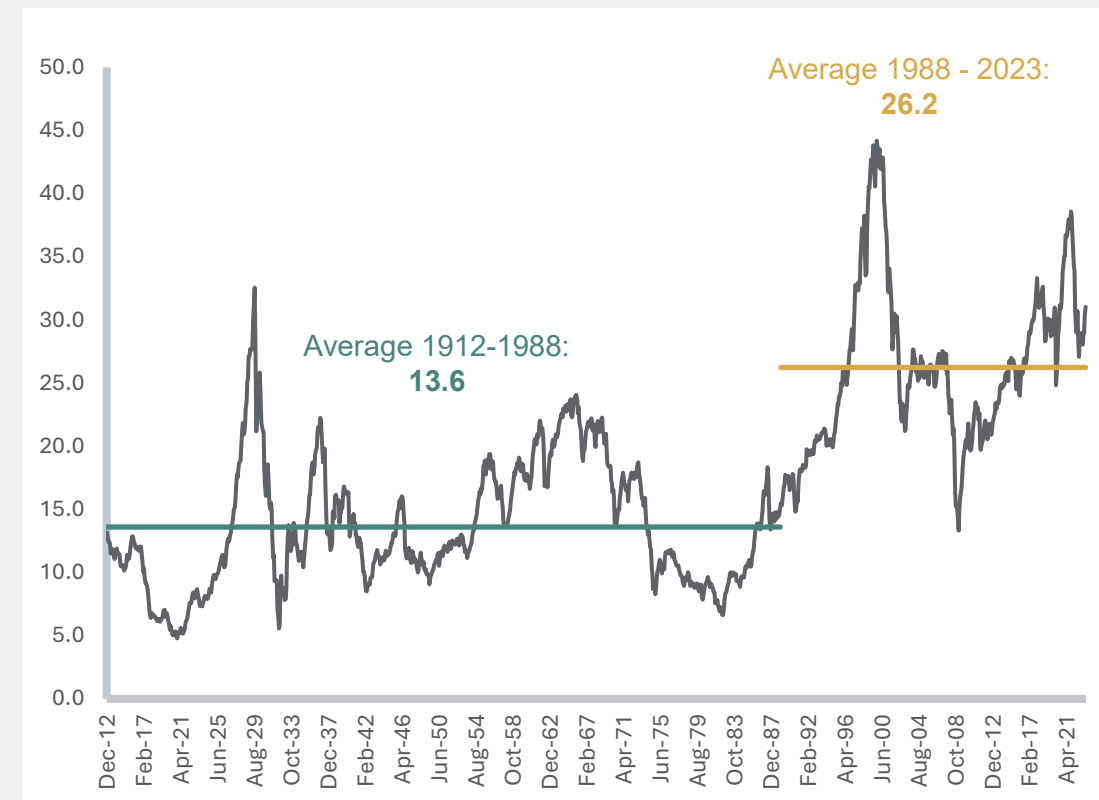
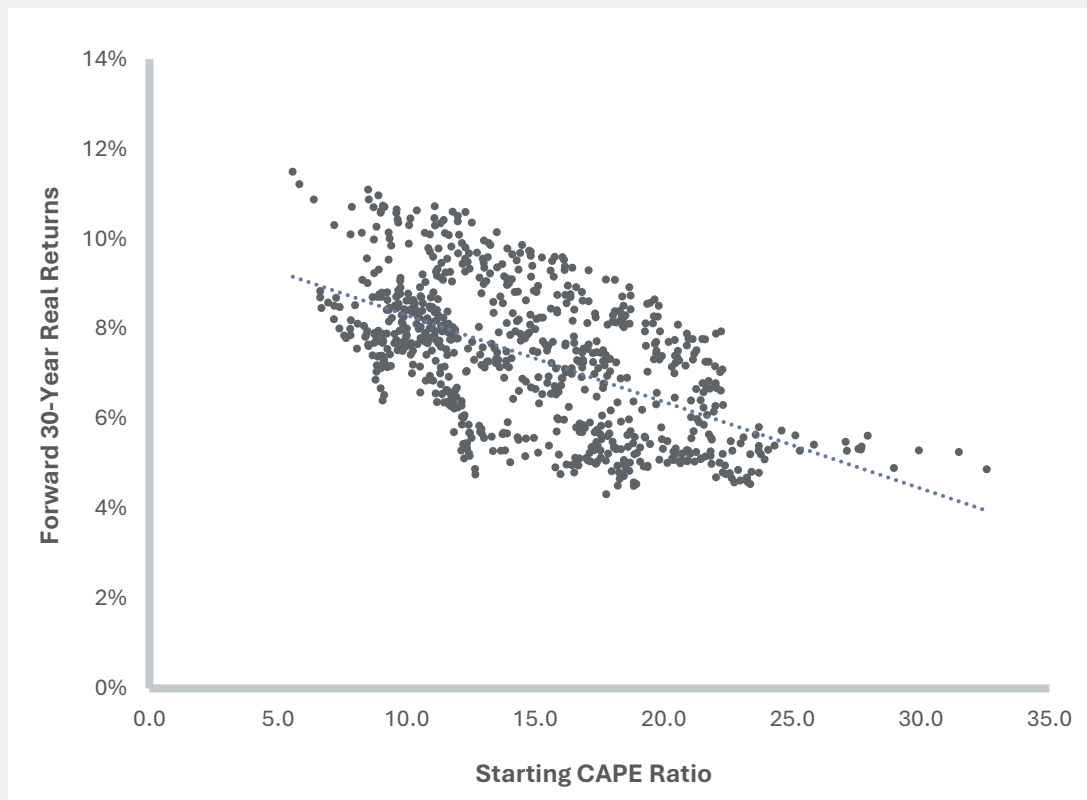
Our goal is to develop Capital Markets Equity Assumptions – expected real (in excess of inflation) return and standard deviation, along with correlation relative to U.S. investment grade fixed income – for global equities with a 30-year time horizon. We have developed a framework using historical data and modest valuation-based adjustments to arrive at stable but flexible expected return assumptions. Volatility and correlations are primarily derived from historical data.

### Corient Broad Financial Planning Recommendations - Equities:

Based on a review of market-based return forecasts, historical returns and the financial planning/capital markets assumptions of major asset managers, the Corient investment team recommends the following high-level assumptions for financial planning simulations.

| Global Equity Average Nominal Return (Arithmetic) | Global Equity Average Nominal Return (Geometric/CAGR) | Standard Deviation of Annual Returns | Correlation of Global Equities and Fixed Income |
|---------------------------------------------------|-------------------------------------------------------|--------------------------------------|-------------------------------------------------|
| 9.40%                                             | 7.70%                                                 | 17.00%                               | 0.2                                             |

# Stocks – Market Based

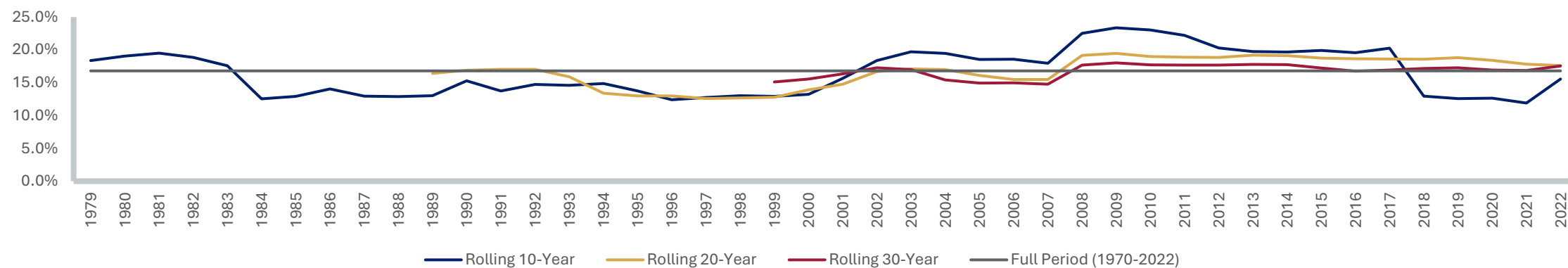


Source: Robert Shiller Data

# Stocks – Historical

| US Stocks     | Years     | Geometric Real Return |
|---------------|-----------|-----------------------|
| Bloomberg     | 1928-2023 | 6.5%                  |
| Barclays      | 1925-2022 | 6.6%                  |
| Credit Suisse | 1900-2022 | 6.4%                  |
| Average       |           | 6.5%                  |

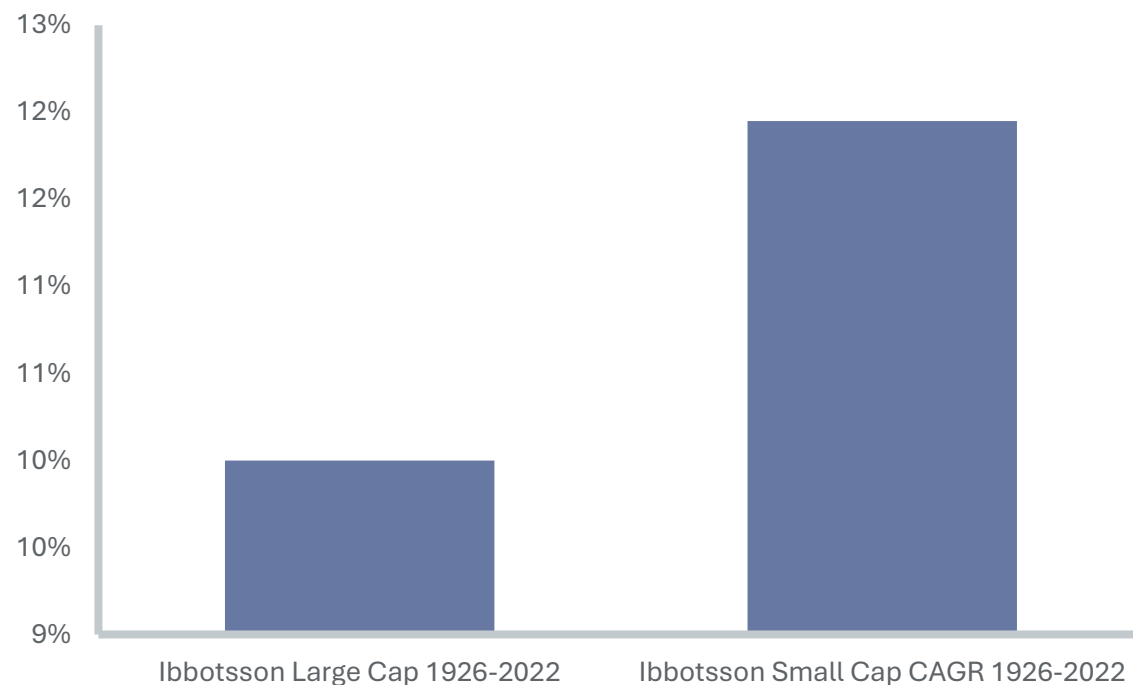
| US Stocks          | Years     | Geometric Real Return |
|--------------------|-----------|-----------------------|
| Bloomberg          | 1970-2023 | 4.1%                  |
| Barclays (UK only) | 1989-2022 | 4.8%                  |
| Credit Suisse      | 1900-2022 | 4.3%                  |
| Average            |           | 4.4%                  |



Source: Ibbotson Associates, Barclays', Credit Suisse



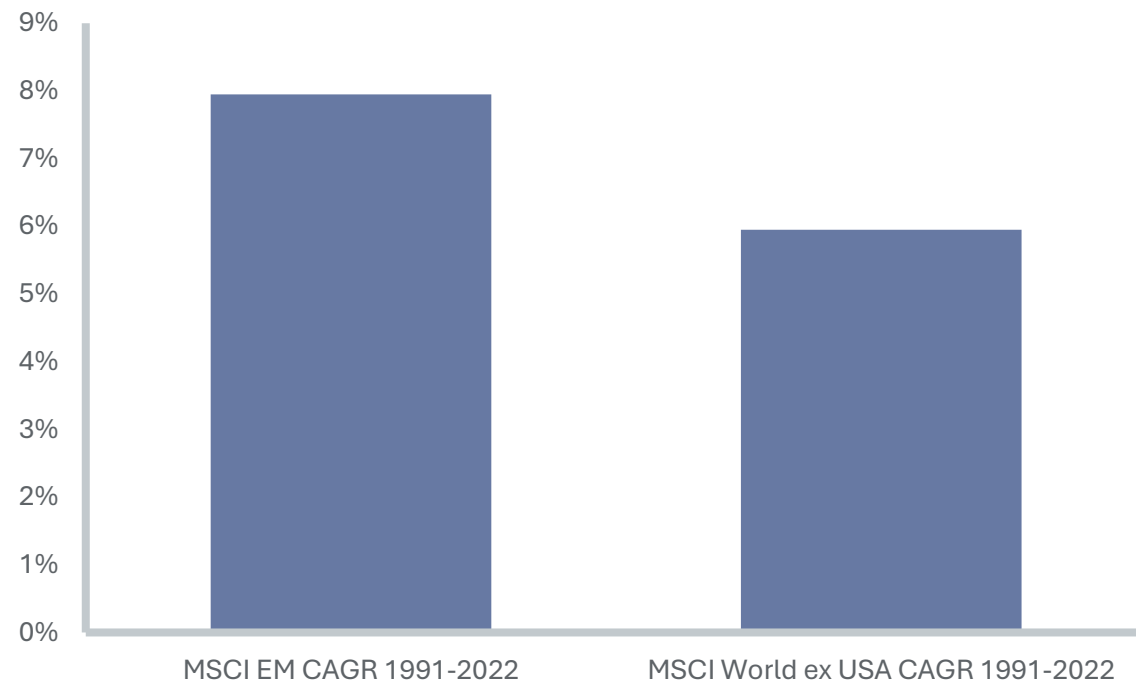
# Stocks – Historical



- Our models allocate approximately 20% of equities to asset classes we expect to earn a premium return for taking extra risk
- Specifically, these are small cap companies and emerging markets companies
- Using Ibbotson data with a starting point of 1926, small companies earn a return premium of 1.7% over large caps

Source: Ibbotson Associates

# Stocks – Historical

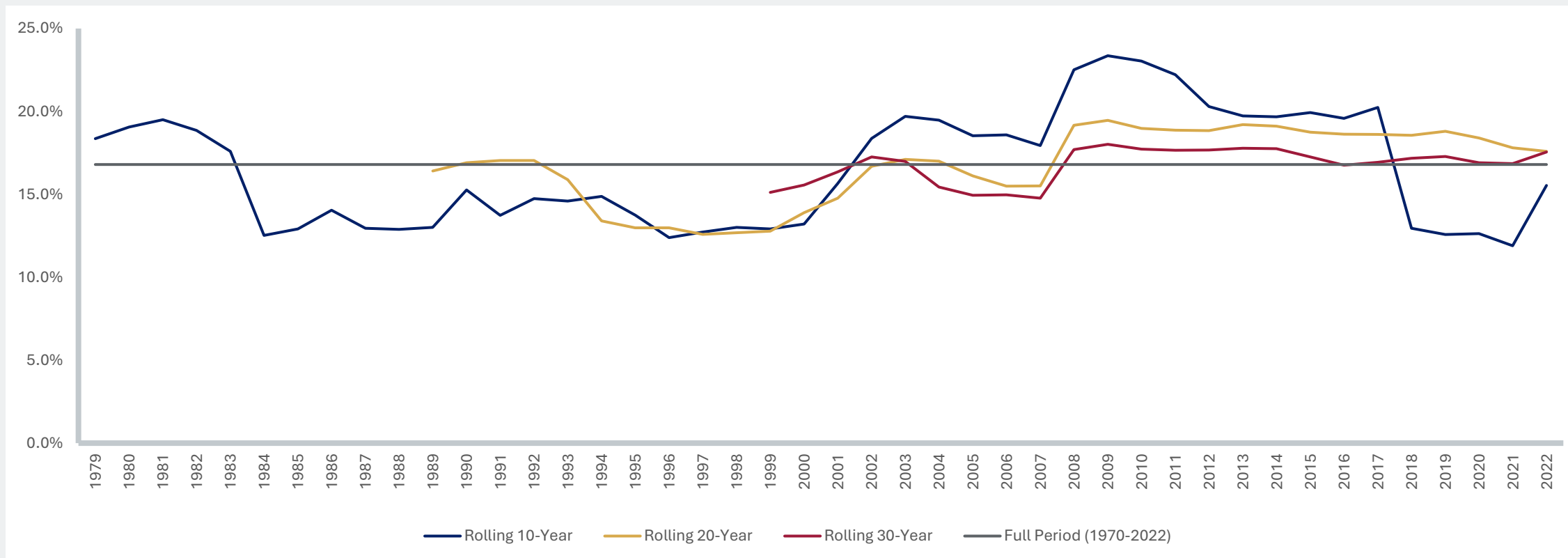


The data for emerging markets is narrower, with a starting point of 1987 and a lot of volatility in the first few years of the index life. Relying on full index history, the return premium in EM is 3.7%. Using a starting point of 1991 to exclude the initial volatility, it is a 2.0% premium. I feel given the narrower data set and highly volatile (and unusually profitable) first few years, I recommend assuming a 2.0% premium for EM.

Source: Ibbotson Associates

# Stocks – Historical

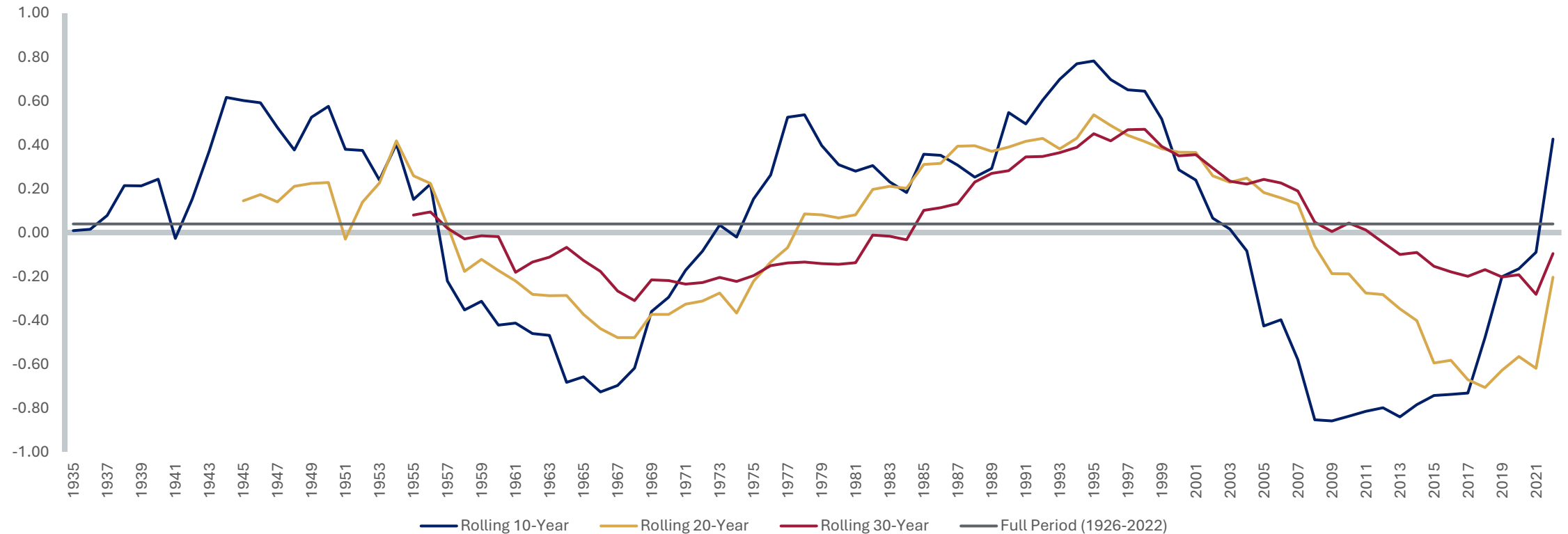
Standard Deviation of Annual Returns, 70% U.S./30% International Equities



Source: Bloomberg

# Stocks – Historical

Correlation of Annual Returns, U.S. Equities vs. a 50/50 blend of 5-Year and 20-Year Treasuries



Source: Ibbotson Associates

# Stocks – Historical

## Manager Assumptions of Global Equity Returns

| Manager                                  | Arithmetic | Geometric/CAGR |
|------------------------------------------|------------|----------------|
| JP Morgan US Large Cap (10 yr horizon)   | 9.07%      | 7.90%          |
| JP Morgan Intl Large Cap (10 yr horizon) | 11.14%     | 9.07%          |
| Vanguard US Large Cap (10 yr horizon)    | n/a        | 5.70%          |
| Vanguard Intl Large Cap (10 yr horizon)  | n/a        | 8.20%          |
| BlackRock US Large Cap (30 yr horizon)   | n/a        | 7.60%          |
| BlackRock Intl Large Cap (30 yr horizon) | n/a        | 8.20%          |

## Manager Assumptions of Stock Volatility

| Manager                          | St. Dev. |
|----------------------------------|----------|
| JP Morgan                        | 16.10%   |
| Fidelity Investments             | 17.00%   |
| Morgan Stanley Wealth Management | 13.40%   |

## Manager Assumptions of Stock/Bond Correlations

| Manager                          | St. Dev. |
|----------------------------------|----------|
| JP Morgan                        | 16.10%   |
| Morgan Stanley Wealth Management | 13.40%   |

Source: JP Morgan, Vanguard, Blackrock, Fidelity Investments, Morgan Stanley Wealth Management

# Capital Market Assumptions

## Bonds

Our goal is to develop Capital Markets Bond Assumptions – expected real (in excess of inflation) return and standard deviation, along with correlation relative to U.S. investment grade fixed income. We have developed a framework using historical data and modest valuation-based adjustments to arrive at stable but flexible expected return assumptions. For simplicity, assumed a 50/50 ratio between taxable and tax exempt bonds.

### Corient Broad Financial Planning Recommendations - Bonds

Based on a review of market-based return forecasts, historical returns and the financial planning/capital markets assumptions of major asset managers, the Corient investment team recommends the following high-level assumptions for financial planning simulations.

| Taxable Bond Portfolio Return<br>(Arithmetic) | Taxable Bond Portfolio Return<br>(Geometric/CAGR) | Standard Deviation of Annual<br>Returns | Correlation of Global Equities<br>and Fixed Income |
|-----------------------------------------------|---------------------------------------------------|-----------------------------------------|----------------------------------------------------|
| 4.50%                                         | 4.40%                                             | 5.00%                                   | 0.2                                                |

# Bonds - Market Based

- Starting Yields are predictive of Realized Long Term Returns
- Challenge – reinvestment rates can be different from starting yields.
- Planning horizon is 30 years, portfolio average maturity closer to 7 years.

## **Correlation of starting yields for the Ibbotson Intermediate Govt. Index and forward returns: returns..**

- 20-year r-squared: 0.71
- 25-year r-squared: 0.56
- 30-year r-squared: 0.45

## **Linear regression predicted forward returns based on current YTM**

- 20-year forward total return: 4.87%
- 25-year forward total return: 5.07%
- 30-year forward total return: 5.31%

# Bonds - Historical

| Historical Ibbotson Itrm. Govt. Index TR | Nominal | Real   |
|------------------------------------------|---------|--------|
| 10 Years                                 | 1.13%   | -1.52% |
| 15 Years                                 | 2.28%   | 0.11%  |
| 20 Years                                 | 2.81%   | 0.28%  |
| 30 Years                                 | 4.00%   | 1.46%  |
| 50 Years                                 | 6.39%   | 2.37%  |
| 75 Years                                 | 5.30%   | 1.82%  |

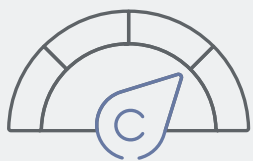
| Historical Ibbotson Itrm. Govt. Index Std Dev | Nominal | Real  |
|-----------------------------------------------|---------|-------|
| 30 Years                                      | 4.36%   | 4.71% |
| 50 Years                                      | 5.34%   | 5.59% |
| Full History (since 1926)                     | 4.37%   | 4.79% |

Source: Ibbotson Associates



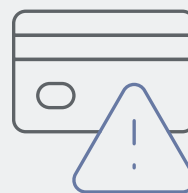
# Bonds – Historical

## Credit Risk Premium



### CREDIT YIELD SPREAD

- Current BofA US Corp. Idx Spread 1.22%
- Historical Avg spread (BofA US Corp. Idx) 1.52%
- Historical Med spread (BofA US Corp. Idx) 1.34%



### REALIZED CREDIT RISK PREMIUM

- 20 yr Corp. Idx Return Premium (Ibbotson LT Idx) 0.82%
- 50 yr Corp. Idx Return Premium (Ibbotson LT Idx) 0.38%
- 96 yr Corp. Idx Return Premium (Ibbotson LT Idx) 0.54%

Source: Ibbotson Associates

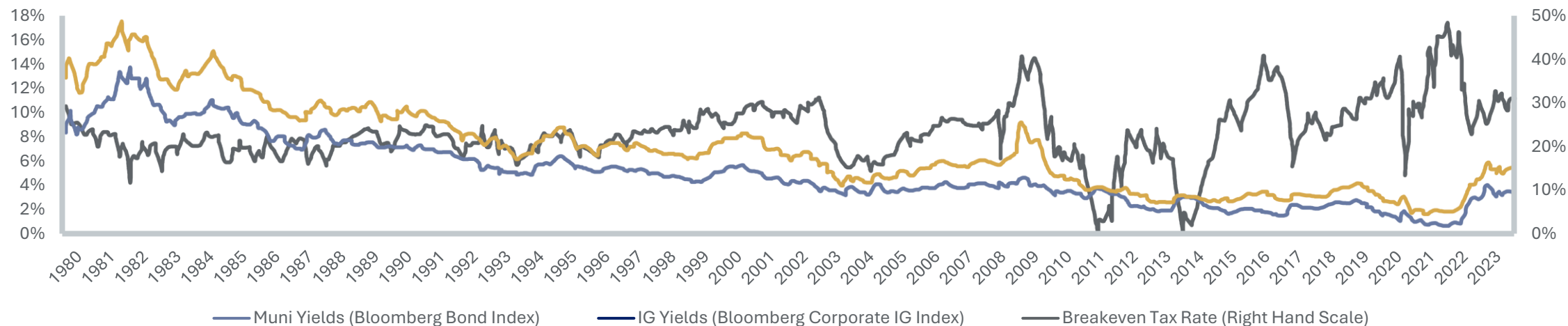
# Bonds – Muni Bonds

Muni Bonds trade at a breakeven tax rate of about **28% on average**

That means that if we **predict a 5.0% rate** of return on taxable bonds, our **expected rate of return on munis should be 3.6%**

Munis also have interest rate shifts that are muted relative to taxable bonds (for the same reason, they trade on a taxable equivalent basis). **Large duration driven moves tends to be 20% smaller for munis** than for the agg bond index. So, I recommend a **4.0 st. dev for tax exempt muni bonds**.

For simplicity, assume a 50/50 ratio between taxable and tax exempt bond assumptions to arrive at a 4.



Source: Bloomberg

# Bonds – Third Party

| Capital Market Assumptions | Arithmetic | Compound/CAGR |
|----------------------------|------------|---------------|
| Morgan Stanley (20 yr)     | N/A        | 4.80%         |
| Blackrock (30 yr)          | N/A        | 3.60%         |
| JP Morgan (10 Yr)          | 4.70%      | 4.60%         |
| Vanguard (10 Yr)           | N/A        | 4.10%         |

| Capital Market Assumptions (st. dev) | St. Dev |
|--------------------------------------|---------|
| Morgan Stanley                       | 5.20%   |
| JP Morgan                            | 4.10%   |

Source: Morgan Stanley, Blackrock, JP Morgan, Vanguard