

Advanced Study Guide

FPPTA Fall Trustee School

October 5 - 8, 2025

Sawgrass Marriott Golf Resort & Spa



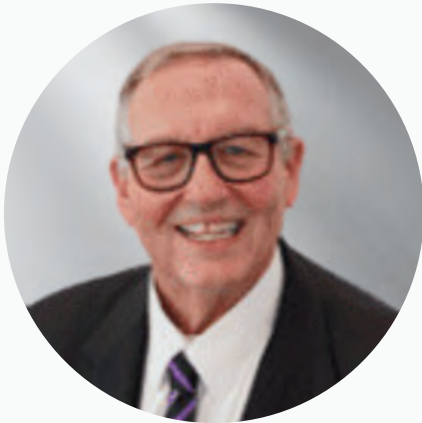
Florida Public Pension Trustees Association

FPPTA CPPT Education Committee

Basic



Gee Cowan



Norris Park



Steve Aspinall

FPPTA CPPT Education Committee

Intermediate



Lynn Bernstein



Katie Byrne



Bill Maxwell

FPPTA CPPT Education Committee

Advanced



Kurt Vroman



Kerry Richardville



Stefanie Leverette

Monday

8:00 – 10:00 AM	Bamboo Farmer Mindset Greg Bell <i>Thought Leader, Business Consultant, Leadership Coach</i>
10:00 – 10:30 AM	Morning Break
10:30 – 11:00 AM	Fundamental Equation of Pension Plan Financing Pension Formula: $C + I = B + E$ Steve Roth <i>FPPTA Education Committee</i>
11:05 – 12:10 PM	Asset Class Performance / Market Cycles Dr. Mary Kelly (60 minutes)
12:10 – 1:30 PM	Lunch Break
1:30 – 2:00 PM	Fixed Income Markets Jeff Detwiler <i>Garcia Hamilton & Associates</i>
2:05 – 2:35 PM	Capital Markets – Equity Geoff Gerber <i>Twin Capital Management</i>
2:40 – 3:10 PM	Risk & Volatility Steve Roth <i>Dahab & Associates</i>
3:10 – 3:30 PM	Afternoon Break
3:30 – 4:00 PM	Trends in Real Estate Sabrina Unger <i>American Realty Advisors</i>
4:00 – 4:30 PM	Private Debt Laura Stolfi <i>Nuveen</i>

Tuesday

8:30 – 9:00 AM	Private Equity Rob Hatch <i>Constitution Capital Partners</i>
9:05 – 10:10 AM	Disability Process Pedro Herrera <i>Sugarman Susskind Braswell & Herrera</i> (60 minutes)
10:10 – 10:30 AM	Morning Break
10:30 – 11:00 AM	Establishing a Funding Policy Pete Strong <i>Gabriel Roeder Smith</i>
11:00 – 12:10 AM	Ethics Master Class Caroline Klancke <i>Florida Ethics Institute</i>
12:10 – 1:30 PM	Lunch Break
1:30 – 2:00 PM	Emerging Markets Kurt Wood <i>DRZ Investment Advisors</i>
2:05 – 2:35 PM	Real Assets David Lee <i>Dahab & Associates</i>
2:40 – 3:10 PM	Behavioral Governance Don Trone <i>Behavioral Governance Institute</i>
3:10 – 3:30 PM	Afternoon Break
3:30 – 4:30 PM	Advanced Program Review

Program Agenda

Wednesday

8:00 - 10:00
AM

Electronic CPPT Testing

(Participants are expected to bring a wifi capable device to their exam)



Shaping the Future - Trustee by Trustee

Disclaimer

Florida Public Pension Trustees Association Disclaimer The program and related materials presented by the Florida Public Pension Trustees Association (hereinafter, “FPPTA”) summarize important information including, but not limited to, financial and investment topics. The FPPTA's intent is to educate and not to advise in any way. As a trustee, your decisions should be based upon the specific situations presented by your plan and/or board members. The FPPTA shall not be liable for any decisions made, or actions taken, based upon information provided through this program and materials provided. It is important that you, as trustee, consult an appropriate professional advisor as necessary. The information in this program and related materials, unless otherwise noted, are the property of the individual presenters and is provided for educational purposes only. The information is provided “as is” without warranty of any kind. Copyright 2025 by the FPPTA. All rights reserved. No portion of this material may be reproduced or transmitted in any format, or by any means electronic or mechanical, including, but not limited to, photocopying, recording storage in any retrieval system, or otherwise without the express and written consent of the FPPTA and the individual presenters.

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The Pension Formula

Steve Roth, CPPT
Dahab & Associates

Steven Roth, CFA joined Dahab Associates in December 2007 and brought with him seven years of investment experience. Steve began his career at American Fund Advisors as an analyst for the John Hancock Technology Mutual Fund. He has also held analyst positions at Kaufman Brothers and Global Securitization Services. As CIO, Steve will provide guidance on investment management decisions for the firm, in addition to his role as consultant. Steve earned a BS in geology and an MBA in finance from Hofstra University. He received his CFA Charter in 2013, and is a member of CFAI and NYSSA.



Pension Formula for Pension Plan Financing

$$C + I = B + E:$$

Contributions (C) + Income (I) = Benefits (B) + Expenses (E).

Contributions

Income

Benefits

Expenses

Employers and Employees **contribute** to a fund in regular intervals. The fund invests these contributions and earns a return on that investment. Return from investments (fixed income, equity, mutual fund, etc.) are considered **income**. Contributions and Income combine to add to the fund.

Retirement plans pay **benefits** to members who have met plan requirements. Retirement plans also pay **expenses** for maintaining the plan: administrative, investment, auditing, etc. Benefit payments and expenses combine to decrease the amount in the fund.

Asset Class Performance & Understanding Investment Market Cycles

Dr. Mary Kelly

Commander/Dr. Mary Kelly, US Navy (retired) spent 25 years of active duty in the Navy. She was a military professor at the Naval Academy and a civilian professor at the Air Force Academy. She learned lessons in leadership in the first and second gulf wars and during 911. She uses real-world military and industry examples that resonate with participants.

From her days as a naval intelligence officer to her role as one of today's most influential economists, Commander/Dr. Mary C. Kelly has carved out an unforgettable career in leadership. Former chief of police, professor, realtor and HR Director – Mary has spent over 25 years teaching and training more than 40,000 military and civilian personnel. Mary is now on a mission to spread her message of success with audiences worldwide, sharing with them the secrets to being a true leader in today's workplace.

A high-energy keynote speaker, Mary is focused on using research, laughter, and experience to show professionals how to excel. Mary's relatable, no-nonsense approach inspires audiences to embrace their roles, surpass their goals, and plan for the future.

Mary is the author of 15 books on business growth, leadership, and today's economy. She is a speaker, coach, and trainer who has worked with hundreds of organizations and companies across the globe.



Asset Class Performance & Understanding Investment Market Cycles

Explore how asset classes behave through market cycles and learn strategies to optimize investment decisions by mastering cycle phases and diversification.





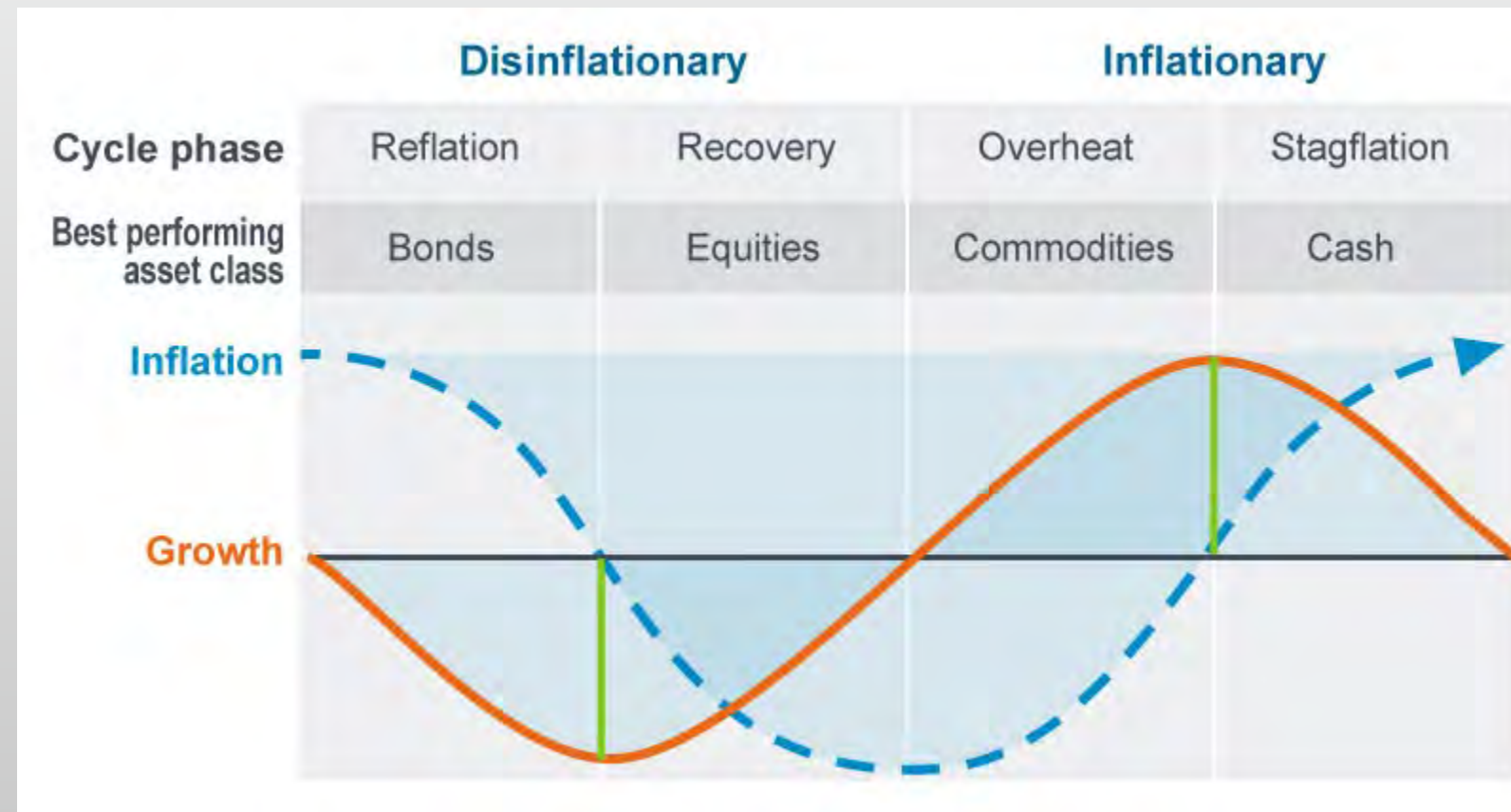
Commander/Doctor Mary Kelly

CPAE, CSP, US Navy (ret)



Part 1: Foundations of Asset Classes & Market Cycles

This introduces the core concepts of asset classes and the repeating phases of market cycles that shape investment performance.



What Is an Asset Class?

Group of investments with similar characteristics and behavior

Examples include equities, bonds, real estate, commodities, and alternatives





Why Asset Classes Matter

Diversification reduces risk by spreading investments across categories

Different asset classes perform uniquely across various market environments

Part 2: Historical Asset Class Performance Overview

Review decades of performance data to uncover patterns and the impact of diversification across asset classes.



Diversification is The Key to Smoother Returns

Balanced portfolios help reduce volatility and mitigate severe drawdowns

Annual rebalancing ensures adherence to target risk exposure and capitalizes on market movements





Risks Across Asset Classes

Bonds face interest rate changes and credit risk

Equities encounter volatility along with company and macroeconomic uncertainties

Alternatives carry leverage, illiquidity, and complexity concerns

International investments add currency and geopolitical risks



Part 3: The Anatomy of Market Cycles and Asset Class Behavior

Dive into the phases of economic cycles and how asset classes typically perform during each phase.

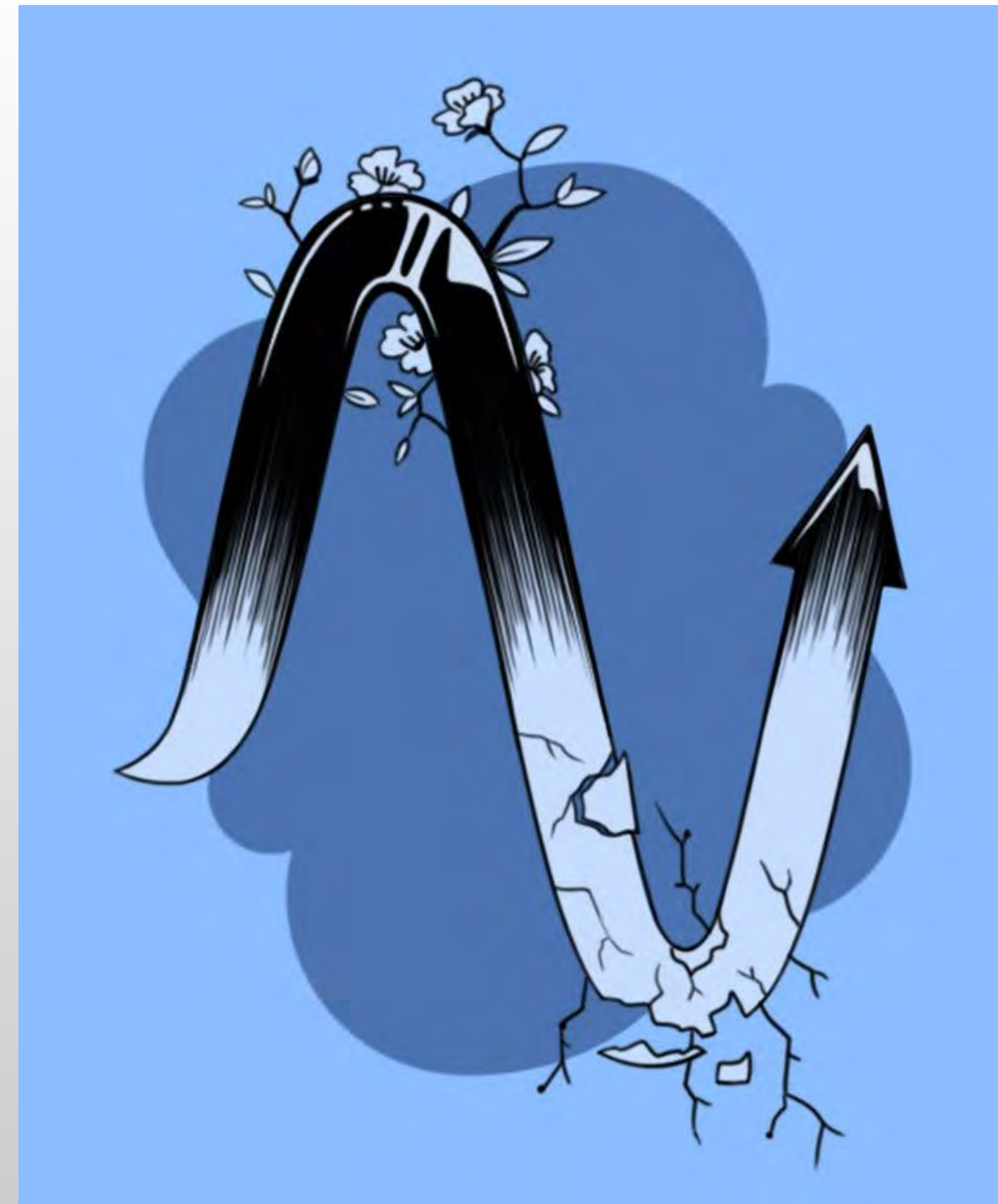
Economic Cycle Phases Defined

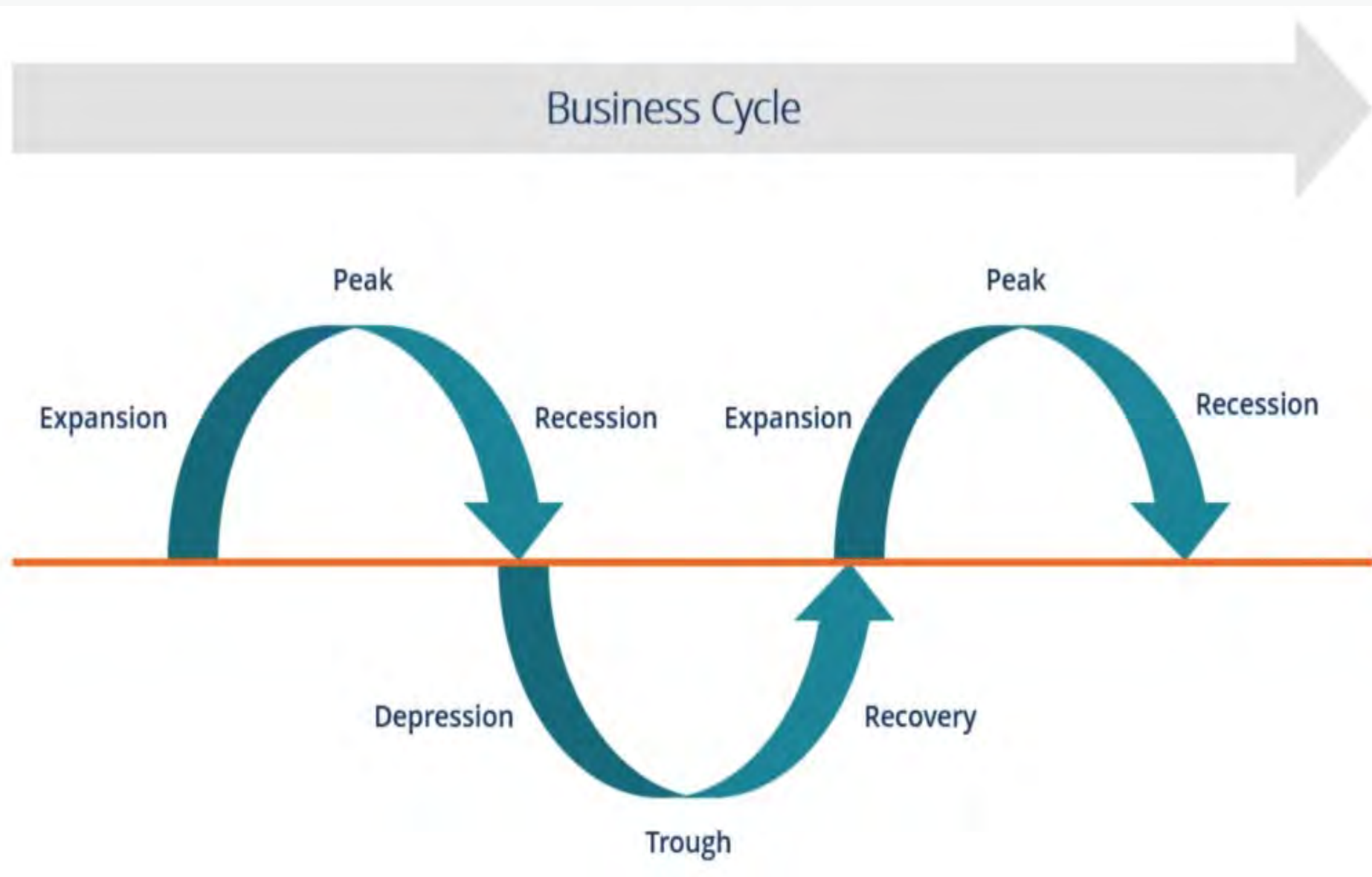
Recovery: Economy rebounds from the trough; low inflation and accommodative monetary policy

Expansion: Accelerating growth, rising inflation, and tightening policies

Slowdown: Growth slows down, inflation peaks, and policies become restrictive

Downturn: Market contraction begins, may or may not turn into recession





Understanding these phases helps investors anticipate shifts in market conditions.

Examples of Leading Indicators

Housing starts:

An increase in the construction of new homes can signal future economic expansion and increased consumer spending.

Manufacturers' new orders:

A rise in new orders suggests future production and growth in the manufacturing sector.

Stock prices:

Stock market performance can anticipate future economic conditions, as investors try to predict future growth.

Consumer expectations:

Gauges of consumer confidence about the future can influence spending habits and thus economic activity.

Yield curve:

The relationship between interest rates on short-term and long-term government bonds can signal future economic conditions.

Examples of Lagging Indicators

Unemployment rate:

This indicator changes after an economic downturn or recovery begins, confirming the state of the economy.

Inflation rate (CPI):

The Consumer Price Index measures price changes, which are reported after prices have already risen.

Average earnings:

Wages and salaries typically adjust after an economic shift has occurred, reflecting past performance.

Manufacturing capacity utilization:

This metric reflects how much of the manufacturing capacity is currently in use, confirming trends already in motion.

Asset Class Performance by Cycle Phase (1960–2024)

Stocks typically outperform during recovery and expansion phases

Bonds and gold often provide protection and balance during downturns

High yield bonds thrive in recovery but carry more risk in contractions

	Early	Mid	Late	Recession
 Equities	Strong	Strong	Neutral	Weak
 Treasuries	Weak	Weak	Weak	Weak
 Credit	Weak	Neutral	Neutral	Weak
 Commodities	Neutral	Strong	Strong	Strong
 Real Estate	Strong	Neutral	Strong	Neutral
 Cash	Neutral	Neutral	Neutral	Neutral

● Strong
● Neutral
● Weak

	Early	Mid	Late	Recession
 Equities	Strong	Strong	Neutral	Weak
 Treasuries	Weak	Weak	Weak	Weak
 Credit	Weak	Neutral	Neutral	Weak
 Commodities	Neutral	Strong	Strong	Strong
 Real Estate	Strong	Neutral	Strong	Neutral
 Cash	Neutral	Neutral	Neutral	Neutral

 Strong
 Neutral
 Weak

Mid-Cycle Dynamics: The Sweet Spot for Stocks

Strong economic momentum combined with manageable inflation

Flattening yield curve and moderated market volatility

Ideal conditions for equity growth and earnings expansion

	Early	Mid	Late	Recession
 Equities	Strong	Strong	Neutral	Weak
 Treasuries	Weak	Weak	Weak	Weak
 Credit	Weak	Neutral	Neutral	Weak
 Commodities	Neutral	Strong	Strong	Strong
 Real Estate	Strong	Neutral	Strong	Neutral
 Cash	Neutral	Neutral	Neutral	Neutral

 Strong
 Neutral
 Weak

Late-Cycle Risks: Inflation and Policy Tightening

Stocks face increasing headwinds from rising interest rates

Bonds vulnerable to duration risk as yields rise

Alternatives and real assets can offer valuable portfolio diversification



Part 4: Value Versus Growth Stocks

What Are Value and Growth Stocks?

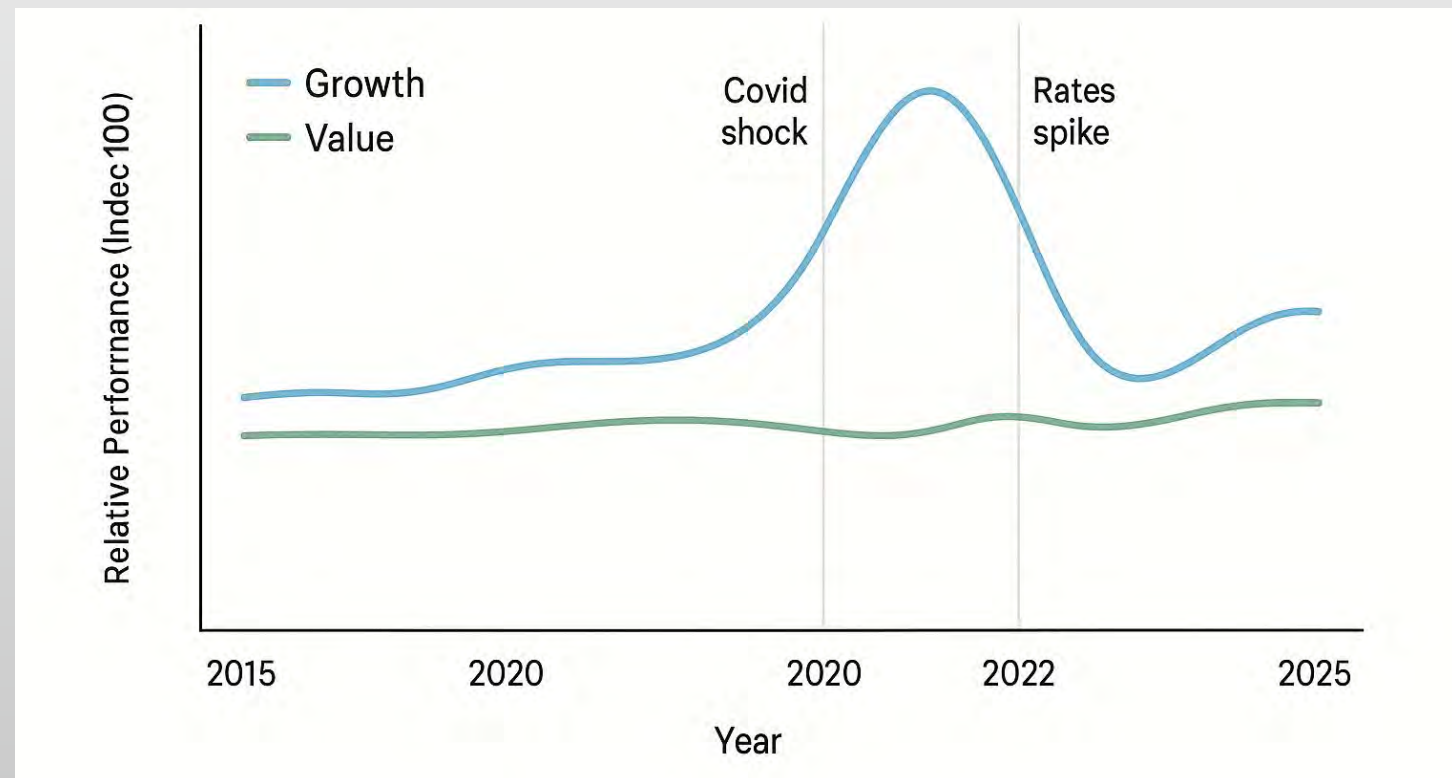
Value: Stocks undervalued relative to fundamentals, often cyclical sectors like finance and energy

Growth: Companies with high expected earnings growth, usually tech and innovative industries

Recent Extended Value/Growth Cycle (2015–2025)

Growth stocks peaked around 2020; since then, value stocks have led the recovery as markets rebalance.

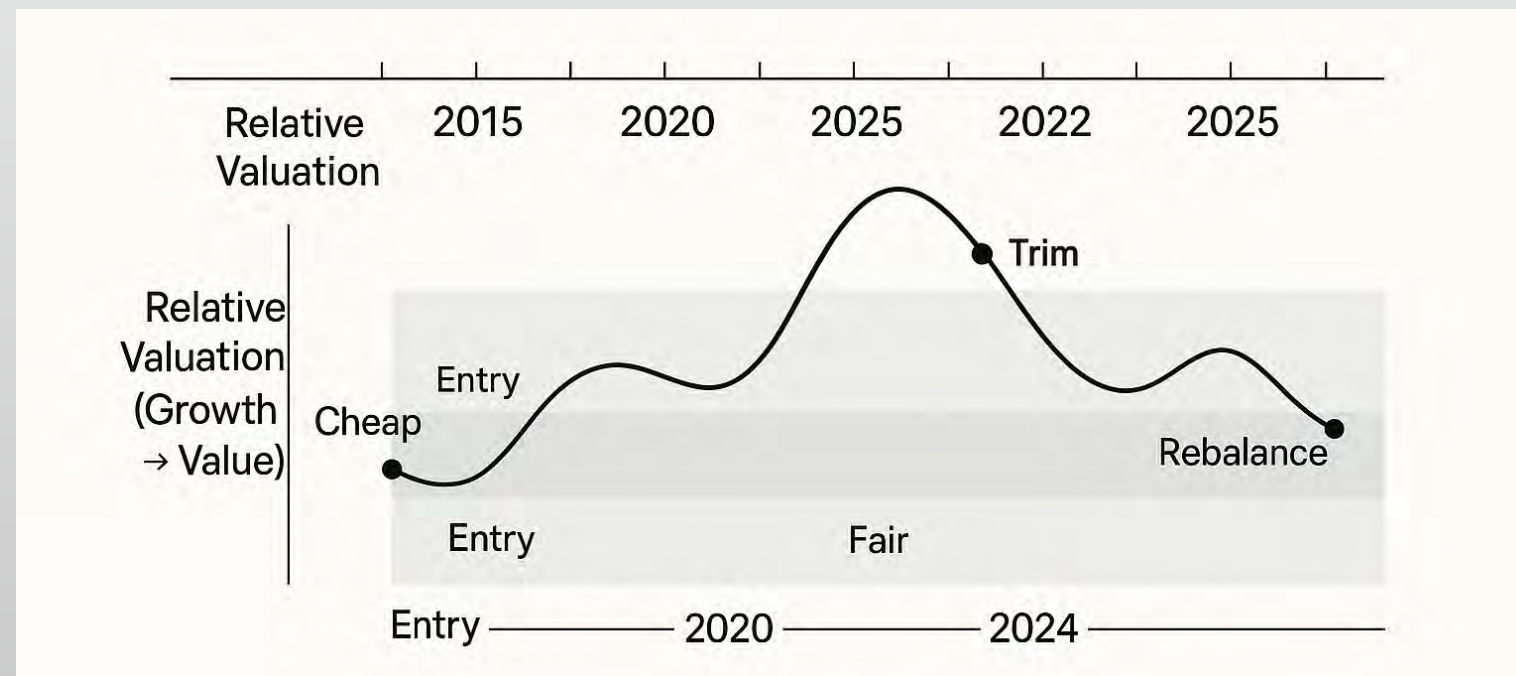
This cycle duration of 6–10 years is longer than typical historical cycles.



Measuring Cycles by Relative Valuations, Not Just Time

Cycles complete when valuation gaps between styles normalize

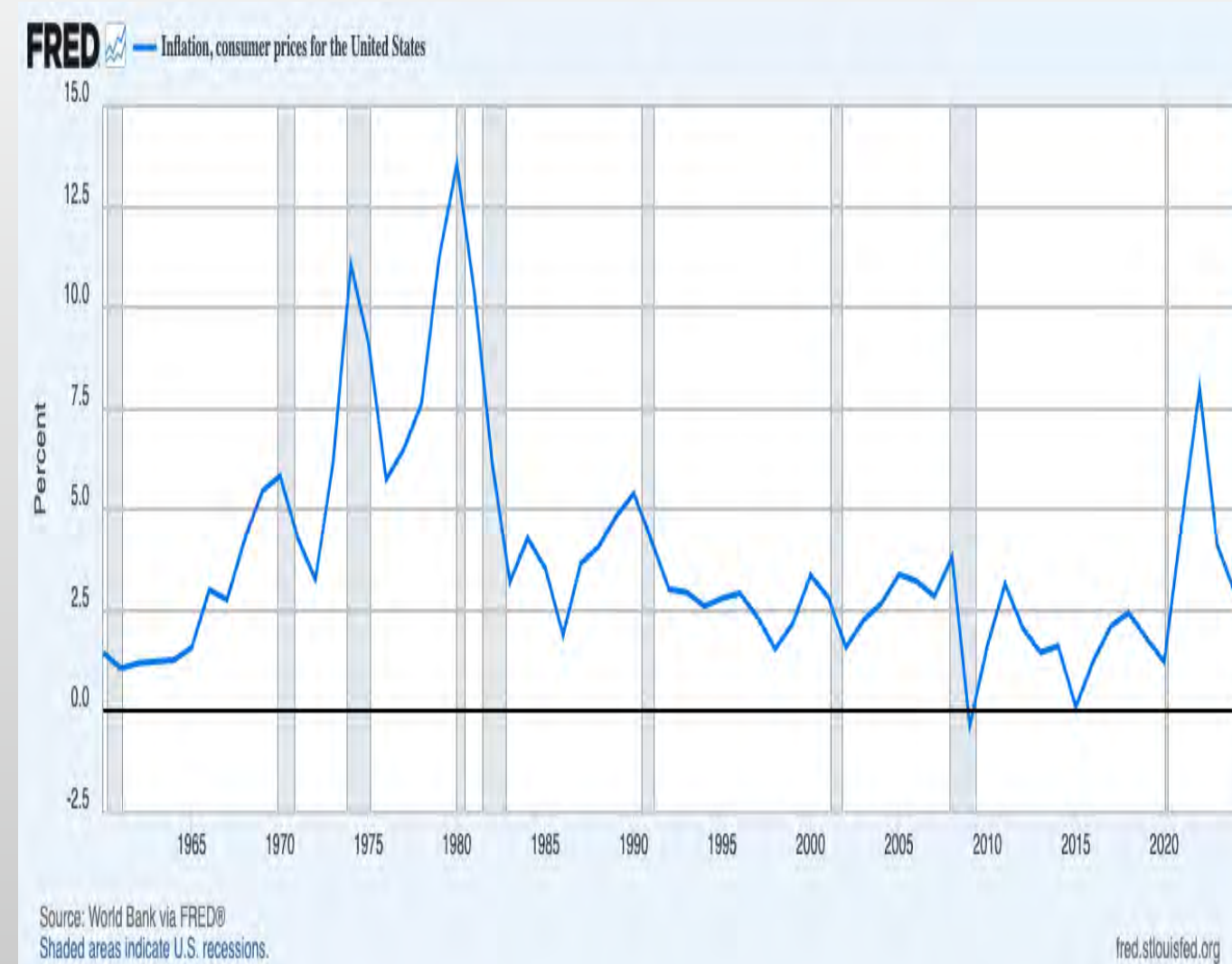
Investor sentiment swings drive temporary extremes in value and growth preferences



Part 5: Long-Term Asset Class Forecasts and Expectations

Inflation and Its Impact on Returns

- ✓ Inflation expectations reflected in bond yields and TIPS pricing
- ✓ Real returns across asset classes fluctuate based on inflation trends





Equities: Real Earnings Growth and Dividend Yields Drive Returns

Regional GDP growth forecasts shape equity return expectations

Sustainability and ESG factors are increasingly integrated into models



Bonds: Yield Curves and Credit Spreads Matter

Investment grade vs. high yield bonds differ in risk and return profiles

Default probabilities heavily influence the outlook for high yield

Real Estate and Alternatives

REITs offer income generation and potential capital appreciation

Alternatives add diversification but often come with higher fees and risks



Commodities: Inflation Hedge and Dollar Influence

Commodity: A commodity is a basic good, often a raw material, that is interchangeable with other commodities of the same type and is traded on a specialized market.

Examples include oil, gold, and agricultural products like wheat and coffee.

Commodities are categorized as hard (like metals and oil) or soft (like agricultural products) and can be physical goods or futures contracts based on their future prices. Commodity returns closely linked to inflation and currency movements



Markets Matter

The NYSE Today - A Global Financial Giant

Today's NYSE: where cutting-edge technology meets centuries of market tradition.

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Market Scale and Influence (July 2025)

\$31.7T 2,223 9M+

Market Cap

Active Listings

Daily Volume

Largest stock exchange by market capitalization globally as of July 2024

Companies traded including 82% of all S&P 500 component stocks

Stocks and securities change hands every single trading day

The Trading Floor & Electronic Hybrid Model

Despite electronic dominance transforming global finance, the NYSE maintains its iconic Manhattan trading floor as a symbol of market tradition and human expertise.

This unique hybrid system masterfully blends experienced human floor brokers with lightning-fast electronic trading platforms, creating unparalleled market efficiency.

- ✔ The famous opening and closing bells remain powerful daily symbols marking market start and finish worldwide.



The Human Side: Stories Behind the Bell

The ceremonial bell-ringing honors an incredible range of achievers: Fortune 500 CEOs, breakthrough entrepreneurs, celebrated athletes, and entertainment icons.

Most memorably, 9/11 first responders and other NYC heroes have been honored, showcasing how the NYSE represents resilience and community strength.

Each ring symbolizes opportunity, achievement, and the unbreakable spirit of American enterprise.



GlobalInvest
Your Future. Invested.

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The NYSE — A Living Legacy of Market Evolution

Historic Roots

From 24 brokers under a tree to a \$31.7 trillion global financial powerhouse



Future Focus

Continues shaping finance's future through innovation while honoring market traditions

Capitalism's Heart

The beating heart of capitalism, empowering millions of investors worldwide every trading day



What is the Dow Jones Industrial Average?

DJIA is the 30 blue-chip companies that define America's most watched stock market index

What is the DJIA?

Market Index

Tracks 30 large, publicly traded U.S. companies representing the backbone of American industry

Historical Legacy

Created in 1896 by Charles Dow and Edward Jones, making it one of the oldest market indices

Economic Barometer

Serves as a key indicator of U.S. economy health and overall stock market performance





Why These 30 Stocks?



Sector Diversity

Companies span technology, healthcare, finance, consumer goods, energy, and industrials to reflect the full American economy



Blue-Chip Quality

Each company is known for stability, consistent dividends, and significant market influence over decades



Economic Backbone

These corporations represent the foundational strength and resilience of American business and innovation

Who is in it?

Technology Giants Leading Innovation



\$3.4T

Apple Inc. (AAPL)

Consumer electronics leader revolutionizing mobile technology and computing

\$3.7T

Microsoft Corp. (MSFT)

Software and cloud computing giant powering businesses worldwide

NVIDIA Corp. (NVDA): \$4.3T AI and graphics chip innovator driving next-generation computing

Cisco Systems (CSCO): \$276B Networking infrastructure backbone of the internet

Intel Corp. (INTC): Semiconductor pioneer enabling global technology advancement

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Healthcare & Consumer Essentials

Healthcare Leaders

Johnson & Johnson (JNJ): \$475B diversified healthcare powerhouse

UnitedHealth Group (UNH): America's largest health insurance provider

Merck & Co. (MRK): Global pharmaceutical innovation leader

Consumer Staples

Procter & Gamble (PG): Household products trusted by billions globally

Coca-Cola (KO): Iconic beverage brand with worldwide recognition



Financial & Industrial Powerhouses



Banking Giants

JPMorgan Chase (JPM):
Largest U.S. bank by assets,
serving millions of customers

Goldman Sachs (GS):
Premier investment banking
and financial services

Payment Leaders

Visa (V): Global payment
processing network enabling
commerce

American Express (AXP):
Premium credit and charge
card services

Industrial Strength

Caterpillar (CAT): Heavy machinery powering construction worldwide

3M Company (MMM): Innovation across industrial and consumer markets

Consumer & Retail Champions



McDonald's (MCD)

Global fast-food empire serving billions worldwide with consistent quality and innovation



Walmart (WMT)

World's largest retailer providing affordable goods to communities across America



Nike (NKE)

Premier sportswear brand inspiring athletes and defining global athletic culture



Walt Disney (DIS)

Entertainment and media titan creating magical experiences across multiple platforms

Energy & Specialized Sectors



1

Energy Leadership

Chevron (CVX): Major integrated oil and gas company powering America's energy needs

2

Aerospace Excellence

Boeing (BA): Aerospace and defense leader connecting the world through flight

3

Technology Solutions

Honeywell (HON): Aerospace and industrial technology innovation

4

Communications

Verizon (VZ): Telecommunications giant connecting millions



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Complete DJIA Stock List (2025)

- | | |
|-----------------------------|--------------------------------|
| 1. 3M (MMM) | 1. McDonald's (MCD) |
| 2. American Express (AXP) | 2. Merck & Co. (MRK) |
| 3. Amgen (AMGN) | 3. Microsoft (MSFT) |
| 4. Apple (AAPL) | 4. Nike (NKE) |
| 5. Boeing (BA) | 5. Procter & Gamble (PG) |
| 6. Caterpillar (CAT) | 6. Salesforce (CRM) |
| 7. Amazon (AMZN) | 7. Travelers Companies (TRV) |
| 8. Cisco Systems (CSCO) | 8. UnitedHealth Group (UNH) |
| 9. Chevron (CVX) | 9. Verizon Communications (VZ) |
| 10. Goldman Sachs (GS) | 10. Visa (V) |
| 11. Honeywell (HON) | 11. Coca-Cola (CO) |
| 12. IBM (IBM) | 12. Walmart (WMT) |
| 13. Home Depot (HD) | 13. Walt Disney (DIS) |
| 14. Johnson & Johnson (JNJ) | 14. NVIDIA (NVDA) |
| 15. JPMorgan Chase (JPM) | 15. Sherwin-Williams (SHW) |

ⓘ These 30 companies collectively represent over \$21 trillion in market capitalization



Why the DJIA Matters to You

Economic Insight

Reflects performance of America's most influential companies, providing real-time economic health indicators

Market Sentiment

Offers valuable insight into economic trends and investor confidence across major sectors

Investment Opportunity

DJIA ETFs provide diversified exposure to these blue-chip stocks with lower risk than individual investments

Stay Informed

Understanding DJIA movements helps you make informed decisions about market trends and economic health

What is the S and P 500?

The S and P 500 is the most widely followed stock market index, representing the 500 largest publicly traded companies in the United States. This benchmark covers approximately 80% of the total U.S. equity market capitalization, making it an essential barometer for American economic performance.

Created by Standard & Poor's in 1957, the index serves as the foundation for countless investment strategies and is considered the gold standard for measuring U.S. stock market performance.



The S and P 500 in 2025

- 1 Diverse Representation**
500 top U.S. companies spanning all major economic sectors
- 2 Dynamic Evolution**
Regular additions and removals based on strict performance criteria
- 3 Market Pulse**
Essential tool for tracking U.S. stock market trends and opportunities





What Stocks Are In the S and P 500?

Understanding America's Premier Stock Index in 2025

How Are Stocks Selected for the S and P 500?

01

Company Location & Listing

Must be U.S.-based and listed on major exchanges: NYSE, Nasdaq, or Cboe

02

Market Capitalization

Minimum market cap of \$18 billion as of 2025, ensuring only large-cap companies qualify

03

Financial Performance

Must demonstrate positive recent earnings under Generally Accepted Accounting Principles (GAAP)

04

Trading Liquidity

Minimum 250,000 shares traded monthly over six consecutive months for adequate liquidity



Recent Index Changes

The S&P 500 evolves continuously to reflect market leadership and company performance

2024-2025 Additions

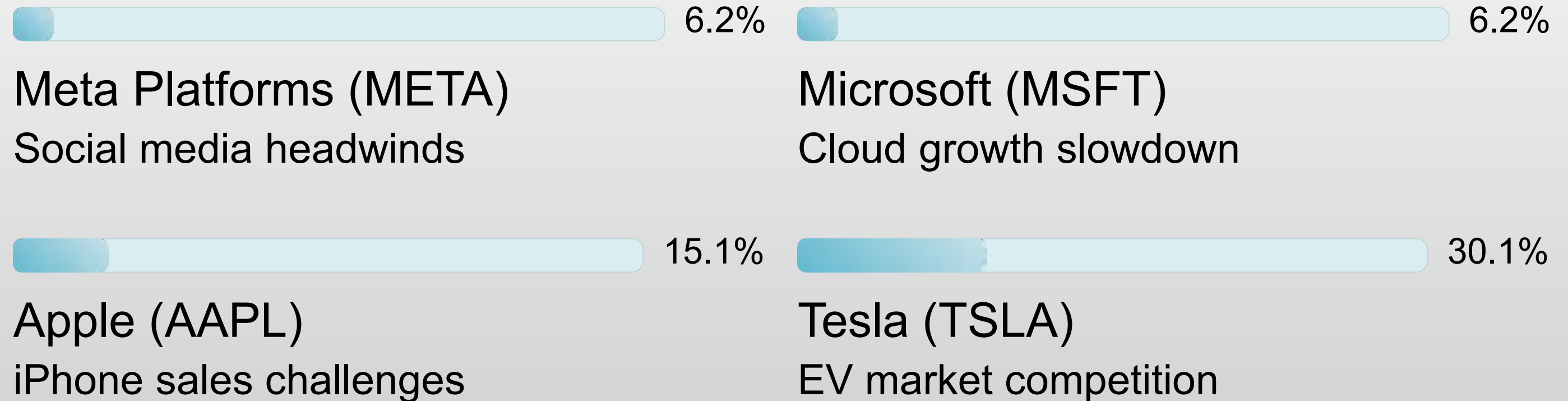
Palantir Technologies (PLTR) - Data analytics pioneer
Dell Technologies (DELL) - Enterprise technology solutions
Erie Indemnity (ERIE) - Property and casualty insurance
Robinhood Markets (HOOD) - Online Investing
AppLovin (APP) – AI driven software and technology
Emcor Group (EME) – Mechanical and electrical construction

Recent Removals

American Airlines Group (AAL)
Etsy (ETSY)
Bio-Rad Laboratories (BIO)
MarketAxess HoldingS (MKTX)
Caesars Entertainment (CZR)
EnPhase Energy (ENPH)

The "Magnificent 7" Tech Giants

2025 Performance Reality Check



- ❑ These technology leaders remain core components of the S&P 500 and continue to drive innovation across multiple sectors.

Why the S and P 500 Matters to Investors



Investment Foundation

Forms the basis for trillions of dollars in index funds and ETFs, providing investors with broad market exposure through a single investment vehicle.



Economic Barometer

Reflects the overall health of the U.S. economy and corporate leadership, serving as a reliable indicator of market sentiment and business performance.



Dynamic Rebalancing

Quarterly rebalancing ensures the index stays current with market shifts, automatically adjusting to reflect changing corporate valuations and market dynamics.



Understanding the NASDAQ-100

Definition and comprehensive overview of one of the world's most influential stock market indices



What is the NASDAQ-100?

Stock Market Index

Tracks 100 of the largest **non-financial** companies listed on the NASDAQ Stock Market

Innovation Focus

Emphasizes cutting-edge sectors like technology, healthcare, retail, and telecommunications

Strategic Exclusion

Excludes financial companies, which are tracked separately in the NASDAQ Financial-100

Composition and Weighting

Modified Cap-Weighted Structure

Companies weighted by market capitalization with caps on largest stocks to prevent single-company dominance and maintain balanced representation.

Key Holdings Include:

- Apple - Consumer technology leader
- Microsoft - Cloud computing giant
- Amazon - E-commerce pioneer
- Alphabet - Search and AI innovator
- Tesla - Electric vehicle revolutionary



Diverse sectors with heavy emphasis on technology and consumer services

Top 20 NASDAQ-100 Stocks by Weight

*(from the iShares NASDAQ-100 UCITS ETF holdings, updated early September 2025)

Rank	Ticker	Company	Approx Weight (%)
1	NVDA	NVIDIA	9.50 % StockAnalysis
2	MSFT	Microsoft	8.56 % StockAnalysis
3	AAPL	Apple	8.12 % StockAnalysis
4	AMZN	Amazon	5.67 % StockAnalysis
5	AVGO	Broadcom	5.40 % StockAnalysis
6	META	Meta Platforms	3.69 % StockAnalysis
7	GOOGL	Alphabet Class A	3.06 % StockAnalysis
8	NFLX	Netflix	2.98 % StockAnalysis
9	GOOG	Alphabet Class C	2.88 % StockAnalysis
10	TSLA	Tesla	2.80 % StockAnalysis
11	COST	Costco Wholesale	2.37 % StockAnalysis
12	PLTR	Palantir Technologies	1.97 % StockAnalysis
13	TMUS	T-Mobile US	1.60 % StockAnalysis
14	CSCO	Cisco Systems	1.50 % StockAnalysis
15	AMD	AMD	1.46 % StockAnalysis
16	LIN	Linde plc	1.24 % StockAnalysis
17	PEP	PepsiCo	1.13 % StockAnalysis
18	INTU	Intuit	1.04 % StockAnalysis
19	BKNG	Booking Holdings	1.02 % StockAnalysis
20	SHOP	Shopify	0.99 % StockAnalysis



Origins and Evolution

January 31, 1985

Index launched with 40 companies, establishing foundation for growth investing

1998 Expansion

Foreign companies admitted for first time, broadening global representation

1993 Reset

Base value adjusted from 250 to 125 to better align with evolving market realities

Today

Key benchmark for growth and innovation-focused investment strategies worldwide



\$30 Trillion

(Aug 2025)

Total Market Capitalization

The combined market value of NASDAQ-100 companies as of May 2025 represents some of the most valuable and fastest-growing companies globally, reflecting cutting-edge innovation and unparalleled market leadership.

Why NASDAQ-100 Matters to Investors



Growth Benchmark

Serves as the definitive benchmark for growth-oriented investment portfolios, setting standards for performance measurement



Dynamic Exposure

Provides concentrated exposure to high-growth, innovation-driven sectors that shape the future economy



Market Leadership

Widely tracked by ETFs like Invesco QQQ, one of the most actively traded and liquid ETFs in the United States



Part 6: Recent Fed Rate Cut Cycles and Market Performance

Historically, stocks have averaged +13% returns after initial rate cuts since mid-1980s.

Bonds benefited from declining yields, while cash tended to lag in returns.

Current Cycle Context (2025)

US economy shows signs of mid-to-late cycle conditions

Global cycles are less synchronized: China recovering, EU easing policies, Canada early cycle

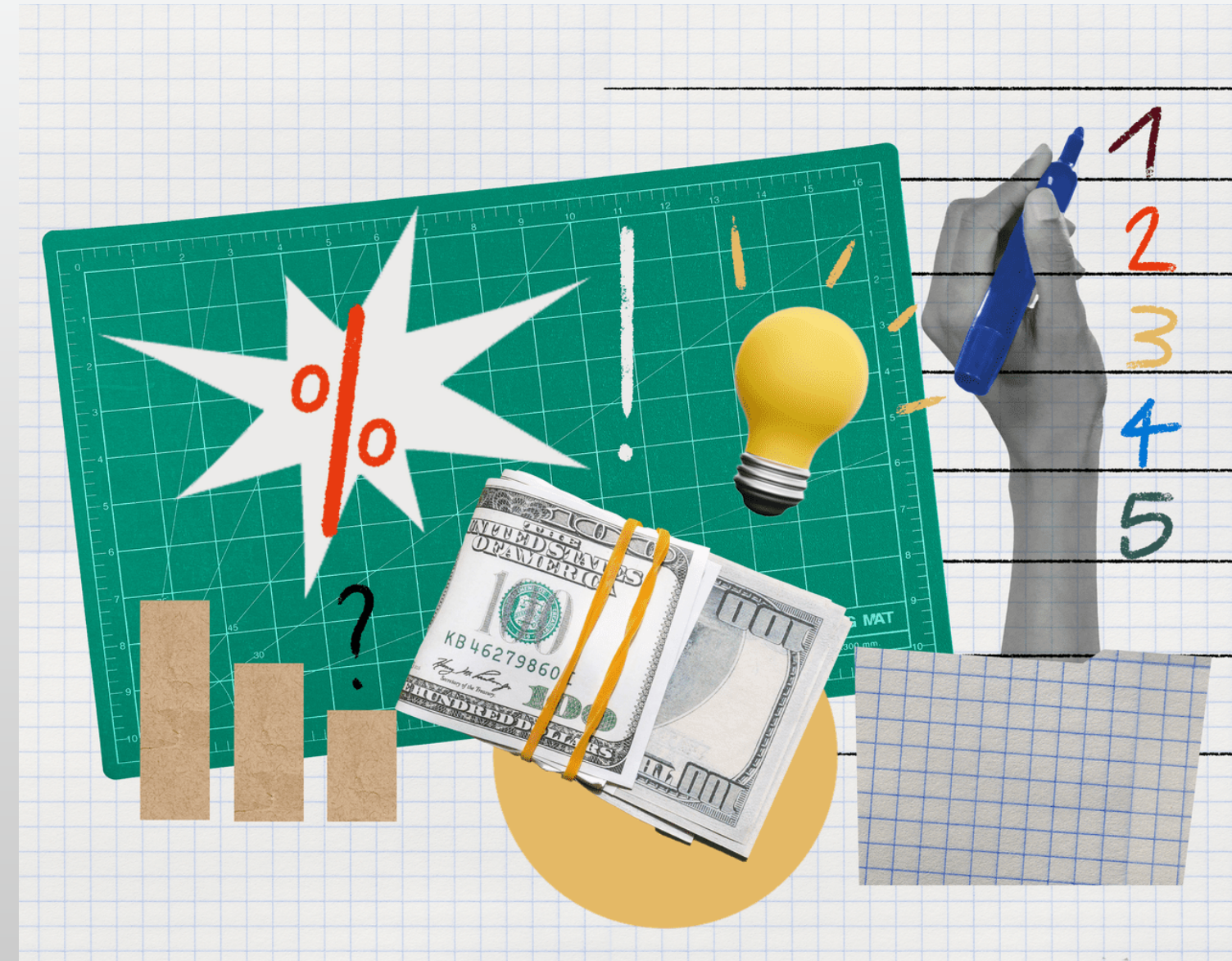
The US economy appears to be in the late stages of an expansion, with indicators showing a mix of strong and softening activity, but with increasing risks of a contraction or recession in the near future, particularly by late 2025 or 2026, according to some forecasts. Key signals include a [Coincident Economic Index \(CEI\)](#) that rose in July 2025 but a [Leading Economic Index \(LEI\)](#) with negative growth, indicating potential weakening. Forecasters are divided, with some anticipating a soft landing and a continued but cooling expansion, while others are projecting a mild recession in late 2025 or 2026.

Strategic Implications for Investors

Adjust allocations considering cycle phase and personal risk tolerance

Increase exposure to economically sensitive assets during recovery and expansion

Shift towards defensive and income-generating assets when slowdown or downturn emerges





The Role of Diversification and Rebalancing

No single asset class outperforms in every cycle phase

Rebalancing helps capture gains and control portfolio risk

Do you want more or less technology?
More or less gold and silver?

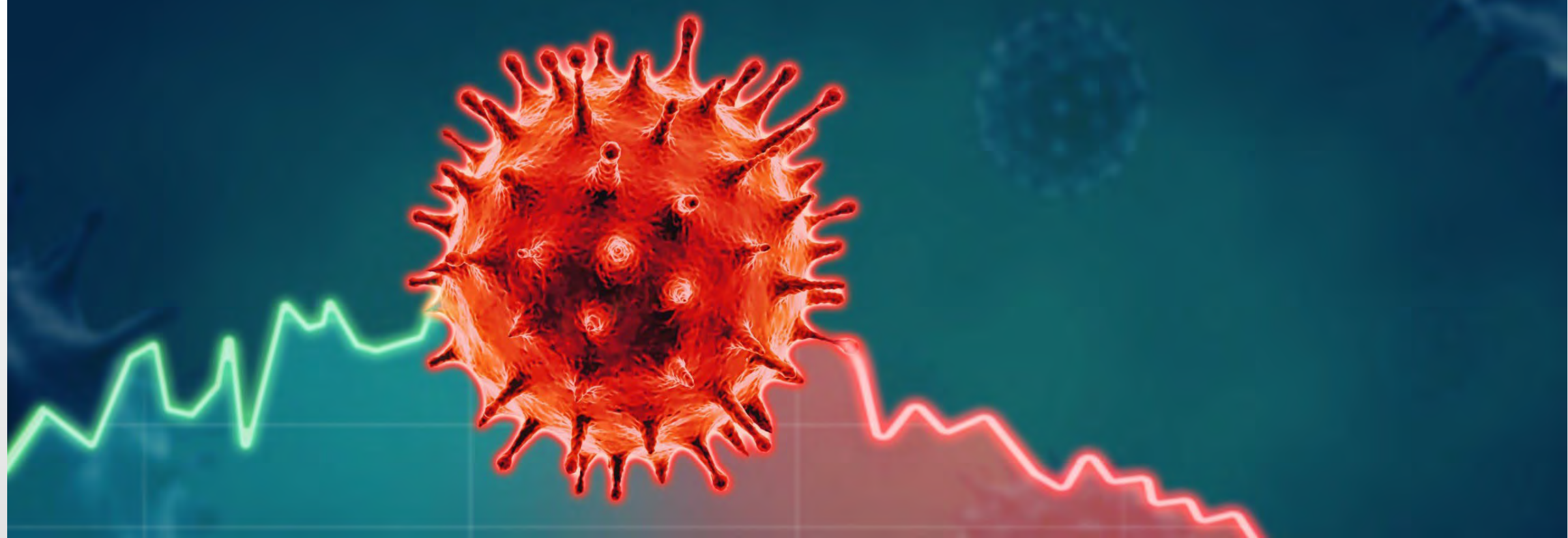


Behavioral Pitfalls to Avoid

Chasing last year's top-performing assets can increase risk

Ignoring economic and cycle signals leads to mistimed decisions

Overconcentration in one asset class or investment style raises vulnerability



COVID-19 Market Shock (2020)

Rapid equity selloff followed by historic rebound in months

Government bonds and gold surged initially as defensive assets

Emerging markets volatile but rebounded with fiscal and monetary stimulus

Looking Ahead: Preparing for the Next Cycle

Monitor key economic indicators like PMI, inflation, and yield curves actively

Maintain diversification and portfolio flexibility

Use cycle knowledge to anticipate broad market shifts, not precise timing

What is going to be the next external shock that affects markets?





Conclusion: Mastering Market Cycles for Smarter Investing

Deep understanding of asset class behaviors through cycles empowers informed decisions

Diversification combined with cycle awareness helps reduce risk and improve returns

Success requires staying informed, disciplined, and adaptable amid uncertainty

Fixed Income Markets

Jeff Detwiler

Garcia Hamilton & Associates

Mr. Detwiler holds a B.S. in Finance from the University of South Florida and a M.S. in Finance from the University of Houston's Bauer School of Business. Additionally, he earned a Graduate Certificate in Financial Services Management from the University of Houston for his role as a Portfolio Manager of the Cougar Investment Fund, LLC. He began his career in the investment industry in 1996, having worked for Franklin Templeton Investments and Invesco Funds Group prior to joining Garcia Hamilton & Associates, L.P. as a Fixed Income Analyst in 2007.

Mr. Detwiler was promoted to Fixed Income Portfolio Manager in 2010, and he became a Partner of the Firm in 2016. Throughout his time as Portfolio Manager, Mr. Detwiler has moved from covering corporates to overseeing the Firm's short-term markets. As a senior member of the investment team and veteran of the Firm, he has taken on increased responsibilities on the trading desk since 2018. In 2024, Mr. Detwiler's title was officially changed to Co-Deputy CIO to clarify the organizational structure of the investment team.

Mr. Detwiler is a Chartered Financial Analyst (CFA) charterholder and serves as a member of the CFA Institute and the Houston Society of Financial Analysts. He has also attained the Accredited Asset Management Specialist (AAMS) designation awarded by the College for Financial Planning.

Mr. Detwiler has presented on various topics relating to fixed income investing at forums and conferences across the country and internationally. He has been a speaker at the Pacific Region Investment Conference in Manila, as well as country conferences held in Palau, the Federated States of Micronesia, and the Commonwealth of the Northern Marianas Islands. His alma mater, the University of Houston, selected him to be their inaugural presenter for the MSF Distinguished Speaker Series.



GARCIA HAMILTON & ASSOCIATES

Fixed Income Markets

Presented by:

Jeffrey D. Detwiler, CFA, AAMS

Partner, Portfolio Manager

Risk Tools

Duration Relative to Benchmark

Yield Curve Positioning

Sector Allocation

Durations and Returns

Index	Duration	YTD Return	2024 Return
Aggregate	5.97	3.75%	1.25%
1 - 3 Year	1.79	2.91%	4.39%
Intermediate	4.35	3.94%	2.47%
10+ Year	12.87	2.75%	-4.10%

Drivers of Yield Changes

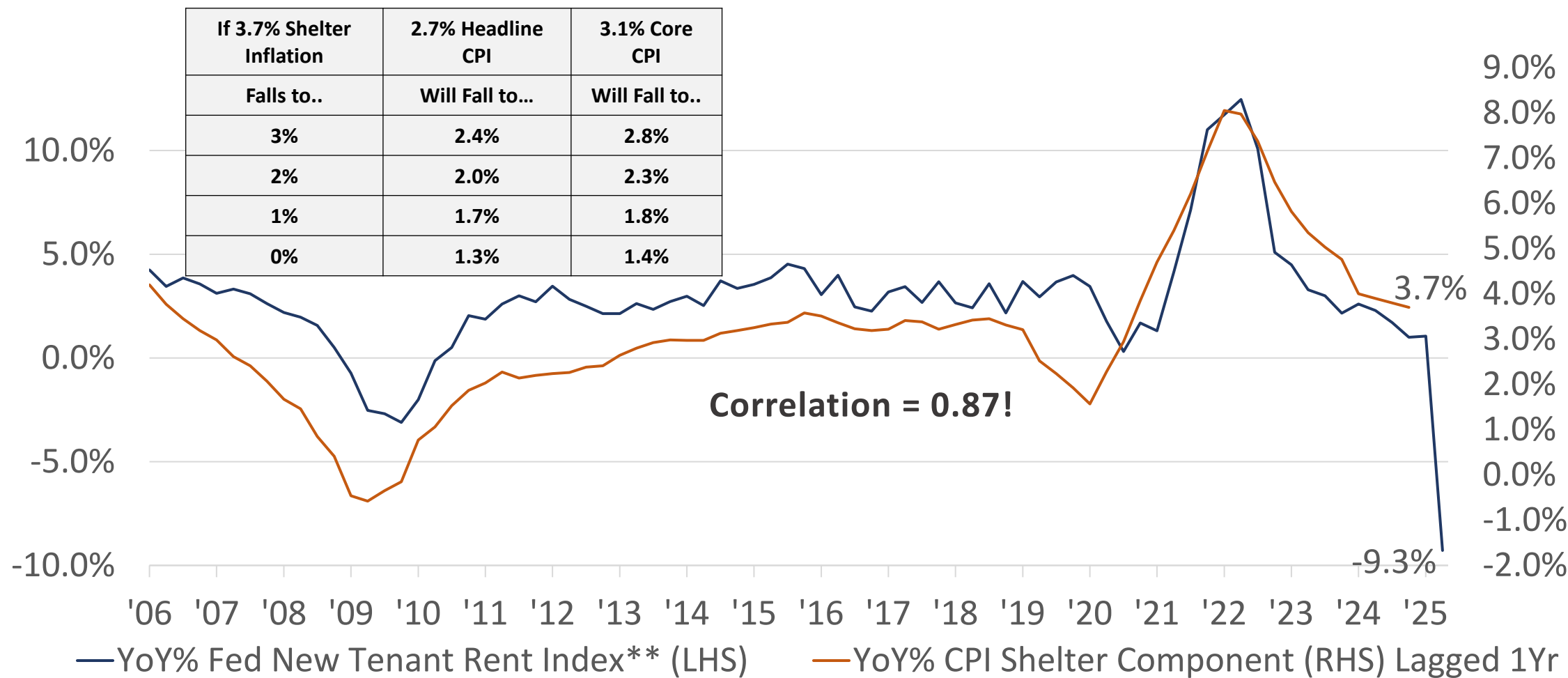
Inflation (Decline in Purchasing Power)

Economic Strength or Weakness

Market Anticipating Fed Policy

Lower Shelter Inflation Ahead

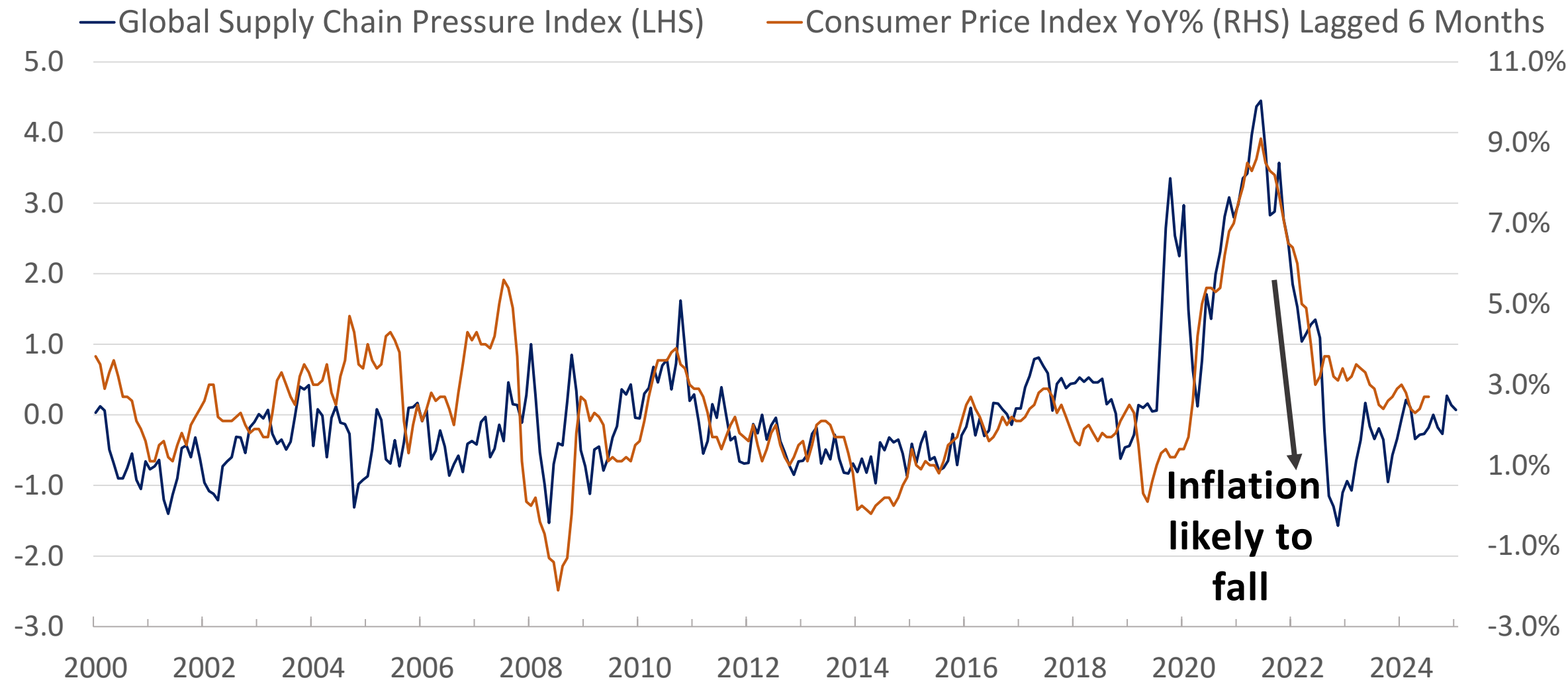
YoY% New Tenant Rent Index Leads YoY% CPI-Shelter Inflation*



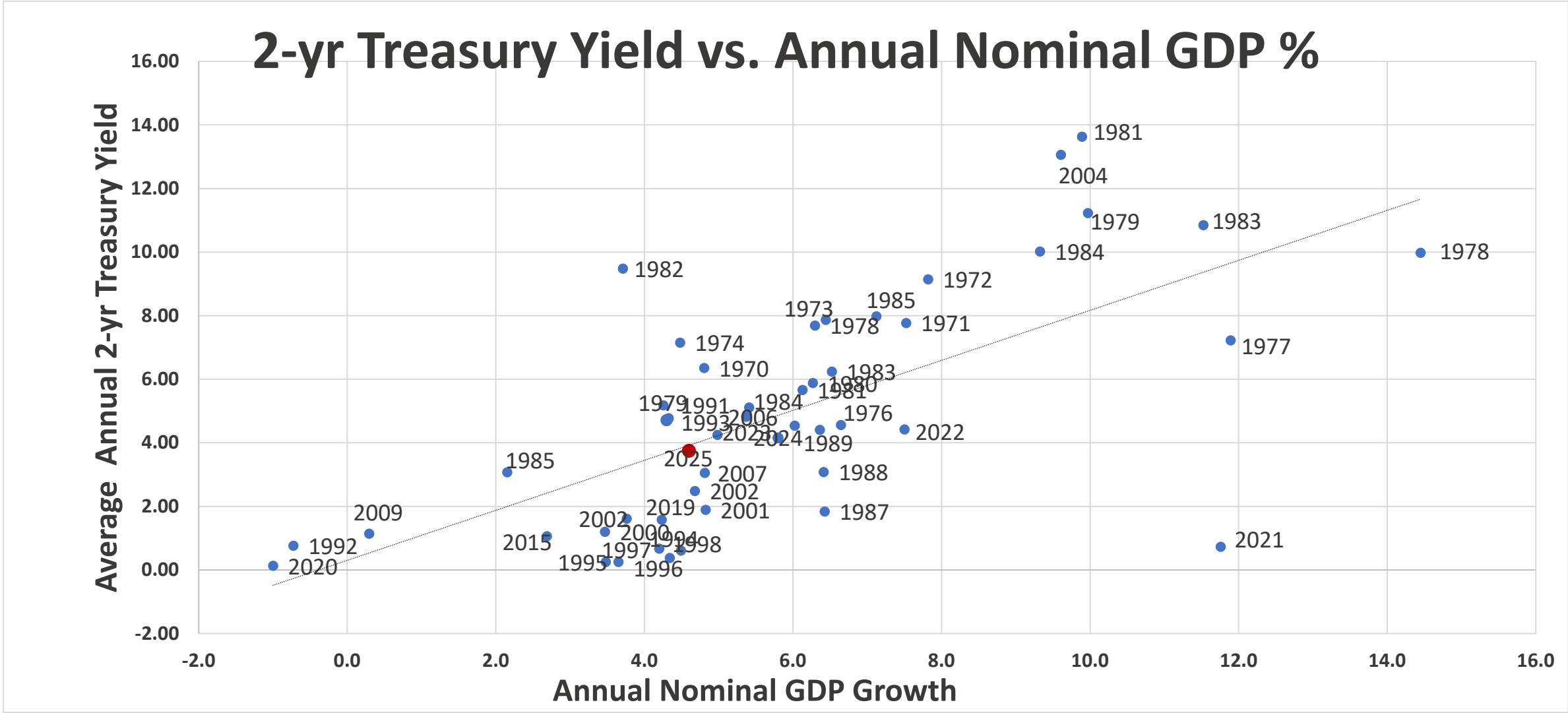
*The Shelter component of CPI represents roughly 37% of Headline CPI and 46% of Core CPI.
** The New Tenant Rent index is calculated by the Bureau of Labor Statistics (BLS). The index tracks changes is rent for newly leased properties and uses a subset of the data the overall CPI uses in calculating overall shelter inflation.

CPI-Shelter Inflation as of July 31, 2025 78
New Tenant Rent as of June 30, 2025 | Bloomberg

Supply Chain Pressures Easing



Yields Positively Correlated with GDP

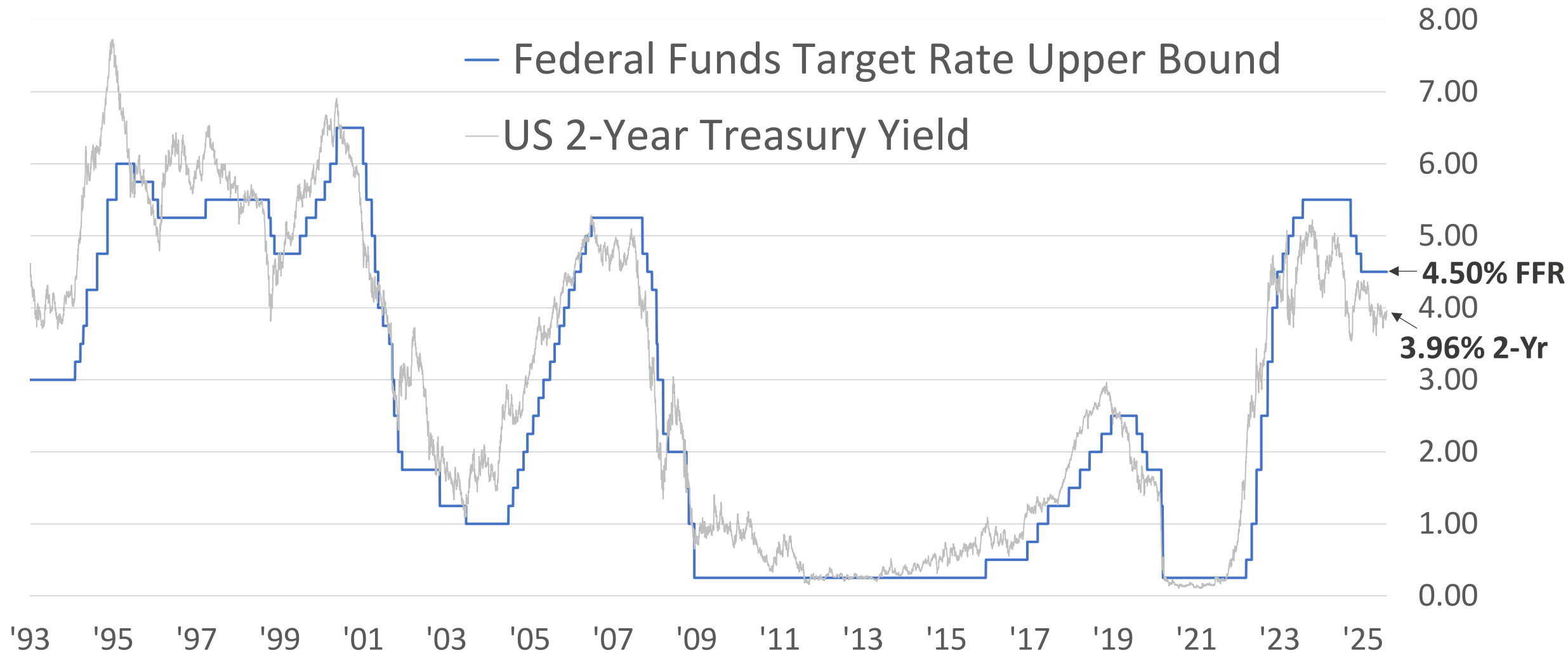


2025 estimate of Nominal GDP is based on the Survey of Professional Forecasters projected Real GDP (1.7%) and inflation (2.9%) numbers for the U.S. for 2025. 80
As of August 15, 2025 | Bloomberg

For Whom the Tariff ~~Bell~~ Bill Tolls?

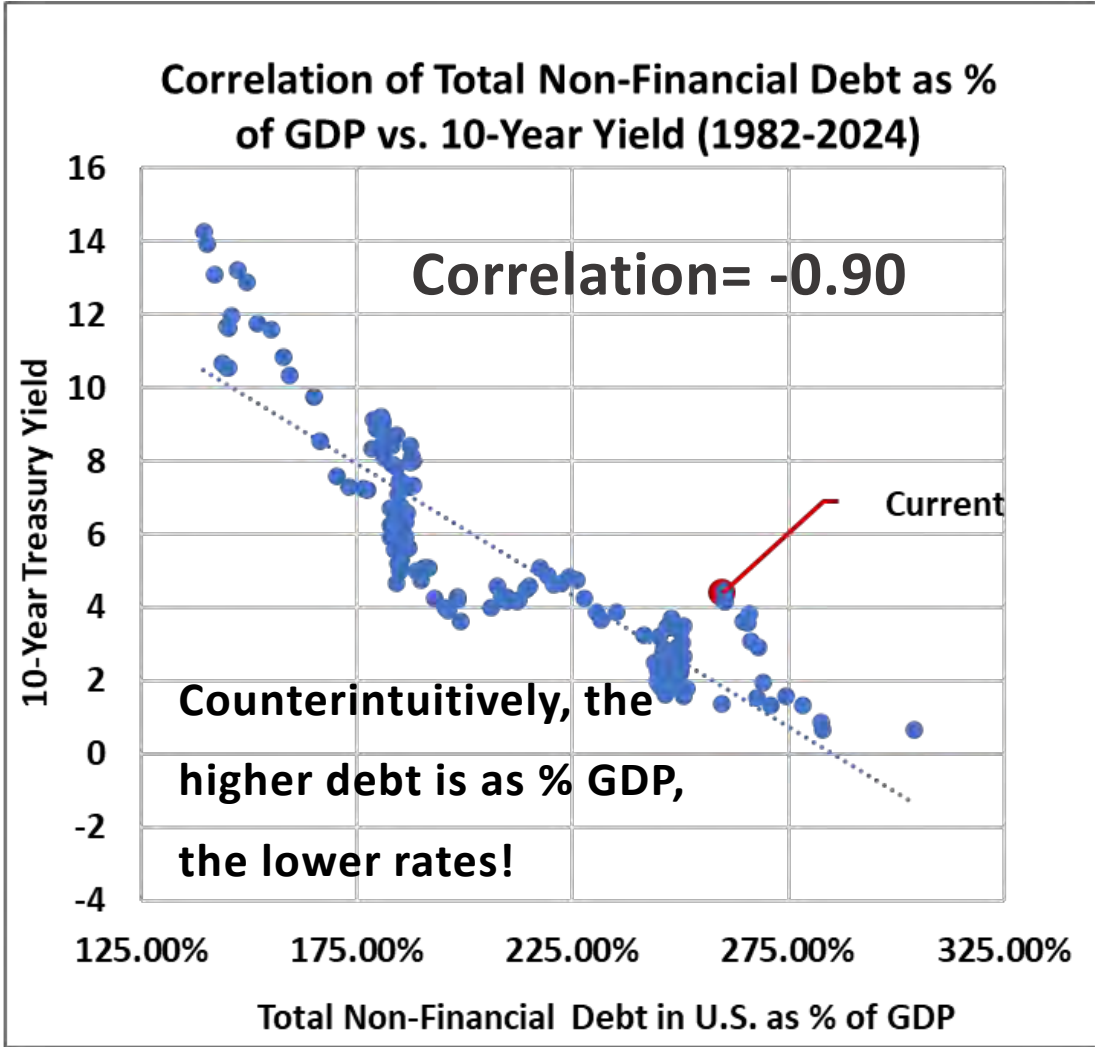
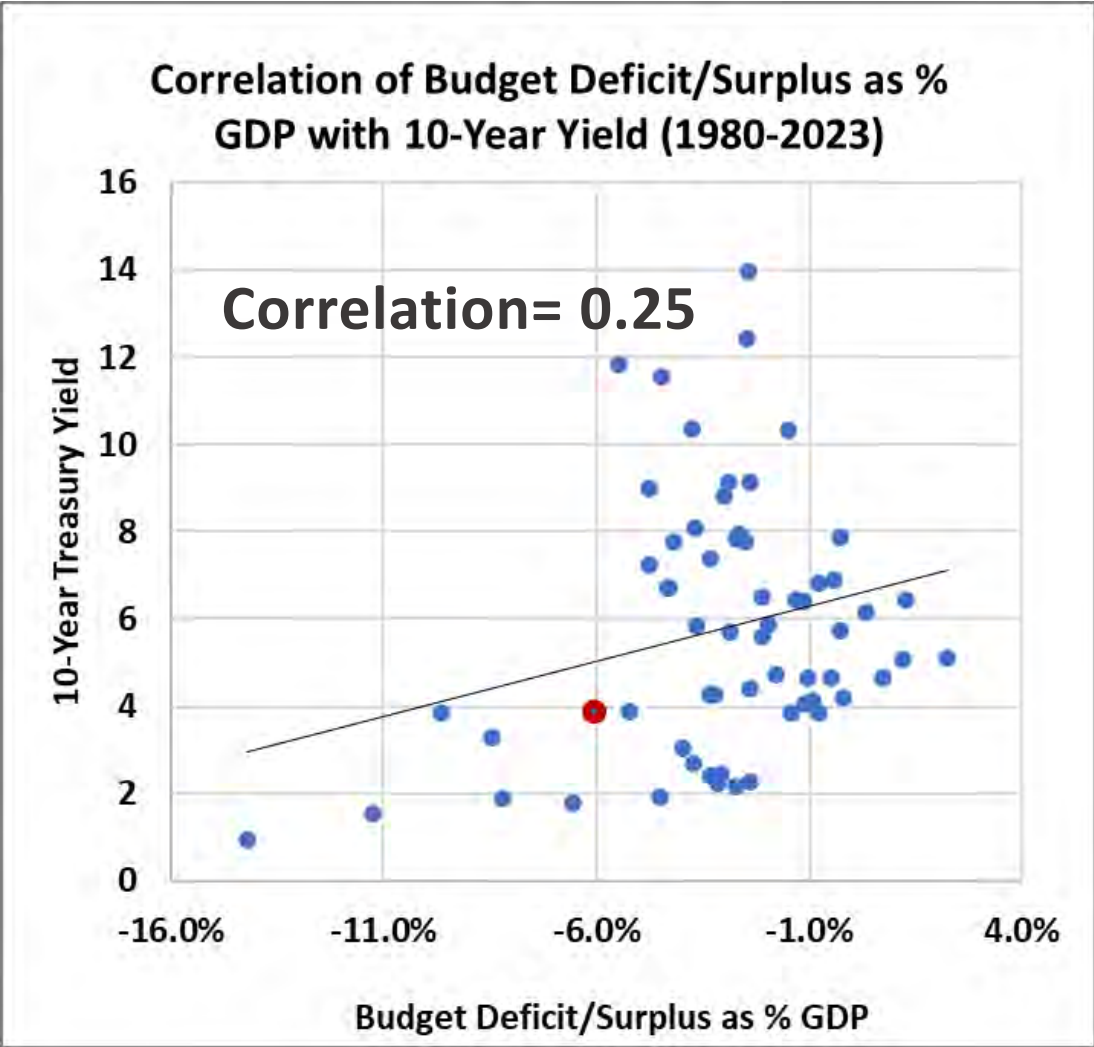
Median Household Income*	\$80,610
<u>Expenses</u>	
Housing	-\$37,076
Auto	-\$8,940
Utilities	-\$6,876
Cell Phone	-\$1,800
Grocery	-\$15,600
Taxes	-\$7,869
Discretionary Income	\$2,449
Tariff Cost 1 st Year	-\$2,800
Balance	-\$351

Market Anticipates Fed Policy



Do Deficits and Debt Increase Yields?

Very low correlation between deficits and rates! Large negative correlation between debt and rates!

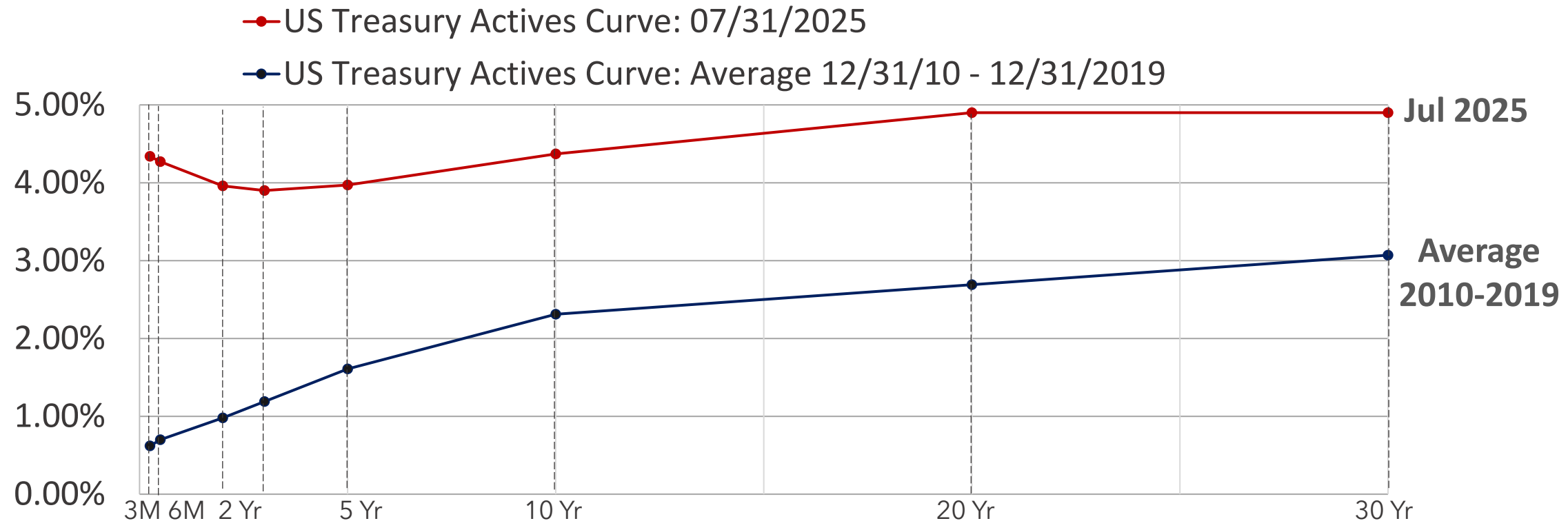


Yield Curve

In a Fed hiking cycle, short-term rates rise more than long-term rates. This dynamic is called a “flattening” of the yield curve.

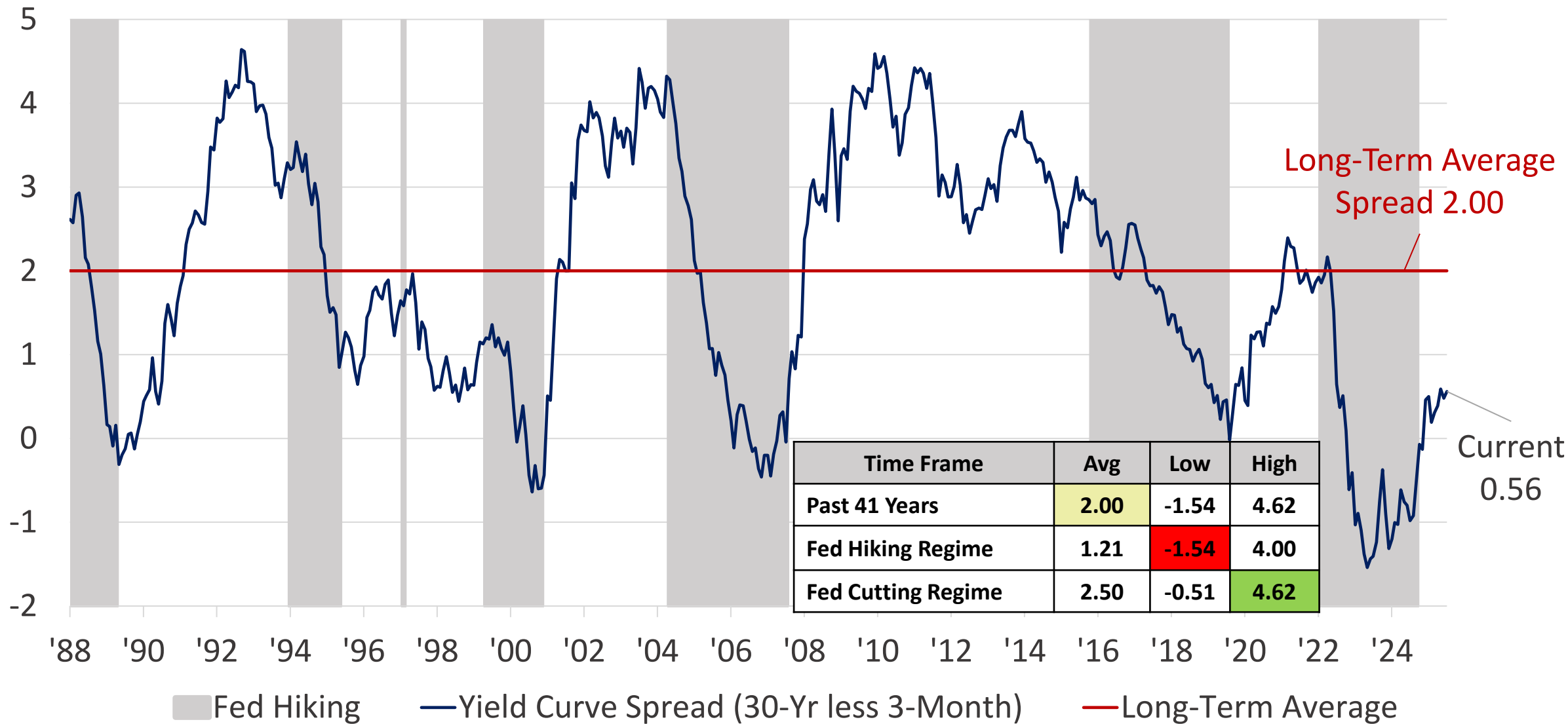
In a Fed cutting cycle, short-term rates fall more than long-term rates. This dynamic is called a “steepening” of the yield curve.

Yield Curve Changes



	Average 2010-2019	July 2025	Difference
3 Month	0.62%	4.34%	+3.72%
2 Year	0.98%	3.96%	+2.98%
5 Year	1.61%	3.97%	+2.36%
10 Year	2.31%	4.37%	+2.06%
30 Year	3.07%	4.90%	+1.83%
3 Month - 30 Year	2.45%	0.56%	-1.89%

Fed Hiking ⇒ Flattening, Fed Cutting ⇒ Steepening



Sector Allocation

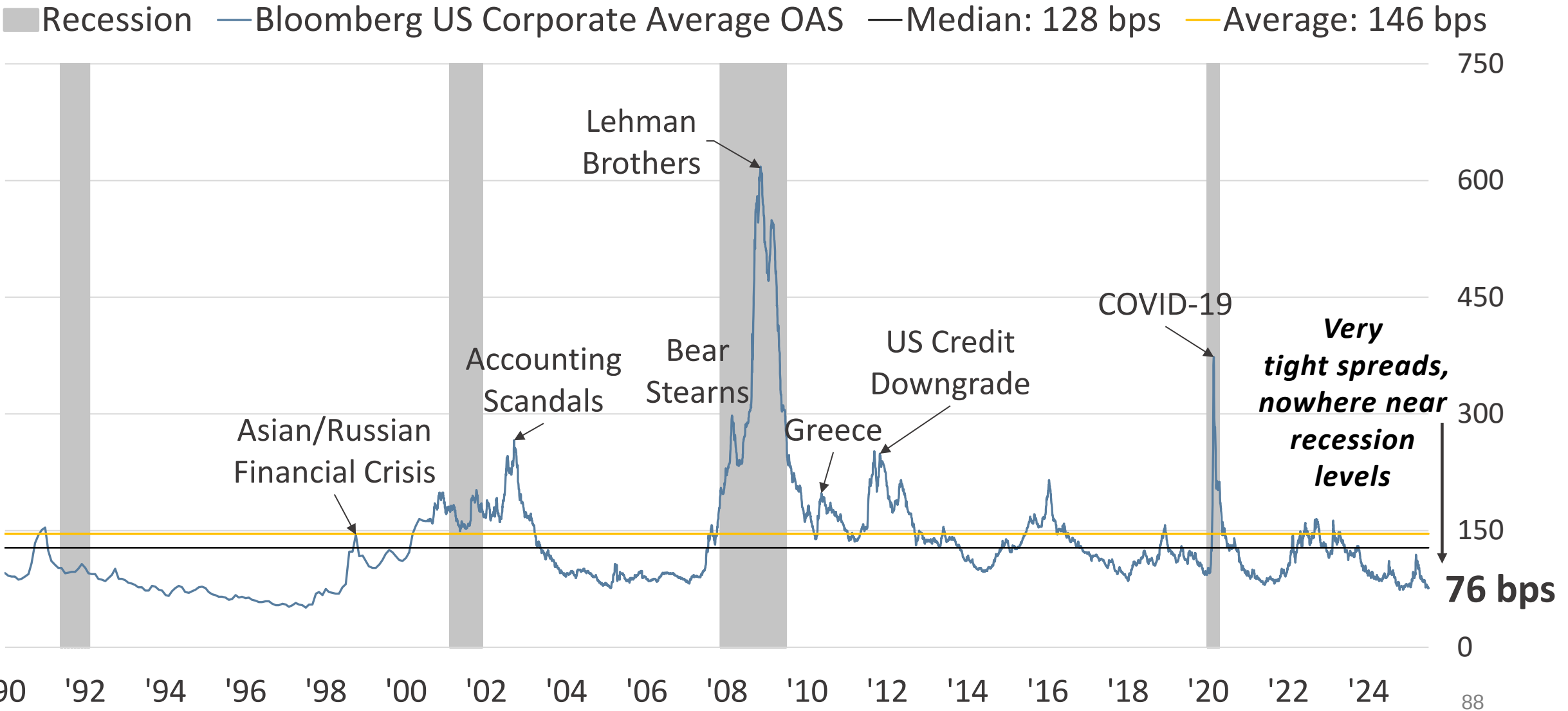


Corporate Spreads

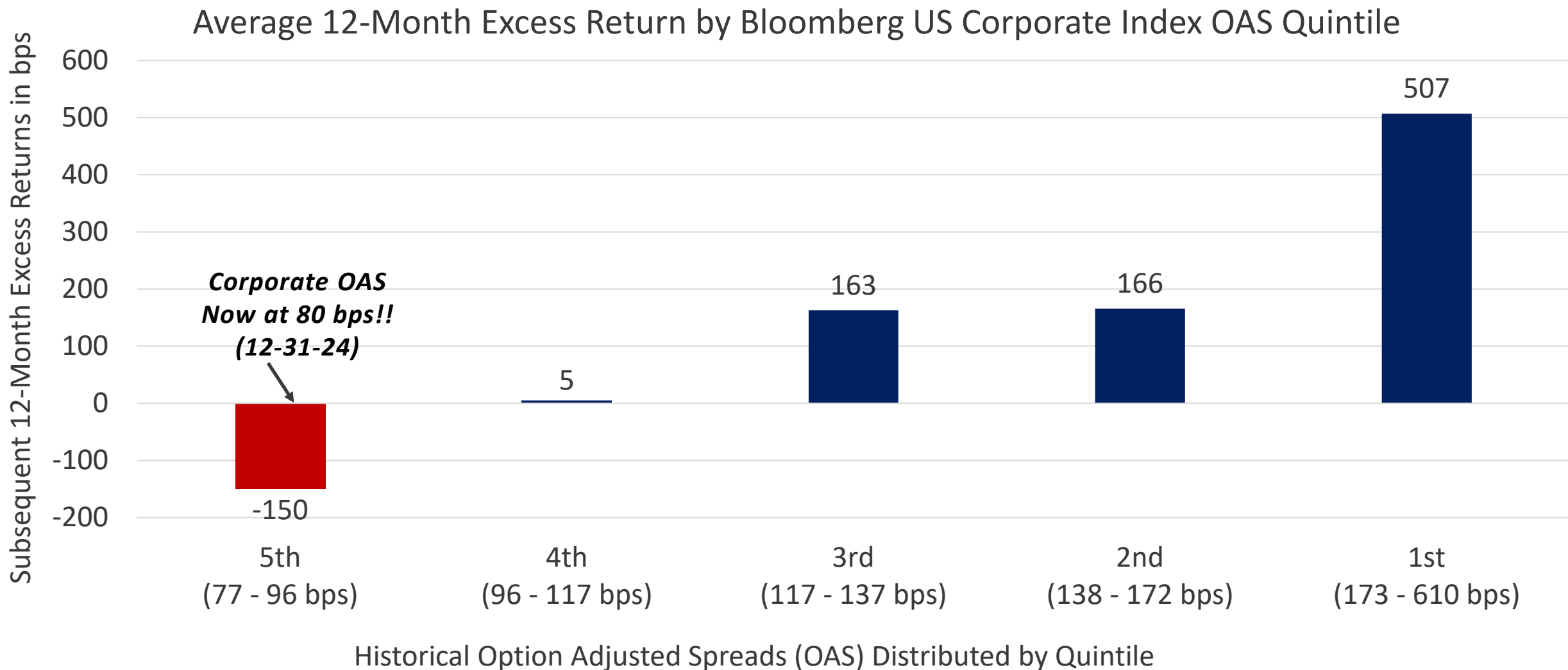
Mortgage Spreads

Relative Value

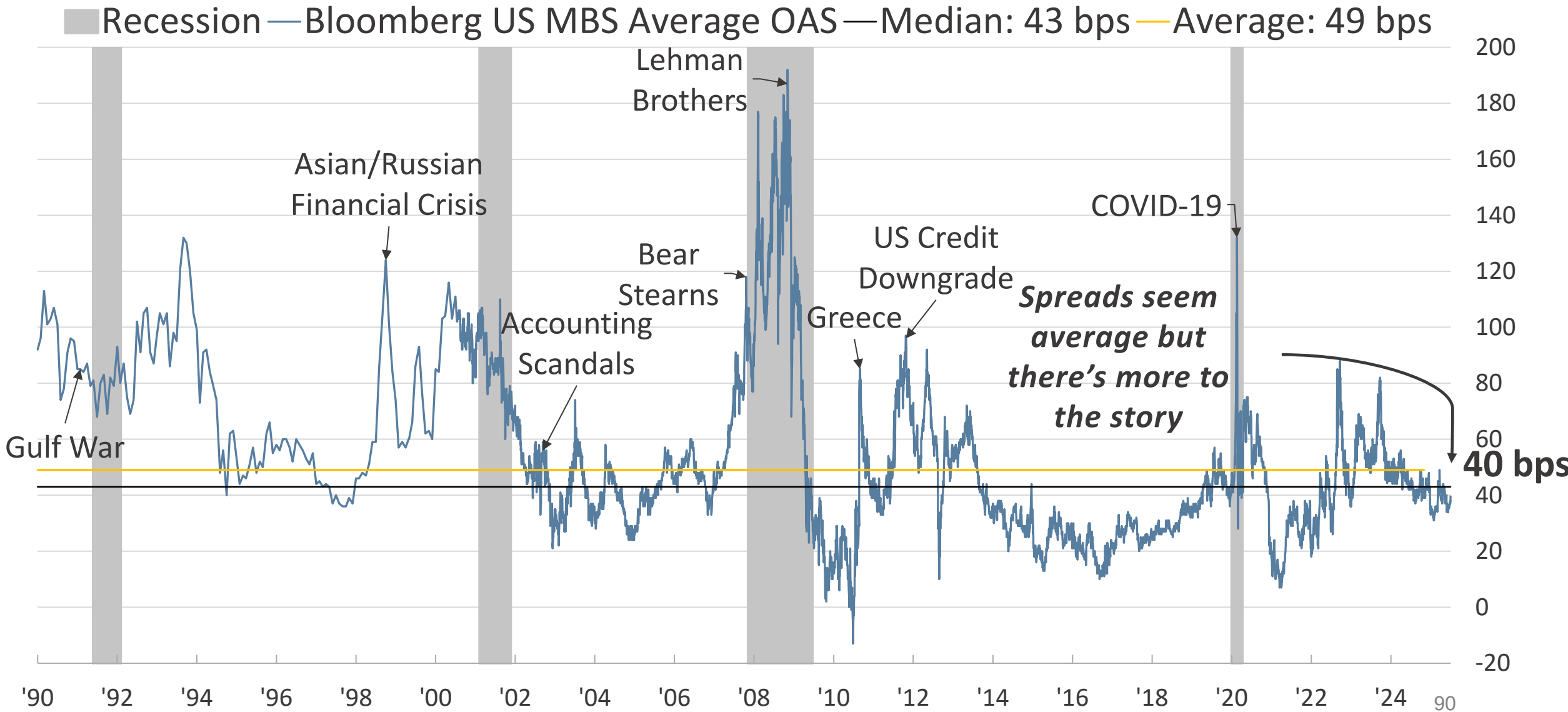
Average Option Adjusted Spreads OAS



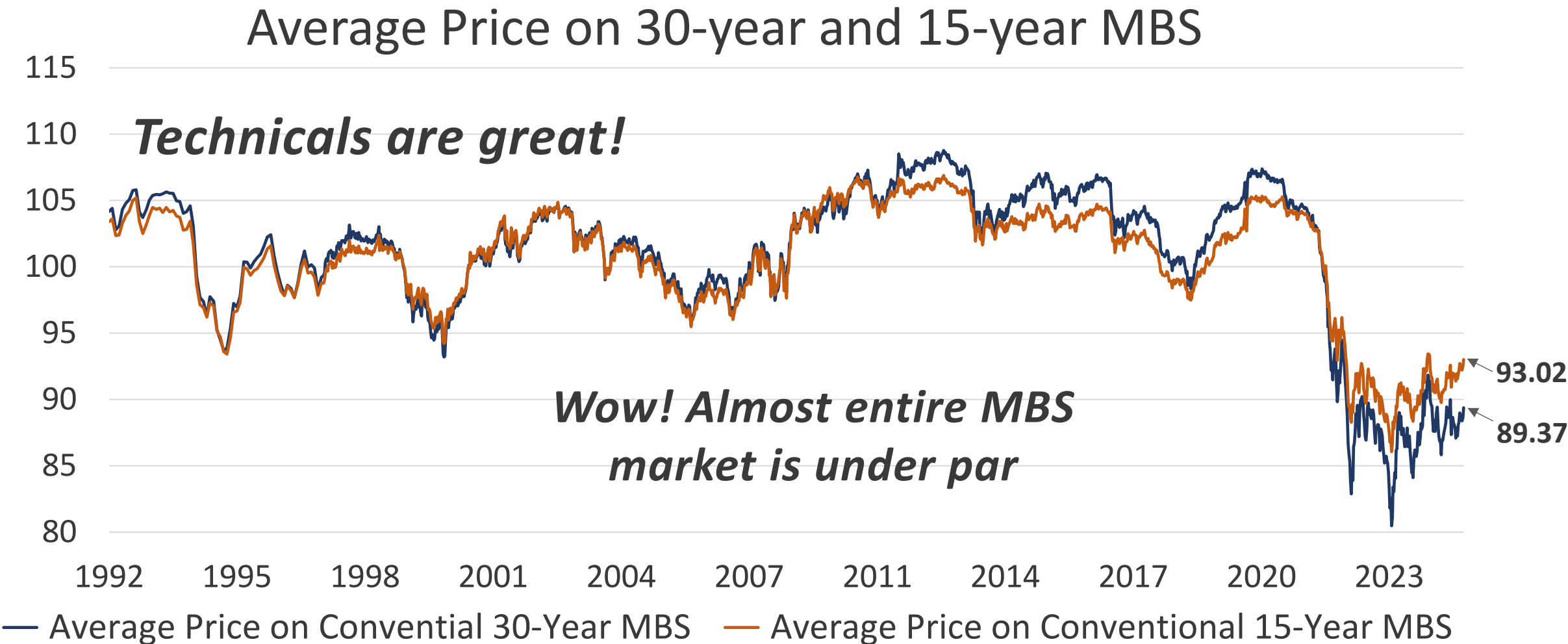
Corporate Spreads at Levels Associated with Low Returns



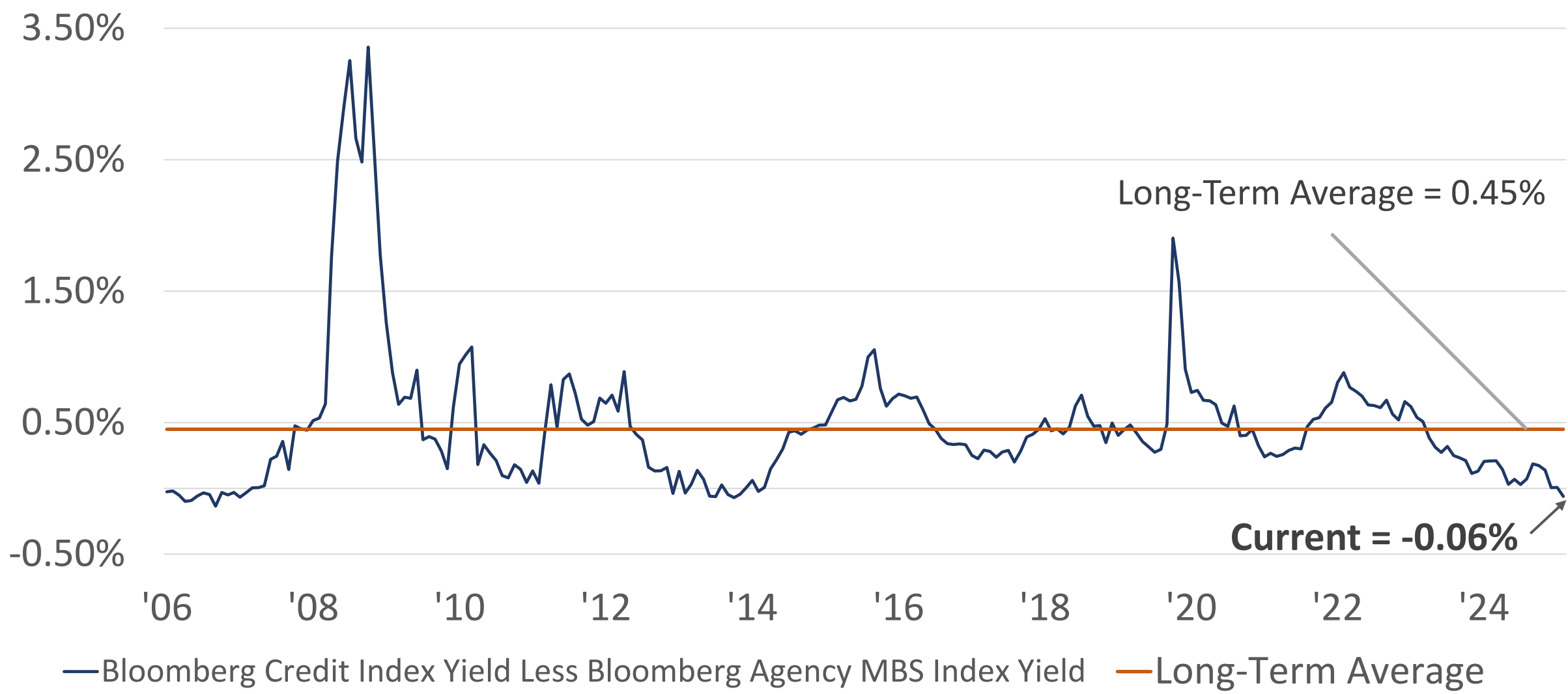
Mortgage Option Adjusted Spreads (OAS)



MBS Market is Trading at Historically Low Prices



Agency MBS Are Attractive Relative to Credit



Summary and Outlook

- Duration management, yield curve positioning, and sector exposure are key risks to monitor in your fixed income manager's portfolio.
- Expect to see lower yields as the economy continues to decelerate and inflationary pressures continue to moderate.
- In the bond market, expect corporate spreads to widen and for the yield curve to steepen.

Capital Markets - Equity

Geoff Gerber

Twin Capital Management

Having founded TWIN in 1990, Geoff is the Chief Investment Officer overseeing the quantitative investment process and general management of the firm. Recognized as a specialist in institutional quantitative investment management, he is often quoted in the financial press. Two of his publications appear in *Market Neutral: State-of-the-Art Strategies for Every Market Environment* as a chapter entitled “Using a Nonparametric Approach to Market Neutral Investing” and in *Global Asset Allocation* as a chapter entitled “Equity Style Allocations: Timing Between Growth & Value”. His most recent publication is entitled “Dividend Growth as a Defensive Equity Strategy”, published in the *Journal of Investment Consulting*.

Outside of TWIN, Geoff is a faculty member for the Aresty Institute’s Wharton Executive Education Program on Pension Funds and Investment Management. He participates in a number of foundations’ investment committees and boards including the Burroughs Wellcome Foundation, the Jewish Federation of Greater Pittsburgh and the Jewish Healthcare Foundation. Geoff is also a member of the Editorial Advisory Board of the *Journal of Investment Consulting* and is a former member of the Investment Advisory Committee for NY State Teachers Retirement System (NYSTRS).

Prior to founding TWIN, he held senior portfolio management positions at Prudential Insurance and Mellon Equity Associates. Geoff earned a Ph.D. in Finance and Economics from the University of Pennsylvania, and a B.A. in Economics from the State University of New York at Buffalo where he graduated summa cum laude and was elected to Phi Beta Kappa.



Capital Markets - Equity

CPPT Advanced Program
FPPTA Trustee School October 6, 2025

Geoffrey Gerber, Ph.D.
TWIN Capital Management, Inc.
President & Chief Investment Officer



Outline

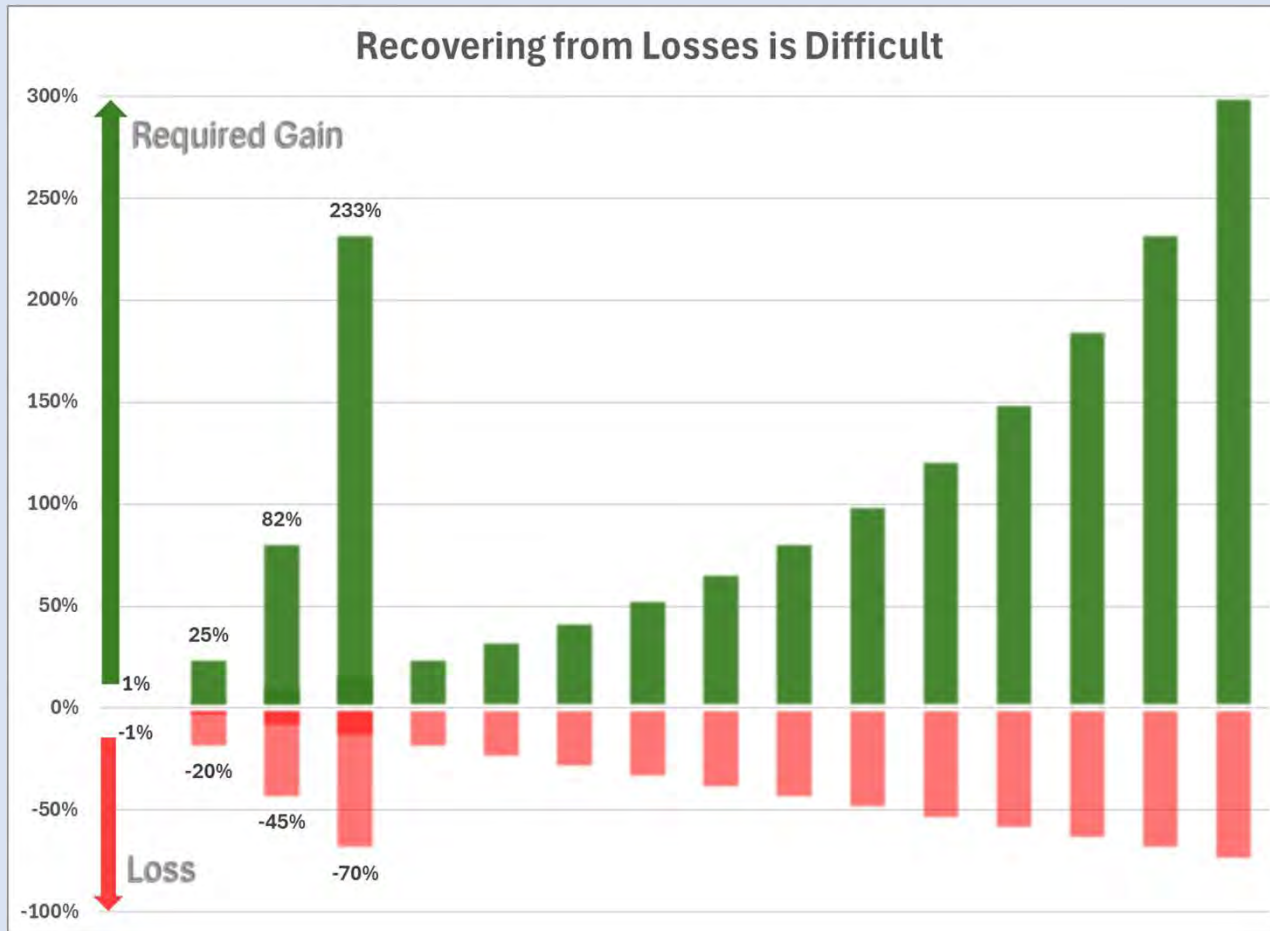
- Impacts of Risk on Return and Wealth Levels
 - Protecting Your Equity Portfolio in Downturns is Critical
- S&P 500 Return Patterns Exhibit Feast Often and Famine Less Often
- Extreme Days for the Market are Bunched or Clustered
 - You Cannot Miss the Worst Days without Missing the Best Days
 - It Does Not Pay to Invest in Equities if You Miss the 20 Best Days for the Market
- Structuring your Equity Portfolio
 - There are More Choices than Just Active or Passive, Especially for Large-Cap Domestic Equities, which Represent the Biggest Portion of Your Pension Plan
- Key Takeaways

Investment Terms

- **Annualized Risk**: The variation of a portfolio's returns around its average return over an annual basis (measured by standard deviation).
- **Value-Added**: The difference between the manager's annualized return and the benchmark's (S&P 500) annualized return.
- **Alpha**: Is a risk-adjusted measure of Value-Added
- **Tracking Error or Active Risk**: The annualized standard deviation of value-added, it measures the variation of a portfolio's returns relative to the benchmark. Managers with larger active bets tend to have return streams exhibiting higher tracking error.
 - A manager with a 5% tracking error can be expected to produce positive & negative value-added in excess of 5% in 1 out of every 3 years.

Risk Does Matter

The Mathematics of Compounding



The return to an investment is Asymmetric as losses have greater impact than gains - the more you lose, the more you must earn to get back your initial investment!

Why Does Risk Matter?

A Simple Example

Two investment programs produce the same annual average return but with different levels of risk

Year	Investment A Annual Return	Investment B Annual Return
1	-6.0	-20.0
2	12.0	16.0
3	10.0	12.0
4	-7.0	-22.0
5	14.0	20.0
6	15.0	22.0
7	8.0	8.0
8	13.0	18.0
9	18.0	28.0
10	3.0	-2.0
11	10.0	12.0
12	6.0	4.0
13	-12.0	-32.0
14	18.0	28.0
15	-10.0	-28.0
16	21.0	34.0
17	23.0	38.0
18	7.0	6.0
19	5.0	2.0
20	12.0	16.0

Average Annual Return is 8% for both Investments (A and B). The Standard Deviation of B (20%) is twice the volatility of A (10%).

While the average annual return is the same for the two investments, the annualized (or geometric) return is quite different.

Volatility Matters Because It Reduces Wealth

	Investment A	Investment B	Investment C
Average Annual Return	8.0%	8.0%	7.0%
Standard Deviation of Annual Returns	10.1%	20.1%	10.1%
Annualized (Geometric Average) Return	7.5%	6.0%	6.5%
Value of Initial \$1,000,000 at End of 20 Years	\$ 4,273,985	\$ 3,212,138	\$ 3,542,465

While the Average Annual Return is lower for Investment C compared to B, the Annualized Return is actually greater than Investment B's due to Investment C's lower standard deviation.

Relationship between Risk and Return

Geometric Annualized Return = Average Annual Return
- $\frac{1}{2}$ (Standard Deviation of Return)²

Investment A: $0.075 = 0.08 - \frac{1}{2} (.1)^2$

Investment B: $0.06 = 0.08 - \frac{1}{2} (.2)^2$

Investment C: $0.065 = 0.07 - \frac{1}{2} (.1)^2$

***Less Annual Standard Deviation Means Higher
Geometric or Compounded Annual Return and
Ending Wealth Level***

Worst & Second Best 12-Month Performance Highlights Negative Returns Impact

12-Month	S&P 500
Worst	
Mar 2008 - Feb 2009	-43.32
2nd Best	
Mar 2009 - Feb 2010	53.62

Annualized 24-Months	S&P 500
Mar 2008 - Feb 2010	-6.69

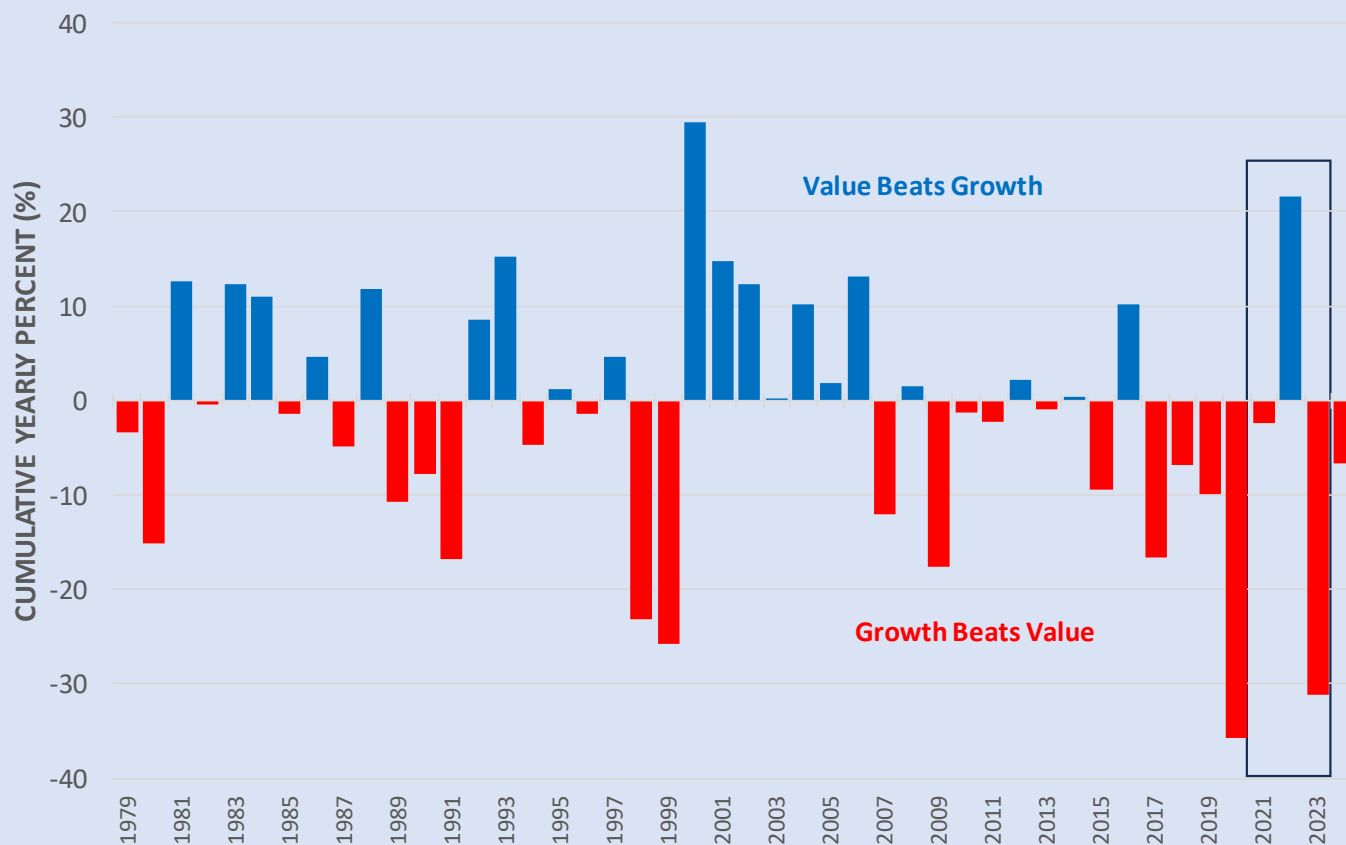
Since January 1995, there have been 336 twelve-month rolling periods through the end of December 2023.

The worst 12-month period (during the Global Financial Crisis/Recession) and the second best 12-month period for the S&P 500 were back-to-back.

While the S&P 500 advanced over 53% in its second best 12-month period and lost less than 44% over the prior 12-month period, the S&P 500 was still down MORE than 6.5% ANNUALIZED for the 24-month period.

Last 3 Calendar Years of Growth vs. Value Shows Importance of Protecting against Equity Declines

Value Minus Growth Style Return Differentials: 1979 - 2024
Russell 1000® Index



In 2021, Growth beats Value by 2.4% and it wins by 31.2% in 2023. Both were up years. Value won in 2022 by 21.6%, which was a negative market year.

By protecting against bigger market losses in 2022, Value has delivered the same 3-year annualized return for 2021-2023 as Growth (8.9%).

How Can You Protect Your Equity Portfolio?

- Think of the most recent 3-year Growth vs. Value returns where Growth wins in 2 of the 3 years by a total of 33.6% whereas Value wins in only 1 of the 3 years by a total of 21.6%
- But winning in a down year is more valuable than winning in an up year - so for the 3 years, their annualized return is the same
- Applying the same concept - going down less than the market in a down year/recessionary period is **CRITICAL!**

Passive Index Funds have been a great investment during the longest-ever bull market rally but may disappoint in negative market environments

S&P 500® History by Decade

Period	S&P 500® Total Return	S&P 500® Price-Only Return	S&P 500® Income Return	Number of Negative Total Return Years	Income Component as Percent of Total
1926-1929	19.2	13.9	5.3	1	28%
1930-1939	-0.1	-5.3	5.2	6	100%
1940-1949	9.2	3.0	6.2	3	67%
1950-1959	19.4	13.6	5.8	2	30%
1960-1969	7.8	4.4	3.4	3	44%
1970-1979	5.9	1.6	4.3	3	73%
1980-1989	17.6	12.6	5.0	1	28%
1990-1999	18.2	15.3	2.9	1	16%
2000-2009	-0.9	-2.7	1.8	4	100%
2010-2019	13.6	11.2	2.3	1	17%
2020-2024	14.5	12.7	1.8	1	12%
1926-2024	10.4	6.4	4.0	26	39%

There have been two lost decades for stocks in the past 100 years.

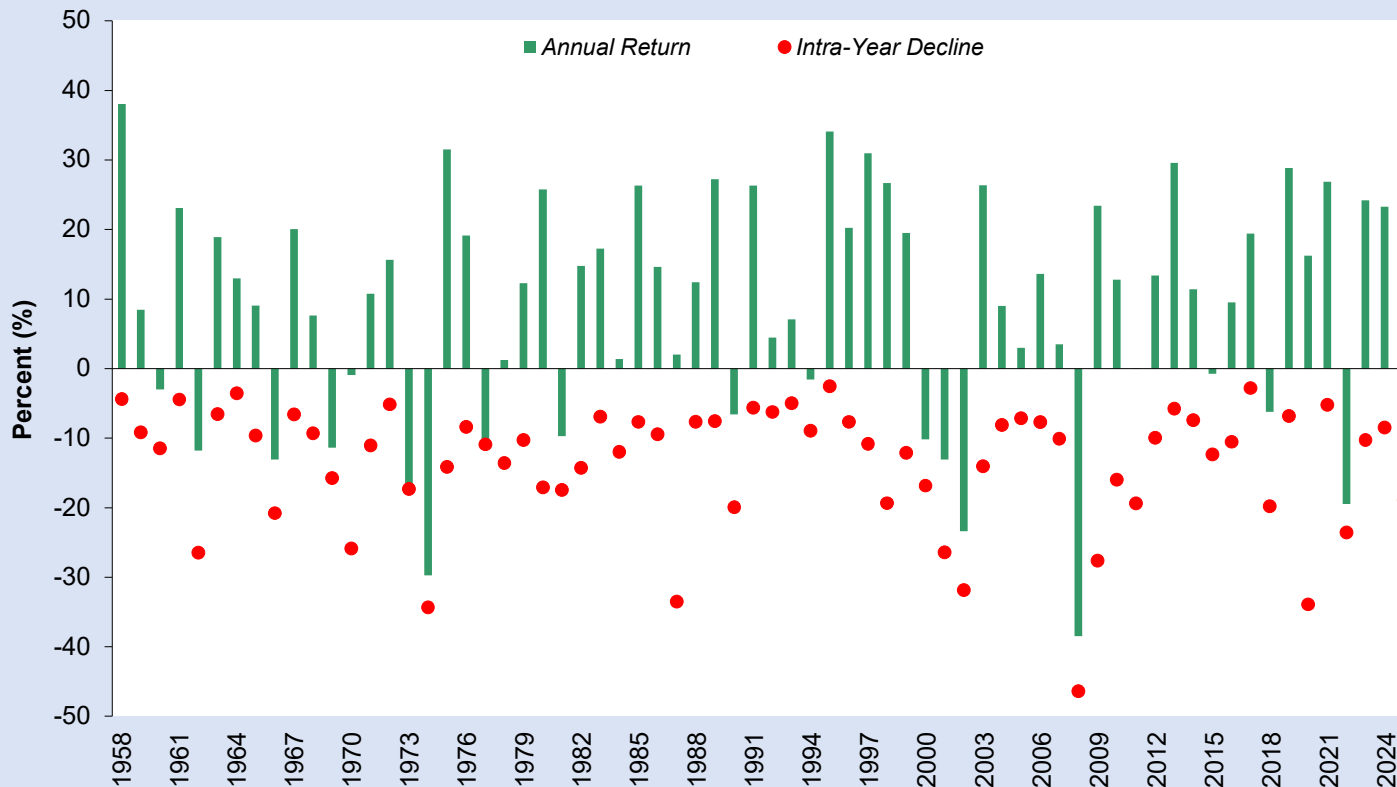
Annual S&P 500 Calendar Year Returns Feast or Famine (1926-2023)

- 99 calendar years of S&P 500 returns
 - ✓ Annualized Return: 10.4%
 - ✓ Annualized Risk: 19.7%
 - 26 years with a negative return (26%)
 - 59 years with a return >10% (60%)
 - 14 years (14% of the time) with a return between 0% and 8%

There have been NO calendar years with the S&P 500 return between 8% and 10% even though the historical return has been in that range over past 99 years

Very Long History Shows Substantial Intra-Year Draw-downs in S&P 500

Annual Returns & Intra-Year Declines: S&P 500 Index
1958 - 2025 (YTD 2025 through 7/31)



Intra-Year decline is defined as the maximum decline for up to a 125-day period within a calendar year.

The average such decline is 13.4% for the S&P 500 during the 67 years between 1958 & 2024, even as the average yearly return is positive (9.1%).

How Often is the S&P 500 Down? 1962 - 2024

<u>Calendar Frequency</u>	<u>Total #</u>	<u>Number Positive</u>	<u>Number Negative</u>	<u>% Down</u>
Years	63	49	14	22%
Quarters	252	180	72	29%
Months	756	477	279	37%
Days	15,858	8,393	7,465	47%

The more often investors look at the market, the more often they see their portfolio values decline.

The S&P 500 is down 47% of all days and 37% of all months but only 22% of all years. For most Investment Committee Meetings with a quarterly or monthly cycle, the market is down on average 1/3rd of the time.

Extreme Days

Dow Industrials - Daily Performance							
Best Days				Worst Days			
Rank	Date	Level	Change (%)	Rank	Date	Level	Change (%)
1	15-Mar-1933	62.1	15.3	1	12-Dec-1914	54.6	-23.5 * 4m Halt
2	6-Oct-1931	99.3	14.9	2	19-Oct-1987	1738.7	-22.6
3	30-Oct-1929	258.5	12.3	3	16-Mar-2020	20188.5	-12.9
4	24-Mar-2020	20704.9	11.4	4	28-Oct-1929	260.6	-12.8
5	21-Sep-1932	75.2	11.4	5	29-Oct-1929	230.1	-11.7
6	13-Oct-2008	9387.6	11.1	6	12-Mar-2020	21200.6	-10.0
7	28-Oct-2008	9065.1	10.9	7	6-Nov-1929	232.1	-9.9
8	21-Oct-1987	2027.9	10.1	8	12-Aug-1932	63.1	-8.4
9	3-Aug-1932	58.2	9.5	9	14-Mar-1907	76.2	-8.3
10	11-Feb-1932	78.6	9.5	10	26-Oct-1987	1793.9	-8.0
11	13-Mar-2020	23185.6	9.4	11	15-Oct-2008	8577.9	-7.9
12	14-Nov-1929	217.3	9.4	12	21-Jul-1933	88.7	-7.8
13	18-Dec-1931	80.7	9.4	13	9-Mar-2020	23851.0	-7.8
14	13-Feb-1932	85.8	9.2	14	18-Oct-1937	125.7	-7.8
15	6-May-1932	59.0	9.1	15	1-Dec-2008	8149.1	-7.7
16	19-Apr-1933	68.3	9.0	16	9-Oct-2008	8579.2	-7.3
17	8-Oct-1931	105.8	8.7	17	1-Feb-1917	88.5	-7.2
18	10-Jun-1932	48.9	8.0	18	27-Oct-1997	7161.1	-7.2
19	9-Apr-2025	40608.5	7.9	19	5-Oct-1932	66.1	-7.2
20	6-Apr-2020	22680.0	7.7	20	17-Sep-2001	8920.7	-7.1 * 4d Halt
AVERAGE>			10.2				-10.2

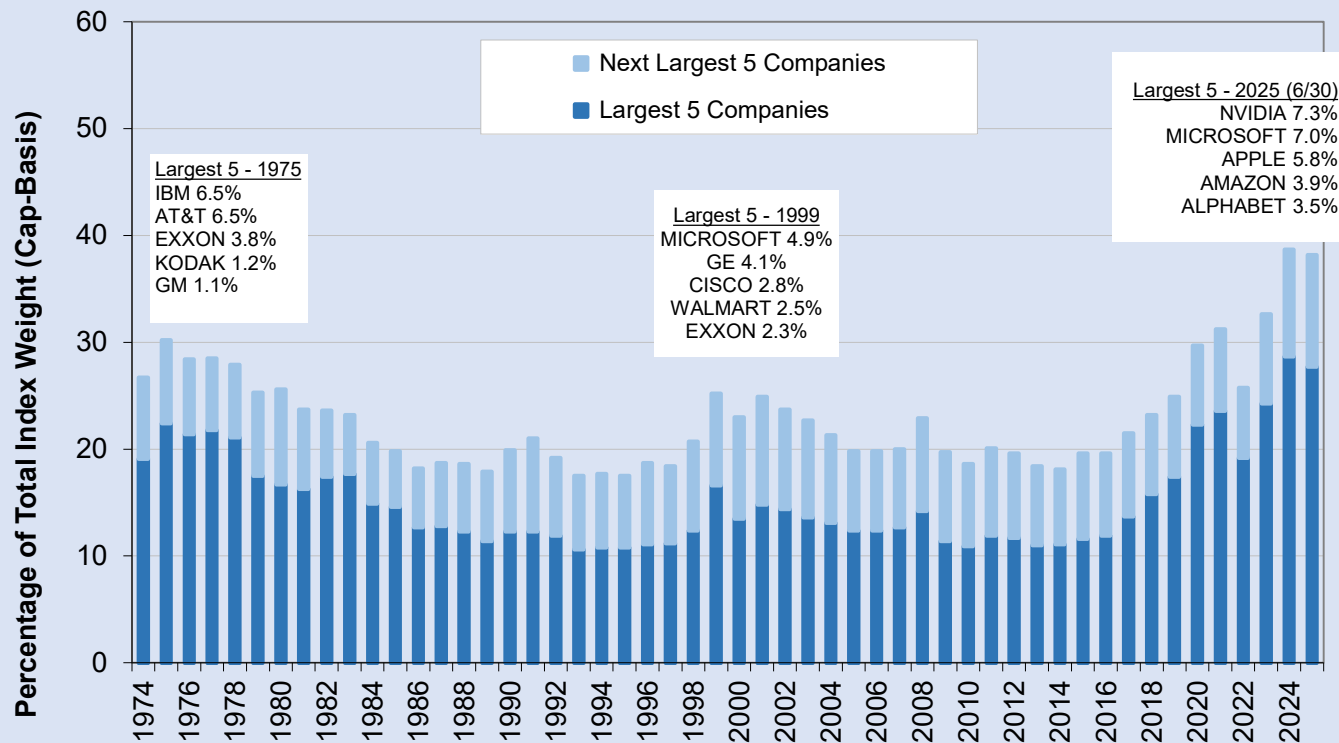
Big daily declines & advances tend to be clustered together in time.

This historical fact is part of what makes market-timing (buying at lows and selling at highs) difficult.

Rip Van Winkle would be a good investor because he fell asleep on December 31, 2019 and woke up on December 31, 2020 and could not sell equities in March 2020

Market Leaders Shift Over Time

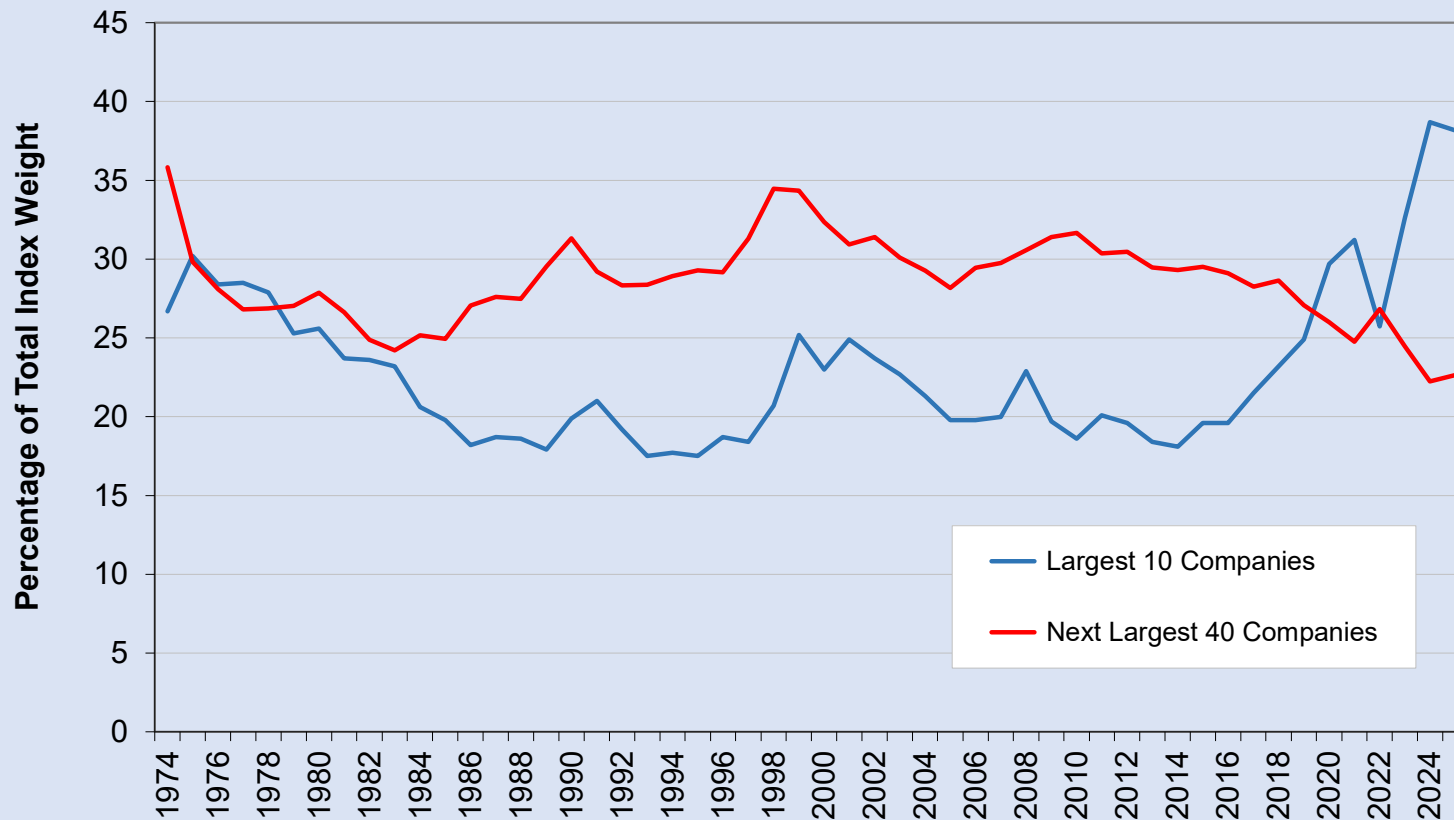
S&P 500 Constituent Concentration
Combined Weights of 10 Largest Companies (Year-End; 2025 6/30)



At the end of 2024, the collective weight (28.7%) of the largest 5 companies in the S&P 500 was the largest since 1974.

The Passive Index is the Most Concentrated Ever

S&P 500 Constituent Concentration
Weights of 50 Largest Companies (Year-End; 2025 6/30)



At year-end 2024, the 10 largest stocks in the S&P 500 index represented their largest weight (37%) while the next 40 largest constituted the lowest (23%) weight over the past 50 years.

The Domestic Equity Market Structure

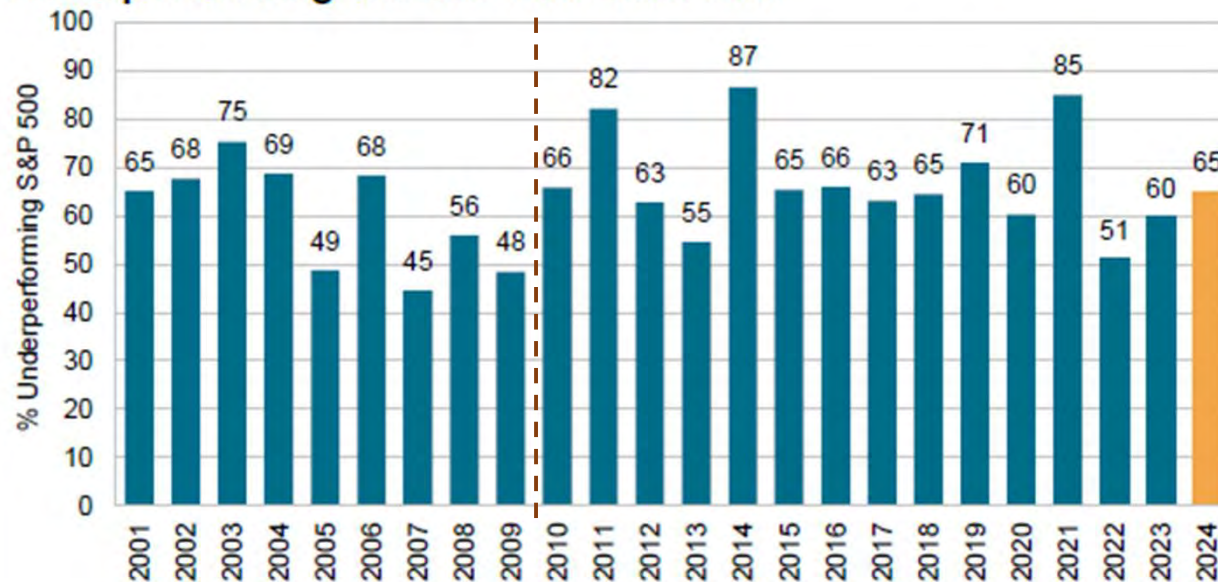
- By Market Capitalization
 - Large-cap stocks (S&P 500, Russell Top 200 or Russell 1000) represent the biggest portion (typically 70-75%) of the **total market index (S&P 1500 or Russell 3000)**
 - Mid-cap (S&P 400 or Russell Midcap) and small-cap stocks (S&P 600 or Russell 2000) make up the other 25-30%
- By Style (Growth vs. Value)
 - Typically, 50% of domestic equity indices (such as the S&P 500, the Russell 1000, Russell 2000, etc.) are invested in Growth and 50% in Value

Structuring Your Domestic Equity Portfolio

- Active vs. Passive
 - Typically, pension plans invest in domestic large-cap stocks via passive index strategies and invest actively in domestic small-cap stocks because the market is “fairly efficient” for large-cap compared to small-cap stocks; it is also more fee efficient as active managers charge a lot more than passive
 - However, large-cap domestic equities represent the biggest portion of most Florida public pension plans and while indexing large-cap stocks has been the best investment over the past 10+ years, the passive large-cap index is more concentrated, and therefore, riskier than it has ever been

Trying to Beat the Market is Not Easy

Exhibit 1: Percentage of Large-Cap Domestic Equity Funds Underperforming the S&P 500 Each Year



Source: S&P Dow Jones Indices LLC, CRSP. Data as of Dec. 31, 2024. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

From 2005 through 2009, active managers tended to outperform. However, more than half of all active managers have underperformed since 2010.

Passive Now Leads Active U.S. Equity Assets

Active vs. passive U.S. equity assets

Assets in billions for the years ended Dec. 31



In 2018, Active Equity assets were greater than Passive Equity assets.

However, underperformance since 2010 caused pension funds to move away from Active Equity strategies, resulting in dramatic growth of Passive Equity assets.

This growth in Passive Equity Assets has led to even greater market concentration as the biggest stocks get the largest investment and continue to grow.

Active, Passive & In-Between

- Active vs. passive investment management:
 - Most active managers trail benchmarks over time—do they sufficiently address downside risk?
Performance is often inconsistent
 - Passive managers provide 100% of all negative equity returns giving NO downside protection and they are the most concentrated ever
- Is there a “middle ground”?
 - Enhanced Indexing
 - Rules-Based (“Smart Beta”) Strategies

The middle ground between active and passive strategies includes Rules-Based/“Smart Beta” and Enhanced Indexing Strategies

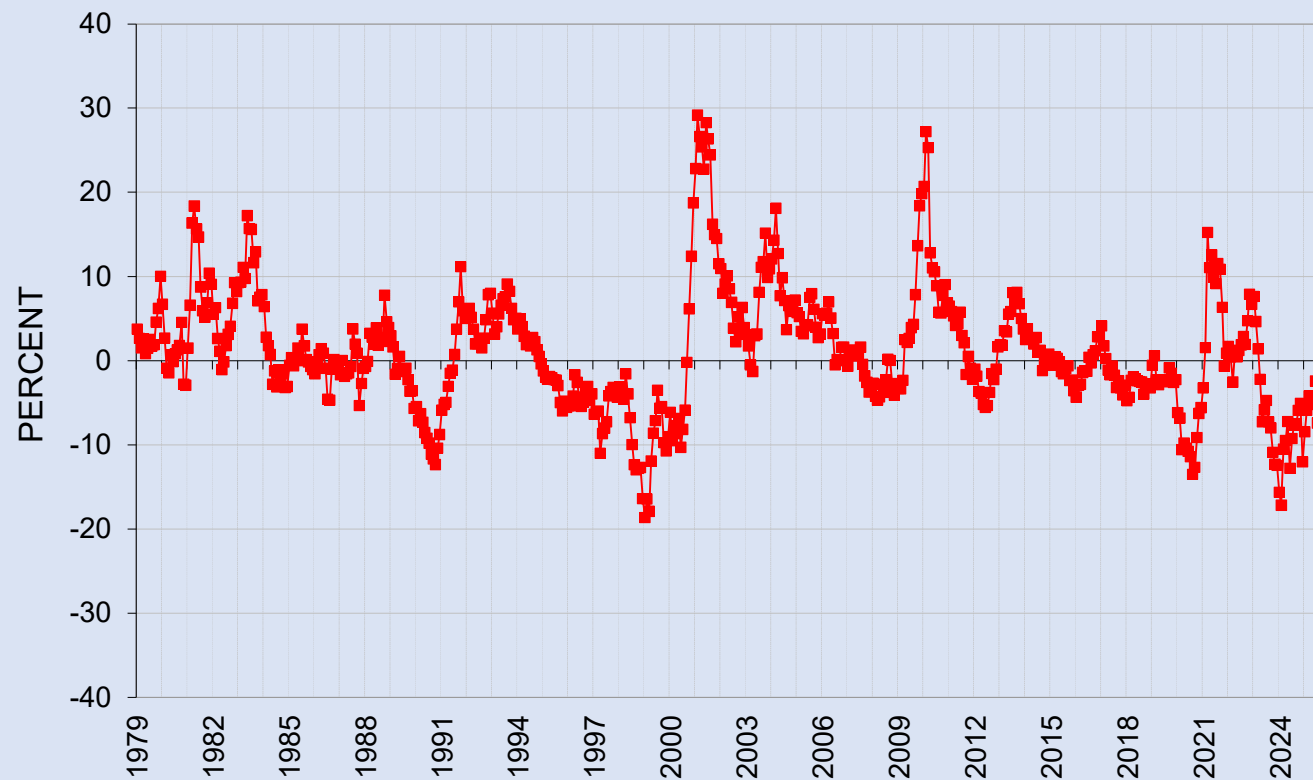
Rules-Based or “Smart Beta” Strategies

- Rules-Based or “Smart Beta” strategies invest in segments of the market using different weighting schemes, but in a passive-manner (no active decisions)
 - The Rules-Based notion is more of a passive investment methodology
 - However, only purchasing a subset of stocks in the market or buying stocks using a different weighting scheme compared to the capitalization-weighted S&P 500 index is more of an active investment methodology with potentially high tracking error
- Examples of Rules-Based or “Smart Beta” strategies include:
 - The S&P 500 Equal-Weighted index invests in all 500 stocks with equal weights (RSP is the ETF Ticker)
 - The S&P 500 Low Volatility index invests in the 100 least volatile S&P 500 stocks with weights based on volatility (SPLV is the ETF Ticker)
 - The S&P 500 Dividend Aristocrats index invests in the subset of S&P 500 stocks who have consistently grown their dividends over the past 25 years with equal weights (NOBL is the ETF Ticker)

Rules-Based Strategies charge lower fees compared to active strategies; however, they can provide significant tracking error relative to the S&P 500.

S&P 500 Equal Weight Index Relative Returns

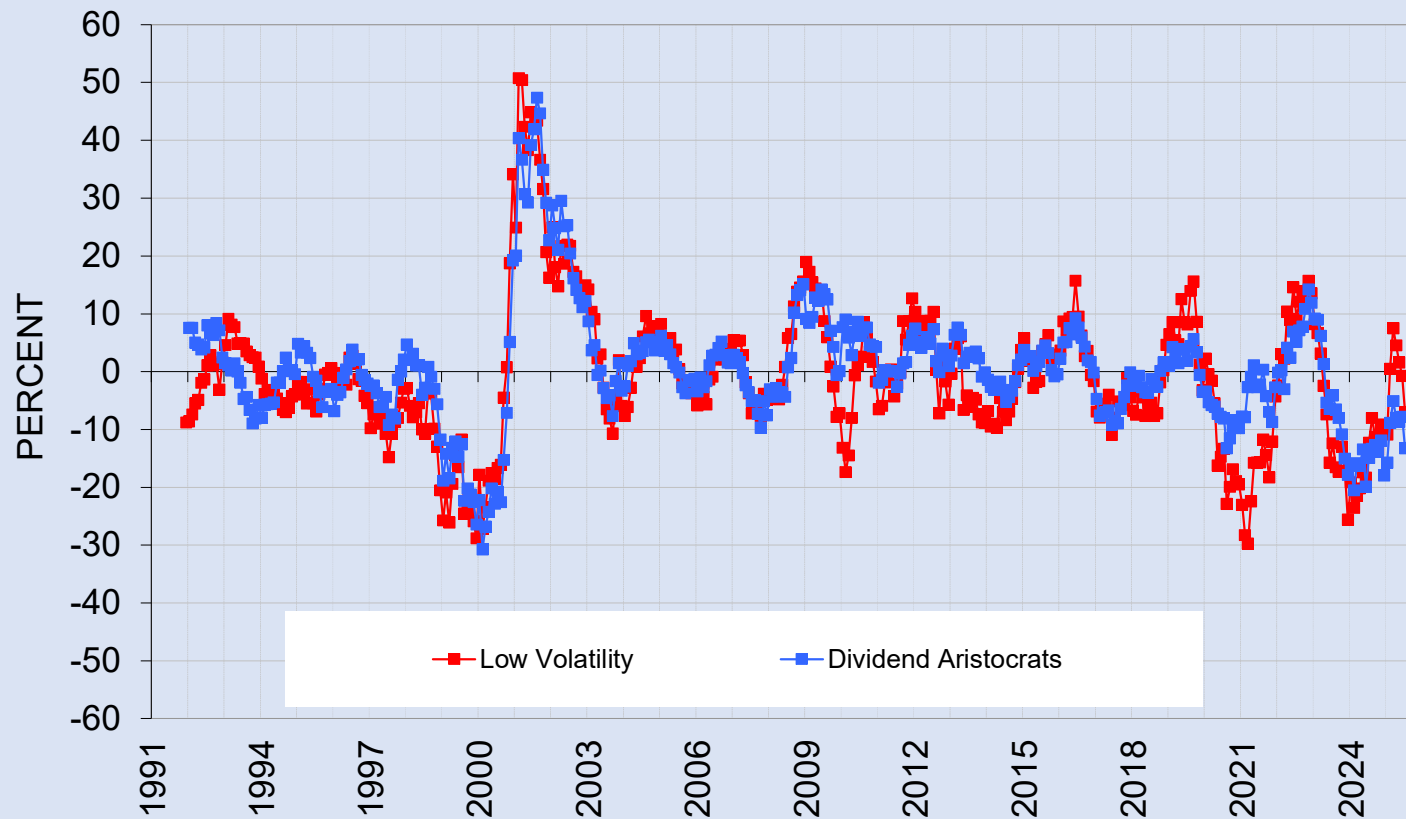
Trailing 12-Month Equal-Weight Minus Cap-Weight Return
S&P 500



There are many 12-month periods in which the Equal-weighted S&P 500 beats or loses to the S&P 500 index by more than 5%. Recently, the Equal-Weighted underperformed by nearly 20%.

S&P 500 Low Volatility & Dividend Aristocrats Returns

Trailing 12-Month Index Return Minus Market Return
S&P 500



There are many 12-month periods when the S&P 500 Low Volatility & Dividend Aristocrats win or lose by more than 5% relative the S&P 500 index. In early 2024 they both underperformed by over 20%.

Enhanced Indexing

- An Enhanced Index portfolio aims to “track” an index, but also attempts to modestly outperform it with similar or less risk - “Focus on Singles & Doubles”
- Enhanced Index approaches may include common stock-only variants, synthetic elements (financial futures & options) and cash/leverage components - with potential to mix some of these
- Enhanced Indexing can increase the odds of success, and can reduce the odds of a large surprise
 - Due to lower tracking error relative to passive market indices, Enhanced Index strategies can generate more consistent value-added relative to Active Strategies (which tend to go in and out of favor)

Enhanced Indexing seeks to outperform passive indices while maintaining sector & risk exposures like the indices.

Enhanced Index, S&P 500 & Rules-Based Exposures

	Sample Enhanced				
GICS SECTOR	Index Portfolio	S&P 500®	S&P 500® EW	S&P 500® Div	S&P 500® LV
Communication Services	8.98	9.32	3.92	0.00	2.25
Consumer Discretionary	9.97	9.87	10.13	4.18	6.14
Consumer Staples	5.84	5.97	7.46	23.75	18.58
Energy	3.63	3.68	4.51	2.88	2.01
Financials	13.35	12.68	14.16	10.90	18.57
Health Care	12.04	12.05	12.40	10.37	9.91
Industrials	9.21	8.35	15.58	22.64	17.71
Information Technology	30.10	31.34	13.08	2.98	7.04
Materials	2.35	2.24	5.74	12.58	2.92
Real Estate	2.30	2.15	6.04	4.71	0.85
Utilities	2.22	2.35	6.66	4.73	13.76
CHARACTERISTIC					
Weighted Avg Mkt Cap (\$ Mil)	811,088	890,544	96,652	93,617	138,408
Holdings Count (#)	164	503	503	66	100
Dividend Yield (%)	1.39	1.37	1.91	2.46	2.19
MSCI-BARRA S&P 500 Beta	1.01	1.00	0.92	0.71	0.58
MSCI-BARRA S&P 500 Predicted Tracking Error (%)	1.20		6.20	8.47	9.96

Sector exposures of Rules-Based Strategies are quite different and their weighted market capitalizations are much lower compared to the market -- leading to significantly higher tracking error relative to the Sample Enhanced Index Strategy, which mirrors the market's exposures (both sector & capitalization).

Please see IMPORTANT DISCLOSURES for full description of Sample Enhanced Index strategy.

Enhanced Indexing Can Provide Downside Protection with Upside Potential

- Low volatility strategies have a lower beta than the market to reduce total risk at the cost of higher active risk (i.e., tracking error)
 - Low volatility strategies provide downside protection at the cost of upside returns
 - Downside capture less than 100% but upside capture also less than 100%
 - Low Volatility strategies typically have much less risk than the overall market
- Enhanced index strategies have a beta equal to the market so they can fully participate in up markets while still protecting in down markets
 - Enhanced equity strategies typically have downside protection without giving up upside returns
 - Downside capture less than 100% but upside capture can be equal to or above 100%
 - Enhanced index strategies typically have slightly less risk than the overall market

Performance Across Market Environments

Returns & Batting Averages

Monthly Returns Analysis

January 2004 - July 2025

	Biggest Negative Months "Down" Markets	Mixed Smaller Months 'Sideways" Markets	Biggest Positive Months "Up" Markets	All Months
<i>Return Ranges (%)</i>	-17 to -2.5	-2.5 to +2	+2 to +13	-17 to +13
<i>Counts (#)</i>	42	130	87	259
<i>Average Returns (%)</i>				
S&P 500®	-6.12	0.44	5.05	0.93
S&P 500® Eq-Wt	-6.44	0.33	5.42	0.94
S&P 500® Div Aris	-4.95	0.38	4.51	0.90
S&P 500® Low-Vol Index	-3.81	0.66	3.25	0.81
Sample Enhanced Index	-6.01	0.52	5.11	1.00
<i>Outperformance Batting Average</i>				
S&P 500® Eq-Wt	0.38	0.45	0.60	0.49
S&P 500® Div Aris	0.67	0.54	0.40	0.51
S&P 500® Low-Vol Index	0.86	0.54	0.14	0.46
Sample Enhanced Index	0.52	0.56	0.54	0.55

Equal-weighted S&P 500 wins in strong up months while Low Volatility & Dividend Aristocrats win in big down months.

Sample Enhanced Index strategy offers out-performance in all three market environments with consistent batting averages.

Please see IMPORTANT DISCLOSURES for full description of Sample Enhanced Index strategy.

Investment Mandates – Risks & Fees

Equity Manager Mandate	Total Volatility	Active Risk	Fees
Active	At or above Market	2% - 8%	25 - 100 bps
Passive Index	Equal to Market	0.1% - 0.5%	1 - 10 bps
Enhanced Index	Below or Equal to Market	1% - 2%	10 - 30 bps
Rules-Based	Below or Above Market	3% - 7%	15 - 50 bps

Enhanced Index strategies are often viewed as the sweet-spot between trying to still beat the market but taking less active risk with less fees

What is Right (Active vs. Passive) for Your Pension Plan?

Should your plan invest with Active strategies versus Enhanced Index, Rules-Based (Smart-Beta) or Passive index strategies? It depends on the following considerations:

- Your pension plan's funded status and investment policy statement's target rate of return and acceptable risk levels
- Your desire to reduce total investment management fees relative to a strictly active manager platform (active manager fees are higher relative to enhanced index, smart-beta rules-based or passive index managers)
- The ability of active managers to add value on a consistent basis relative to their benchmarks relative to their active risk
- The pension trustees' level of patience as Active manager's outperformance or underperformance typically occurs in cycles

Pension plans can combine large-cap equity active strategies with enhanced index, rules-based or passive index strategies to reduce fees and active risk

Key Takeaways

- Investing risk is asymmetric (i.e., annualized return to stocks is lower than the simple average of annual returns) with losses more costly than gains making protection on the downside critical
- Equities go down about 1/3rd of the time (29% of all quarters and 37% of all months)
- Equity investing is like “Feast or Famine” - most of the years (59%) since 1926, the market has up double-digits or higher, while it has declined in 27% of all years; rarely do you earn the long-term expected return in a calendar year

Key Takeaways continued

- Active managers often take too much active risk and there are long cycles of underperformance (since 2010)
- The problems with passive index funds is that they do not provide downside protection and the market is more concentrated today than it has ever been
- There are in-between solutions of Rules-Based Strategies (such as the S&P 500 Low-Volatility index, the S&P 500 Dividend Aristocrats index or the S&P 500 Equal-Weighted index) that are less costly compared to active managers but still bear active risk or tracking error to the market
- Another in-between solution is Enhanced Indexing, which is often viewed as the sweet spot as it is designed to protect pension plans on the downside but have more participation in up markets compared to those Rules-Based Strategies focusing on lower volatility or dividend growth themes

Important Disclosures

PAST PERFORMANCE IS NOT NECESSARILY INDICATIVE OF FUTURE RESULTS.
INVESTMENTS ARE NOT GUARANTEED AND MAY LOSE VALUE.

TWIN Capital Management, Inc. (TCM) is a registered investment advisor founded in April 1990 and headquartered in McMurray, Pennsylvania.

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MARKET DATA

Where market and/or index data is presented, it has been obtained from a variety of sources deemed reliable. These sources may include some or all of the following: FTSE/Russell, FactSet Research Systems, and Ford Equity Research. Estimates of predicted tracking error are from the MSCI-Barra US Total Market US Model (US-SLOWL); fundamental beta values and S&P GICS sector assignments are also supplied by MSCI-Barra. TCM assumes no responsibility for the accuracy of this data. Standard & Poor's, S&P and S&P 500 are registered trademarks of Standard & Poor's Financial Services LLC, a division of S&P Global (S&P"). These trademarks have been licensed to S&P Dow Jones Indices LLC. Frank Russell Company ("Russell") is the source & owner of the trademarks, service marks and copyrights related to the Russell Indexes. Russell is a trademark of Frank Russell Company. The Global Industry Classification Standard (GICS) was developed by and is the exclusive property and a trademark of Standard & Poor's and MSCI. None of the owners or suppliers of data featured in this report promote, sponsor or endorse the content of this communication, nor accept responsibility for errors or omissions in the underlying data. Further distribution of the index data contained in this report is prohibited.

INDEX INFORMATION

The S&P 500 Index is a representative measure of 500 leading companies from leading industries; the index is a benchmark for the large-cap segment of U.S. equity market. Company weights in the index are proportional to firms' available market capitalization (price times available shares outstanding). A Committee at Standard and Poor's maintains the index with a focus on liquidity and investability. Instead of weights proportional to available market cap, the Equal-Weight S&P 500® Index weights all index constituents equally at reconstitution intervals. The S&P 500® Low-Volatility Index consists of the 100 least-volatile stocks in the S&P 500® at each quarterly reconstitution date as measured by daily realized returns variability over the 12 months prior to reconstitution, weighted in proportion to the inverse of the realized volatility score. The S&P 500® Dividend Aristocrats® index measures the performance of S&P 500 companies that have increased dividends every year for the last 25 consecutive years. Constituents are equally-weighted. FTSE/Russell produces and maintains a family of U.S. equity indexes. In the determination of index membership, Russell calculates capitalization and other category breakpoint values based on ranks of U.S. common stocks at each annual reconstitution period using market value of freely-available outstanding shares (as of the last day of May each year). Stocks exceeding the breakpoint established for the largest 3,000 stocks become constituents in the Russell 3000® Index (with some adjustments to the constituent list to reduce category changes). Similarly, the largest approximately 1,000 stocks become the Russell 1000® Index. Style category breakpoints based on an objective scoring algorithm are used to assign fractions of Russell Index constituents' capitalization to value & growth sub-indices.

Important Disclosures

PORTFOLIO INFORMATION

Sample Enhanced Index Portfolio returns & characteristics are those of the TWIN Prime Portfolio (Net Composite), a purely stock-based enhanced-index strategy managed by TWIN Capital since 2004 using the TWIN EQUITY Model™. The primary objective of the strategy is to outperform, on a total return basis net of fees, the Russell 1000® Index. These returns are included as an example of an Enhanced Index strategy and should not be interpreted as necessarily representative of the broad class of investments in this product space.

TWIN EQUITY Model™

The TWIN EQUITY Model (the "Model") is a quantitative, multiple element model developed by the Investment Manager to predict expected future returns of large & mid-cap US Common stocks. The Model currently combine proprietary sets of value, growth and earnings quality characteristics into a composite score for a measure of investment attractiveness. Financial statement data, analysts' earnings forecasts, price and returns data are obtained from several sources believed to be accurate. The elements of the models and the specific data items incorporated into the composite scores have changed materially over time. There is no guarantee the predictions of the models will be realized. In the event that security returns deviate substantially from the expectations of the models, losses may result. Where the model performance and returns to specific model rank groups or individual model elements are presented, it should be understood that these results do not represent actual trading and that they may not reflect the impact that material economic and market conditions may have had on TCM decision-making. Unless explicitly noted, results omit the impact of trading costs and were not necessarily constructed in real-time over the entire horizon presented. Risks are associated with the data and quantitative tools underlying TCM's investment process. Errors may exist in data obtained from third-party sources, in coding used in the stock selection process and in the construction of model portfolios and hypothetical returns. Although TCM takes steps to identify errors so as to minimize the potential impact on the investment process and performance, there is no guarantee that such errors will not occur.

DEFINITIONS & CALCULATIONS

Annualized Returns are calculated as the compound geometric average monthly returns. The geometric average is the monthly average return that assumes the same rate of return every period to arrive at the equivalent compound growth rate reflected in the actual return data. The results are annualized by raising the sum of one plus the compound geometric average monthly return to the twelfth power and then subtracting one. Standard Deviation measures the dispersion of uncertainty in a random variable (in this case, investment returns). The higher the volatility of investment returns, the higher the standard deviation will be in any given case. For this reason, standard deviation is often used as a measure of investment risk. Values are calculated by applying the traditional sample deviation formula to monthly return data, and then annualized by multiplying the result by the square root of twelve. Batting Average: Measure of the frequency of success. This ratio is calculated by taking the number of monthly periods where the manager equals or outperforms the selected benchmark, divided by the total number of periods. This measure indicates a manager's frequency of success, without regard to degree of outperformance. Tracking Error: The annualized standard deviation of value-added, it measures the variation of a portfolio's returns relative to the benchmark. Managers with larger bets relative to benchmark tend to have return streams exhibiting higher tracking error. A manager with a 5% tracking error can be expected to produce positive & negative value-added in excess of 5% in 1 out of every 3 years. Beta: Captures the tendency of a stock's returns to respond to changes in a market index or benchmark over time; it is a statistical measure of a variability. For a specific period, an individual stock's beta is the covariance of the return of the stock with the return of a market index, divided by the variance of the return of the index for the period. The beta of the market index is 1.0. A stock with a beta above 1.0 tends to swing more than the market over time, while a stock with a beta less than 1.0 typically swings less than changes in the market index.

Review of Risk & Volatility

Steve Roth, CPPT
Dahab & Associates

Steven Roth, CFA joined Dahab Associates in December 2007 and brought with him seven years of investment experience. Steve began his career at American Fund Advisors as an analyst for the John Hancock Technology Mutual Fund. He has also held analyst positions at Kaufman Brothers and Global Securitization Services. As CIO, Steve will provide guidance on investment management decisions for the firm, in addition to his role as consultant. Steve earned a BS in geology and an MBA in finance from Hofstra University. He received his CFA Charter in 2013, and is a member of CFAI and NYSSA.





Review of Risk & Volatility

October 6, 2025

Steven Roth, CFA



DAHAB ASSOCIATES

Pension Formula

$$C + I = B + E$$

Contributions + **Income** = Benefits + Expenses



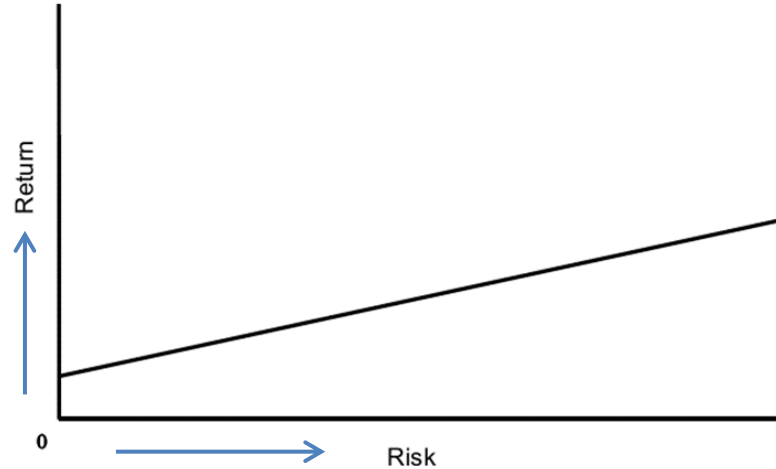
= Investment Gains +
Dividends

Origins of Risk Concepts

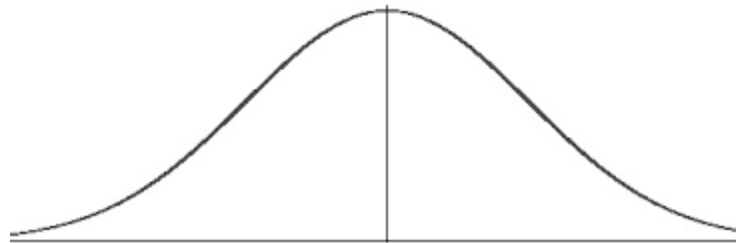
- Harry Markowitz defined risk as short-term volatility in 1952
- His definition served the academic need for simplicity and precision
- Wall Street adopted it to sell “risk-adjusted” investment products
- Many investors have long time horizons not suited to this definition
- Higher returns may be earned by accepting greater short-term risk

Origins of Risk Concepts

- Standard way of viewing risk/return – increasing risk, increasing return



- Distribution of outcomes – bell shaped curve



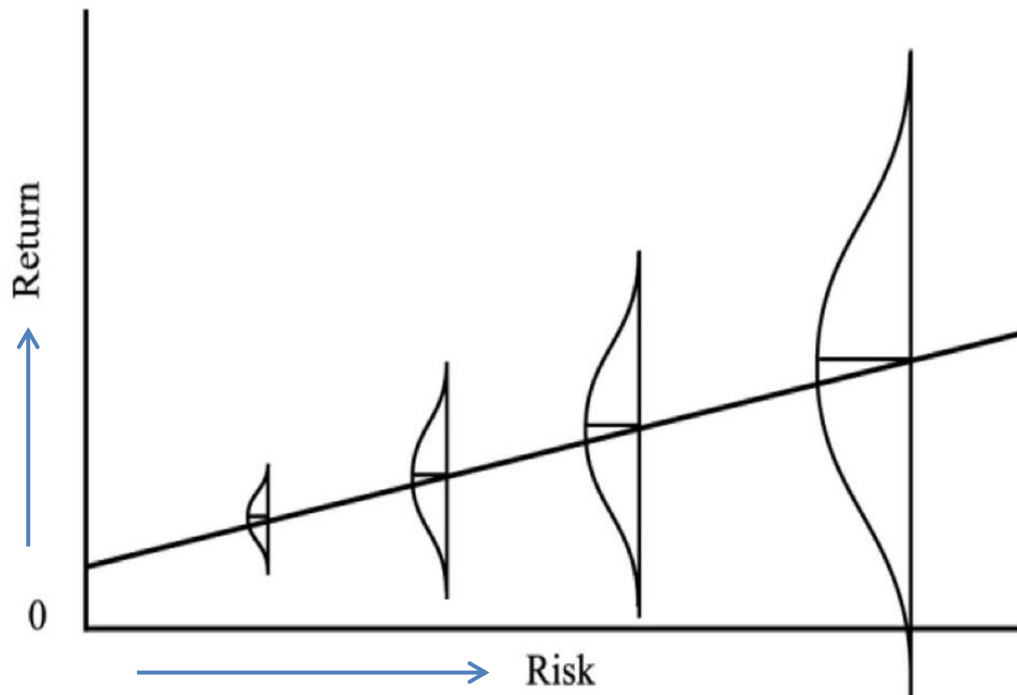
What is Risk?

Uncertainty

“Risk means more things can happen than will happen”

– Elroy Dimson, professor at the London Business School

- The future.....really just the possibility of an infinite number of events



A Little Bit About Risk

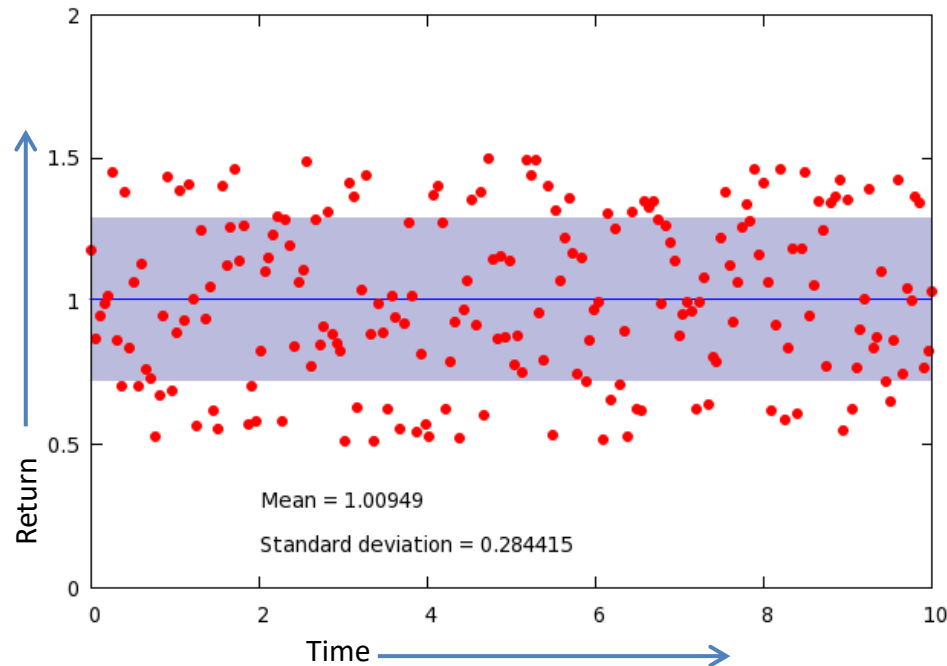
- Short-term risk: The chance of having a very poor return in any given year
 - Volatility, standard deviation, market risk
- Long-term risk: The chance that we will not make our actuarial assumptions
 - The plan will run out of money
- Entity Risk: Unique political and demographic situation that a Plan Sponsor inhabits
 - Required rate of return, cash flow, funding status
- Liquidity Risk: Associated with having too many illiquid assets
 - We must maintain sufficient liquidity to meet all obligations
- Unknown Risk:
 - Not everything that can happen has happened, and what has not happened may escape imagination



Types of Investment Risk

Risks we are aware of:

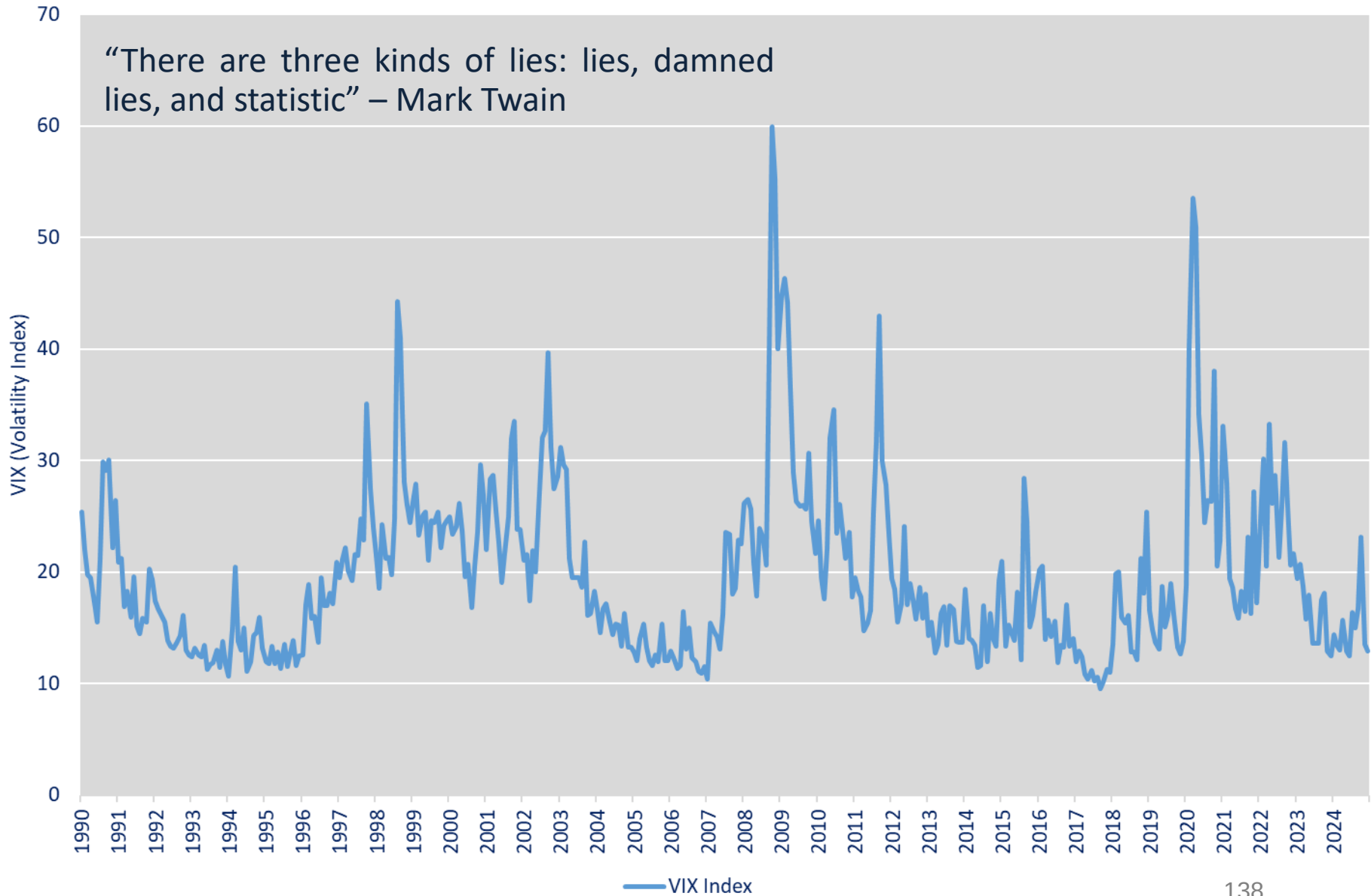
- Volatility (standard deviation)
 - Academic's (& Wall St.) choice for defining risk because this is measurable
 - BUT....Illusion of control
 - Falls short of the definition of investment risk
- Active management
- Credit/Interest rate
- Liquidity
- Leverage
- Concentration
- Valuation
- Currency
- Sovereign
- Counter party
- Other (Pandemic)



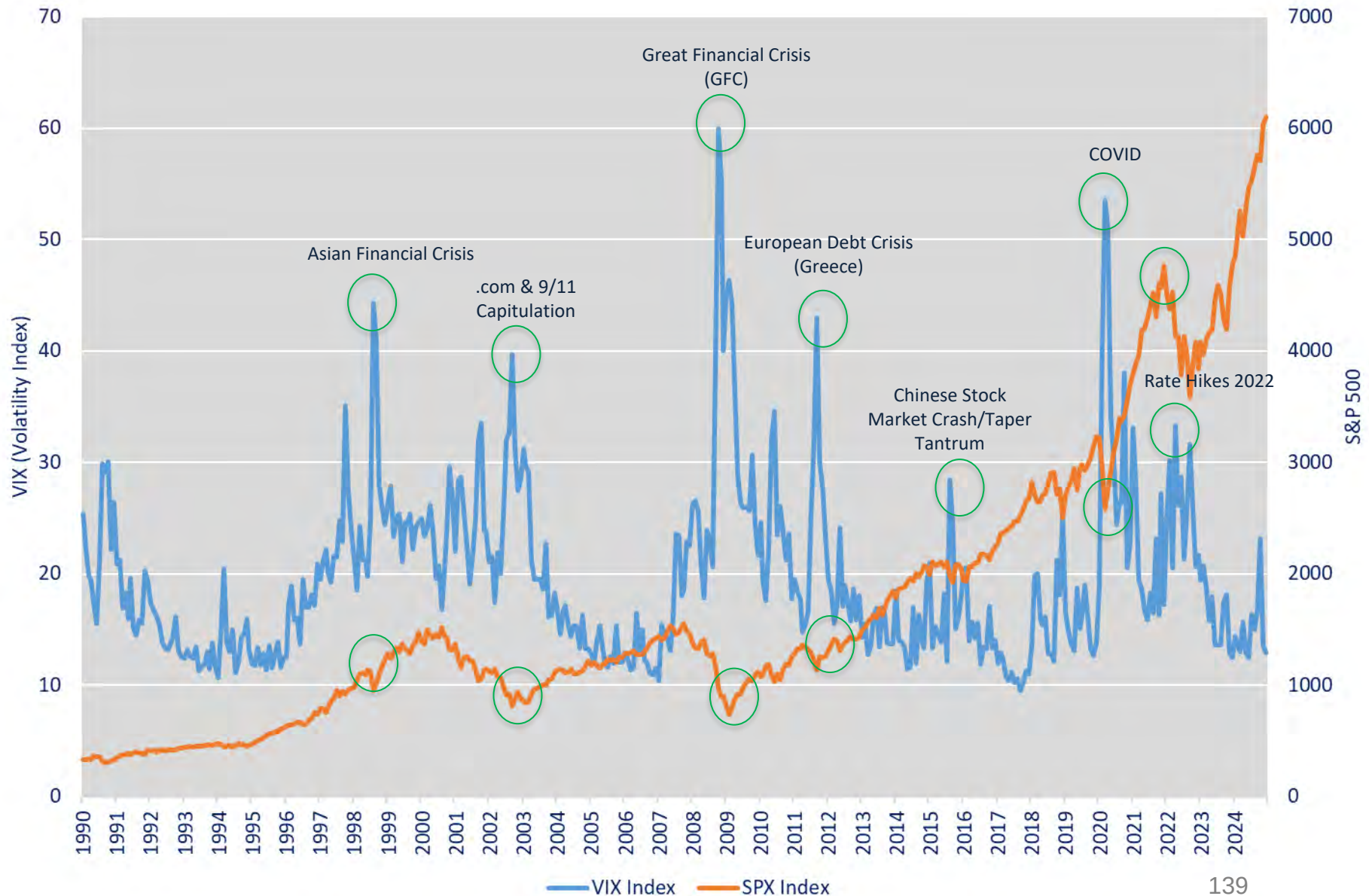
Risks we focus on:

- Not reaching our long-term return objectives
- Permanent loss of capital
 - Both are very different from volatility (or return fluctuation)
- Problem: These risks cannot be measured

Illusion of Control - Volatility Changes



Volatility vs. S&P 500



The Stock Market in a Nutshell

Known Known's	Known Unknown's (+)
Known Unknown's (-)	Unknown Unknown's

Learning from the Past

Most forms of risk cannot be measured

- The future is unknown
 - We don't know what will happen in the future, nobody does - but we can know something about the possible outcomes

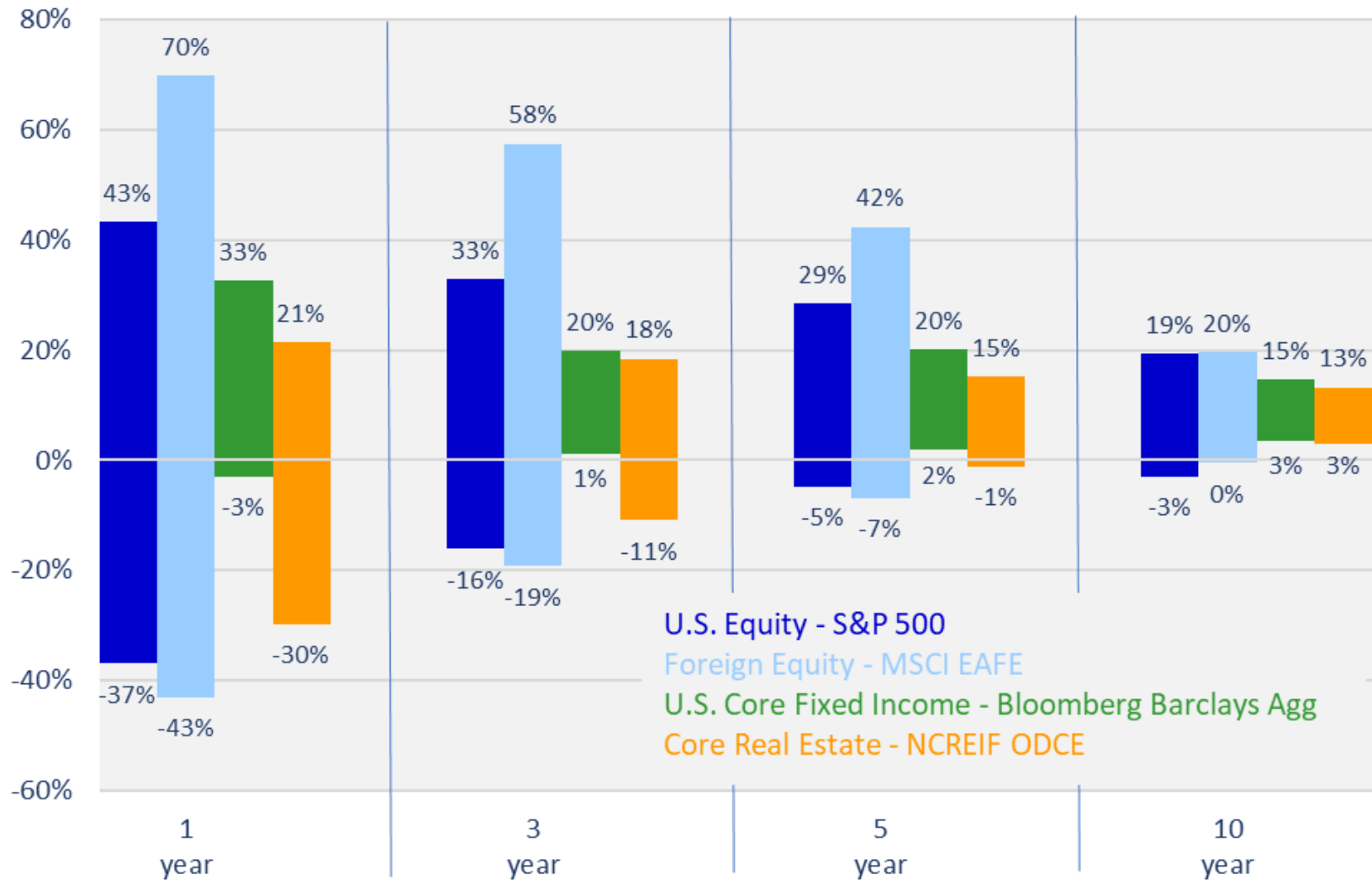
S&P 500: 1926-2024*

Time Frame	Positive	Negative
Daily	54%	46%
Monthly	61%	39%
Quarterly	69%	31%
1 Year	76%	24%
5 Years	92%	8%
10 Years	98%	2%
20 Years	100%	0%

	1 Year	5 Year	10 Year	15 Year	20 Year
Average	11.6%	10.3%	10.5%	10.7%	10.8%
Standard Deviation	19.6%	8.7%	5.9%	4.6%	3.5%
Maximum Return	52%	29%	21%	19%	18%
Minimum Return	-47%	-17%	-5%	-2%	1%



Time Diversification



- Returns since 1981. Rolling returns for 3-year, 5-year, 10-year

Water Balloon View of Risk/Reward

- Risk Free: 4% Return
 - Low risk (tough to pop), low return (not a big splash)
- Core Fixed Income: 5% Return
 - Slightly more risk, Slightly more return (usually)
- Large Cap Equity: 7-10% Return
 - More risk, more return
- Rarely can you eliminate risk for a given return
 - The water stays in the balloon, it just moves elsewhere



No Free Lunch Society

Risk/Return/Correlation Comparison

Risky Assets

Asset Class	Benchmark	20 Year*			2008	1Q20	First 3 Quarters 2022
		Return	Standard Deviation	Correlation			
Large Cap	Russell 1000	10.2%	16.2	1.00	-37.6%	-20.2%	-24.6%
Mid Cap	Russell Mid Cap	9.4%	18.6	0.97	-41.5%	-27.1%	-24.3%
Small Cap	Russell 2000	7.5%	20.8	0.92	-33.8%	-30.6%	-25.1%
International	MSCI EAFE	5.7%	18.1	0.88	-43.1%	-22.7%	-26.8%
Emerging Markets	MSCI EM	6.4%	21.4	0.78	-53.2%	-23.6%	-26.9%
High Yield	Bloomberg HY	6.5%	10.4	0.80	-26.2%	-12.7%	-16.2%
Private Credit	S&P Leveraged Loan	5.0%	9.3	0.71	-29.1%	-13.0%	-3.3%
Commodity	Bloomberg Commodity	-0.4%	18.3	0.47	-35.7%	-23.3%	13.6%
MLP	Alerian MLP	9.2%	26.7	0.63	-36.9%	-57.2%	18.9%
Private Equity	Cambridge PE	14.4%	9.3	0.78	-24.6%	-8.1%	-5.5%
Hedge Fund	HFRI Fund-of-Funds	5.2%	6.4	0.80	-21.4%	-8.8%	-6.9%
REIT	NAREIT	7.6%	21.9	0.75	-37.0%	-23.4%	-27.9%

Safety Assets

Asset Class	Benchmark	20 Year*			2008	1Q20	First 3 Quarters 2022
		Return	Standard Deviation	Correlation			
Core Fixed Income	Bloomberg Barclays Agg	3.2%	4.5	0.06	5.2%	3.2%	-14.6%
Core Real Estate	NCREIF ODCE	6.3%	7.4	0.02	-10.0%	1.0%	13.1%
Timber	NCREIF TIMBER	6.8%	4.5	-0.09	9.5%	0.1%	7.6%
Farmland	NCREIF Farmland	11.1%	6.5	0.02	15.0%	-0.1%	6.2%



Equity Correlations: 2005 – 2025

“Normal” Conditions

	Large Cap	Small Cap	Intl. Equity	Emerging Markets	High Yield	Commodity	Private Equity	Hedge Funds	REITS	Core Fixed Income	Core Real Estate	Timber	Farmland
Large Cap	1.00	0.92	0.88	0.78	0.80	0.71	0.78	0.80	0.75	0.06	0.02	-0.09	0.02
Small Cap	0.92	1.00	0.83	0.74	0.77	0.44	0.76	0.76	0.75	-0.01	0.01	-0.09	0.06
International Equity	0.88	0.83	1.00	0.90	0.80	0.53	0.71	0.83	0.69	0.14	-0.03	-0.02	0.06
Emerging Markets	0.78	0.74	0.90	1.00	0.82	0.58	0.70	0.84	0.59	0.15	-0.07	-0.04	0.06
High Yield	0.80	0.77	0.80	0.82	1.00	0.51	0.65	0.77	0.71	0.21	-0.22	-0.19	-0.07
Commodity	0.71	0.44	0.53	0.58	0.51	1.00	0.57	0.60	0.33	-0.24	0.21	-0.08	-0.08
Private Equity	0.78	0.76	0.71	0.70	0.65	0.57	1.00	0.79	0.61	-0.07	0.35	0.02	0.13
Hedge Funds	0.80	0.76	0.83	0.84	0.77	0.60	0.79	1.00	0.54	-0.12	0.07	0.00	0.05
REITS	0.75	0.75	0.69	0.59	0.71	0.33	0.61	0.54	1.00	0.26	0.14	-0.10	0.00
Core Fixed Income	0.06	-0.01	0.14	0.15	0.21	-0.24	-0.07	-0.12	0.26	1.00	-0.24	-0.02	0.00
Core Real Estate	0.02	0.01	-0.03	-0.07	-0.22	0.21	0.35	0.07	0.14	-0.24	1.00	0.19	0.16
Timber	-0.09	-0.09	-0.02	-0.04	-0.19	-0.08	0.02	0.00	-0.10	-0.02	0.19	1.00	0.71
Farmland	0.02	0.06	0.06	0.06	-0.07	-0.08	0.13	0.05	0.00	0.00	0.16	0.71	1.00

Markets move similarly, but diversification still reduces risk

Equity Correlations: Jan 2020 - Sep 2020

Great COVID Crises (GCC)

	Large Cap	Small Cap	Intl. Equity	Emerging Markets	High Yield	Commodity	Private Equity	Hedge Funds	REITS	Core Fixed Income	Core Real Estate	Timber	Farmland
Large Cap	1.00	1.00	1.00	1.00	1.00	0.93	0.94	0.99	1.00	-0.32	-0.84	-0.63	-0.03
Small Cap	1.00	1.00	0.99	0.98	0.99	0.89	0.91	0.98	1.00	-0.24	-0.88	-0.56	-0.03
International Equity	1.00	0.99	1.00	1.00	1.00	0.93	0.95	0.99	1.00	-0.41	-0.83	-0.65	0.00
Emerging Markets	1.00	0.98	1.00	1.00	1.00	0.95	0.97	1.00	0.99	-0.41	-0.79	-0.70	0.13
High Yield	1.00	0.99	1.00	1.00	1.00	0.94	0.95	1.00	1.00	-0.37	-0.81	-0.67	-0.01
Commodity	0.93	0.89	0.95	0.95	0.94	1.00	1.00	0.96	0.90	-0.67	-0.56	-0.88	0.23
Private Equity	0.94	0.91	0.97	0.97	0.95	1.00	1.00	0.98	0.92	-0.63	-0.60	-0.86	0.10
Hedge Funds	0.99	0.98	1.00	1.00	1.00	0.96	0.98	1.00	0.99	-0.44	-0.76	-0.72	0.05
REITS	1.00	1.00	0.99	0.99	1.00	0.90	0.92	0.99	1.00	-0.28	-0.85	-0.59	0.01
Core Fixed Income	-0.32	-0.24	-0.41	-0.41	-0.37	-0.67	-0.63	-0.44	-0.28	1.00	-0.24	0.94	-0.32
Core Real Estate	-0.84	-0.88	-0.83	-0.79	-0.81	-0.56	-0.60	-0.76	-0.85	-0.24	1.00	0.10	0.24
Timber	-0.63	-0.56	-0.65	-0.70	-0.67	-0.88	-0.86	-0.72	-0.59	0.94	0.10	1.00	0.33
Farmland	-0.03	-0.03	0.00	0.13	-0.01	0.23	0.10	0.05	0.01	-0.32	0.24	0.33	1.00

Correlations Converge

Trade-Offs

Large Cap to Small Cap

Asset Class	Benchmark	20 Year*			2008	1Q20	First 3 Quarters 2022
		Return	Standard Deviation	Correlation			
Large Cap	Russell 1000	10.2%	16.2	1.00	-37.6%	-20.2%	-24.6%
Small Cap	Russell 2000	7.5%	20.8	0.92	-33.8%	-30.6%	-25.1%

Portfolio Impact (Assets stay in Risk Bucket)

- Risk
 - Increased Risk: Volatility (expect higher highs and lower lows)
 - Decreased Risk: None
- Return
 - Increase long-term return expectations

Trade-Offs

Equity to Core Fixed Income

Asset Class	Benchmark	20 Year*			2008	1Q20	First 3 Quarters 2022
		Return	Standard Deviation	Correlation			
Large Cap	Russell 1000	10.2%	16.2	1.00	-37.6%	-20.2%	-24.6%
Mid Cap	Russell Mid Cap	9.4%	18.6	0.97	-41.5%	-27.1%	-24.3%
Small Cap	Russell 2000	7.5%	20.8	0.92	-33.8%	-30.6%	-25.1%
International	MSCI EAFE	5.7%	18.1	0.88	-43.1%	-22.7%	-26.8%
Emerging Markets	MSCI EM	0.153%	21.35	0.79	-15.31%	-17.25%	-17.69%
Core Fixed Income	Bloomberg Barclays Agg	3.2%	4.5	0.06	5.2%	3.2%	-14.6%

Portfolio Impact (Assets move from Risk to Safety Bucket)

- Risk
 - Increased risk: Interest rate (measured by duration), inflation
 - Decreased risk: volatility, economic sensitivity
- Return
 - Decrease long-term return expectations

Trade-Offs

Core Fixed Income to High Yield / Private Credit

Asset Class	Benchmark	20 Year*			2008	1Q20	First 3 Quarters 2022
		Return	Standard Deviation	Correlation			
Core Fixed Income	Bloomberg Barclays Agg	3.2%	4.5	0.06	5.2%	3.2%	-14.6%
High Yield	Bloomberg HY	6.5%	10.4	0.80	-26.2%	-12.7%	-16.2%
Private Credit	S&P Leveraged Loan	5.0%	9.3	0.71	-29.1%	-13.0%	-3.3%

Portfolio Impact (Assets move from Safety to Risk Bucket)

- Risk
 - Increased risk: volatility, economic sensitivity, interest rate (depending on strategy), illiquidity & leverage (private credit)
 - Decreased risk: interest rate (floating rate funds)
- Return
 - Increase long-term return expectations

Trade-Offs

Core Fixed Income to Core Real Estate

Asset Class	Benchmark	20 Year*			2008	1Q20	First 3 Quarters 2022
		Return	Standard Deviation	Correlation			
Core Fixed Income	Bloomberg Barclays Agg	3.2%	4.5	0.06	5.2%	3.2%	-14.6%
Core Real Estate	NCREIF ODCE	6.3%	7.4	0.02	-10.0%	1.0%	13.1%

Portfolio Impact (Assets remain in Safety Bucket)

- Risk
 - Increased risk: volatility, economic, illiquidity, leverage
 - Decreased risk: interest rate, and inflation
- Return
 - Increase long-term return expectations

Key Takeaways

- Academic theory and fiduciary responsibility require portfolio diversity
 - Spreads out risk, doesn't eliminate it
- Risk takes many forms and, as a rule of thumb, the higher the return, the greater the amount of risk
- Remember the water balloons
 - Core fixed income should return low single digits (2-4%) – **Risk:** Low Return, Inflation, rising interest rates
 - Large cap core equity should return high single digits (7-10%) – **Risk:** Volatility
 - Any “target” or “expected returns” higher than these goal posts (core fixed income/large cap equity) will be adding more risk....somewhere
- Avoid permanent loss of capital
 - How did the strategy do in 1Q20 and 2008?

Key Takeaways

“It’s not necessary to do extraordinary things to get extraordinary results”
– Warren Buffett

Trends in Real Estate

Sabrina Unger
American Realty Advisors

Sabrina Unger, Managing Director, is the Head of Research & Strategy at American Realty Advisors and is responsible for leading the firm's research initiatives and working closely with the firm's Investment and Portfolio Management teams in developing investment analysis in support of new acquisitions and strategy implementation. Ms. Unger is also a member of the firm's Investment Committee. Prior to joining ARA, Ms. Unger was a member of the Global Research team at Invesco Real Estate, charged with developing global portfolio strategies as well as authoring numerous thought leadership papers and contributing to the firm's House View. Before that, she held positions as a member of the research team at Clarion Partners and as a top strategist for a sports entertainment company's real estate divisions. She has been published in leading industry publications, including Real Assets Adviser, and the research publications of ANREV (Asian Association for Investors in Non-Listed Real Estate Vehicles), NCREIF (National Council of Real Estate Investment Fiduciaries) and AFIRE (The Association of Foreign Investors in Real Estate). She served on the NAIOP Editorial Board for the 2016 – 2019 publication seasons, and currently serves as a member of the inaugural editorial board for Summit Journal, the official publication of AFIRE. Ms. Unger is on the Urban Land Institute Industrial and Office Product Council (IOPC) Black and is the incoming chair of the ULI Real Estate Research Forum. Ms. Unger was named a 2022 Woman of Influence by GlobeSt Real Estate Forum in the Investment Professional category. In addition to a bachelor's degree from Southern Illinois University Carbondale and a master's degree from DePaul University, she has completed certificate coursework at both New York University and the London School of Economics.



Real Estate: Adjusting Your Sails for Today's Tides

Sabrina Unger

Managing Director,
Head of Research and Strategy
American Realty Advisors



How can pension plans get more

 **income**

to grow the pool to pay

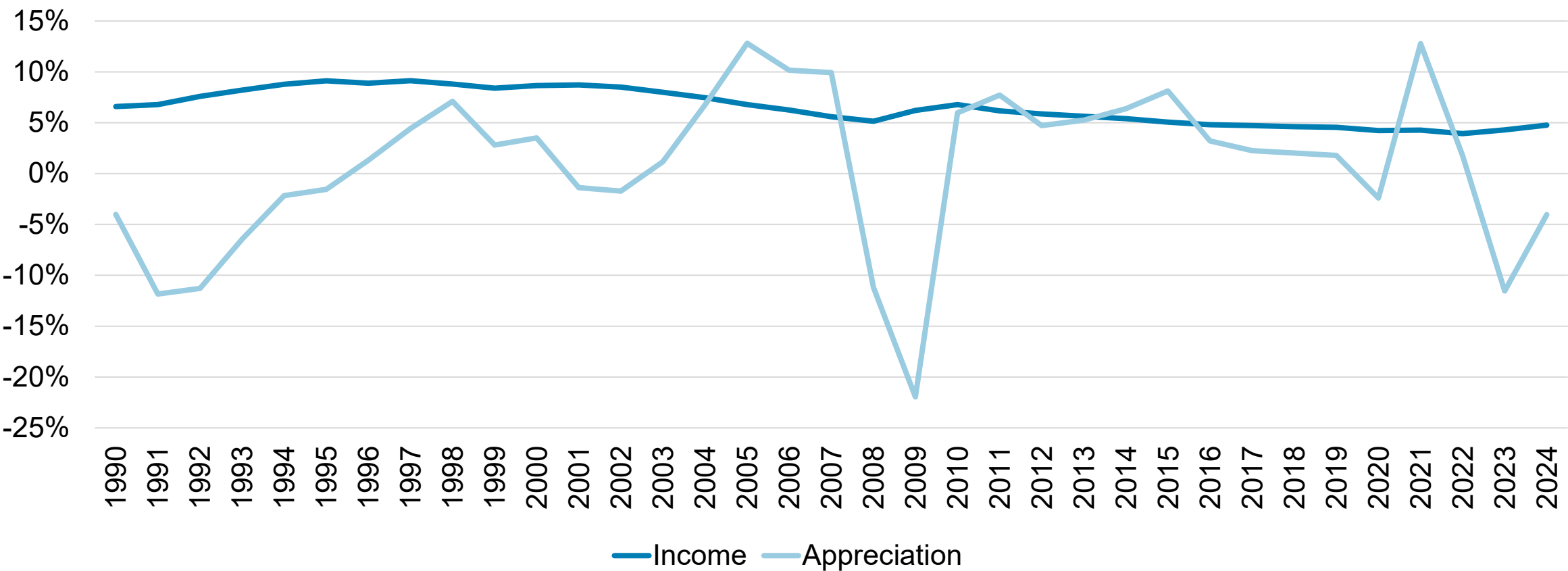
 **benefits & expenses?**

Real Estate in the Context of the Pension Formula

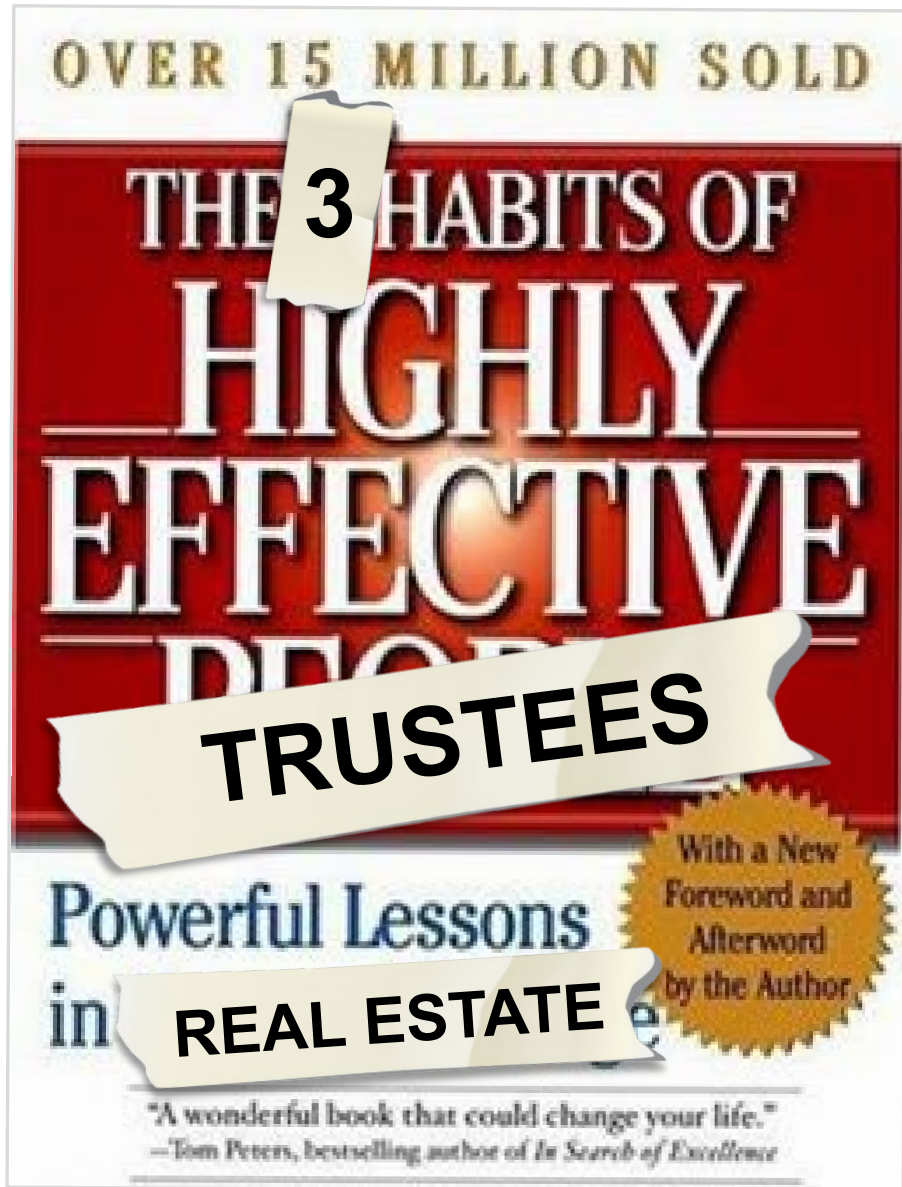
$$\text{Contributions} + \boxed{\text{Income}} = \text{Benefits and Expenses}$$

Real Estate: Bond-Like Income Resiliency With Equity-Like Appreciation Upside...

Income and Appreciation of Private Real Estate, 1990 - 2024



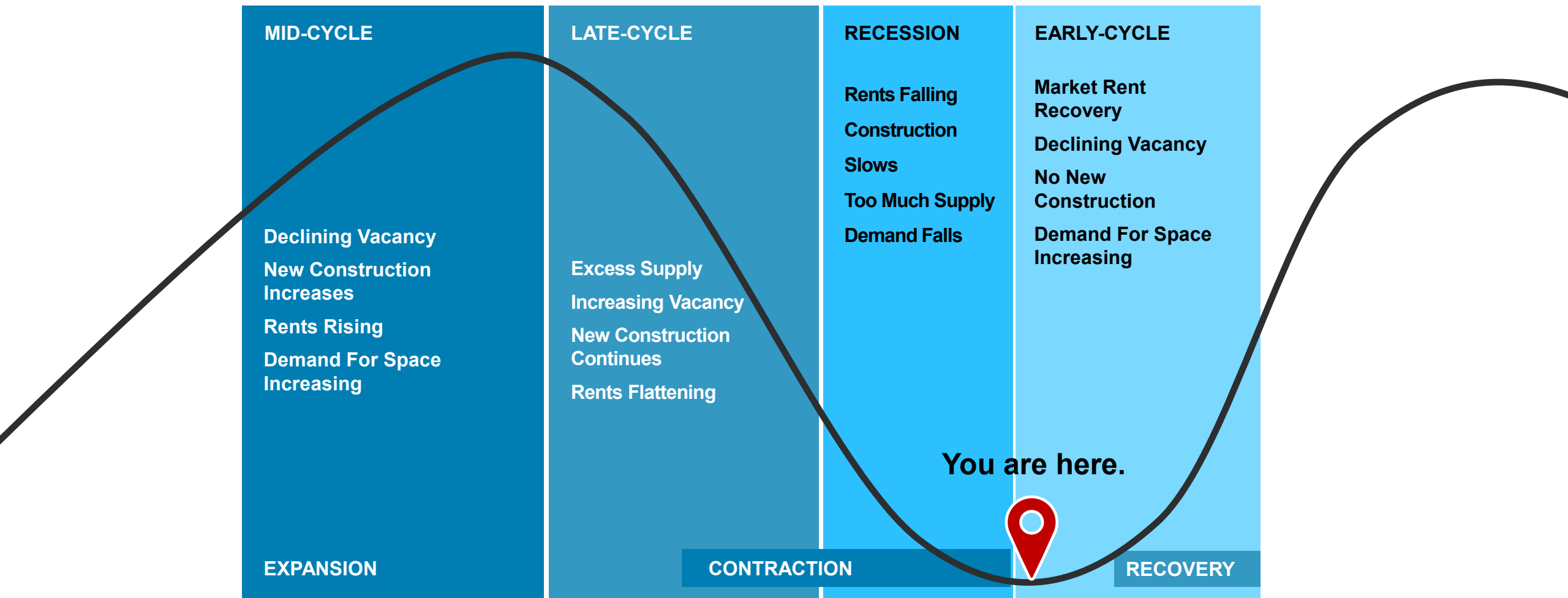
Source: American Realty Advisors based on data from NCREIF as of August 2025. Data reflects property-level returns, gross of any fees. Past performance is not a guarantee of future results. Please also see disclosures at the end of this presentation.



Three tips to make you more effective at managing your plan's real estate.

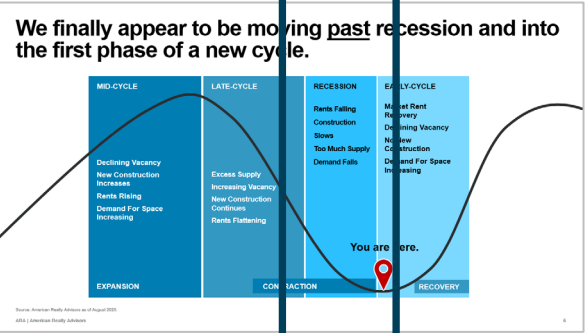
1. Understanding cycles, and where we are in them;
2. The factors that have driven recent performance; and
3. What investors should be focused on for the cycle ahead.

We finally appear to be moving past recession and into the first phase of a new cycle.



Source: American Realty Advisors as of August 2025.

To get here, we went through a period of softening fundamentals...

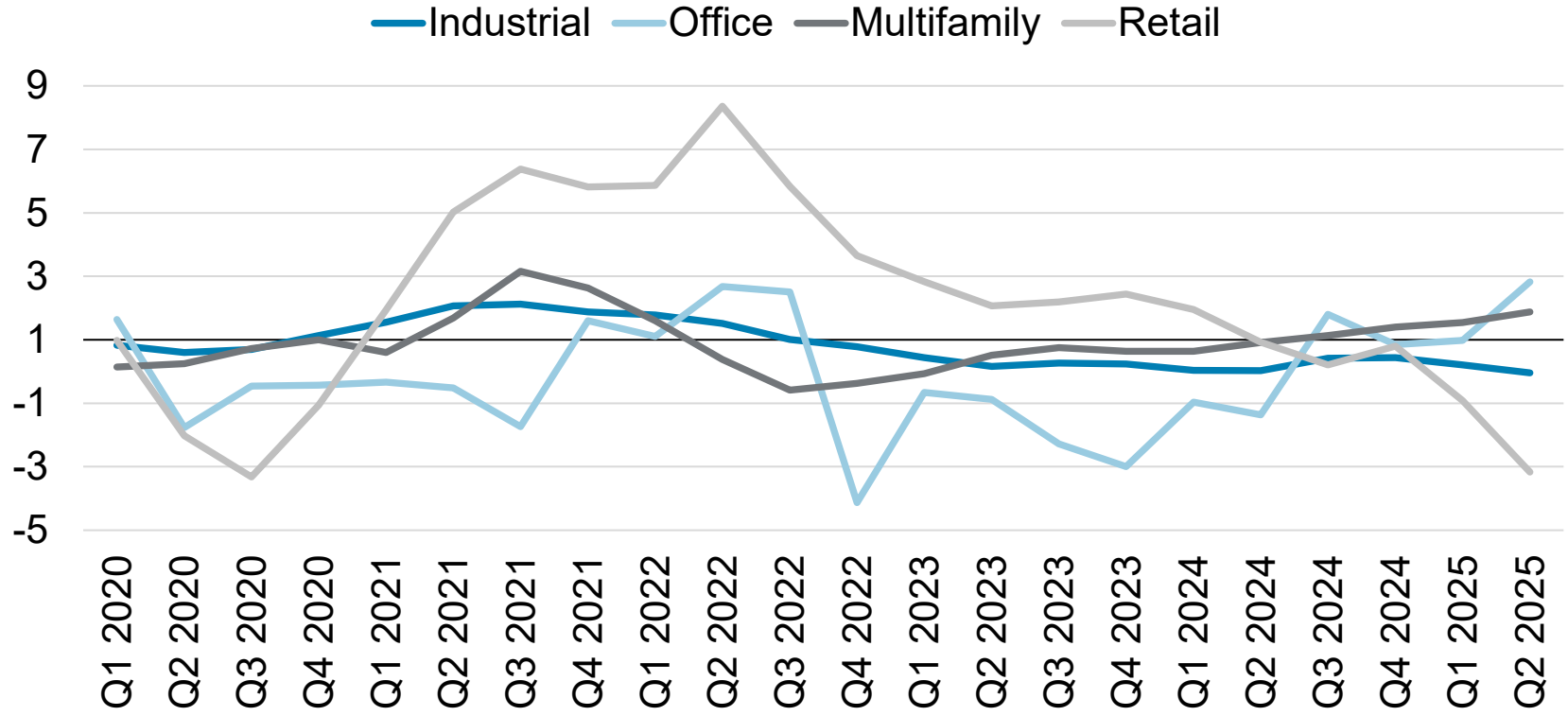


RECESSION

Rents Falling
Construction Slows
Too Much Supply
Demand Falls

CONTRACTION

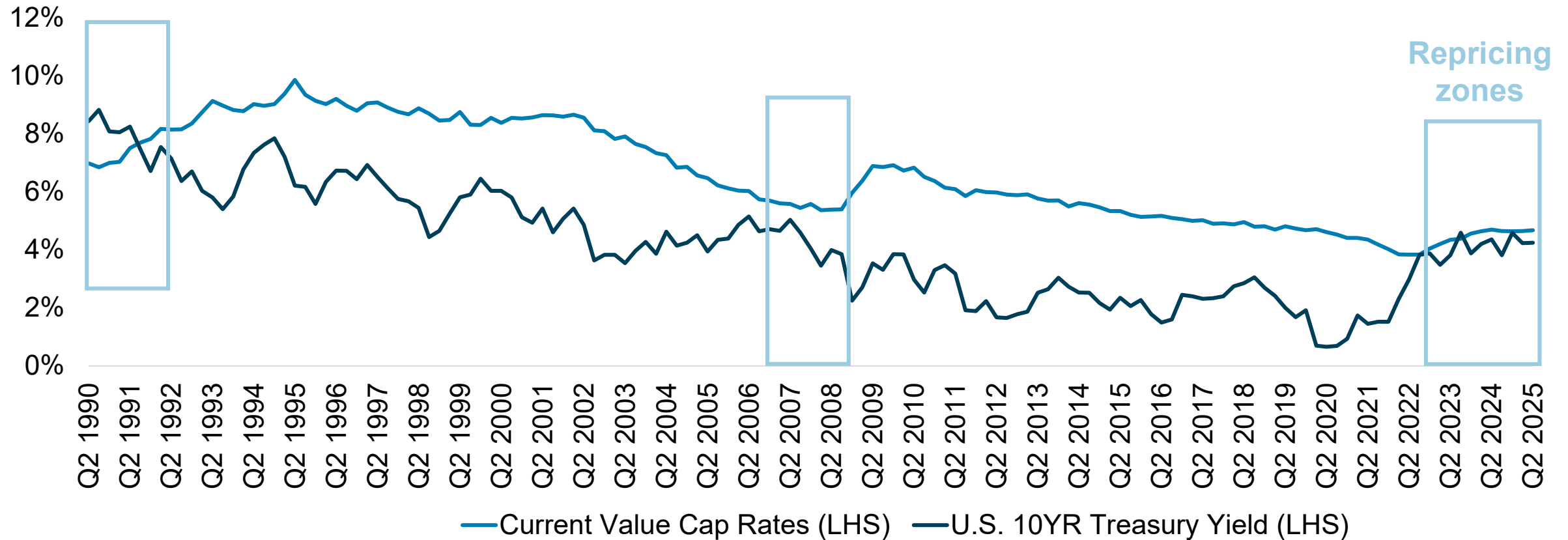
Rolling 6-Month Supply-Demand Ratio, Four Primary Property Types



Source: American Realty Advisors based on data from CBRE-EA as of August 2025.

...and a repricing of real estate to maintain appropriate risk spreads given higher interest rates.

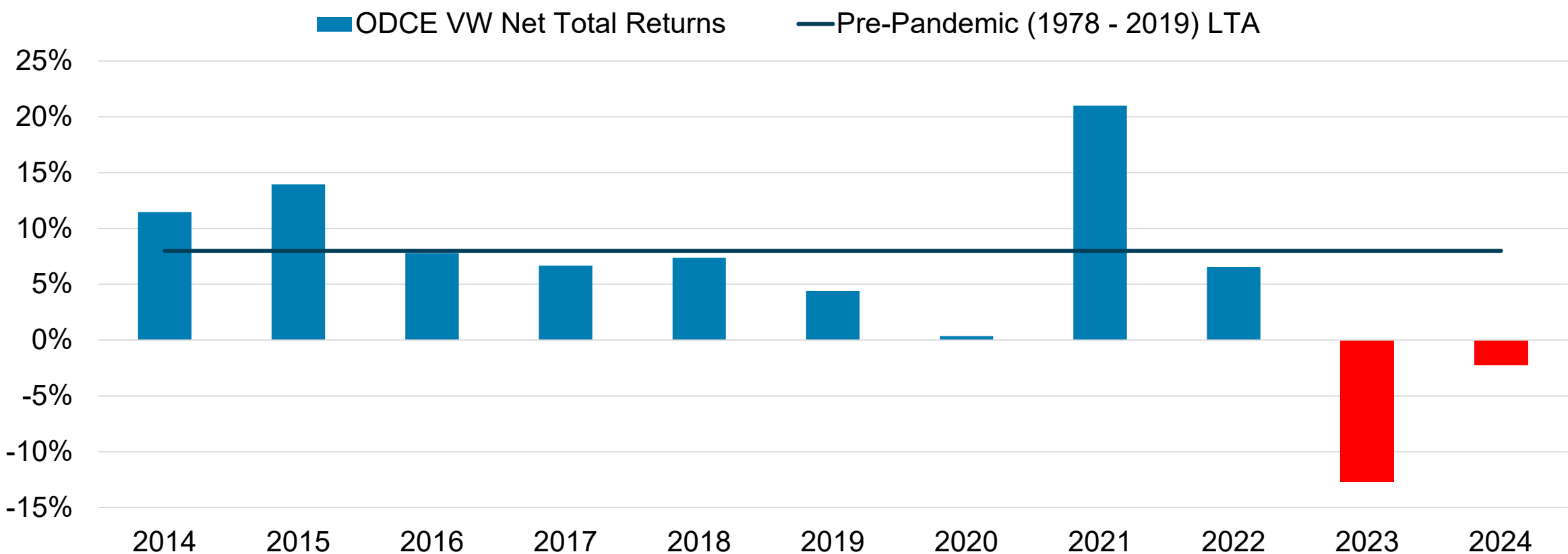
Real Estate Cap Rates, U.S. 10-Year Treasury Yield and Appreciation



Note: Cap rates reflect current value cap rates according to the NCREIF Property Index (NPI).
Source: American Realty Advisors based on data from NCREIF and Macrobond as of August 2025.

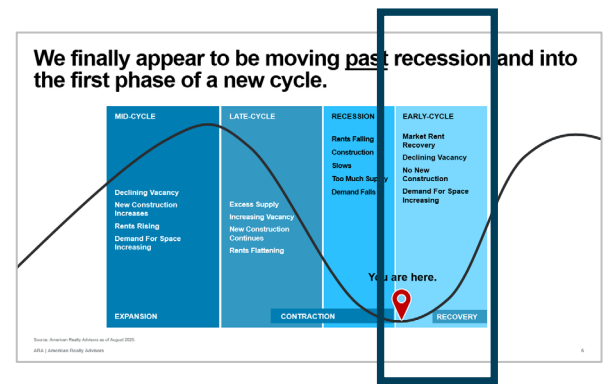
Weaker fundamentals + repricing = below-average performance.

NCREIF Open-End Diversified Core Fund Total Returns, 2014 – 2024 vs. Pre-Pandemic LTA



Source: American Realty Advisors based on data from NCREIF as of August 2025.

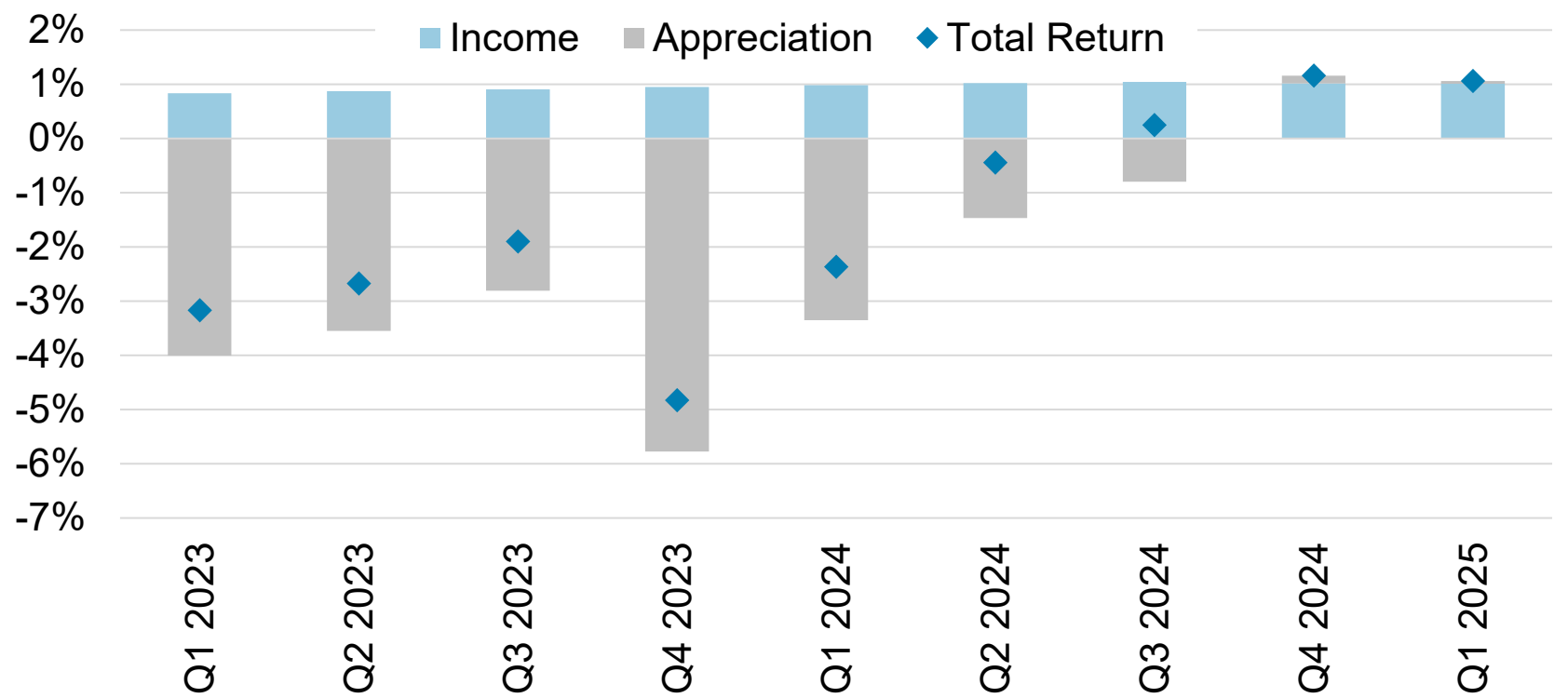
But now it looks like we have moved through the bottom (a good thing for pension plans' income needs!).



EARLY-CYCLE
Market Rent Recovery
Declining Vacancy
No New Construction
Demand For Space Increasing

RECOVERY

NCREIF Open-End Diversified Core Fund Income, Appreciation, and Total Returns



Source: American Realty Advisors as of August 2025.

What Is income and appreciation, really?



Imagine you buy a house as an investment...

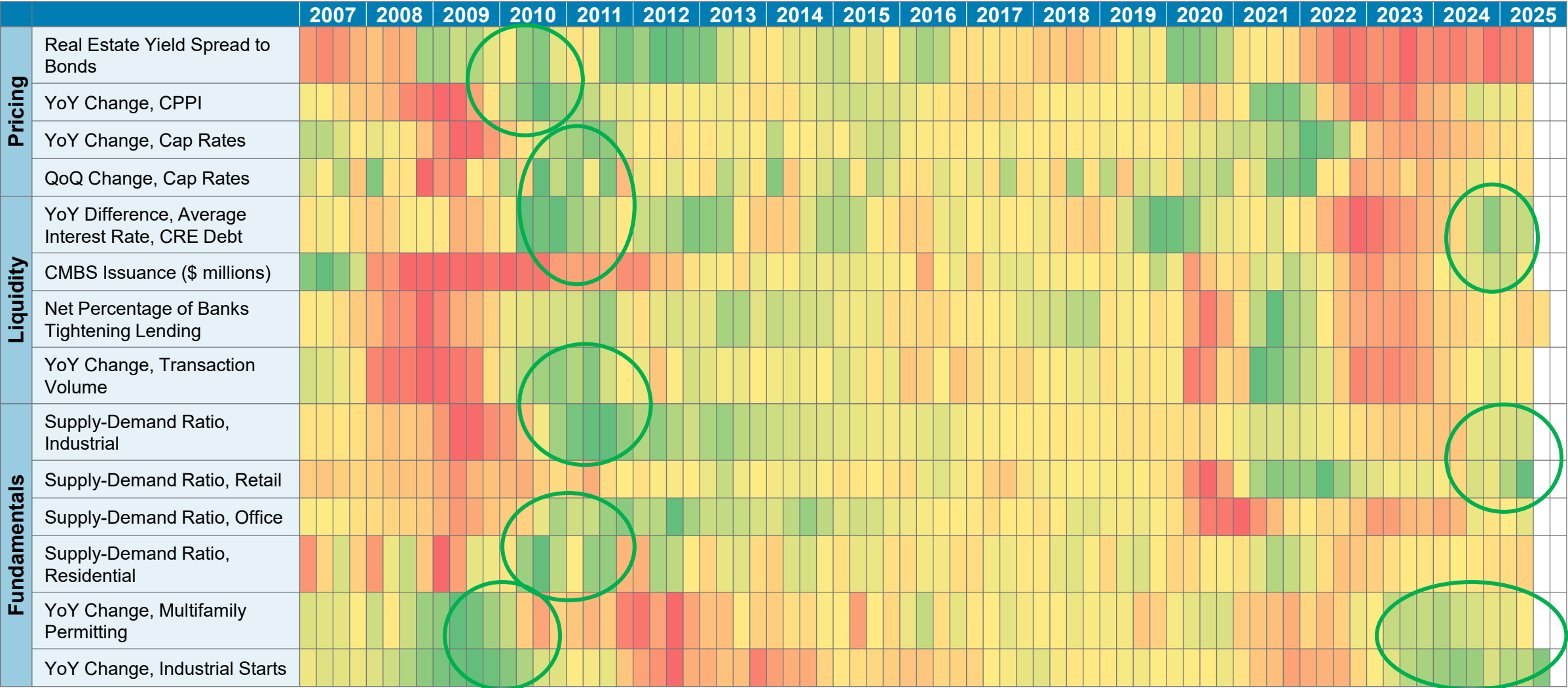
You rent it out to a young family. They pay you \$2,800 a month. This fixed, predictable return is your **income return**.

You keep the house for 3 years. Homes around yours are selling for way more than what you purchased for. Someone knocks on your door and wants to buy it because they believe they can achieve even higher rents in the future. The value adjustment based on competitive properties + a view of future rental income is your **appreciation return**.

Income = derived from rents paid by tenants.

Appreciation = based on value of property.

History may not repeat itself, but it often rhymes.



Source: American Realty Advisors based on data from Macrobond, MSCI Real Capital Analytics, NCREIF, Green Street Advisors, FRED St. Louis, CBRE-EA, and CoStar as of August 2024.

What can history tell us about what did well post-GFC?

NCREIF Property Index Total Returns by Sector, 2008 – 2012

2008	2009	2010	2011	2012
-4.1	-10.9	18.2	15.5	11.6
-5.8	-17.5	12.6	14.6	11.2
-7.3	-17.9	11.7	13.8	10.7
-7.3	-19.1	9.4	13.8	9.5

Office Retail
Multifamily Industrial

Multifamily recovered nicely.

Retail did well.

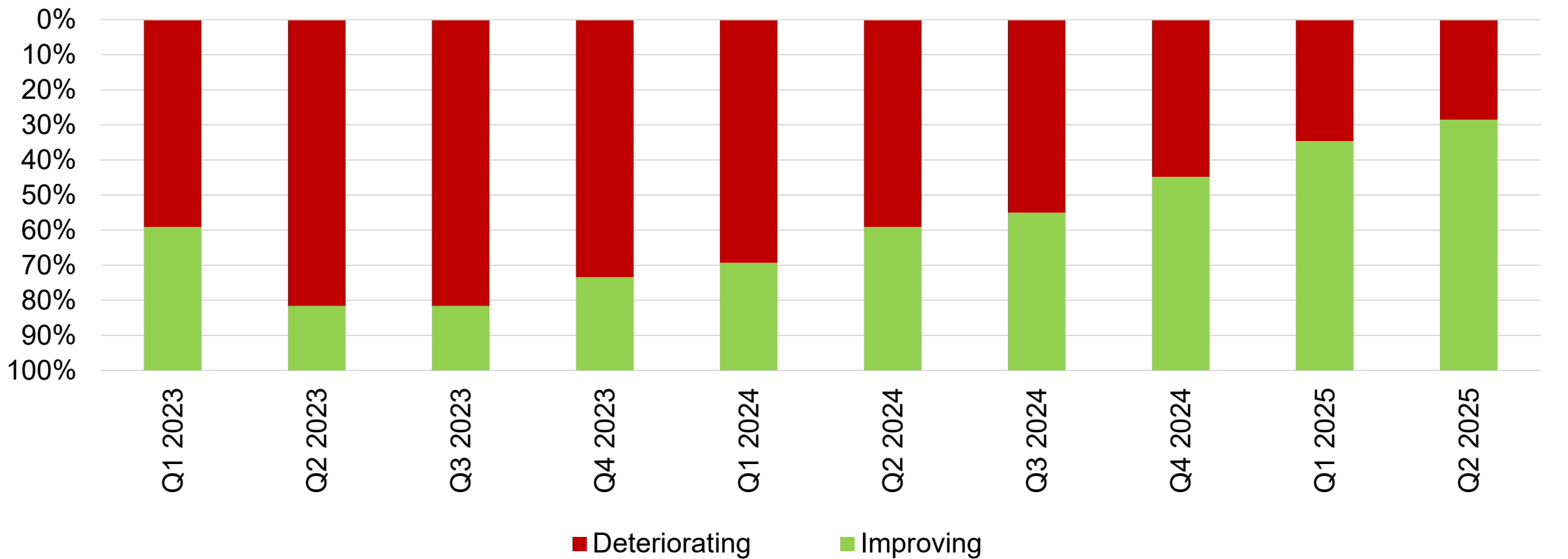
Industrial took some time.

Office lagged (even then).

Source: American Realty Advisors based on data from NCREIF as of August 2025.

Growing share of multifamily markets are improving.

Share of Multifamily Markets that have Rents and Occupancy Improving or Deteriorating Year over Year



Source: American Realty Advisors based on data from CoStar as of August 2025.

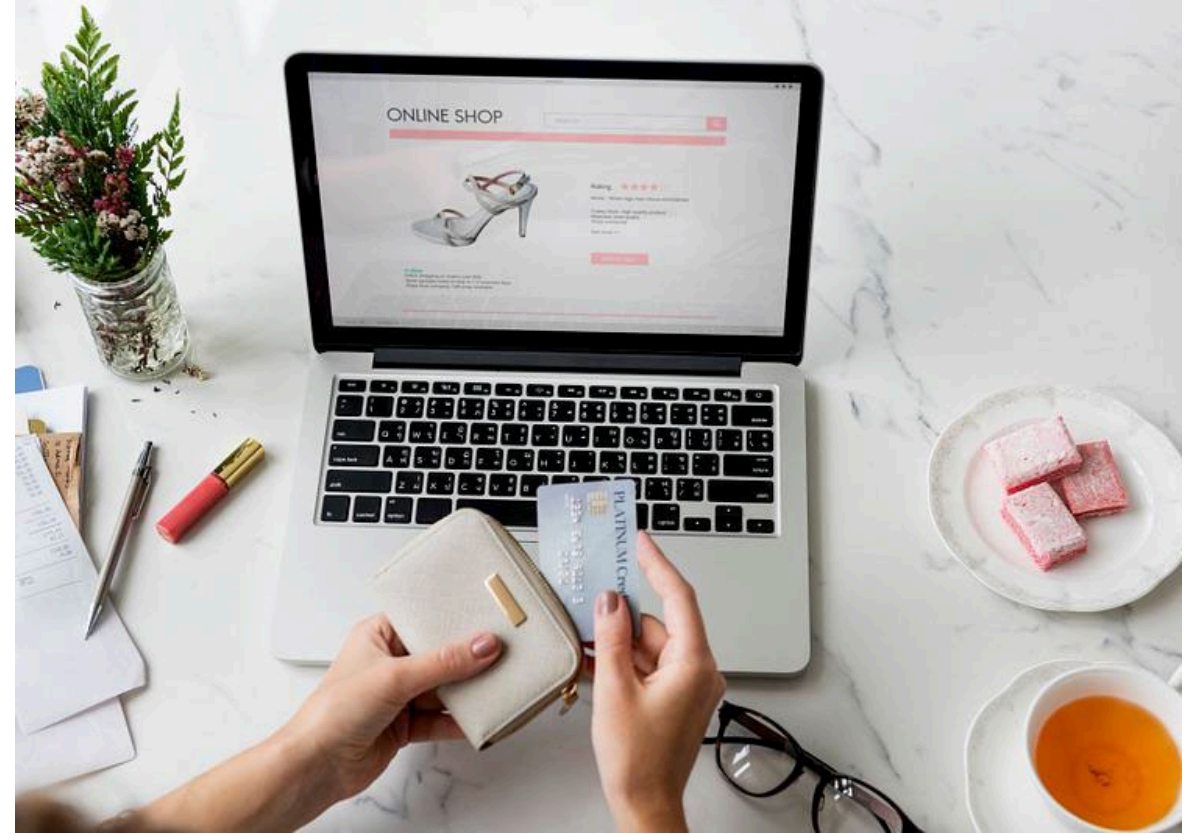
It would take A LOT to make ownership affordable (discouraging truth but keeps people renting longer).

Illustrative Example: Effect of Price or Interest Rate Decline on Home Affordability

	Current Home Affordability	If Home Prices Dropped 15%	If Interest Rates Declined 50 bps	If Home Prices Dropped 15% <u>AND</u> Rates Declined 50 bps	If Home Prices Dropped 47% <u>AND</u> Rates Declined 125 bps
Median sale price, nationwide:	\$440,997	\$374,848	\$440,997	\$374,848	\$233,728
30-year mortgage interest rate:	6.77%	6.77%	6.27%	6.27%	5.52
Median household income:	\$79,409	\$79,409	\$79,409	\$79,409	\$79,409
Monthly cost of ownership:	\$3,591	\$3,145	\$3,454	\$3,029	\$2,017
Mortgage payment share of median income:	54.3%	47.5%	52.2%	45.8%	30%

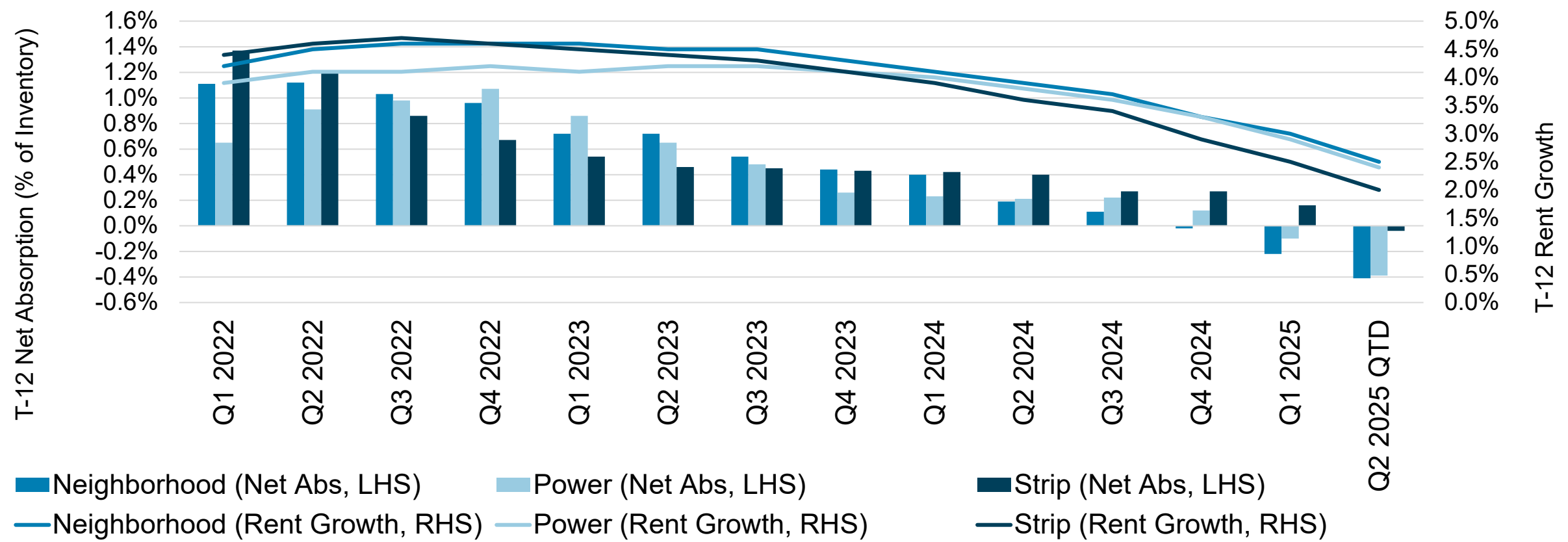
Source: American Realty Advisors based on data from Redfin and the Federal Reserve Bank of Atlanta's Home Ownership Affordability Monitor as of June 2025. "Affordable" means housing costs represent 30% of median household income or less. Current mortgage rate is as of June 23rd, 2025. Current median sale price is as of May 2025. Ownership costs include assumptions on property insurance and tax and PMI as of March 2025 from the Federal Reserve Bank of Atlanta. Math assumes a 6% down payment, typical of a first-time buyer.

The way consumers spend today is sufficiently different than back in 2008-2009...



...which may mean retail's relative performance this time around could be softer.

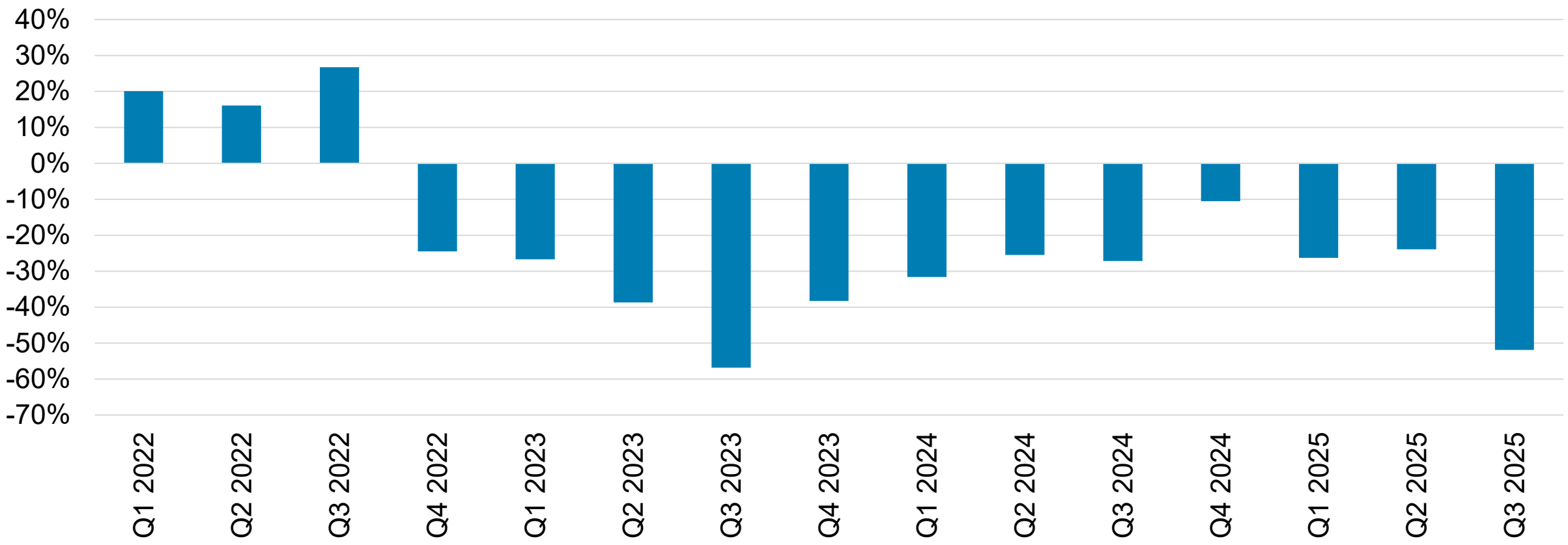
Trailing 12-Month Rent Growth and Net Absorption as % of Inventory by Center Type



Source: American Realty Advisors based on data from CoStar as of June 2025. Q2 2025 QTD = Quarter to date as of May 25, 2025.

Industrial starts are still declining on an annualized basis...

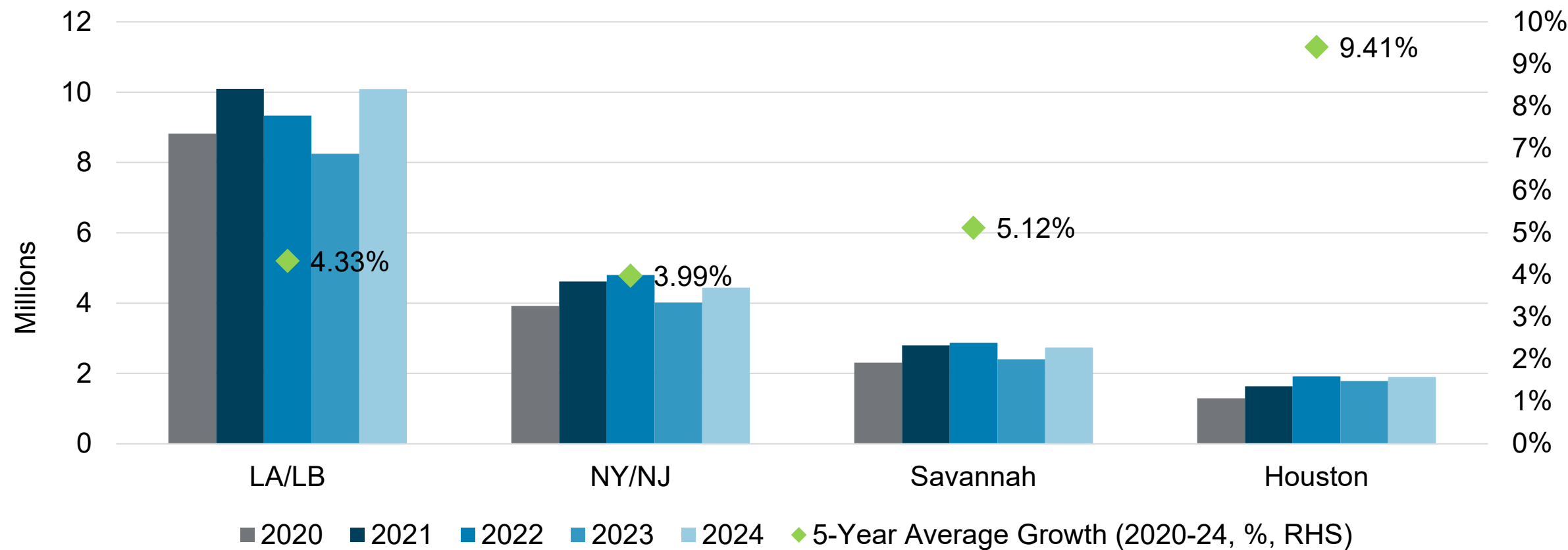
Year-Over-Year Change, Industrial Construction Starts



Source: American Realty Advisors based on data from CoStar as of August 2025. Q3 2025 is as of July 1, 2025

...though shifts in trading patterns could widen opportunities across the country.

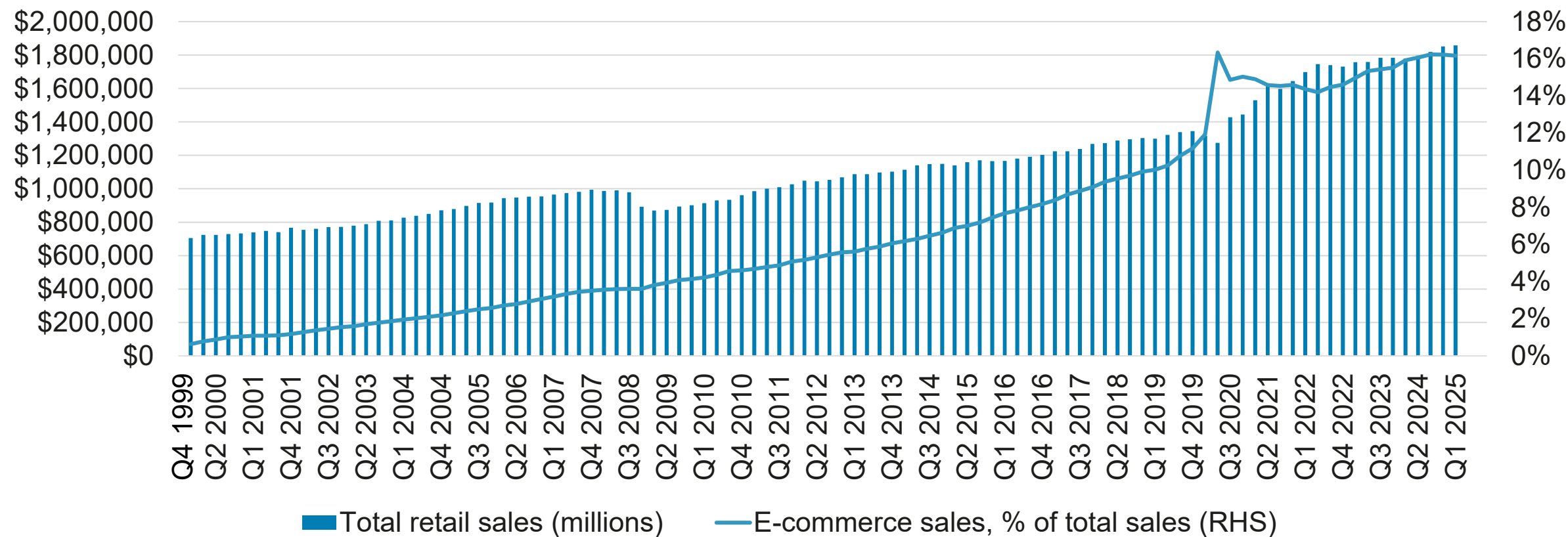
Loaded Import TEUs Moved in Major Ports, 2020 – Present



Source: American Realty Advisors based on data from the U.S. Department of Transportation, Bureau of Labor Statistics as of August 1, 2025.

Industrial may also behave differently this time around given e-commerce is a much bigger driver.

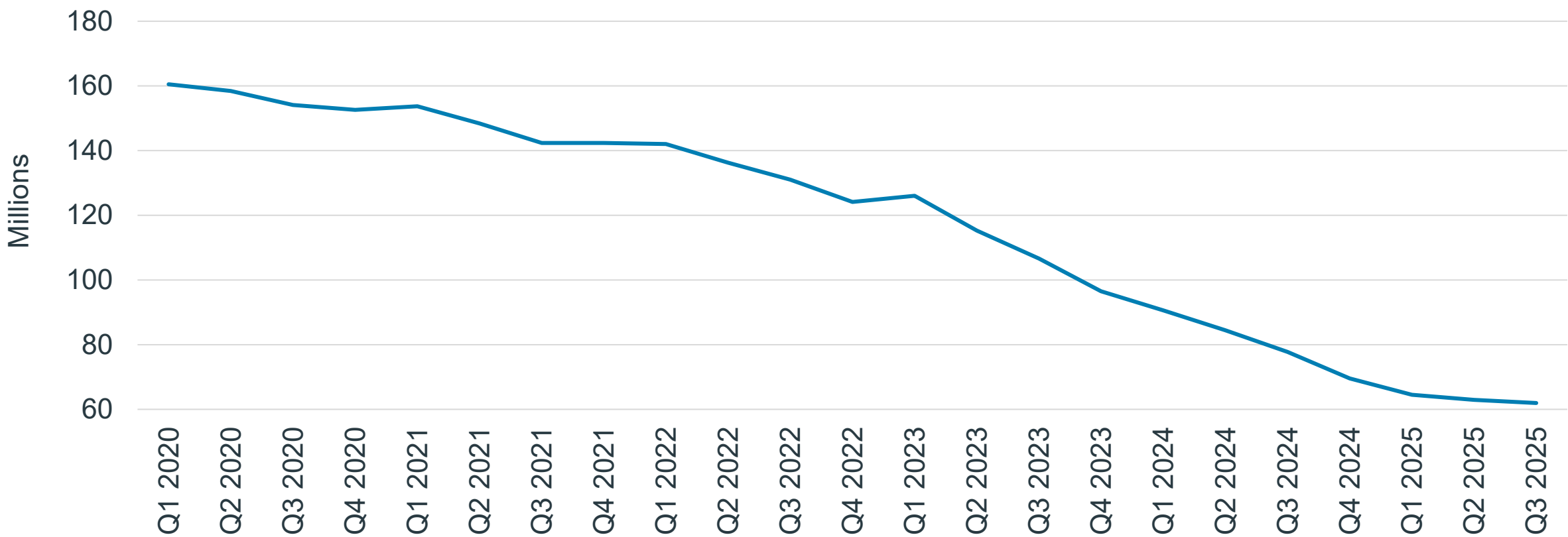
E-Commerce, Total and % of Overall Retail Sales



Source: American Realty Advisors based on data from the Federal Reserve Bank of St. Louis (FRED) and Macrobond as of August 2025.

Office construction has fallen off rapidly post-pandemic...

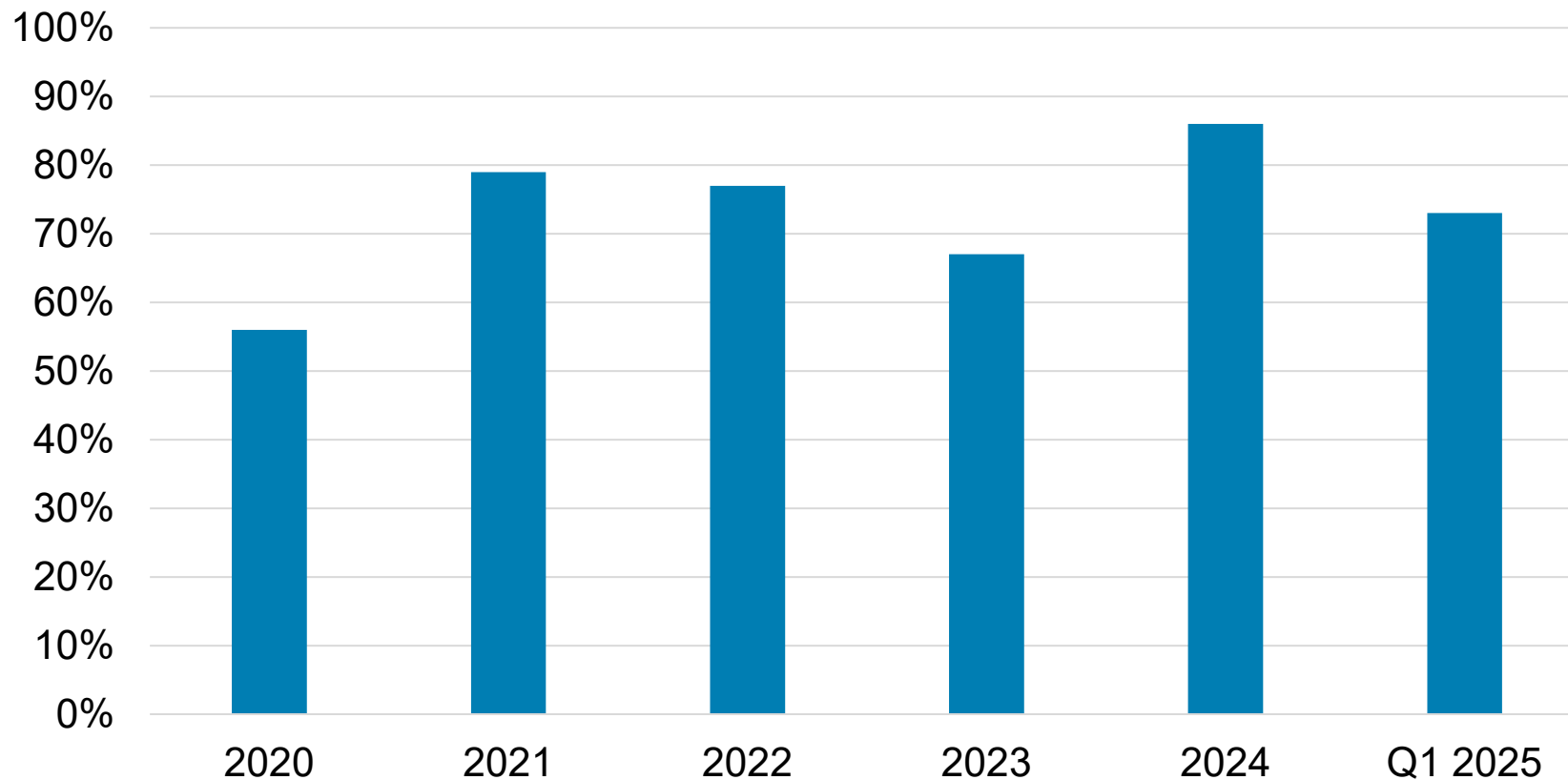
Office Square Footage Under Construction



Source: American Realty Advisors based on data from CoStar as of August 2025. Q3 2025 is as of July 1, 2025.

...though aggregate demand has also likely stabilized at lower levels with hybrid work schedules.

Office REIT Leasing Volume, % of Comparable 2019 Levels



Leasing volumes for some of the largest office REITs have averaged **~30% below 2019 baselines** in the post-pandemic period.

Property Sector Outlook Cheat Sheet



Industrial

- Tariffs may shift where goods get imported from, which may change market desirability, but also create net new demand from reshoring initiatives.



Residential

- Steep ownership costs are likely to keep more households in rentals longer.



Office

- Hybrid work and slower GDP growth continue to keep overall demand muted.



Retail

- Momentum in retail fundamentals appears to be moderating amidst ongoing strains on consumer wallets and long-term e-commerce trends.

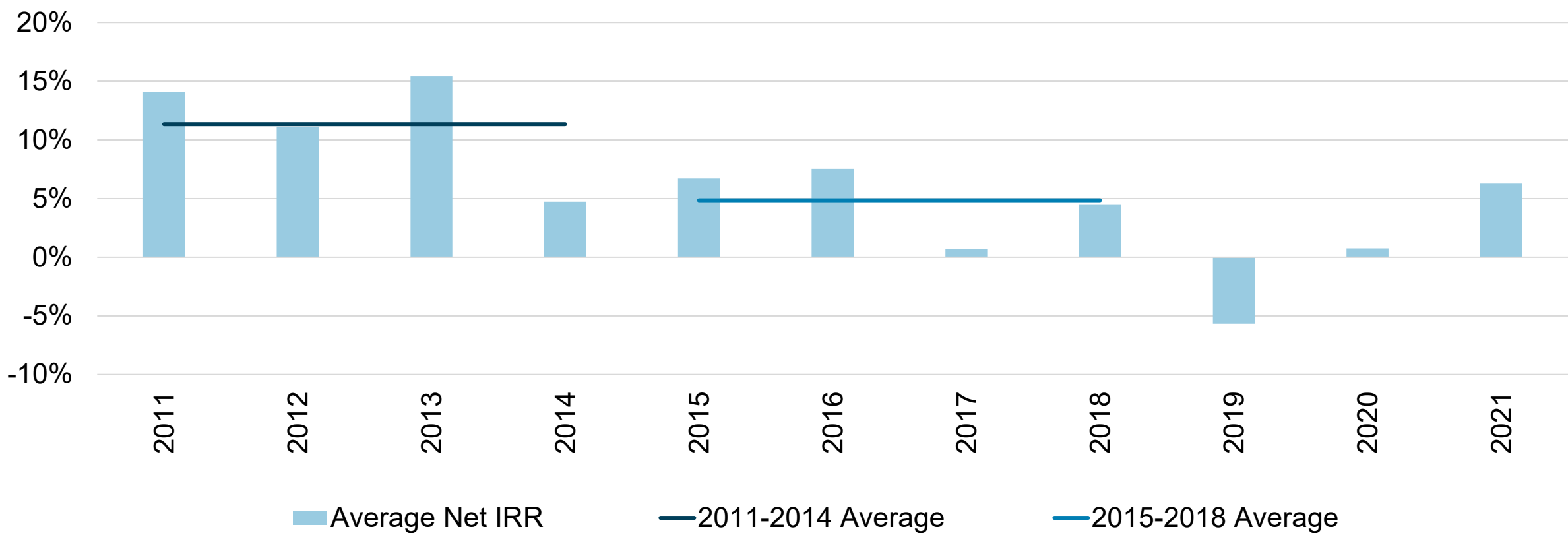


Specialty Sectors

- Despite headline oversupply in some self-storage markets, select metros offer room for value-add investment where modern stock remains scarce.
- Institutional participation in senior housing continues to decline, with operational intensity and high fixed costs acting as a growing barrier to capital deployment.
- Slower birth rates and tighter immigration policies are reshaping long-term demand for student housing, particularly at non-flagship schools.
- Data center demand appears robust, but pricing could be approaching bubble territory.

There is something to be said for timing when it comes to early recovery years...

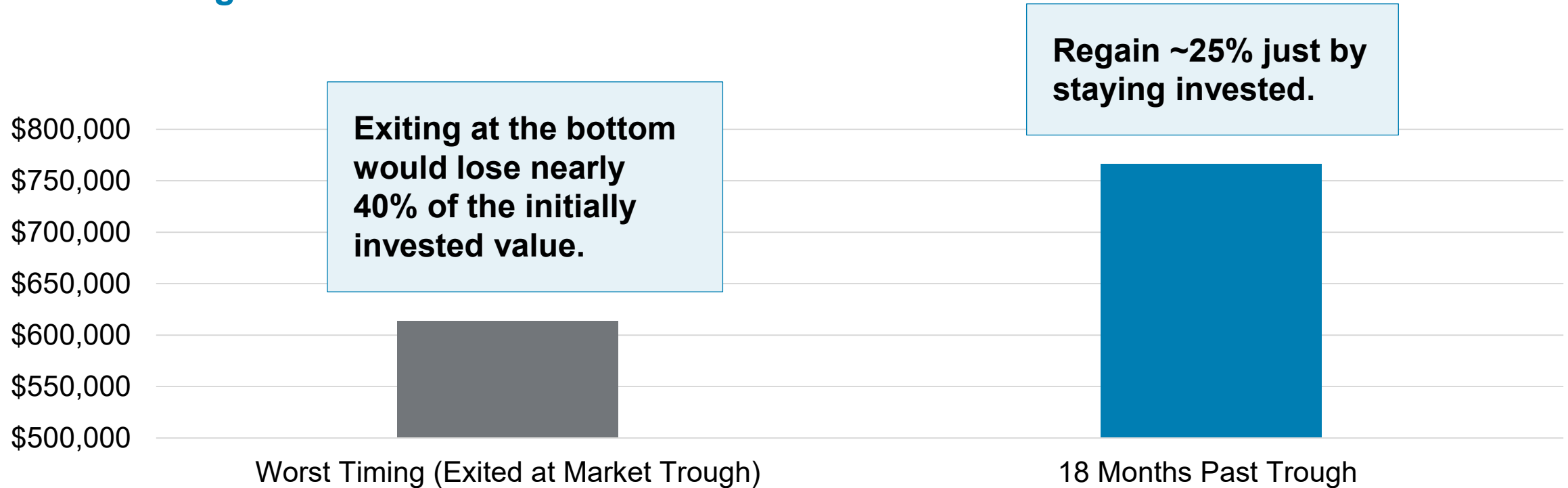
Average IRR, Vintage-Year Value-Add Funds



Source: American Realty Advisors based on data from NCREIF dated 31 March 2025, the latest the series was available. Value-add real estate fund performance reflects the NCREIF Fund Index – Closed-End Equity Value-Add Strategies (NFI-CEVA) equally weighted as of the reporting date.

...but ultimately time in the market > timing the market.

Value of an Initial \$1 Million Investment Made Into ODCE at the Peak of the Market At Various Points During the GFC



Source: American Realty Advisors based on data from NCREIF ODCE as of August 2025.

Figures reflect the value of a hypothetical \$1 million investment made into the NCREIF Open-End Diversified Core Equity (ODCE) Index based on net index total returns as achieved and reported by NCREIF. The analysis assumes the hypothetical investment was made in the last quarter of positive total returns (2Q 2008) before returns turned negative and exited at the trough (4Q 2009) and 18 months after the trough (2Q 2011). Values do not assume the re-investment of dividends and reflect the value of the principal at the times denoted based on total return performance of the aforementioned index.

It is important to note that the performance data is derived from an index of open-end diversified core real estate funds that cannot be invested in directly. The hypothetical performance is for illustrative purposes only and does not represent actual or potential investment results. Past performance is not indicative of future results. Investing involves risk, including the potential loss of principal. The projected return is subject to a number of significant assumptions as set out on this page. There can be no assurance the assumptions discussed herein and used to calculate such returns will be correct or achievable in the future, that other factors not described above may materially impact such returns. Actual returns will vary and may vary significantly from such projected returns.

Key Takeaways



It looks like we're in early stage of a new cycle.



The “winners” are likely to be sectors with less supply and resilient demand.



Investing earlier in recoveries has yielded better returns.



Stay the course.

Disclosures

Disclaimer: The information in this presentation is as of August 15, 2025 unless specified otherwise and is for your informational and educational purposes only, is not intended to be relied on to make any investment decisions, and is neither an offer to sell nor a solicitation of an offer to buy any securities or financial instruments in any jurisdiction. This presentation expresses the views of American Realty Advisors, LLC (ARA) as of the date indicated and such views are subject to change without notice. The information in this presentation has been obtained or derived from sources believed by ARA to be reliable but ARA does not represent that this information is accurate or complete and has not independently verified the accuracy or completeness of such information or assumptions on which such information is based. Models used in any analysis may be proprietary, making the results difficult for any third party to reproduce. Past performance of any kind referenced in the information above in connection with any particular strategy should not be taken as an indicator of future results of such strategies. It is important to understand that investments of the type referenced in the information above pose the potential for loss of capital over any time period. This presentation is proprietary to ARA and may not be copied, reproduced, republished, or posted in whole or in part, in any form and may not be circulated or redelivered to any person without the prior written consent of ARA.

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Private Debt

Laura Stolfi

Nuveen

Laura serves as a Managing Director, Senior Investment Strategist for Churchill Asset Management. In her role, Laura provides meaningful investment insights across the private capital spectrum to the investment community, with a particular emphasis on the Private Wealth and Retail channel. She works closely with Nuveen's global distribution team to deepen relationships with and educate Churchill's investors and partners.

From 2014 to 2021, she worked for Invesco's Global Private Credit platform where she supported new business development and institutional client communications, shaping investor messaging and business strategy globally. Previously, Laura worked in corporate finance and investor relations at CIFC Asset Management where she supported marketing efforts and was responsible for financial projections on behalf of their private equity owners. Prior to CIFC, she was an associate at Goldman Sachs, where she worked in the firm's investment management finance division focused on credit strategies. Laura began her career at Deloitte & Touche. She entered the investment management industry in 2003.

Laura graduated with both a B.S. in Business with a major in Accounting and an M.S. in Accounting from the University of Connecticut. She is a Certified Public Accountant (inactive) and holds the FINRA Series 7 and Series 66 registrations.





Nuveen-Churchill: Private Credit Overview

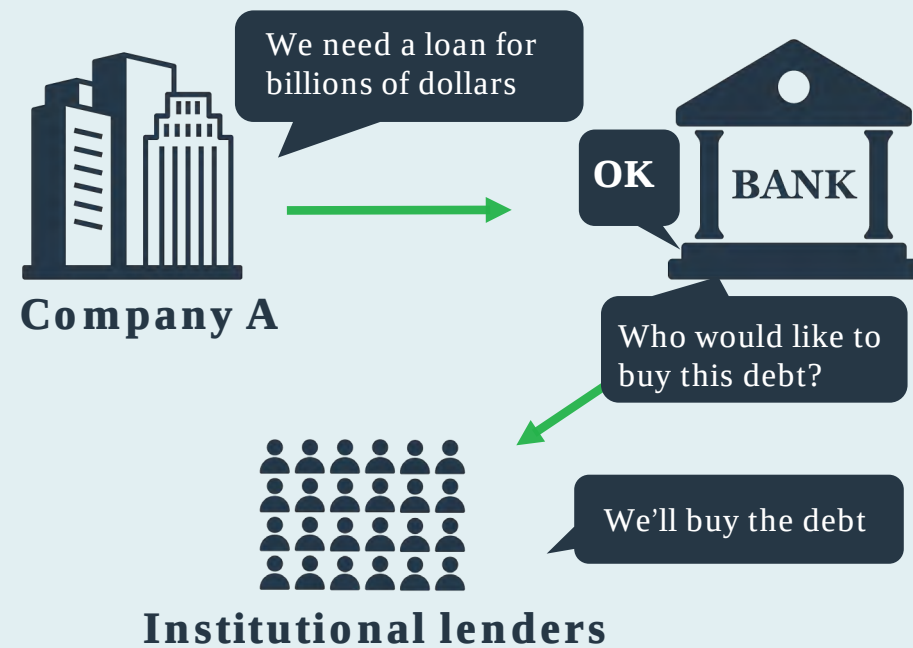


Public vs. Private Credit

Public Credit

Financing transactions arranged by a bank, sold to multiple lenders through a syndication process; easily traded

Example: \$3 billion loan to a large healthcare data analytics company owned by a private equity firm



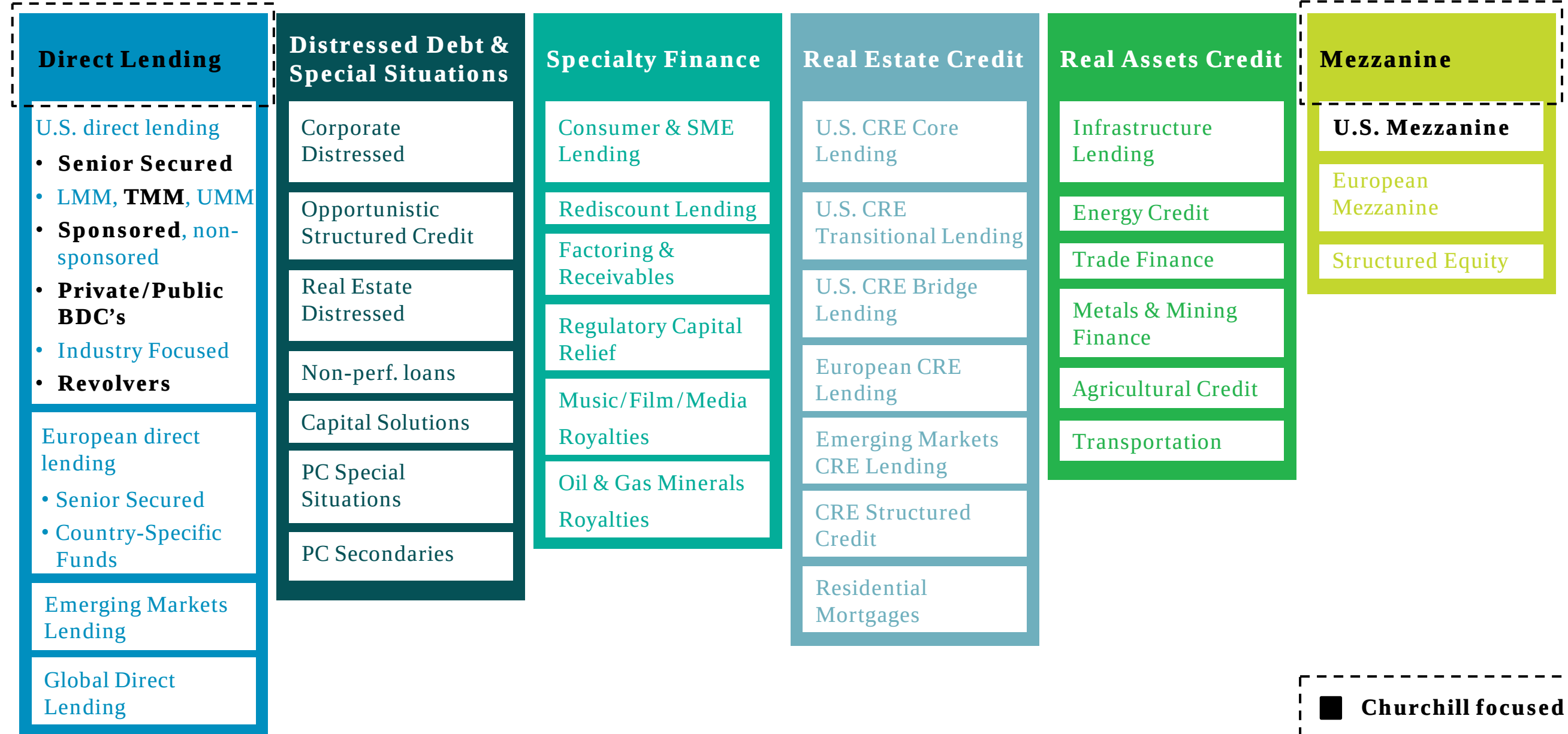
Private Credit

Privately negotiated financing transactions between a borrower and lender(s) where banks are not involved; not publicly traded

Example: \$300 million loan to a small, steadily growing, profitable software business owned by a private equity firm



Private credit is highly diverse

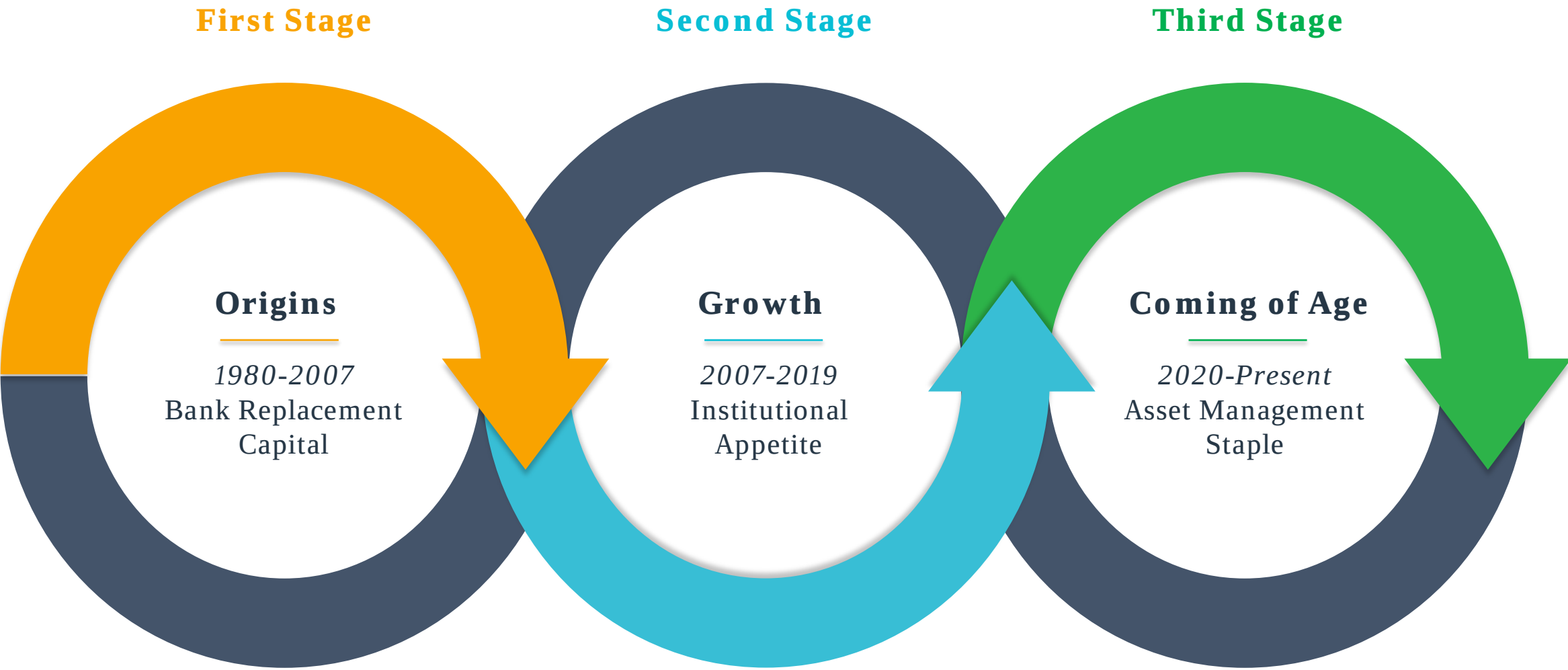


Source: Aksia and Churchill

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Evolution of *Private Credit*

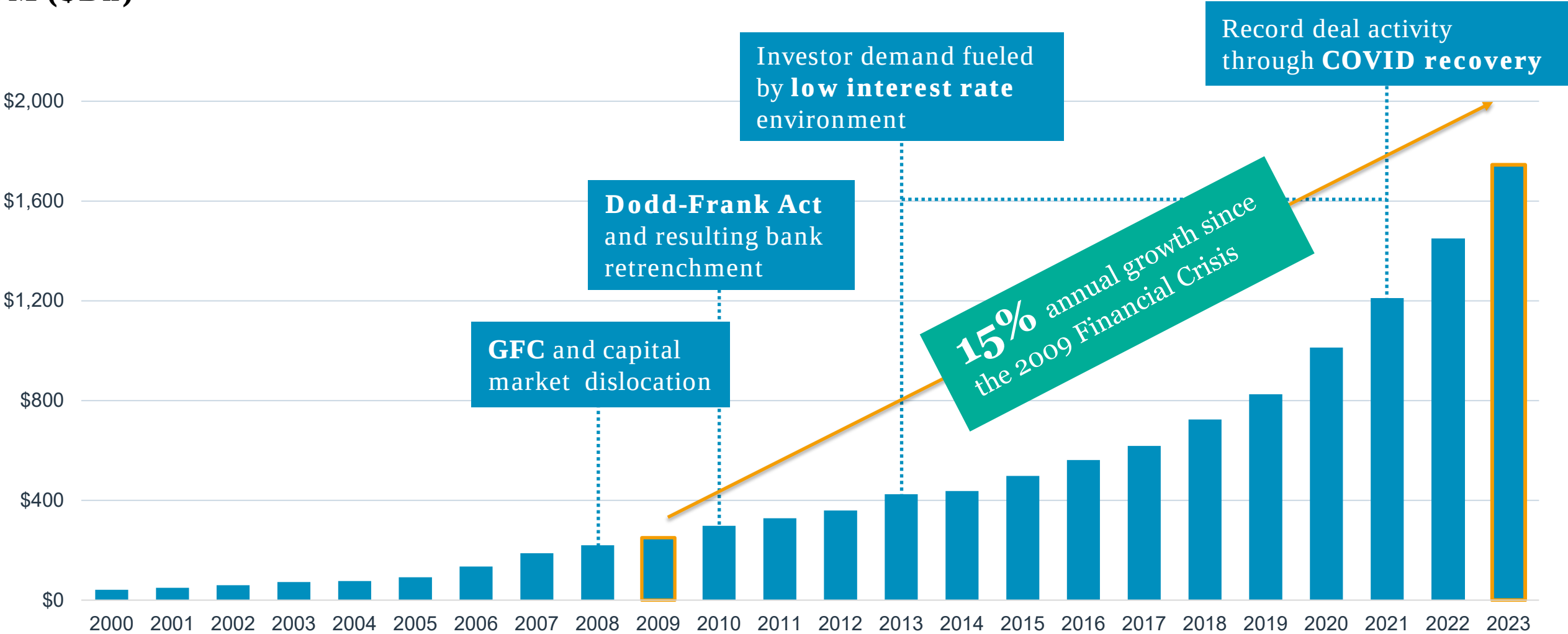
A long-established asset class



Private credit has demonstrated significant and steady growth

Global private credit has reached \$1.7 trillion, growing 15% annually since 2009

AUM (\$Bn)

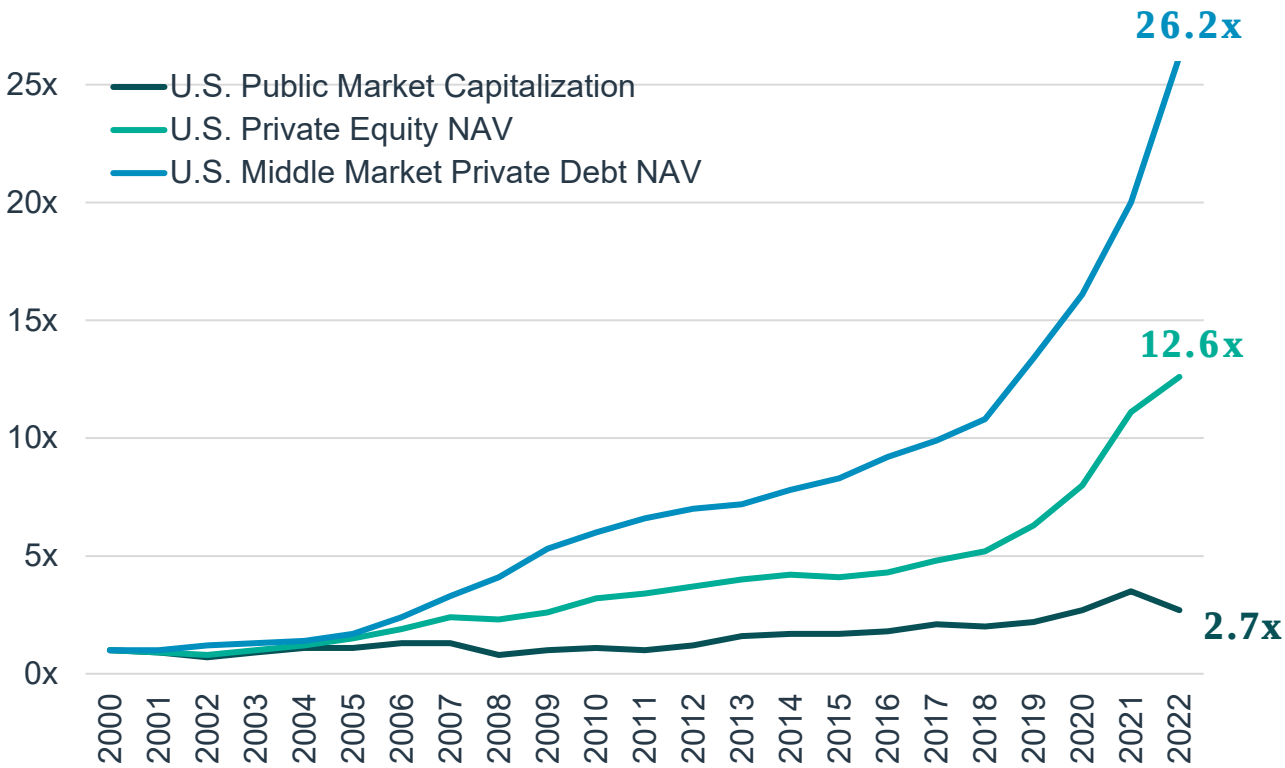


Source: Preqin; As of December 31 2023.
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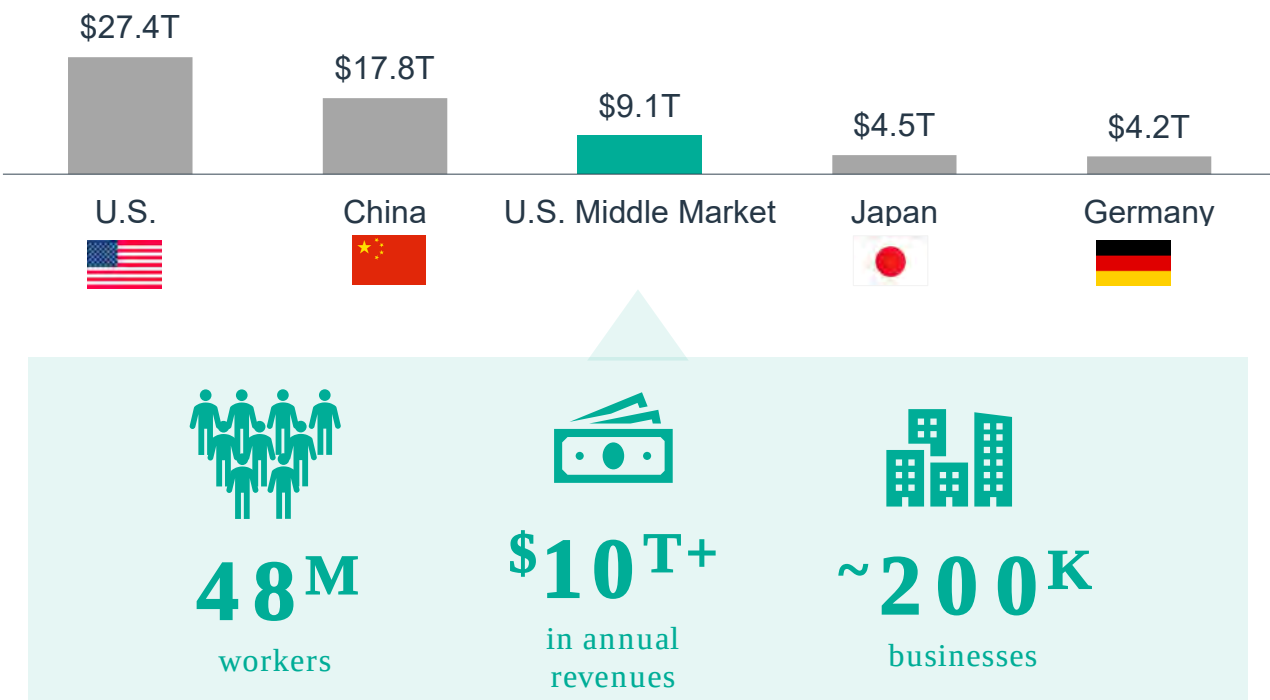
Sizable, resilient and growing market

The demand for private capital solutions in the U.S. middle market meaningfully outpaces supply, resulting in a compelling opportunity for private capital investment

More growth in the private vs. public markets¹



The U.S. middle market is the 3rd largest global economy by GDP²

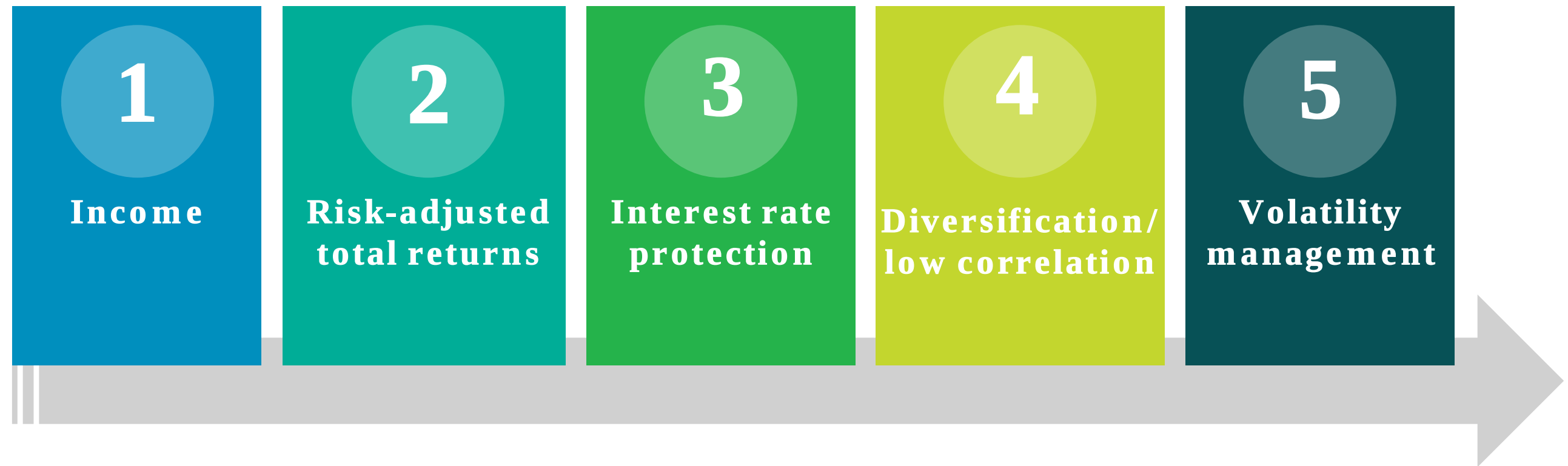


1 Sibilis Research, Preqin, December 31 2023. Notes: Net asset value ("NAV") = AUM less dry powder. Total market capitalization of U.S. listed companies. There are significant differences between public and private equities, which include but are not limited to the following: public equities can provide liquidity and greater access to company information and private equities have a longer time horizon, are considered illiquid and private equity NAV is typically based on estimated valuations of portfolio holdings that may not reflect actual market value. 2 Source: World Bank Open Data Database as of 31 Dec 2023; Middle Market assumption based on the definition by National Center for the Middle Market as of 30 June 2024. Opinions and views expressed reflect the current opinions and views of Churchill as of the date of this material only. Nothing contained herein is intended as a prediction of how any financial markets will perform in the future and nothing contained herein should be relied upon as a promise or representation as to past or future performance of a fund or any other entity, transaction, or investment.

How *private credit* helps institutions achieve their investment objectives

Private capital can play an important role in portfolio construction as it helps diversify sources of yield and increase overall *income* and *return* potential

5 reasons to select a private capital strategy



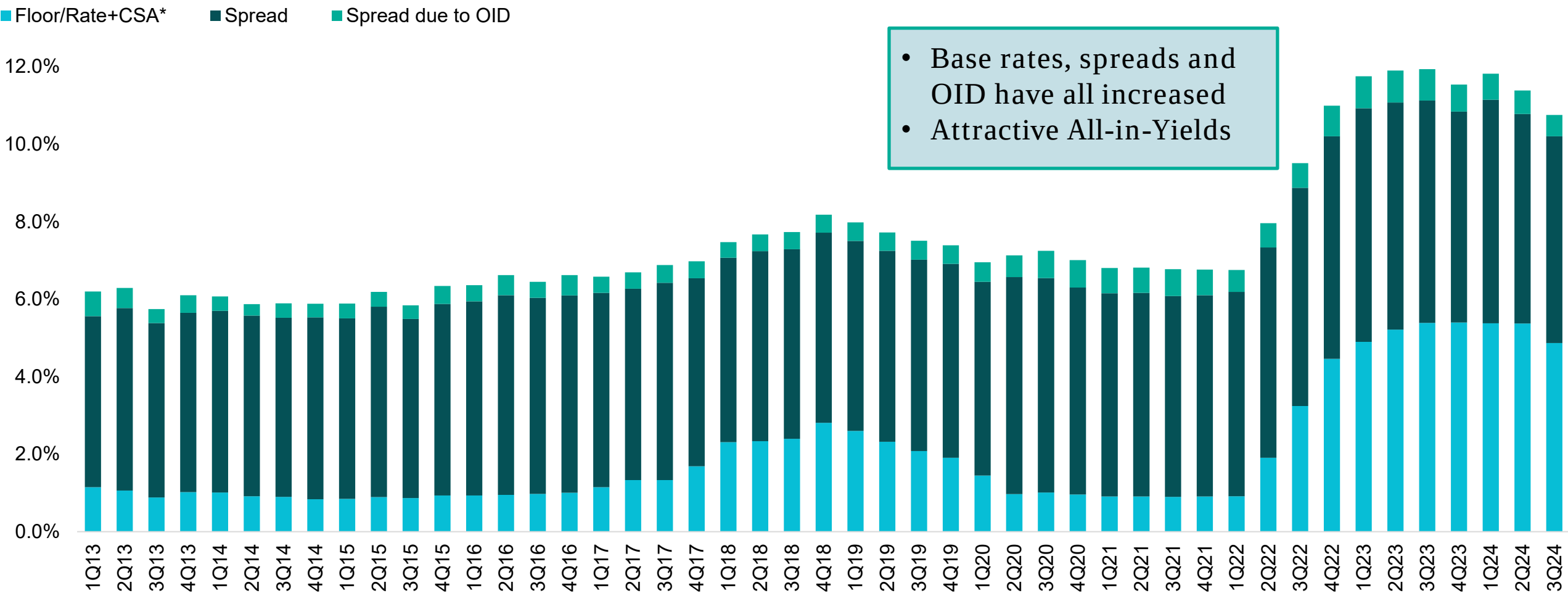
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Middle market all-in-yields

Meaningfully higher all-in yields with increasingly lender friendly terms

Avg. first-lien MM TL yield % (3-year term)



Source: LSEG LPC; Based on private data submissions, which include both syndicated and direct execution deals excludes unitranche and second-lien term loans. Beginning 1Q22, data includes LIBOR and SOFR based deals *Libor loans = 3-month Libor rate. Term SOFR loans = 1-month TSOFR+CSA if available

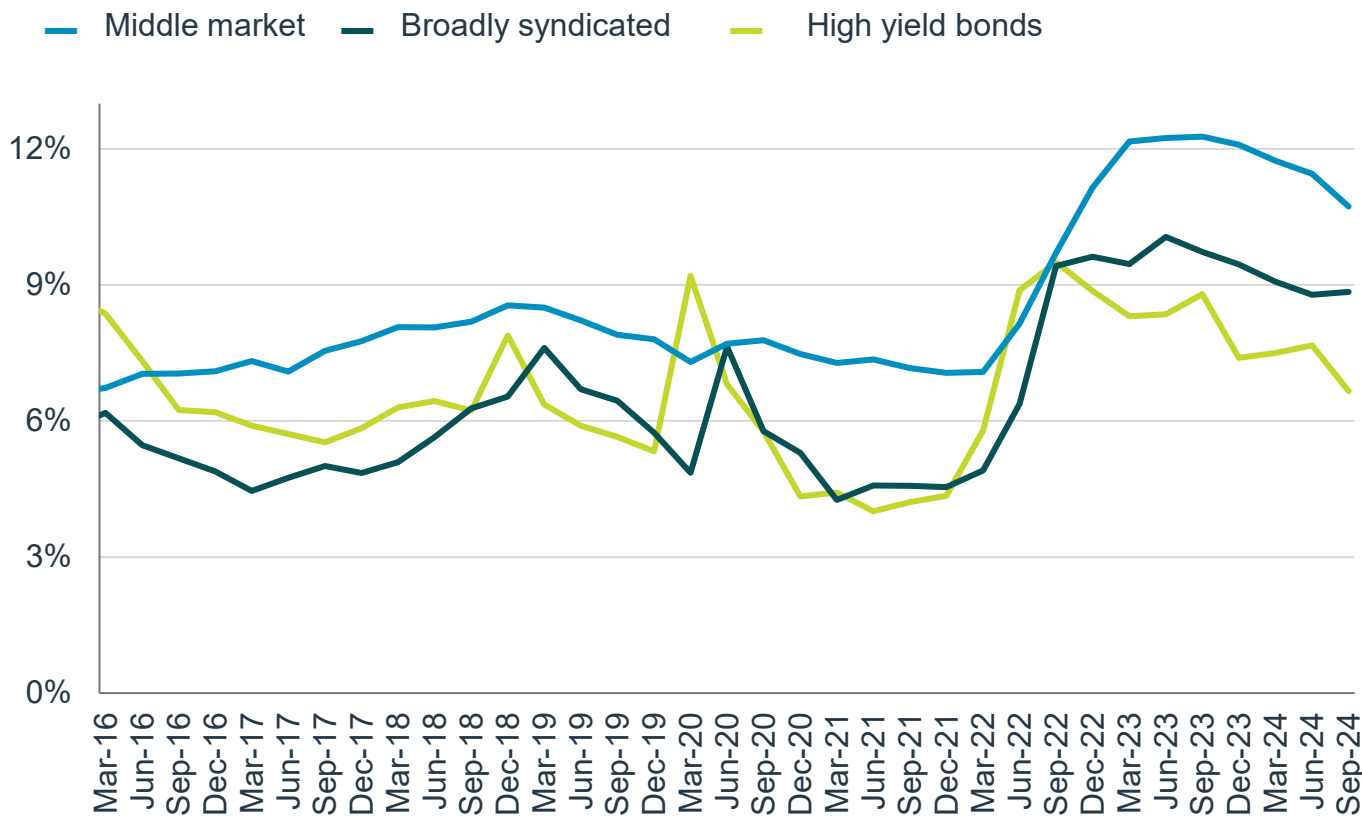
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Attractive income and risk-adjusted returns

Highly selective, diversified private credit portfolios with low losses can provide durable income & attractive-risk adjusted returns

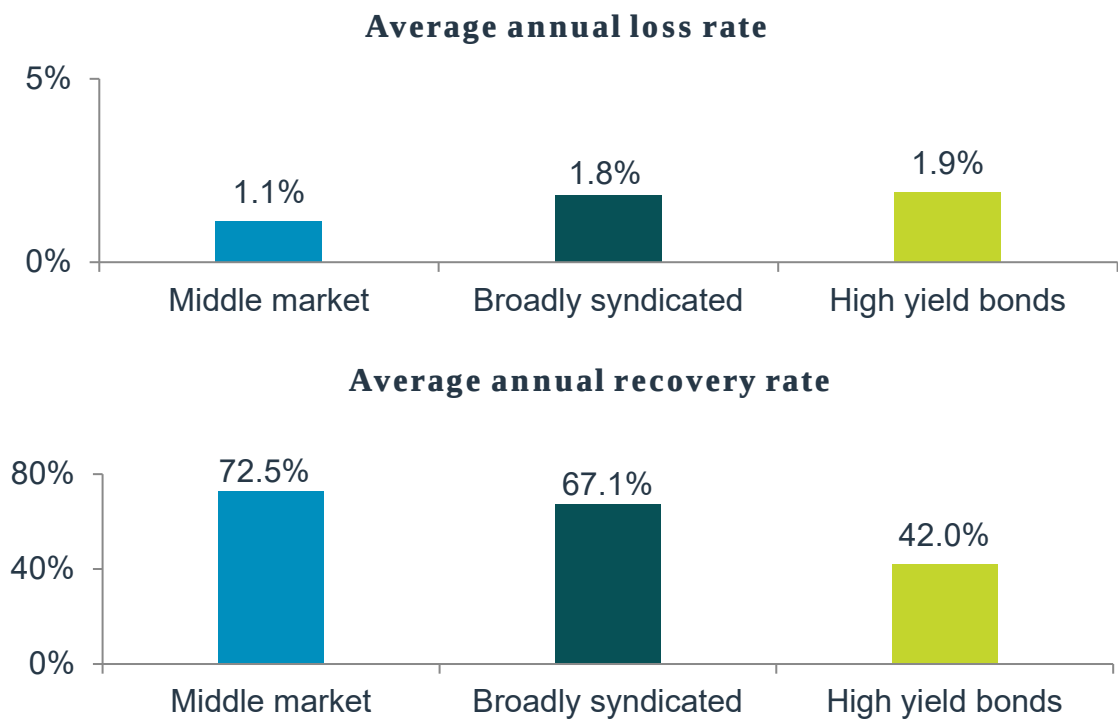
Attractive yield premiums

Average loan yields¹



Higher recovery and lower loss rates

Middle market & broadly syndicated loan performance, 2000-3Q 2023²

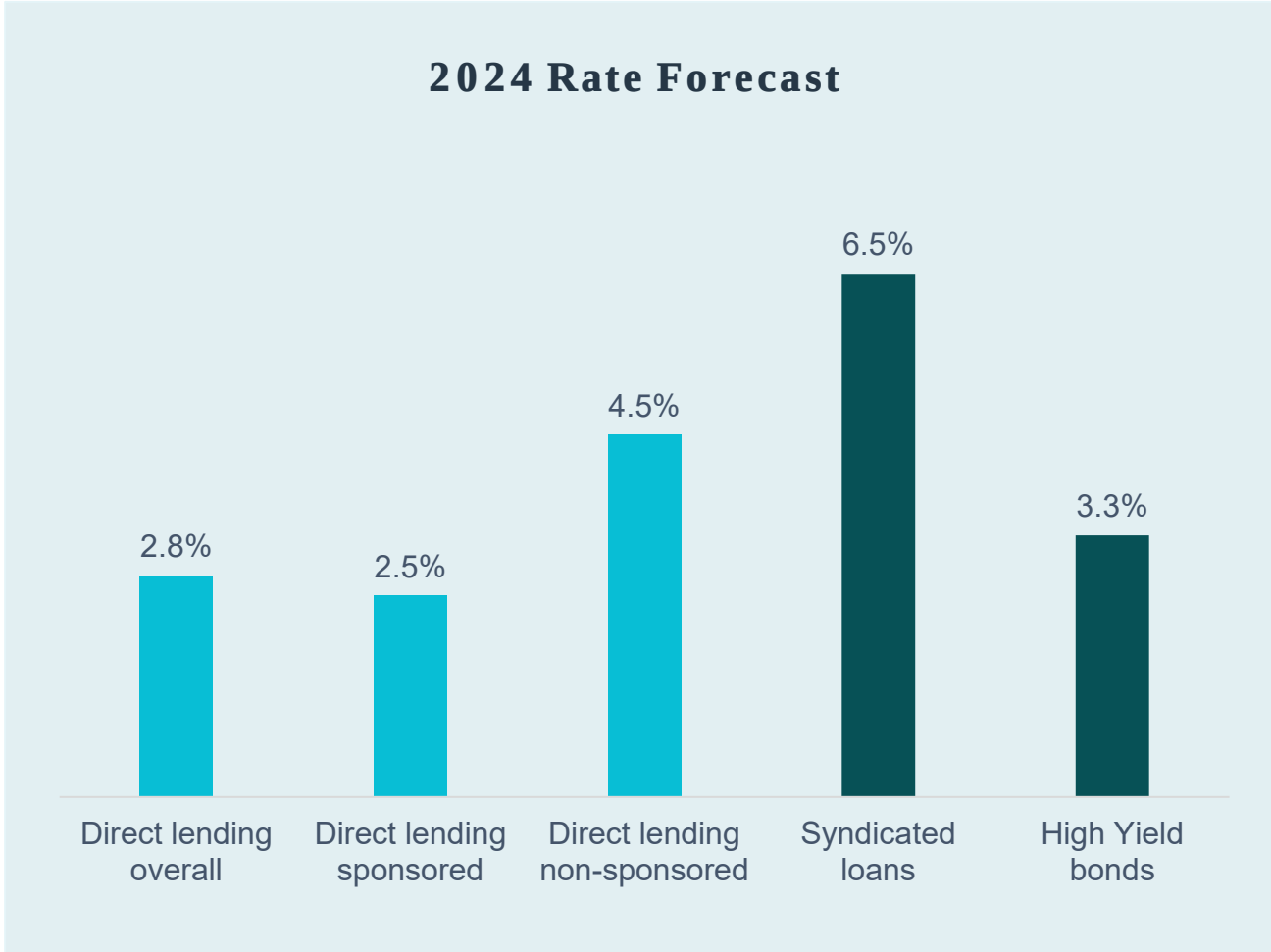
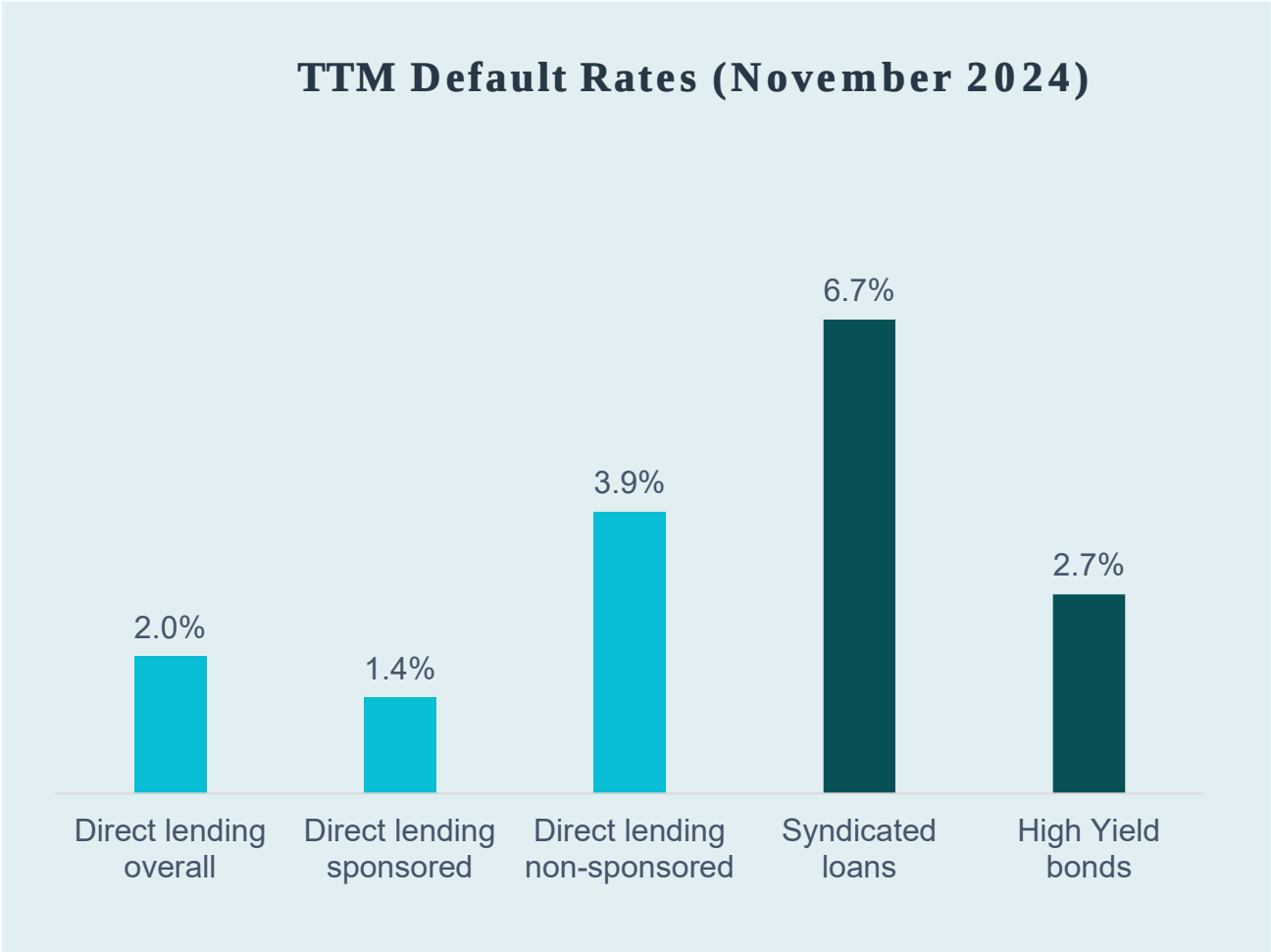


As of 30 Sep 2024. 1. "Middle Market" refers to Direct Lending MM first-lien term loans (source: LSEG LPC); "High yield" refers to the ICE BofA US High Yield Index; "Broadly syndicated" refers to large corp. (syndicated) term loans (source: LSEG LPC). 2. Source: S&P CreditPro and Pitchbook LCD, 2000 through 3Q 2023. Middle Market loans include total facility sizes of less than \$500 million and Broadly Syndicated loans denote total facility sizes of greater than or equal to \$500 million, High Yield loans represent all U.S. speculative-grade bonds.

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Higher interest, higher defaults? *Companies show resilience*

Private credit defaults remain low despite ~2 years of rising rates, future interest rate cuts should serve as a further tailwind for portfolio performance



Source: KBRA DLD Direct Lending Default Research. As of November 21, 2024
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Please consider all risks carefully prior to investing in any particular strategy. Investments in middle market loans are subject to certain risks. These investments are subject to credit risk and potentially limited liquidity, as well as interest rate risk, currency risk, prepayment and extension risk, inflation risk, and risk of capital loss. Responsible investing incorporates Environmental Social Governance (ESG) factors that may affect exposure to issuers, sectors, industries, limiting the type and number of investment opportunities available, which could result in excluding investments that perform well. See the applicable product literature or visit www.churchillam.com for details.

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Committed Capital definition

The term “committed capital” refers to the capital committed to client accounts in the form of equity capital commitments from investors, as well as committed, actual or expected financing from leverage providers (including asset-based leveraged facilities, notes sold in the capital markets or any capital otherwise committed and available to fund investments that comprise assets under management). For purposes of this calculation, both drawn and undrawn equity and financing commitments are included. In determining committed capital in respect of funds and accounts that utilize internal asset-based leverage (e.g., levered funds and CLO warehouses), committed capital calculations utilize a leverage factor that assumes full utilization of such asset-based leverage in accordance with the account's target leverage ratio as disclosed to investors. In determining committed capital in respect of Churchill's management of an institutional separate account for its parent company, TIAA (as defined below), (i) committed capital in respect of private equity fund interests includes commitments made by TIAA to such strategy over the most recent 10 years, and the net asset value of all such investments aged more than 10 years, and (ii) committed capital in respect of equity co-investments, junior capital investments, structured capital investments, and senior loans includes the commitment made by TIAA for the most recent year, and the outstanding principal balance of investments made in all preceding years, and (iii) committed capital in respect of secondaries includes commitments made by TIAA, which includes the aggregate commitment made by TIAA since the inception of the strategy in 2022 and inclusive of the current year's allocation. In determining committed capital in respect of Churchill's management of institutional separate accounts for third party institutional clients, committed capital includes the aggregate commitments made by such third party clients, so long as such commitments remain subject to recycling. Thereafter, outstanding principal balance is used in respect of any applicable commitment (or portion thereof) that has expired. Due to the foregoing, committed capital figures may be adjusted over the course of a financial period, based on accounts transitioning the calculation methodology from capital commitment to invested capital.

Private Equity

Rob Hatch

Constitution Capital Partners

Mr. Hatch was one of the founding partners of Constitution Capital. Prior to joining Constitution Capital, Mr. Hatch was an Investment Director at Standard Life Investments Private Equity USA. Previously, Mr. Hatch worked at Argo Global Capital, a private equity firm with \$475 million under management. Mr. Hatch began his career in the investment banking group of State Street Corporation. Mr. Hatch earned his MBA from The Tuck School of Business at Dartmouth and his undergraduate degree from Harvard University in Applied Mathematics and Statistics, cum laude. Mr. Hatch is a CFA charterholder.





CONSTITUTION
Capital Partners

Private Equity

**Presented by Robert Hatch,
Managing Partner**

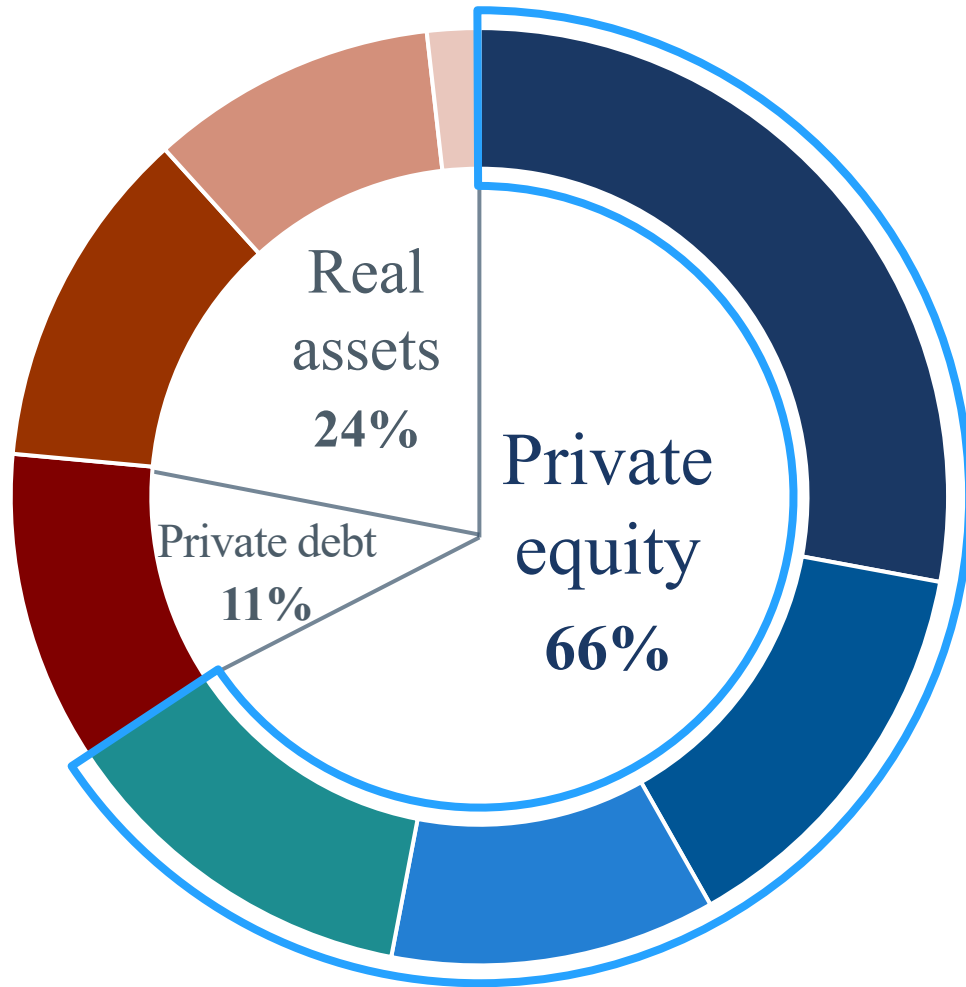


What are Private Markets?

- Traditionally investments in the equity and debt of companies and assets that are not listed on public exchanges
- Requires longer-term investment, usually through a limited partnership
- Approximately two-thirds of all Private Markets assets under management (AUM) is in Private Equity (buyout, venture, growth equity and other)

Introduction to Private Markets and Private Equity

Private Markets AUM



■	28%	\$4.0T	Buyout
■	14%	\$1.9T	Venture capital
■	11%	\$1.6T	Growth equity
■	13%	\$1.8T	Other private equity
■	11%	\$1.5T	Private debt
■	12%	\$1.7T	Real estate
■	10%	\$1.4T	Infrastructure
■	2%	\$0.3T	Natural Resources

Sub-Classes of Private Equity

Investments in Non-Public Companies

Angel Investing

Minority stakes in nascent companies, often in the idea phase. Potential to establish operations and market share.

Venture Capital

Minority stakes in young, unprofitable companies. Potential for rapid growth and high returns with higher risk and volatility.

Growth Equity

Minority stakes in established companies requiring capital for expansion; may or may not be generating a profit.

Buyouts

Majority stakes in mature, profitable companies. Potential to grow organically and through acquisitions, and improve free cash flow.

Sub-Classes of Private Equity

	Angel Investing	Venture Capital	Growth Equity	Buyouts
Ownership	Minority	Minority	Minority / Majority	Majority
Phase	Idea	Infancy	Growth	Mature Growth
Financials	Pre-Revenue	Revenue with Losses	Varies	Scaled and Profitable
Capital Use	Concept Launch	Grow Market Share	Accelerate Expansion	Drive Value Creation
Risk / Return	Binary Risk	High Risk with High Potential Return	Risk with Structured Downside	Strong Risk-Adjusted Returns

Why Invest in Private Equity?

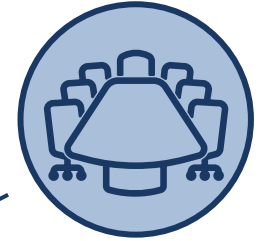
Potential long-term
historical **outperformance**
over public markets



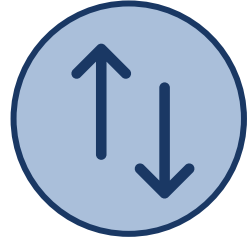
Diversification improves
risk and volatility
characteristics



Partnership with
management



Returns historically
have **lower correlation**
with public markets

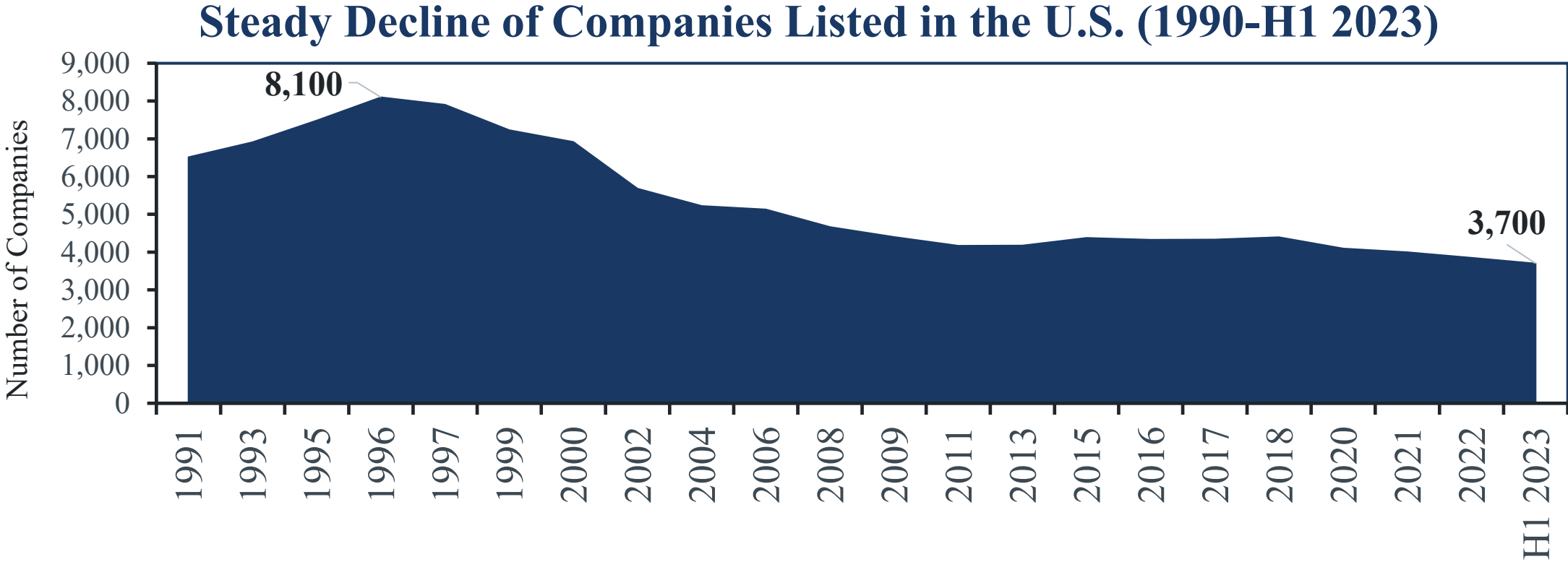


Exposure to non-
public companies



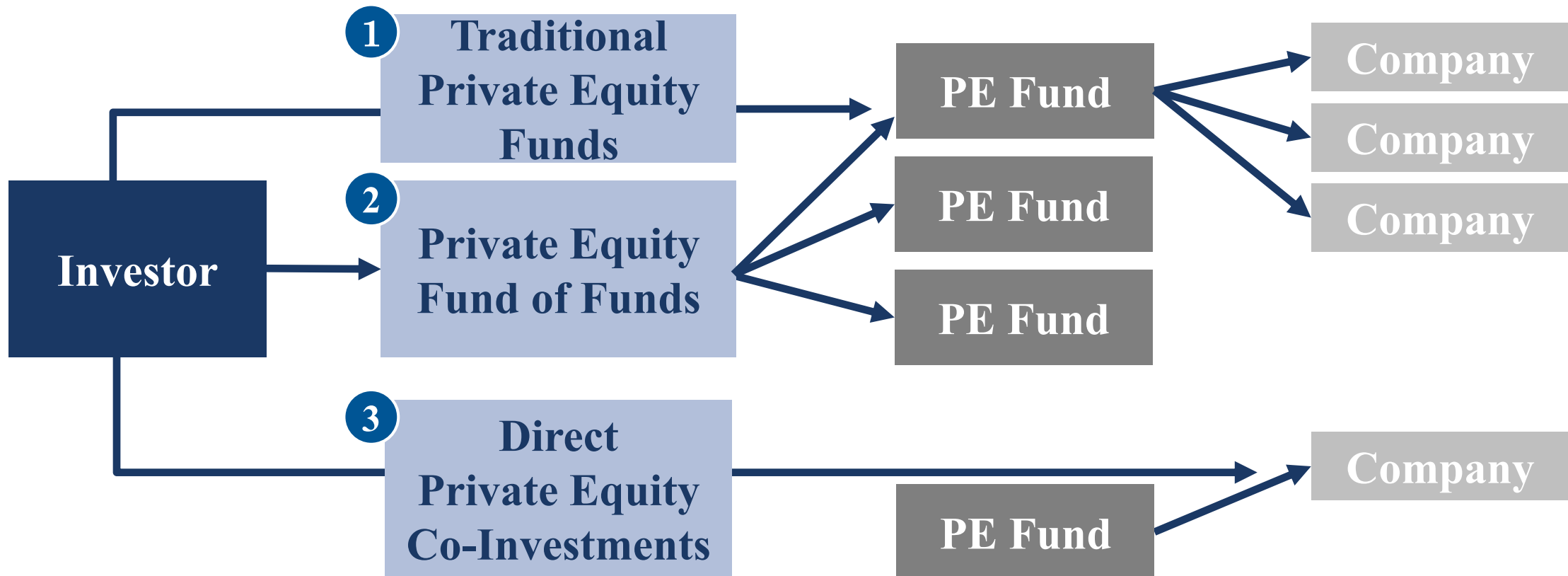
Trends Driving Interest

Companies staying private longer yielding opportunities to invest in high growth businesses in the private markets



Ways to Invest

There are three primary ways to access private equity, including (i) traditional private equity funds, (ii) fund of funds managers, and (iii) co-investments



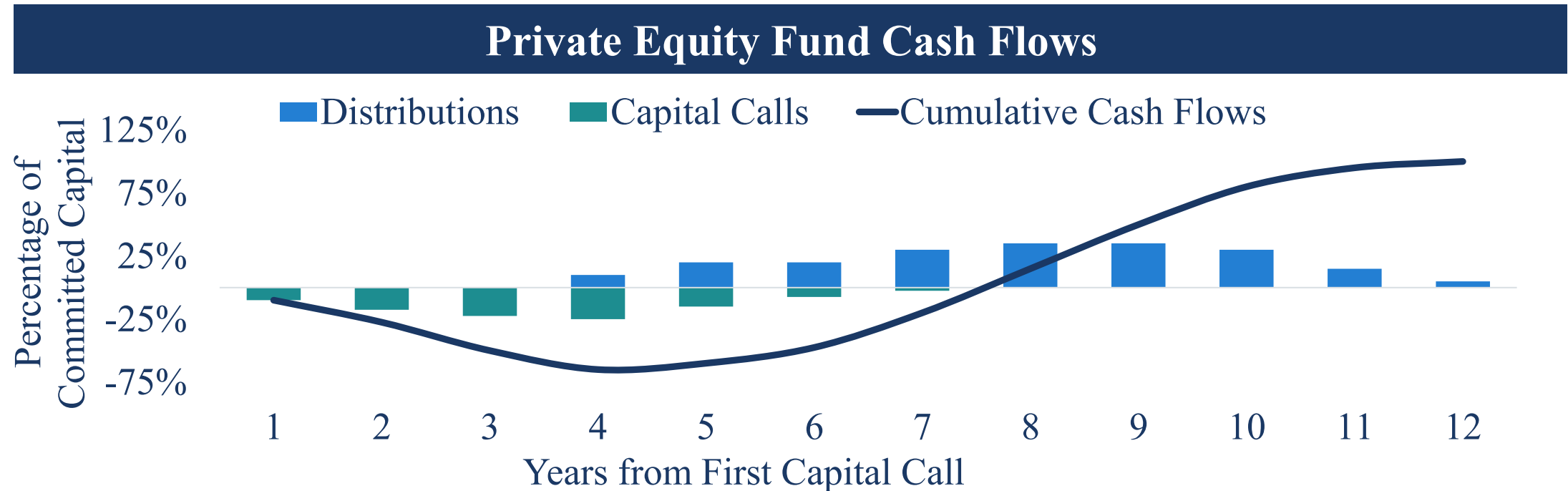
Key Attributes

		1	2	3
		Traditional Private Equity Fund	Private Equity Co-Investment Fund	Private Equity Fund of Funds
Key Value-Add		Company Sourcing and Selection	Company and Manager Selection	Manager Sourcing and Selection
Diversification	# of Deals	10 companies	30+ companies	120+ companies
	Private Equity Managers	1 manager	10+ managers	15+ managers
	Sectors	Limited to 1 or 2	3 to 5 each within manager's core sectors	3 to 5 each within manager's core sectors
Capital Deployment (J-Curve)		Medium	Shorter	Longer

Note: For illustrative purposes only

What is the J-curve?

The J-Curve represents the tendency of private equity funds to post negative cash flows in the initial years, followed by positive cash flows in later years as underlying investments appreciate and generate realizations

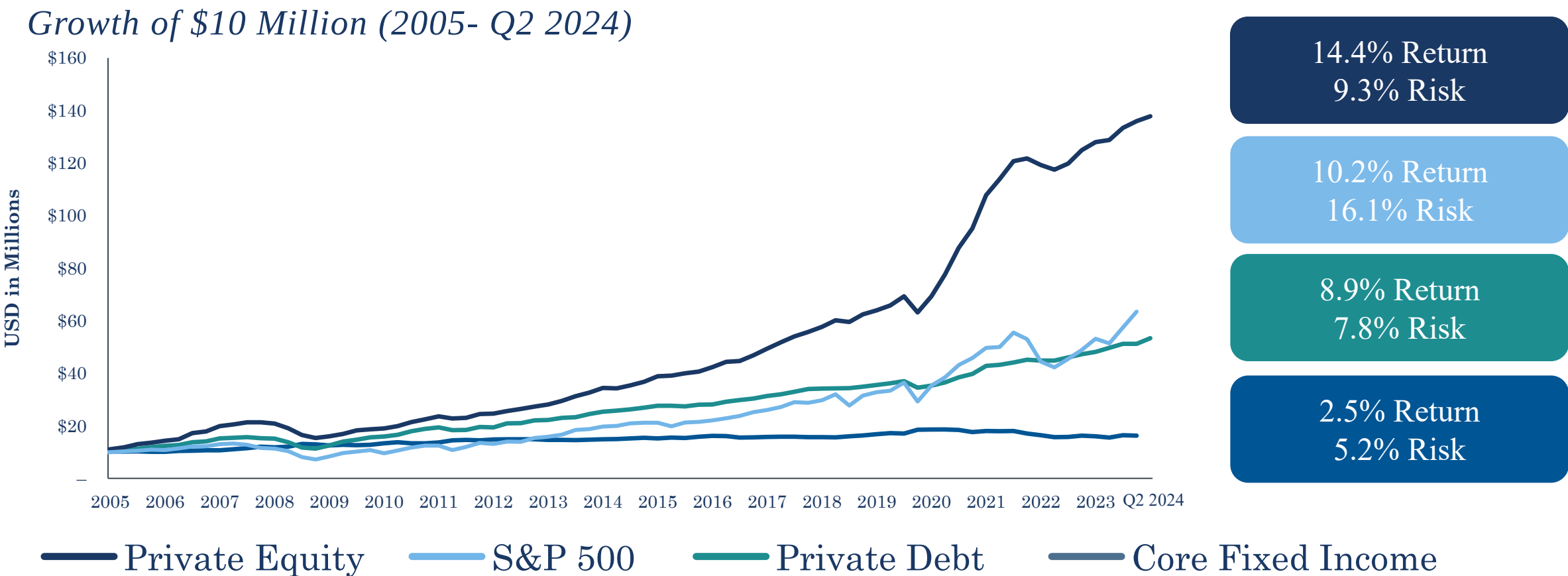


Note: For illustrative purposes only. Actual fund cash flows may deviate materially from those presented herein

Private Equity in Portfolio Construction

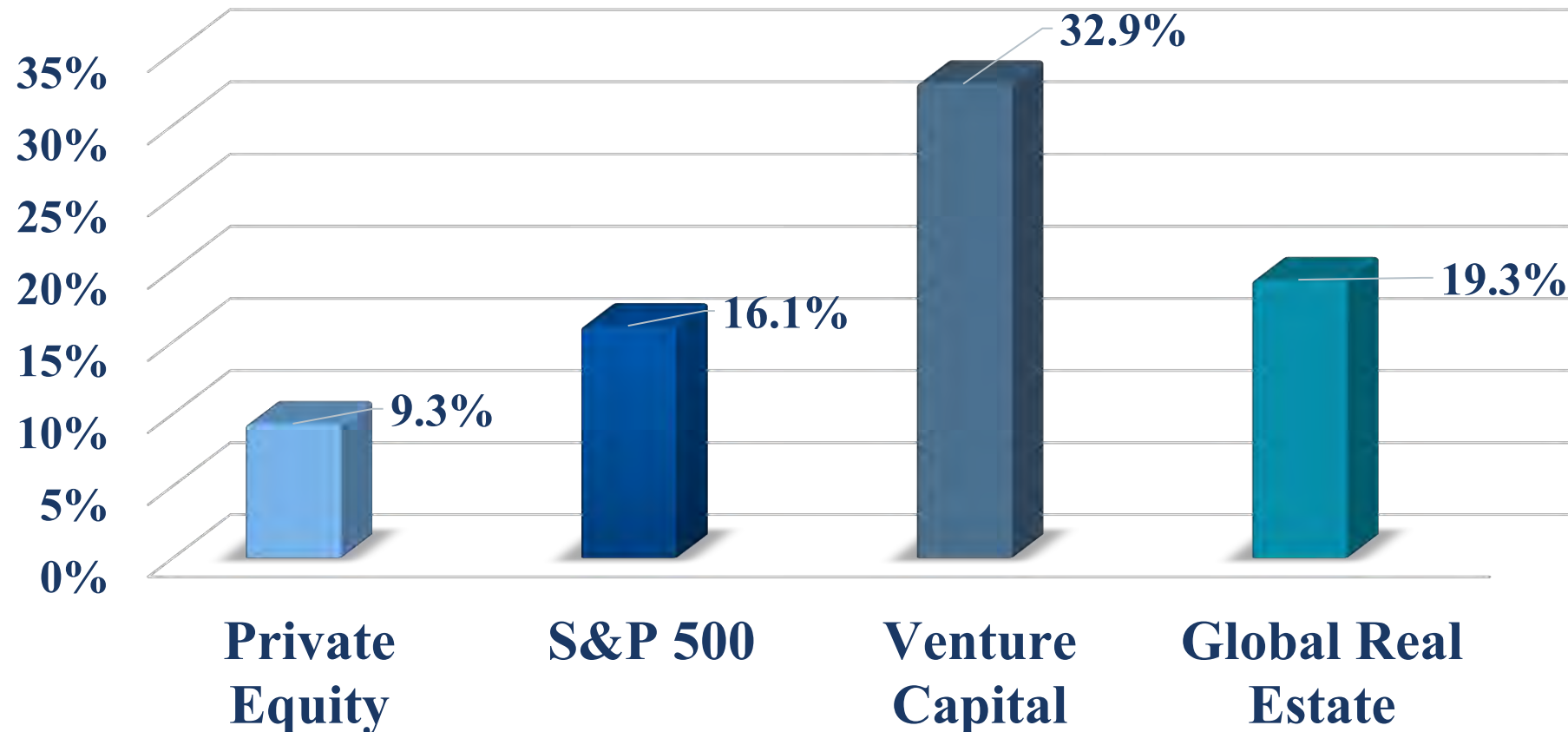
Long-Term Returns

Private Equity has outperformed the S&P 500 with lower risk



Historical Volatility

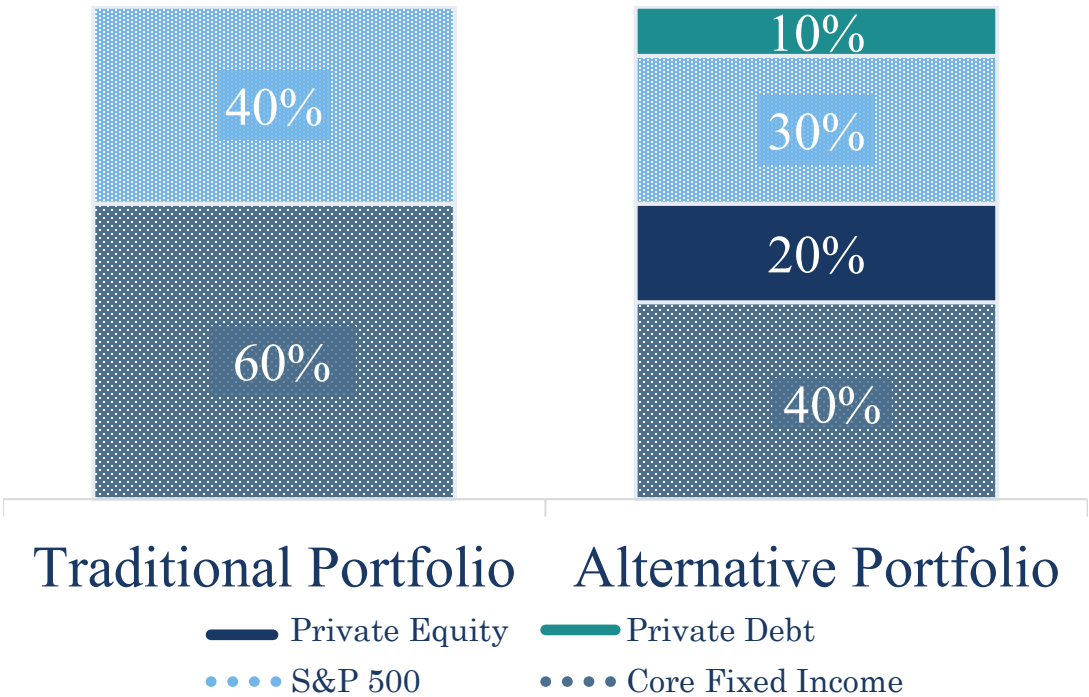
Private Equity has exhibited less volatility relative to other asset classes



Portfolio Impact

Historically, portfolios with private alternatives have delivered stronger absolute and risk-adjusted performance

Target Allocations (2005 – Q2 2024)



Performance Statistics (2005 – Q2 2024)

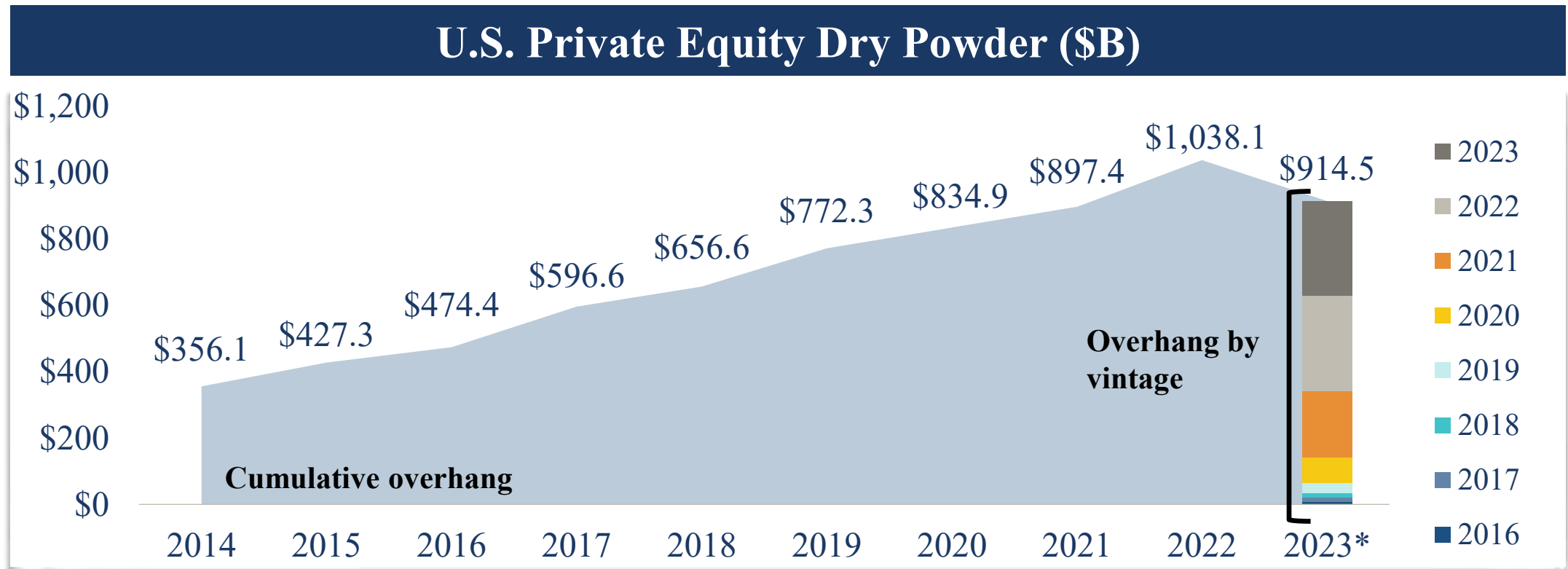
	IRR	Risk	Return / Risk
Traditional Portfolio	7.5%	9.2%	0.82
Alternative Portfolio	8.9%	8.0%	0.70
Delta	+1.4%	-1.2%	+0.29

Private Equity Landscape

Market Conditions

Private Equity firms hold ample dry powder that is ready to be deployed

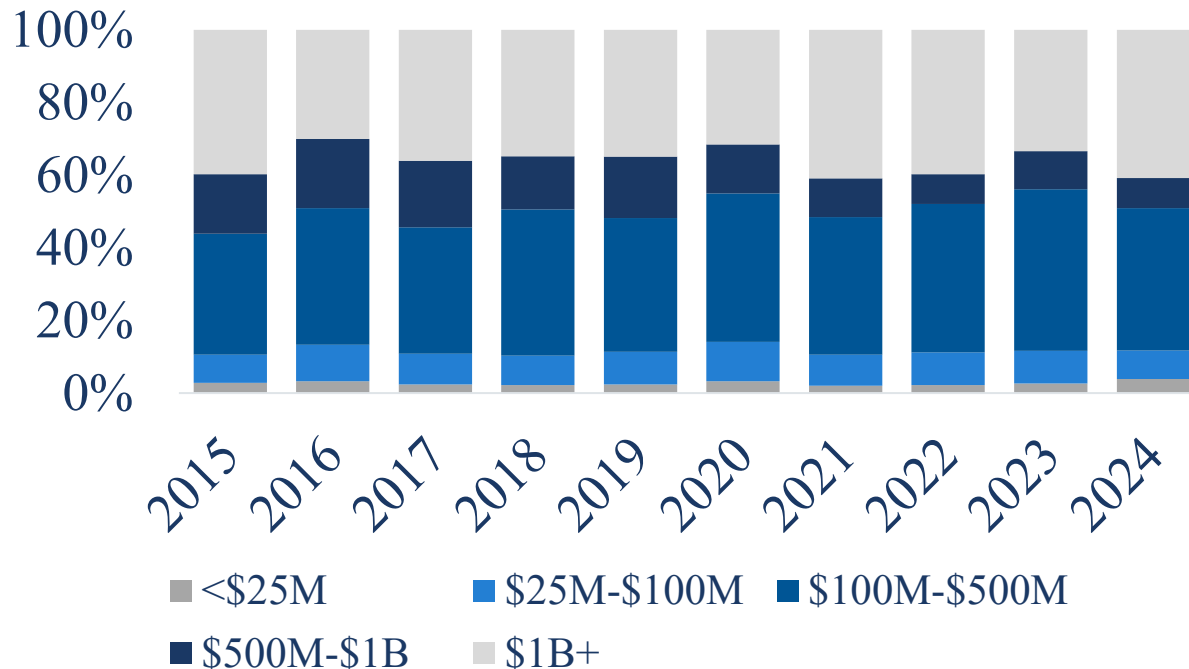
- *Dry powder refers to the amount of committed, but unallocated capital a firm has on hand*



Middle Market Opportunity

Within the US market, the middle market contains the largest opportunity set at attractive valuations yielding opportunity for value creation

U.S. Middle Market Share of Investments (\$)

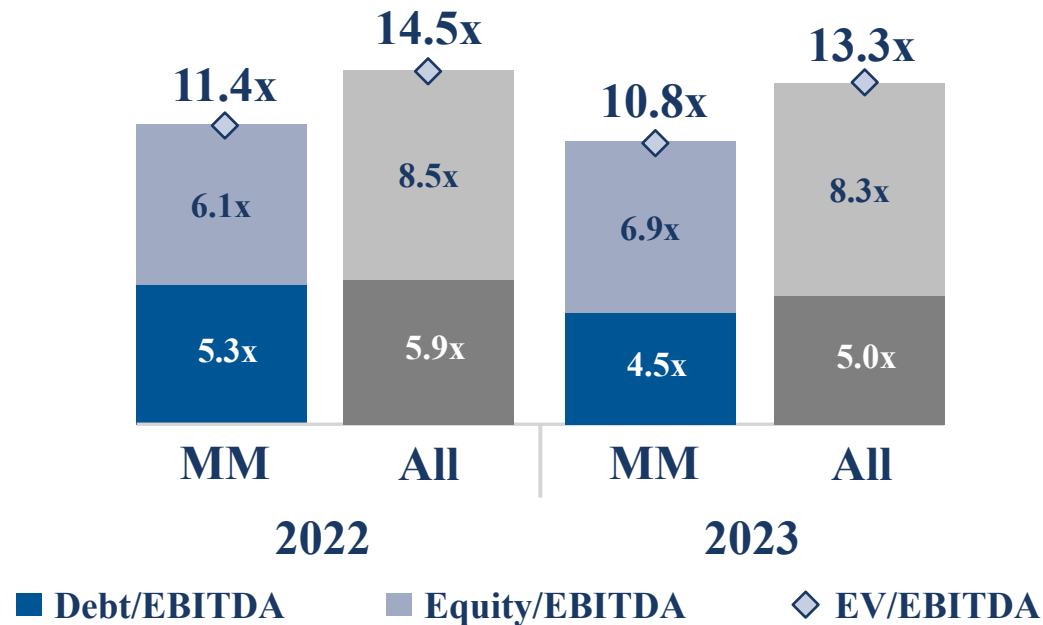


- Middle market businesses are more responsive to operational improvements given their smaller scale and less professionalized management teams, allowing for more meaningful value creation

Middle Market Opportunity

Within the US market, the middle market contains the largest opportunity set at attractive valuations yielding opportunity for value creation

US Middle Market and Broader PE Multiples

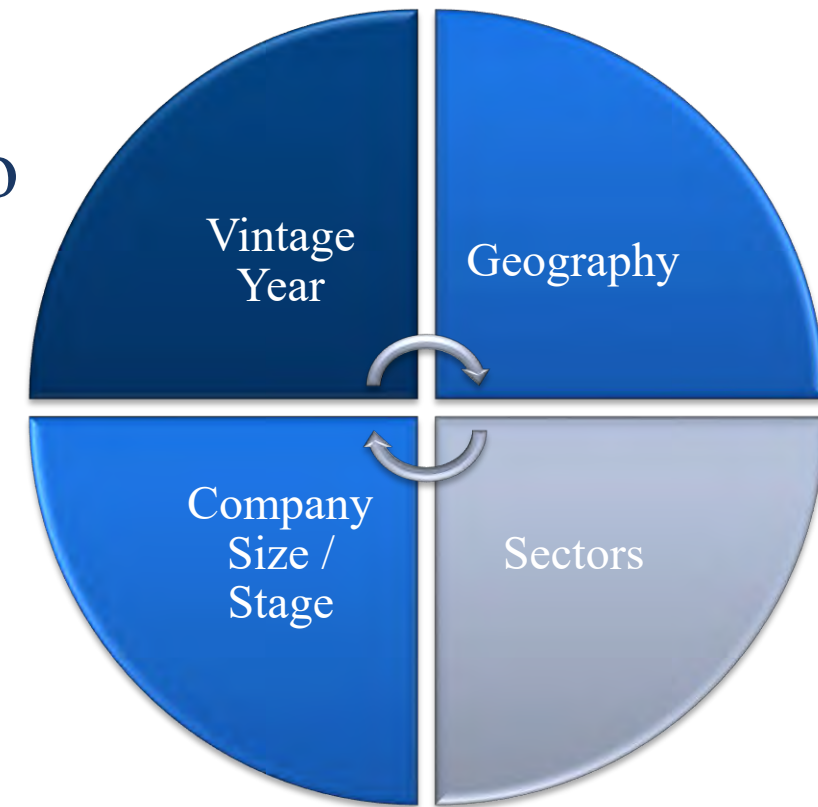


- Companies in the middle market have consistently traded at lower purchase price multiples with prudent leverage relative to the broader private equity market, and that trend has continued in 2023.

Takeaways

- Pension funds are increasing their investments in private asset alternatives
- Historically, have provided higher returns to pension funds with lower volatility
- There are a broad range of options
- Manager selection and alignment of interests are important because investments are illiquid and can have higher fees

Diversification is
Key



Footnotes

- 1) Preqin assets under management by strategy as of March 31, 2024. Figures may not sum to 100% due to rounding.
- 2) Listed Domestic Companies, Total (United States), Center for Research in Security Prices & World Bank Group (DataBank).
- 3) Return calculated as compound annualized return over the full period using quarterly return data. Risk calculated as annualized standard deviation of quarterly returns. Quarterly return data represented by PitchBook Private Capital Indexes Summary Report as of June 30, 2024. Private Equity returns and risk represented by buyout transaction data.
- 4) Data represented by Q2 2024 PitchBook Private Capital Indexes Report. Private Equity returns and risk represented by buyout transaction data.
- 5) The allocation for the Alternative Portfolio is represented by a 40% allocation to S&P 500, 30% allocation to Core Fixed Income, 10% allocation to Private Debt, and 20% allocation to Private Equity. Quarterly return data represented by PitchBook Private Capital Indexes Summary Report as of June 30, 2024. Return calculated as compound annualized return. Risk calculated as annualized standard deviation of quarterly returns. Private Equity returns represented by buyout transaction data.
- 6) Information as of September 30, 2024, per PitchBook Q3 2024 US PE Breakdown Report.
- 7) Information as of September 30, 2024, per per PitchBook Q3 2024 US PE Breakdown Report. PitchBook defines middle market as buyout transactions between \$25 million and \$1 billion.
- 8) Represents median EV/EBITDA multiples for US middle market private equity and broader private equity in the US, as reported by PitchBook Q3 2024 US PE Breakdown Report. Middle Market Debt/EBITDA and Equity/EBITDA multiples represented by the Capstone Partners Middle Market Leveraged Finance Report – Fall 2024. All PE Debt/EBITDA and Equity/EBITDA multiples represented by figures from the 2023 PitchBook US PE Breakdown report.

Disability Process

Pedro Herrera

Sugarman Susskind Braswell & Herrera

Pedro Herrera is a partner with the law firm of Sugarman Susskind Braswell & Herrera, P.A. located in Coral Gables, Florida. Pedro graduated cum laude from the University of Pennsylvania Law School where he was a Senior Editor on the Journal of International and Economic Law. Mr. Herrera satisfied a dual enrollment where he also received a degree in Business and Public Policy Management from the Wharton School of Business where he completed coursework specifically geared towards the relationship and strategic interaction between the private and public sectors. Pedro graduated summa cum laude with a double major from the University of Miami. Mr. Herrera is active in the Miami community where he serves on the Board of Directors for the Coral Gables Bar Association as well as being an active member of the Cuban American Bar Association. He serves as Chairman of the Board of Directors for the Peace Education Foundation, a not-for-profit organization which strives to educate children and adults on the dynamics of conflict resolution. Pedro also volunteers his time working with Amigos for Kids, an organization providing opportunities for at-risk and impoverished youth in the greater Miami community.



Disability Pension Hearings

PEDRO A. HERRERA
Partner
Sugarman & Susskind

How to Prepare for and Conduct a Disability Hearing – What you need, and What to Decide

When determining eligibility for a disability pension:

1. Have an application form on which Applicant should state:
 - a. what type of disability benefit is claimed: service-connected or non-service-connected
 - b. cause of disability
 - c. names and contact information of all medical providers for specific injury/illness claimed
 - d. HIPAA medical records and confidentiality waiver authorizations.

2. Administratively review application:

- a. is applicant a “participant” or “member” of plan?
- b. does applicant have requisite years of service (i.e. non-duty)?
- c. is application complete?
- d. has applicant signed medical records release authorization?

3. Obtain and review employer's worker's compensation and group medical insurance files.

4. If required by state statute and/or ordinance, arrange for independent medical examination by pension fund doctor or medical board.

- a. supply doctor(s) with ordinance's definition of disability
- b. send doctor(s) applicant's job description
- c. send doctor(s) applicant's prior medical records

5. Determine whether applicant has applied for Social Security or disability insurance benefits. If so, obtain copies of applications and determinations if available (which are not binding on trustees but may be helpful).

6. Prepare notebook binders for all trustees with application, job description, applicable ordinance provisions and all records gathered. Supply copy to applicant and/or applicant's attorney.

7. Notify applicant, in writing, of trustees' meeting at which application will be considered.

8. At meeting:

- a. explain standards and procedures;
- b. invite applicant or applicant's attorney to address board;
- c. invite trustee questions;
- d. ask for Trustee motion to either:
 - i. “grant”; or
 - ii. “deny” stating reasons for denial; or
 - iii. “table” to get more information or allow for more time to consider

9. Questions to be answered by Trustees in deciding upon a disability application. All must be answered “YES” in order to grant a disability benefit:

- a. Did the applicant suffer from an injury or illness?
- b. If so, and the applicant is seeking a service-connected disability benefit, was the injury or illness service-connected?
- c. If so, did the injury or illness cause a disability?
- d. If so, is the disability permanent? In other words, has the applicant reached Maximum Medical Improvement (MMI)?

- i. Standard accepted customary medical practice/procedures
- ii. Cutting edge surgical procedure in Norway not necessary.

e. If so, does the disability wholly prevent the applicant from (apply the standard in your plan, for example:)

- i. engaging in useful and efficient service as a police officer or fire fighter? (F.S. Chp. 175 & 185 standard)
- ii. engaging in the applicant's specific occupation or job?
- iii. engaging in any gainful occupation or work?

f. Did the applicant request a reasonable accommodation under the Americans with Disabilities Act?

10. Notify applicant of decision in writing. If pension is denied, specify reasons (i.e. which questions in above #9 were answered "no") and evidence relied upon by trustees in denying benefit. Provide applicant with method of appeal.

SERVICE-INCURRED PRESUMPTIONS

- Any disabling condition or impairment of health of any Florida state, municipal, county, port authority, special tax district, or fire control district firefighter or any law enforcement officer, correctional officer, or correctional probation officer caused by tuberculosis, heart disease, or hypertension resulting in total or partial disability (or death) shall be presumed to have been accidental and to have been suffered in the line of duty unless the contrary be shown by competent evidence. However, any such firefighter or law enforcement officer must have successfully passed a physical examination upon entering into any such service as a firefighter or law enforcement officer, which examination failed to reveal any evidence of any such condition.

SERVICE-INCURRED PRESUMPTIONS

Firefighter Cancer – Effective July 1, 2019 (Ch. 2019-21, Law of Florida)

Eligible firefighters: i) employed by his or her employer for at least 5 continuous years; and ii) has not used tobacco products for at least the preceding 5 years; and iii) has not been employed in any other position in the preceding 5 years which is proven to create a higher risk for any cancer.

Diagnosed with at least one of 21 enumerated cancer forms.

Firefighters participating in an employer-sponsored retirement plan must be considered totally and permanently disabled in the line of duty if he or she is unable to perform useful and efficient service as a firefighter due to the diagnosis of enumerated cancer forms or circumstances that arise out of the treatment of such cancer.

Firefighters participating in an employer-sponsored retirement plan must be considered to have died in the line of duty if he or she dies as a result of the enumerated cancer forms or circumstances that arise out of the treatment of such cancer.

All costs associated with disability and death presumptions to be borne solely by employer.

11. If application is granted, calculate amount of benefit and determine offsets, if any.

- a. Offset for worker's compensation benefits is limited to the extent to which total of worker's compensation benefit and disability benefit exceeds average monthly compensation. Barragan v. City of Miami, 545 So.2d 252 (Fla. 1989).
- b. If worker's compensation case is settled for lump sum, divide by benefit rate to determine number of months of offsets.

12. If application is denied, provide Order adopted by Board articulating reasons for denial and the member's ability to appeal such decision in accordance with the specific parameters of your local ordinance.

13. If injury was caused by a third party, consider subrogation claim:

- a. pension fund brings suit against third party seeking reimbursement of disability benefits paid
- b. if applicant has sued third party, intervene in suit asserting subrogation rights

14. Periodic medical review:

- a. review each disability recipient's file for continued eligibility.
- b. determine if continued disability is obvious (i.e. missing limb or extremity, paralyzed, coma, mentally incapacitated, etc...)

c. if not obvious, depending upon the case, require recipient to:

- i. submit report from recipient's treating doctor for disabling injury/illness; or
- ii. submit proof of continued receipt of social security disability benefits; or
- iii. be examined by fund doctor or medical board.

Establishing a Funding Policy

Pete Strong

Gabriel Roeder & Smith

Pete Strong is a Senior Consultant located in GRS' Fort Lauderdale, Florida office. Pete has more than 20 years of actuarial and benefits consulting experience. He provides actuarial and consulting services for both public and private sector (middle market) employee retirement systems and OPEB plans.

Pete's pension plan experience includes defined benefit plans and hybrid arrangements, covering plan design features such as final average pay, career average pay, target benefit, and early retirement windows.

His actuarial work covers valuations, GASB/FASB accounting disclosure, plan design studies, experience studies, and cash flow projections. He has particular expertise in modeling studies including asset/liability studies using deterministic and stochastic approaches.

Pete's regulatory and compliance knowledge includes the Pension Protection Act of 2006 and Internal Revenue Code Sections 401(a), 410, and 415. He also has many years of experience with retiree health valuations related to GASB OPEB and FAS 106.

Pete's knowledge of actuarial software is an added strength. In addition to experience with GRS' internal actuarial software, he has many years of experience working with ProVal and other actuarial valuation systems. He also has experience converting actuarial valuations and models from one valuation system to another. His valuation conversion expertise ensures an efficient and timely transition for new clients during the initial replication process.



Establishing a Funding Policy

Pete Strong, FSA, EA, MAAA

Gabriel, Roeder, Smith & Co.



What is a Funding Policy?

- **Written Document that Sets the Policies for Determining How Much the Plan Sponsor(s) Should Contribute and When.**
- Should Be Collaborative Effort (Ideally):
 - Between Pension Board & Plan Sponsor, by Forming a Committee
 - Should Recognize Interests of Both Plan Members and Plan Sponsor

What is a Funding Policy?

- Funding Policies Should State & Describe:
 - A. Actuarial Cost Method
 - B. Asset Smoothing Method
 - C. Amortization Procedures
 - D. Procedures for Evaluating / Selecting Actuarial Assumptions

Why is a Funding Policy Needed?

1. Florida Statutes Help, but They. . .
 - Only Give Broad General Parameters (Maxes/Mins)
 - Are Incomplete for Boards to Strike a Balance Among Competing Objectives (**Volatility Control, Benefit Security, and Inter-Generational Equity**).
2. Principal Elements of a Funding Policy May Not Have Ever Been Well-Documented or Fully Considered / Deliberated by Boards

Why is a Funding Policy Needed?

3. To Help a Pension Plan Thrive By:
 - Giving Structure/Guidelines to Current/Future Board
 - Applying Best Practices
4. Helps Fulfill Promises to Plan Members
5. Gives Plan Members Confidence in Having Secure Lifetime Retirement Income

Why is a Funding Policy Needed?

6. Helps Defend DB Plans Against Accusations
7. Helps Keep State from Stepping in and Requesting Changes
8. Demonstrates Compliance With:
 - State Statutes and Rules
 - GASB Standards
 - Actuarial Standards of Practice

What is a Funding Policy?

- Four Primary Elements of a Funding Policy:

A. Actuarial Cost Method

B. Asset Smoothing Method

C. Amortization Procedures

D. Actuarial Assumption Procedures

Funding Policy Elements

A. Actuarial Cost Method

- The Method for Allocating the liabilities for all Future Benefits over all Years of Service to Distinguish Between Past and Future Liabilities and Set the Annual Cost Rate, which Impacts the Level and Timing of Contributions.

Funding Policy Elements (Cont.)

A. Actuarial Cost Method

- Examples of Actuarial Cost Methods:
 1. Entry Age Normal (EAN)
 2. Aggregate
 3. Projected Unit Credit (PUC)
 4. Frozen Initial Liability (FIL)

Funding Policy Elements (Cont.)

A. Actuarial Cost Method: Entry Age Normal

- For Each Individual, Present Value of Future Benefits Allocated Over All Years (Entry Age to Decrement Age) as a Level % of Pay
- Each Year's Allocation = That Year's "Normal Cost" (Expected to Remain a Level Percent of Pay)
- EAN is the Preferred Method of the Conference of Consulting Actuaries' White Paper
- GASB Requires use of EAN for Accounting
- Most Florida Pension Plans use EAN

Funding Policy Elements (Cont.)

A. Actuarial Cost Method: Aggregate

- Total Present Value of Future Benefits (PVFB) in Excess of Assets is Allocated over Present Value of Future Salaries (PVFS) as a Level Percent of Pay
- Popular for Closed Plans → Finances All Liabilities by the Time there are no more Active Employees
- No Explicit Unfunded Actuarial Liability (UAL) or Specified Number of Years for Amortization
- Normal Costs are More Volatile than with EAN

Funding Policy Elements (Cont.)

A. Actuarial Cost Method: Projected Unit Credit (PUC)

- Normal Cost is more “Back-Loaded”, meaning it is likely to increase over time as a Percentage of Pay
- PUC Actuarial Accrued Liability usually lower than EAN Actuarial Liability

Funding Policy Elements (Cont.)

B. Asset Smoothing Method

- To Determine the Actuarial Value of Assets (AVA) used in the Valuation
- Can Use Market Value of Assets (MVA)
 - But it will be more volatile
- Most Plans Use Asset Smoothing to smooth out year-to-year fluctuations in the Market Value of Assets

Funding Policy Elements (Cont.)

B. Asset Smoothing Method

- Asset Smoothing Allowed under Florida Statutes, but over a max of 5 years; must remain within 20% of MVA
- Common Smoothing Methods in FL:
 1. LY's AVA increased by Compound Average of MVA % Returns Over the Last X Years
 2. Weighted Average of MVA and Expected AVA
 3. Direct X-Year MVA Gain/Loss Write-Down

Funding Policy Elements (Cont.)

B. Asset Smoothing Method

- AVA Should be Projected to Converge to MVA Within 5 Years if Actual Investment Returns on the MVA Equal Assumed Returns
- Each Method has Pros and Cons
- Not a Significant Difference in Results

Funding Policy Elements (Cont.)

C. Amortization Procedures

- Periods for Paying Off Unfunded Liabilities
- Periods may Differ Depending on Type of Base (Cause of the Unfunded Liability)
- Florida Statutes (per Ch. 112.64(4), F.S): 30-year max
 - However, 30 years considered too long by many experts

Funding Policy Elements (Cont.)

C. Amortization Procedures

- When Setting Amortization Periods, Should Balance Competing Objectives
 - Balance Volatility Control with Benefit Security and Inter-Generational Equity
- Shorter Periods Provide more Benefit Security and Inter-Gen. Equity; Longer Periods → Less Volatility

Funding Policy Elements (Cont.)

C. Amortization Procedures

- **GFOA says:** *“Never exceed 25 years, but ideally fall in the 15-20 year range”*
- **Conference of Consulting Actuaries White Paper says:** *“an ideal amortization period range is 15 to 20 years”* to favor Inter-Generational Equity and Benefit Security but still provide some Volatility Control

Funding Policy Elements (Cont.)

C. Amortization Procedures

- Types of Amortization Bases
 1. Changes in Liability Due to Plan Amendments (Benefit Changes)
 2. Changes in Assumptions / Methods
 3. Experience Gains / Losses
- May Set Different Amortization Periods for Each Type of Base

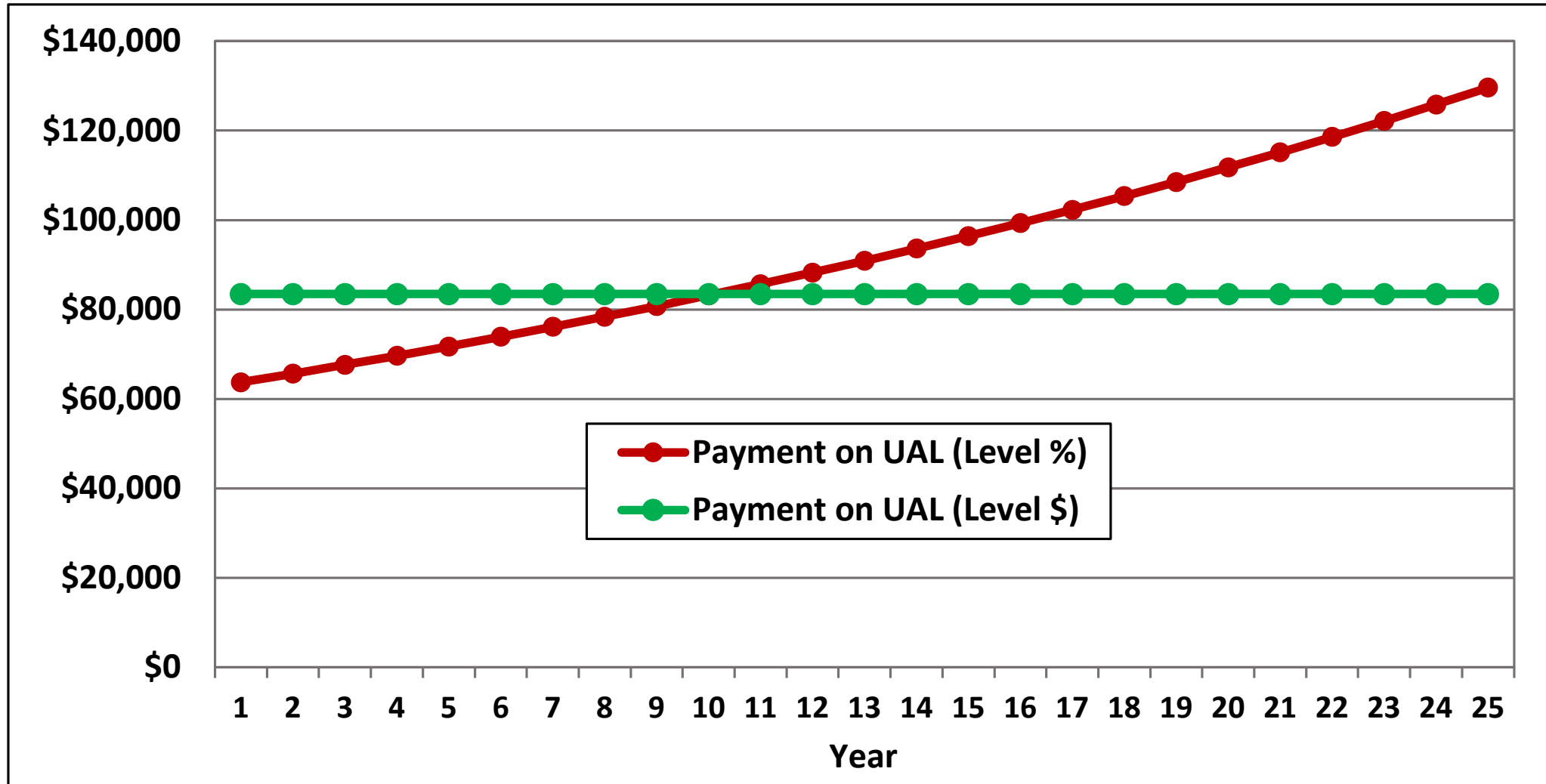
Funding Policy Elements (Cont.)

C. Amortization Procedures

- Two Types of Amortization
 1. Level Dollar (Same Payment Amount Every Year)
 2. Level Percent of Pay
 - Payments Increase Over Time by an Assumed Payroll Growth Rate
 - The Higher the Assumed Payroll Growth Rate, the Lower the Initial Payment and the Higher the Ultimate Payment

Funding Policy Elements (Cont.)

- Level Dollar vs. Level Percent of Pay:

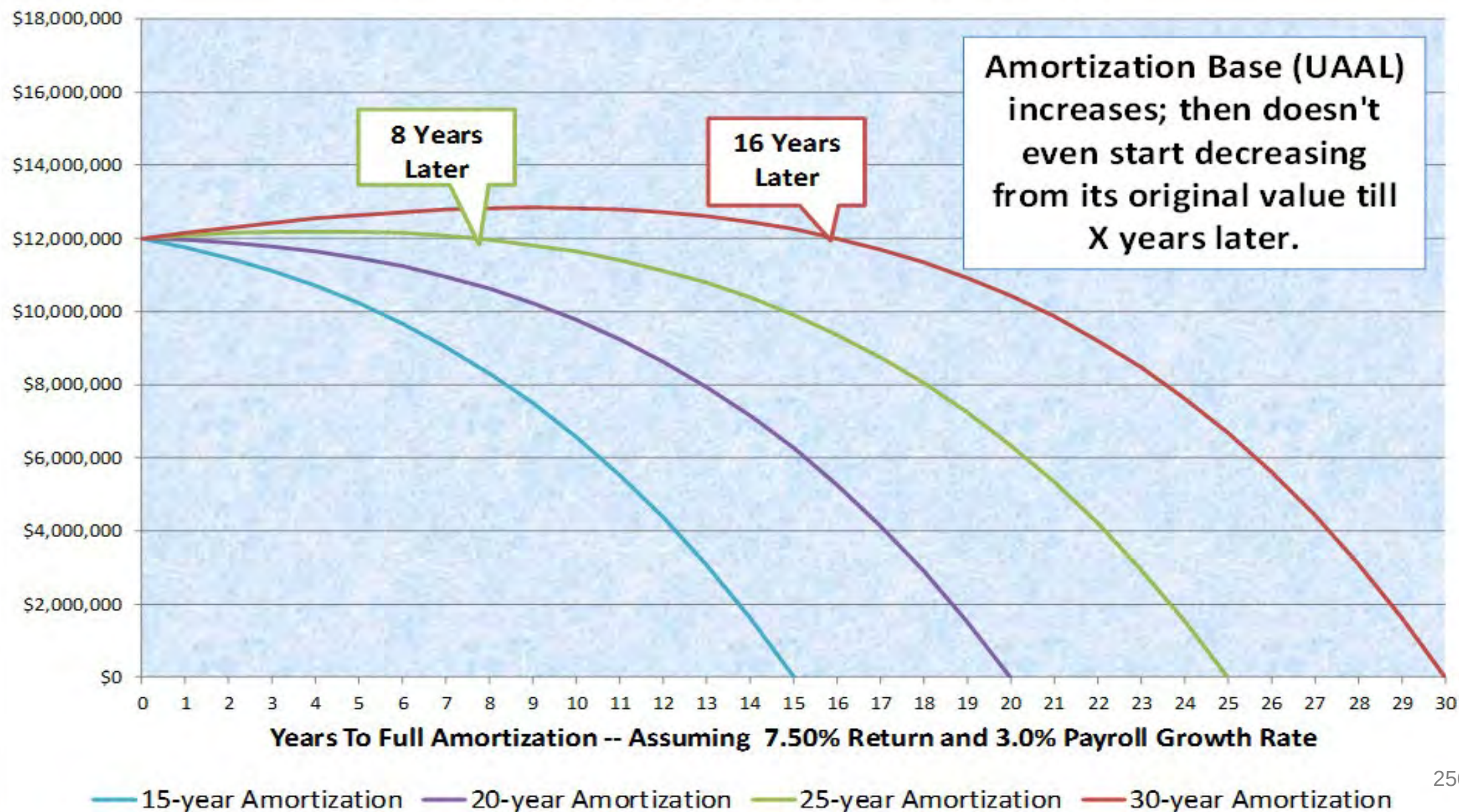


Funding Policy Elements (Cont.)

C. Amortization Procedures

- Level Percent of Pay Amortization
 - Ch. 112.64(5), F.S., Limits Payroll Growth Rate to Max of Actual 10-Year Historical Average Payroll Growth Rate (with some exceptions)
 - If Amortization Period > 20 Years and Payroll Growth Rate $\geq 3\%$, Could Have Negative Amortization (Payment Less Than Interest; UAL Increases)

Pay-down of an Amortization Base Illustrating Negative Amortization



Funding Policy Elements (Cont.)

C. Amortization Procedures

- Level Dollar is More Conservative Than Level Percent of Pay
- Closed / Frozen Plans Should Always Amortize as a Level Dollar Amount (Payroll is Declining)

Funding Policy Elements (Cont.)

D. Actuarial Assumption Procedures

- Funding Policy does not Set Actuarial Assumptions Themselves, but Describes Procedures to Follow When Evaluating / Adopting Actuarial Assumptions
 - Frequency of Experience Studies
 - Process for Setting Inflation and Investment Return Assumptions

Funding Policy Elements (Cont.)

D. Actuarial Assumption Procedures

- GFOA / CCA Best Practice: Conduct an Experience Study to Evaluate Actuarial Assumptions Once Every 5 Years
- Results of Experience Studies are Used to Set Assumed Rates of Retirement, Turnover, Disability, and Salary Increases
 - Mortality Rates Set by Law

Funding Policy Elements (Cont.)

D. Actuarial Assumption Procedures

- Establish Disciplined Process for Setting the Inflation and Investment Return Assumptions
 - Should Be Based on Professional Input
 - Should Be Based on Forward-Looking Market Forecasts
 - Should Consider Multiple Sources
 - Should Re-evaluate Every 3-5 Years

Creating a Funding Policy

1. Form a Committee Comprised of Board Members, Plan Sponsor Representatives, Plan Actuary, and Attorney
2. Conduct Workshop / Education Session on Funding Policy Elements
3. Review and Understand Current Funding Policy, Even if a Written One Does Not Exist (Relevant Statutes / Ordinances, Methods Previously Adopted By Board, Current Practices in Actuarial Valuation)

Creating a Funding Policy

4. Review / Discuss Funding Policy Goals and Make Decisions on the Four Funding Policy Elements
5. Prepare a Draft Written Funding Policy and Have Legal Counsel Review it
6. Finalize and Communicate it to all Stakeholders
7. Monitor Compliance with the Funding Policy
8. Review/Amend Over Time as Needed

Appendix

- ***Government Finance Officers Association (GFOA)***

<http://www.gfoa.org/sustainable-funding-practices-defined-benefit-pension-plans>

<http://www.gfoa.org/core-elements-funding-policy>

<http://www.gfoa.org/funding-defined-benefit-pensions>

http://www.gfoa.org/best-practices?field_committee_value=All&term_node_tid_depth%5B%5D=105&term_node_tid_depth%5B%5D=106&term_node_tid_depth%5B%5D=107&term_node_tid_depth%5B%5D=136&term_node_tid_depth%5B%5D=104

- ***Conference of Consulting Actuaries (CCA)***

This is the definitive work to date on funding policy matters for public sector pension plans. Here is an excerpt from the White Paper's cover letter: "The CCA PPC includes over 50 leading actuaries whose firms are responsible for the actuarial services provided to the majority of public-sector retirement systems in the US. All of the major actuarial firms serving the public sector are represented in the CCA PPC as well as in-house actuaries from several state plans. As a result, the CCA PPC represents a broad cross section of public-sector actuaries with extensive experience providing valuation and consulting services to public plans, and it is that experience that provides the knowledge base for this paper."

<http://ccactuaries.org/publications/news/CCA-PPC-White-Paper-on-Public-Pension-Funding-Policy.pdf>

Disclaimers

- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- Readers are cautioned to examine original source materials and to consult with subject matter experts before making decisions related to the subject matter of this presentation.
- This presentation does not necessarily express the views of the sponsoring organization or the speaker's employer.

Ethics Master Class

Caroline Klancke
Florida Ethics Institute

Ms. Klancke is an attorney, ethicist, author, and lecturer. She serves as Florida State University's Associate Compliance Officer and Director of Ethics and Integrity Programs, where she also teaches Public Service Ethics.

She is the founder and Executive Director of the Florida Ethics Institute. Ms. Klancke is the former General Counsel and Deputy Executive Director of the Florida Commission on Ethics where she assisted the agency in its constitutional mandate to interpret and enforce the Code of Ethics for Public Officers and Employees. Prior to her tenure with the Ethics Commission, she served as Chief Ethics Officer and Senior Attorney with the Florida Public Service Commission.

She is the author of the *Florida Ethics Handbook*—the only comprehensive guide to governmental ethics regulations in Florida. She has lectured extensively for the Florida Commission on Ethics, the Florida Bar, Florida Association of Counties, and others on ethics, open government, and governmental and corporate compliance requirements. In 2015, the Florida Government Bar Association selected her as a finalist for Government Attorney of the Year. In 2023 the Florida Association of County Attorneys honored her with the Ethics in Government award.





ETHICS MASTER CLASS

Key Requirements of the State Code of Ethics Applicable to Public Pension Trustees

**Presented by
Caroline Klancke, JD, CCEP**

**Executive Director
Florida Ethics
Institute**

GOVERNMENTAL ETHICS IN FLORIDA

Article II, Section 8

- Creates constitutional guarantees concerning ethics in government
- Creates Commission on Ethics

➤ **Amended in 2018!**

Part III, Chapter 112, F.S.

- Protects against conflicts of interest.
- Establishes standards of conduct for public officers and employees on state and local levels of government.
- Promotes public's confidence in public officials and government.

FLORIDA COMMISSION ON ETHICS

- Nine member appointed board that is politically balanced.
- Primarily interpret and administer Art. II, s. 8, Fla. Const., and Part III, Chapter 112, F.S., via the issuance of advisory opinions and the investigation of ethics complaints/referrals.
- Oversees the filing of financial disclosure.



PERSONS SUBJECT TO THE CODE OF ETHICS

- ALL public officers—both state and local elected and appointed (including public pension trustees)
- ALL public employees (state and local)
- Local government attorneys
- Candidates for public office
- Miscellaneous others

COMPLAINTS!

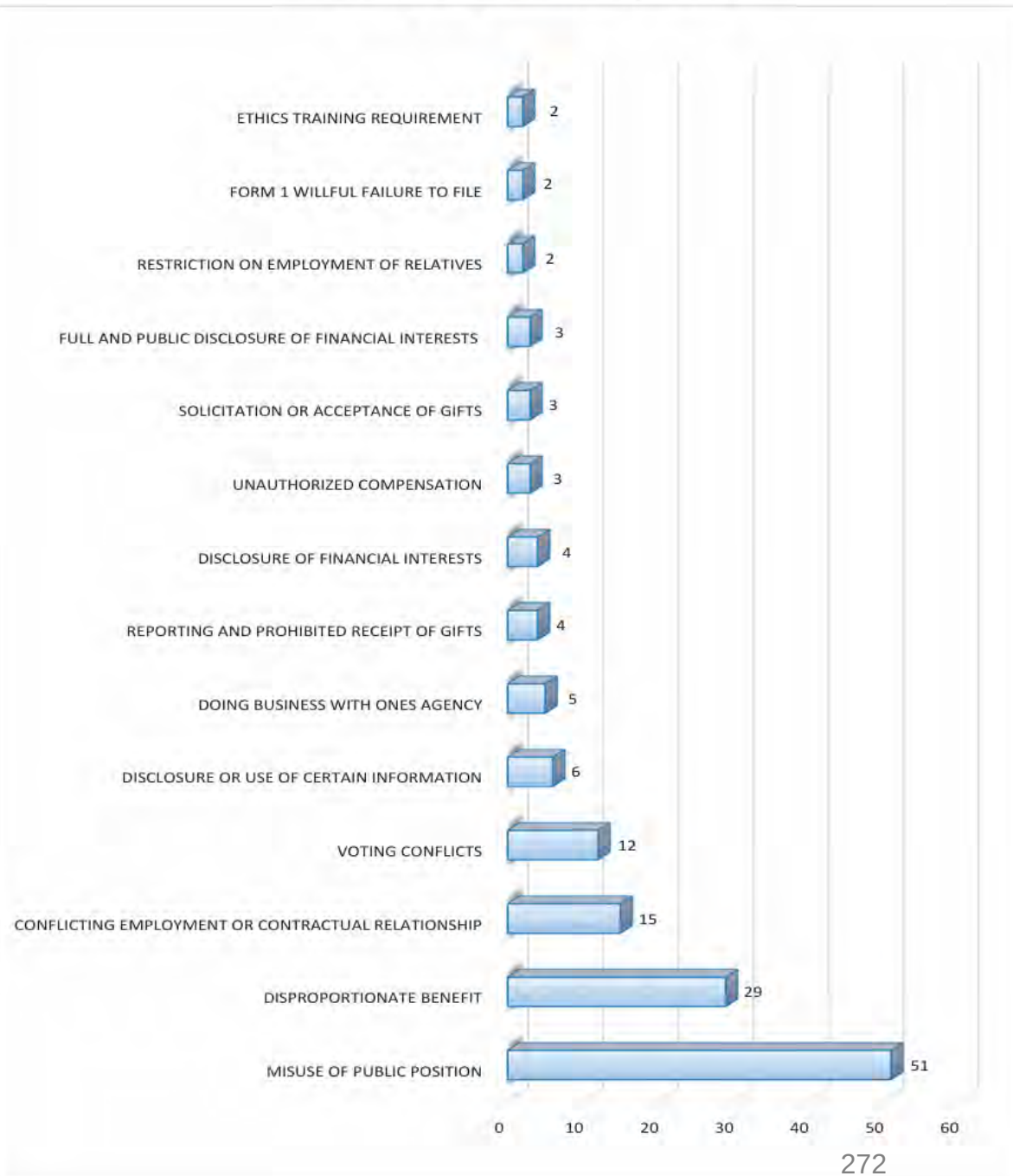
- May be filed by ANYONE possessing “personal knowledge or information other than hearsay”
- Must be filed on a notarized, sworn “Form 50”
- Confidential during investigation/review
- Cannot be initiated by Commission*
- 5-year statute of limitations. s. 112.3231, F.S.
- Since 2013 Commission also receives referrals from statutorily designated agencies

ETHICS COMPLAINTS BY THE NUMBERS

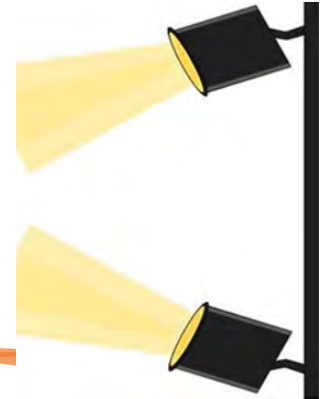
- On average the Commission receives 250 ethics complaints and referrals a year.
- In **2023 the Commission received 292 complaints** and referrals.
 - 32.2% filed against elected municipal officials.
 - 23.6% filed against county elected officials
 - 23.9% filed against state, county, and city employees
 - **6% filed against appointed officials**
- Approximately 60% of complaints investigated annually.

Ethics Complaints By The Numbers

2023 Complaint Allegations



Spotlight on 2024 Changes to Ethics Complaint Process: SB 7014



- Creates expedited timelines for completion of specific steps of the State ethics investigatory process and imposes a “personal knowledge or information other than hearsay” requirement on all ethics complaints
- **Requires all local political subdivisions, including local ethics commissions, to:**
 - Require that ethics complaints must be written and signed under oath or affirmation—NO anonymous complaints:
 - Require that ethics complaint must be based upon “personal knowledge or information other than hearsay”;
 - Prohibit self-initiation of ethics complaints; and
 - Authorize recovery of costs and attorney fees by Respondents only

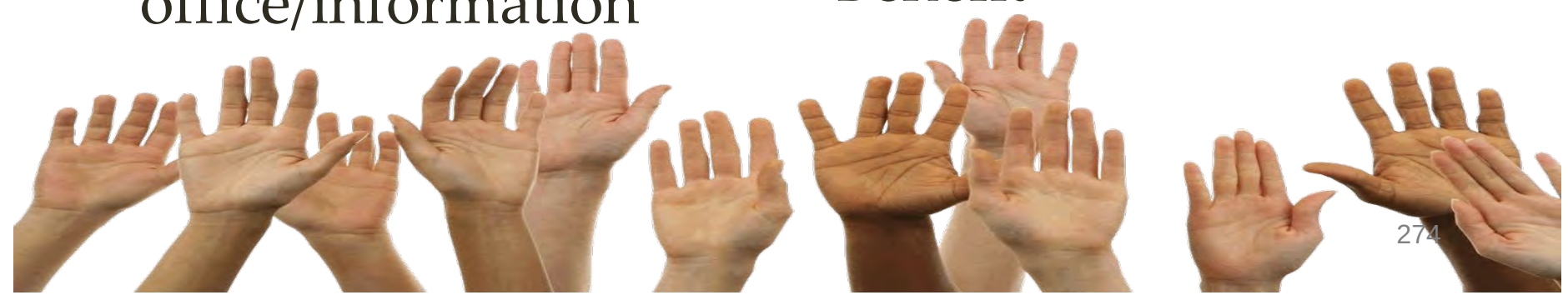
WE WILL COVER

Key Ethics Laws

- Gifts, Bribes, & Unauthorized Compensation
- Conflicts of Interest
- Voting Conflict
- Misuse of public office/information

NEW Ethics Law Requirements

- New changes in financial disclosure requirements and process
- Prohibited Disproportionate Benefit



REQUIREMENTS IN FINANCIAL DISCLOSURE



WHO FILES FINANCIAL DISCLOSURE?

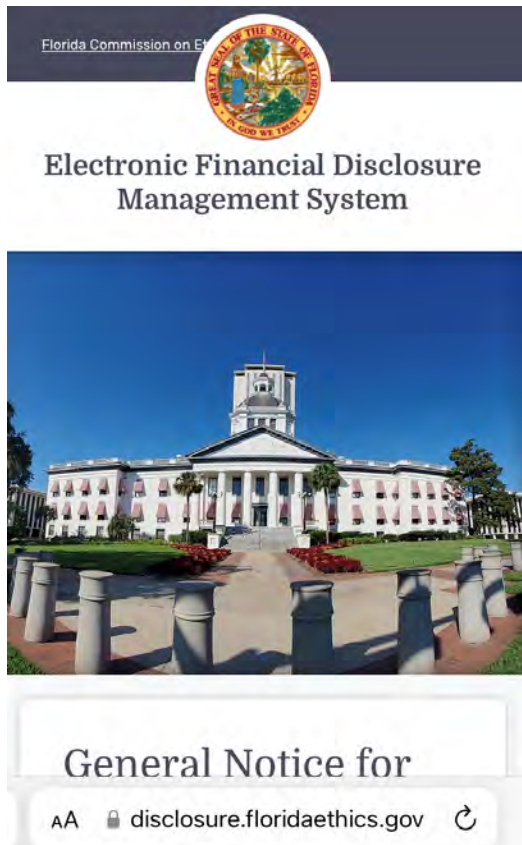
Form 6 Full & Public Disclosure of Financial Interests (5,000 +filers)

- All constitutional officers
- Art. II, s. 8(a), Fla. Const.
- Section 112.3144, F.S.

Form 1 Statement of Financial Interests (35,000+ filers)

- Local Officers
(including all pension trustees)
- State Officers
- Specified State Employees
- Section 112.3145, F.S.

ELECTRONIC FINANCIAL DISCLOSURE MANAGEMENT SYSTEM



- Launched on January 1, 2022.
- Enables the **electronic creation, submission, and publication** of financial disclosures.
- ALL Form 1 and Form 6 filers are now required to **electronically** create and file disclosures
- <https://disclosure.floridaethics.gov>

KEY FORM 1 DISCLOSURE FACTS

- Initially due within 30 days of appointment or election
- Forms are due annually by **July 1** every year
- **After Sept. 1**, fines of \$25/day for up to 60 days (\$1,500)
- Failure to file financial disclosure in any calendar year can result in removal from public office/employment if willful
- The only manner of calculating reportable interests is the **Dollar Value Threshold** method
- **Dollar Value Threshold:**
 - Disclose primary sources of income over \$2,500
 - Secondary sources > \$5,000
 - Liabilities over \$10,000
 - Real property in Fla.
 - Intangible personal property over \$10,000
- **Remember—no actual dollar amounts need be disclosed!**

REDACTION REQUEST FOR PERSONAL INFO

Florida Commission on Ethics

Public Records Exemption Request

Florida law provides that an agency shall treat social security numbers, bank account numbers, and debit, charge, and credit card numbers as automatically exempt from public disclosure. In addition, Florida law allows eligible persons to submit a written and notarized request that a non-employing agency maintain as exempt from public disclosure certain identification and/or location information contained in records within the agency's custody.

The person entitled to the additional exemptions must submit a written and notarized request directly to this agency to maintain the exemption to the records in our custody. § 119.071(4)(d)3, F.S. You are not required to use this form; however doing so will help us keep your information confidential. Please return this completed form or a written and notarized request to: Florida Commission on Ethics, P.O. Drawer 15709, Tallahassee, Florida 32317.

If you or your spouse qualify; or if you are the child of someone who qualifies; you are eligible to receive additional public records exemptions. Please check the box for any of the following that apply:

Active or Former:

- ☐ Sworn or civilian law enforcement personnel, including correctional and correctional probation officers.
- ☐ Department of Children and Families personnel whose duties include investigating criminal activities.
- ☐ Department of Health personnel whose duties are to support the investigation of child abuse or neglect.
- ☐ Department of Revenue or local government personnel whose responsibilities include revenue collection and enforcement or child support enforcement.

Current or Active:

- ☐ General magistrate, special magistrate, judge of compensation claims, administrative law judge of the Division of Administrative Hearings, or child support enforcement hearing officer.
- ☐ County Tax Collector.
- ☐ Child protection team members.

Current or Former:

- ☐ Department of Financial Services nonsworn investigative personnel whose duties include investigating criminal activities, workers' compensation coverage requirements and compliance, or state regulatory requirement violations.
- ☐ Supreme Court Justice, or judge of district court of appeal, circuit court, or county court.
- ☐ State attorney, assistant state attorney, statewide prosecutor, or assistant statewide prosecutor.
- ☐ Public defender, assistant public defender, criminal conflict and civil regional counsel, and assistant criminal conflict and civil regional counsel.
- ☐ Human resource, labor relations, or employee relations director, assistant director, manager, or assistant manager of any local government agency or water management district whose duties include hiring/firing employees, labor contract negotiation, administration, or other personnel-related duties.
- ☐ Code Enforcement Officer.
- ☐ Guardian ad litem, as defined in s. 39.820, F.S.
- ☐ Guardian ad litem, as defined in s. 39.820, F.S.
- ☐ Juvenile probation officer, juvenile probation supervisor, detention superintendent, assistant detention superintendent, juvenile justice detention officers I and II, juvenile justice detention officer supervisor, juvenile justice residential officer, juvenile justice

residential officer supervisors I and II, juvenile justice counselor, juvenile justice counselor supervisor, human services counselor administrator, senior human services counselor administrator, rehabilitation therapist, or social services counselor of the Department of Juvenile Justice.

- ☐ Department of Business and Professional Regulation Investigator or Inspector.
- ☐ Department of Health personnel involved in determining or adjudicating eligibility for social security disability benefits, investigating or prosecuting complaints filed against health care practitioners, or inspecting health care practitioners or health care facilities licensed by the Department of Health.
- ☐ Impaired practitioner consultant retained by an agency, or employees of such a consultant.
- ☐ Certified emergency medical technician or paramedic.
- ☐ Personnel employed in an agency's office of inspector general or internal audit department whose duties include auditing or investigating activities that could lead to criminal prosecution or administrative discipline.
- ☐ U.S. Attorney or Assistant U.S. Attorney, U.S. Courts of Appeal judge, U.S. district judge, or U.S. magistrate.*
- ☐ Victim of sexual battery, aggravated child abuse, aggravated stalking, harassment, aggravated battery, or domestic violence (if applicable, must attach official verification that crime occurred; exemption applies only to individual victim of specified crime, not to the spouse or child of the victim).**
- ☐ Certified firefighter.
- ☐ Nonsworn investigative personnel of the Office of Financial Regulation whose duties include investigating fraud, theft, criminal activities related to fraud or theft, and violations of state regulatory requirements.
- ☐ Child Advocacy Center Directors, managers, supervisors, and clinical employees.
- ☐ County addiction treatment facility directors, managers, supervisors, nurses, and clinical employees.
- ☐ Public guardians, and those employees of public guardians with fiduciary responsibilities.
- ☐ Staff and domestic violence advocates of domestic violence centers certified by the Department of Children and Families under Chapter 39, F.S.

☐ Yes, I qualify

☐ Yes, my spouse qualifies

☐ Yes, my parent qualifies

Printed Name: _____ Phone Number: _____

The residence address(es) you wish us to maintain as confidential _____

OATH

I, the person whose name appears at the beginning of this form, do depose on oath or affirmation and say that the information disclosed on this form and any attachments hereto is true, accurate, and complete.

STATE OF FLORIDA COUNTY OF _____

Sworn to (or affirmed) and subscribed before me by means of
☐ physical presence or ☐ online notarization, this _____ day of _____, 20____ by _____

(Signature of Notary Public—State of Florida)

(Print, Type, or Stamp Commissioned Name of Notary Public)

Personally Known _____ OR Produced Identification _____

Type of Identification Produced _____

SIGNATURE OF REPORTING OFFICIAL OR CANDIDATE

*— If this category is selected, person also certifies, by signing this form, that he or she has made reasonable efforts to protect such information from being accessible through other means available to the public.

**— Exemption valid for 5 years from date of request.

Examples of Persons Eligible to Request Exemption

Current or Active:

- **NEW exemption for County and City Commissioners (as of July 1, 2025)!**
- County Attorney, Assistant County Attorney, or Deputy County Attorney
- City Attorney, Assistant City Attorney, or Deputy City Attorney
- Judges/Special Magistrates/Administrative Law Judges, and NOW Judicial Assistants
- Circuit Court Clerk, Deputy Circuit Court Clerk, or Circuit Court Clerk Personnel
- And many more . . .

Current or Former:

- Law enforcement personnel
- Specified military personnel
- Local government personnel whose responsibilities include revenue collection or child support enforcement
- Public Defenders, Guardian ad litem, Code Enforcement Officers
- Firefighters, paramedics, EMTs
- And many more!

GIFTS, BRIBES & UNAUTHORIZED COMPENSATION!



ANTI-BRIBERY ETHICS REQUIREMENTS

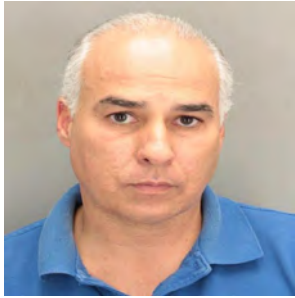
Prohibited Solicitation or Acceptance of Things of Value s. 112.313(2)

- Prohibits all public officers, public employees, local government attorneys, and candidates from asking for or accepting *anything of value* based upon an understanding that their vote, official action, or judgment would be influenced.

Unauthorized Compensation s. 112.313(4), F.S.

- Prohibits all public officers, public employees, and local government attorneys, or their spouse or minor child, from accepting *anything of value* when the official knows, or under the circumstances should know, that it was given to influence a vote or other official action.

Ghost Candidate Example



In re Alexis Pedro Rodríguez

Comp. No. 20-225, Final Order No. 21-031

- In a 2020 tight Senate race involving then-incumbent candidate Sen. José Javier Rodríguez, the Respondent agreed to accept \$44,000 in exchange for changing his party affiliation, falsifying information on his financial disclosure filing as a candidate and running as a no-party affiliation candidate.
- Fined \$20,000 and public censure/reprimand.
- In **Oct 2024** the bribe giver, former Sen. Frank Artiles, convicted of three federal charges related to a "ghost candidate" scheme!

ADVISORY OPINIONS APPLYING 112.313(2) & (4), F.S.

- CEO 21-1:** Finding that a police officer's acceptance of an offer from a landlord of reduced rent in exchange for off duty work at complex would not violate s. 112.313(2) or (4), F.S.
- CEO 14-26:** Finding that a City Council member's acceptance of a chamber of commerce designation of the councilmember's business as an "endorsed vendor" did not violate s. 112.313(2) and (4), F.S.
- CEO 80-27:** Finding that s. 112.313(4) would be violated where a university employee received a "meal card" which could be used for unlimited free meals from a food service company contracting with the university.

ADDITIONAL GIFTS RESTRICTIONS APPLICABLE TO REPORTING INDIVIDUALS

- The traditional Gifts Law — s. 112.3148, F.S.
- Gifts from political committees — s. 112.31485, F.S.
- Honoraria Law — s. 112.3149, F.S.
- See also* Locality-Specific Restrictions Imposed by City or County

THE GIFTS LAW

s. 112.3148, F.S.



- X Cannot solicit gifts from lobbyists, employers of lobbyists, and vendors of your agency.
- X Cannot accept gifts worth more than \$100 from lobbyists, principal/employers of lobbyists, vendors, certain others.
- ✓ Must report gifts worth more than \$100 received from non-restricted sources on Form 9
- ✓ May accept gifts of any value from relatives!
- ✓ Restricted donor giving gift valued at \$25 to \$100 must report the gift on Form 30 quarterly

DEFINITION OF “GIFT”

Definition of “gift”

Includes:

- Tangible or intangible personal property
- Food or beverages
- Transportation
- Real property and use of real property
- Flowers and floral arrangements
- Entrance fees and tickets
- Preferential rates
- Membership dues
- Any other similar service or thing having an attributable value**

Definition of “gift” does

NOT Include:

- Salary/benefits/expenses associated with **private** "employment, business, or service as an officer or director of a corporation or organization"
- Campaign contributions
- Honorarium and honorarium event related expenses
- Awards in recognition of donee's "public, civic, charitable, or professional service"
- The use of public facility/property for public purpose
- And more!

RESTRICTED DONORS: WHO ARE “LOBBYISTS” AND “VENDORS”?

PAID TO PERSUADE

- “Lobbyist”: Anyone who, for compensation, is seeking or has sought in the last 12 months to influence the governmental decisions of a RIPE or his or her agency. s. 112.3148(2)(b), F.S.
- “Vendor”: A business entity doing business directly with an agency, such as renting, leasing, or selling any realty, goods, or services. s. 112.3148(2)(f), F.S.

ANTI-SOLICITATION FROM RESTRICTED DONORS

s. 112.3148(3), F.S.

- A RIPE **cannot solicit (ask for) a gift**, regardless of value, **from a “lobbyist”** who lobbies their agency (or the principal/partner/firm or employer of such a lobbyist), a **“vendor,”** or political committee, *if* the gift is for the personal benefit of the RIPE, another RIPE, or immediate family of either.
- Limited exception for charitable solicitations not benefiting the RIPE or their family — CEO 91-52 and CEO 95-25.

DISCLOSURE OF GIFTS OF LESS THAN \$100 FROM RESTRICTED SOURCES

- RIPEs can accept gifts from restricted sources (lobbyists, employers of lobbyists, vendors, etc) having a value **less than \$100** and RIPEs do not have to report them.
- Vendor/Lobbyist can give gifts to RIPEs having a value of less than \$100.
- IF a restricted donor gives a gift to a RIPE having a value **between \$25 and \$100** THE GIFT GIVER (vendor/lobbyist) is required to report it on a **Form 30, “Donor’s Quarterly Gift Disclosure.”**

PROHIBITED ACCEPTANCE OF GIFTS OVER \$100 FROM RESTRICTED SOURCES

S. 112.3148(4), F.S.

A RIPE **cannot accept**, directly or indirectly, **a gift from a lobbyist** who lobbies their agency (or the principal/partner/firm or employer of such a lobbyist), a **vendor**, or political committee IF valued at **over \$100**.

- Reporting an impermissible gift will not cure its unacceptability.

GIFTS FROM NON-RESTRICTED SOURCES

- Applies only to Form 1/Form 6 filers (RIPEs)
- Gifts from “relatives” of any amount can be accepted. s. 112.3148(1), F.S.
 - No reporting requirement
- Gifts from friends in community of any amount can be accepted BUT
 - Have to report if over \$100 on a Form 9
 - CEO 16-01 – Do not accept gift of over \$100 if friend is a lobbyist/vendor!

CASE STUDY INVOLVING GIFTS & BRIBES

You are a pension board trustee. During a meeting of the board a friend who is a partner in an actuarial firm providing services to the board via contract, offers you two tickets to the big game! During your conversation, he asks if you could help with the renewal of his firm's contract considering these free tickets. **What ethics issues does this raise, if any?**

GIFTS CASE STUDY ANALYSIS

Steps for Analyzing ANY Gift

1. Is this a bribe?
2. Who is giving me the gift?
3. Is the gift giver a lobbyist or vendor of my agency?
4. How much is this thing worth?
5. Less than \$100 or more than \$100?
6. If the value is more than \$100 *and* the gift giver is a lobbyist or vendor—either do not accept it or pay the value down!

Analysis of These Gifts

- Is there indication that gifts being offered to influence official decision/vote?
- Here gift giver is a **vendor** (and possibly a lobbyist) of the board. CEO 16-1
- Sect. 112.3148(4) **\$100 threshold** of acceptance re gifts from **lobbyists** and/or **vendors** of one's agency.
- Tickets are a gift. Tickets valued by face value x the number of tickets accepted.

**CONFLICTS
OF
INTEREST**
s. 112.313, F.S.

**Doing Business with
One's Own Agency**

&

**Conflicting
Employment and
Contractual
Relationships**

WHAT IS A CONFLICT OF INTEREST?

“Conflict” or “Conflict of Interest” means a situation in which regard for a private interest tends to lead to disregard of a public duty or interest.

s. 112.312(8), F.S.



CONFLICTS OF INTEREST

s. 112.313(3) and (7), F.S.

Doing Business with One's Own Agency

- Cannot do business with a company in which you or your spouse or child are an officer/director, or own a material interest (of more than 5%)
- Cannot sell realty, goods, or services to your own agency

Conflicting Employment & Contractual Relationship

- Cannot have an employment or contractual relationship with any businesses that is doing business with your agency/board
- Nor can you have employment or contractual relationships that causes a frequently recurring conflict with public duties

EXEMPTIONS

- **Grandfathering**— Contracts entered into prior to qualification for elective office, **appointment to public office**, or beginning public employment are **automatically exempted**. *See* CEO 96-30 and CEO 09-1.
- Exemptions in s. 112.313(12), F.S.
 - **Waiver of conflict by appointing board!**
 - Sole source of supply
 - Sealed competitive bid
 - Sales of less than \$500 in any calendar year
 - And more!
- Additional exemption in s. 112.313(16), F.S. *See* CEO 91-55.

CONFLICTS OF INTEREST CASE STUDY

You are a Sun City Pension Board Trustee. In your private capacity you own a company, ABC Actuarial. The Board needs an actuarial services provider. During a Board meeting you state that there's no need to engage in competitive bidding as your company should be selected immediately. Thereafter, the Board votes to approve a contract with ABC Actuarial, and you abstain from the vote. **What ethics issues does this scenario raise, if any?**

VOTING CONFLICT

s. 112.3143, F.S.

- Memorandum of Voting Conflict (Form 8B)
- Applies only to members of collegial bodies



IDENTIFYING & APPLYING VOTING CONFLICTS LAW

s. 112.3143, F.S.

Measure would result in a special
(economic) private gain or loss TO YOU

OR

Which you know would result in a
special private gain or loss to:

- A relative
- A business associate
- A principal/employer by whom you are retained or the parent or subsidiary of your principal/employer

WHAT TO DO

s. 112.3143(3) & (4), F.S.

Appointed Public Officers:

1. Publicly disclose conflict;
2. Abstain from voting; AND
3. File a memorandum (CE Form 8B) prior to vote or within 15 days.

Also, disclose conflict before participating in any discussion

LAWS PERTAINING TO PROHIBITED CONDUCT



MISUSE OF PUBLIC POSITION

s. 112.313(6), F.S.

All public officers, public employees, and local government attorneys are prohibited from **corruptly** using or attempting to use their public position or resources to secure a **special benefit, privilege, or exemption** for themselves or others.



MISUSE OF PUBLIC INFORMATION

s. 112.313(8), F.S.

- Applies to current and former public officers and employees.
- Prohibits using info gleaned in public capacity and not available to public for their personal benefit or for the benefit of persons or entities connected to them in a private capacity.



There is a New Sheriff in Town!

Art. II, s. 8(h)(2),
Fla. Const.:

Prohibited
Disproportionate
Benefit!

PROHIBITED DISPROPORTIONATE BENEFIT

- Article II, Section 8 of the Florida Constitution.
- Effective **Dec. 31, 2020.**
- Rule 34-18.001, Florida Administrative Code.
- CEO 19-23 and CEO 21-1.
- Prohibits all public officers and employees from **abusing** their position in order to obtain a **disproportionate benefit** for:
 - Themselves
 - Spouse or Children
 - Employer
 - Any business entity with whom they contract or serve as officer, partner, director, **or** own an interest.

PENALTIES

- Sect. 112.317, F.S., provides non-criminal penalties for current and former public officers and public employees, candidates for public office, and others.
 - Impeachment,
 - Removal/suspension from public office/employment,
 - Public censure and reprimand,
 - Forfeiture of up to one third of public salary,
 - Civil penalties \$20,000 per violation (as of May 11, 2023),
 - Restitution of pecuniary benefits

Forfeiture of Retirement Benefits

- Any public officer or employee who is convicted of a felony involving a **breach of public trust** shall be subject to forfeiture of rights and privileges under a public retirement system or pension plan in such manner as may be provided by law.
- Art. II, s. 8(d), Fla. Const.
- **FORFEITURE.**— Any public officer or employee who is **convicted of a specified offense** committed prior to retirement, or whose office or employment is terminated by reason of his or her admitted commission, aid, or abetment of a specified offense, shall forfeit all rights and benefits under any public retirement system of which he or she is a member, except for the return of his or her accumulated contributions as of the date of termination. s. 112.3173(3), F.S.

Specified Offenses

s. 112.3173(1)(e), F.S.



- Embezzlement of public funds
- Theft by a public officer/employee from his/her public agency
- Bribery
- Felonies involving sexual battery or lewd acts against minors
- Committing of any felony by a public officer or employee who, willfully and with intent to defraud the public/public agency for which the public officer or employee acts or in which he or she is employed of the right to receive the faithful performance of his or her duty as a public officer or employee, realizes or obtains, or attempts to realize or obtain, a profit, gain, or advantage for himself or herself or for some other person . . .

Thank You!

Caroline Klancke

Executive Director

Florida Ethics Institute

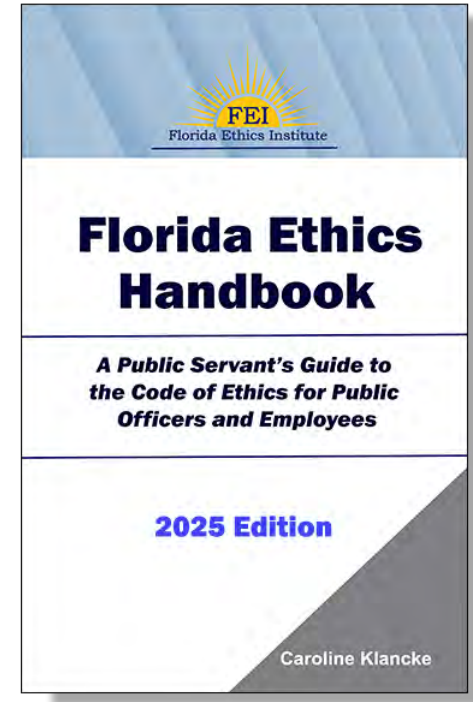
2241 N. Monroe St. #1441

Tallahassee, Fl 32303

Ph: 850.404.1113

www.floridaethics.org

info@floridaethics.org



Emerging Markets

Kurt Wood
DRZ

J. Kurt Wood serves as a Partner and Director of Client Service at DRZ Investment Advisors, an institutional value equity investment management firm. Mr. Wood rejoined his former Sun Bank Capital Management colleagues in 2004.

Prior to joining DRZ, he was a founder and partner of JRW Partners, a consultancy dedicated to helping improve the businesses of institutional money managers worldwide. He began his investment career 38 years ago at Sun Bank Capital Management and left the firm as Managing Director.

Mr. Wood is a graduate of Clemson University. He is a former board member and past president of the Association of Investment Management Sales Executives (AIMSE). He served as a Trustee and Investment Committee Chairman of the \$125 million Winter Park Health Foundation and currently serves as a Trustee of the Heart of the City Foundation.





Emerging Market Investments

J. Kurt Wood
Partner

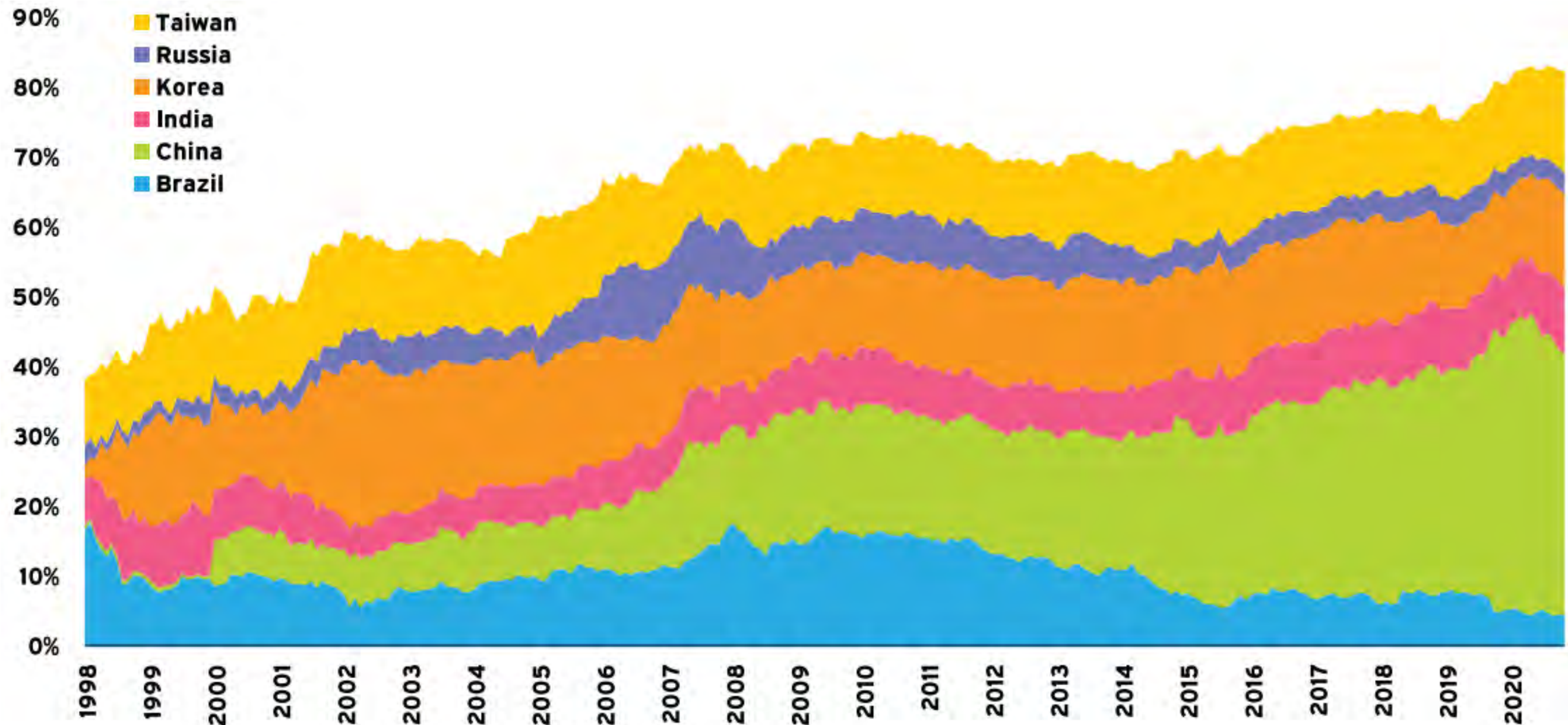


What are Emerging Markets?

Brazil	Greece	Malaysia	Saudi Arabia
Chile	Hungary	Mexico	South Africa
China	India	Peru	Taiwan
Colombia	Indonesia	Philippines	Thailand
Czech Republic	Korea	Poland	Turkey
Egypt	Kuwait	Qatar	United Arab Emirates

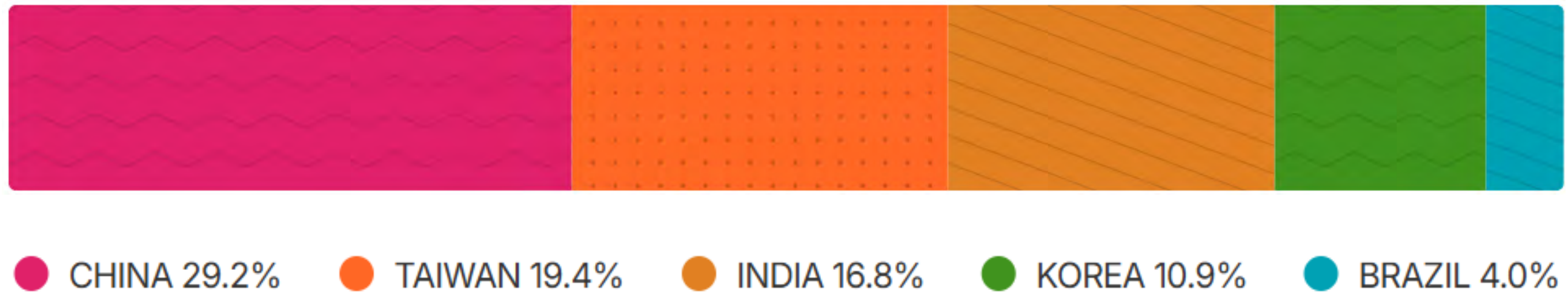
Emerging Markets

MSCI EM Index Country Weights



Emerging Markets

MSCI EM Index Country Weights

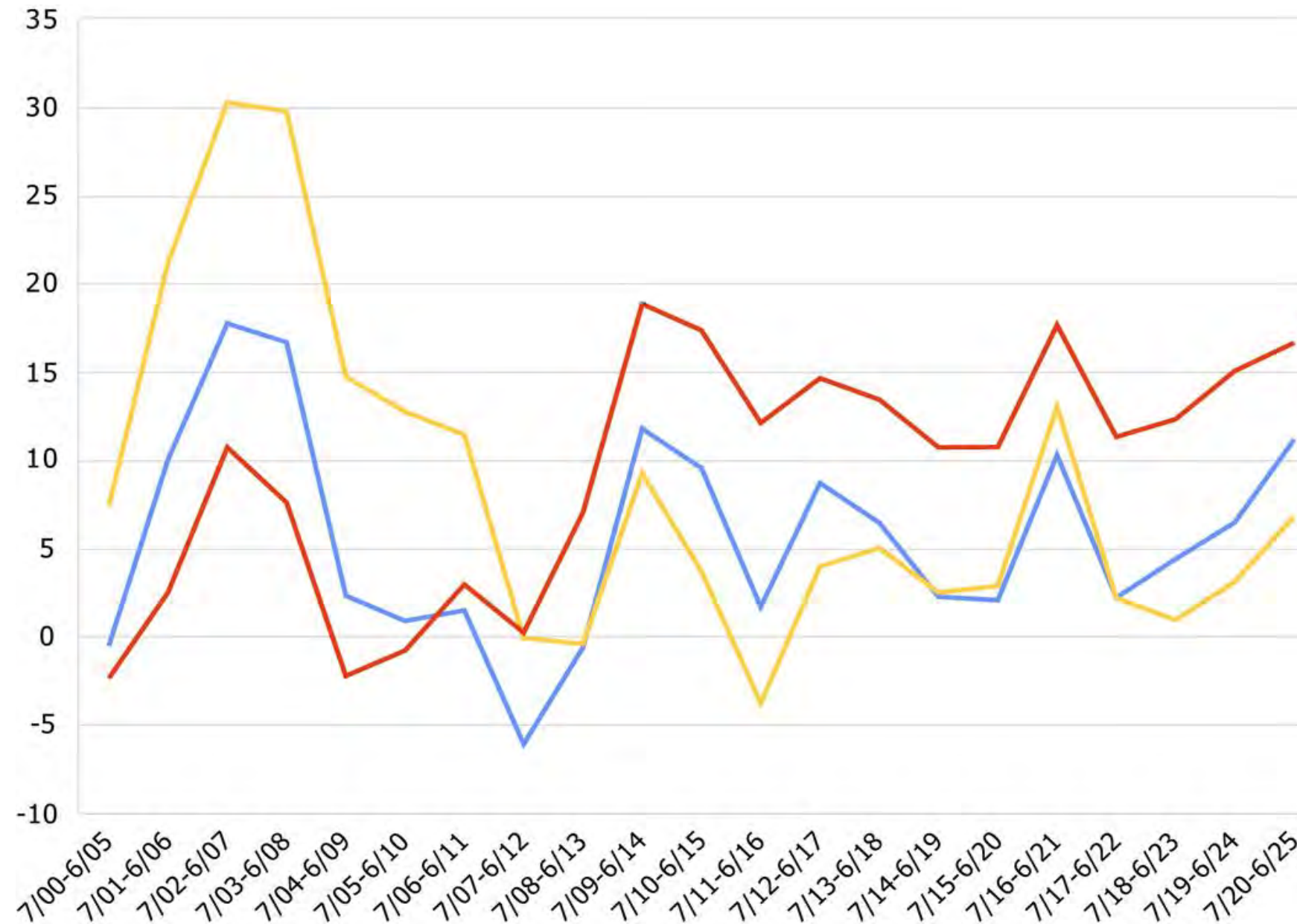


Top 10 by GDP

Rank	Market	2024	% Share
1	U.S.	29.2	26.5
2	China	18.3	16.6
3	Germany	4.7	4.3
4	Japan	4.1	3.7
5	India	3.9	3.5
6	United Kingdom	3.6	3.3
7	France	3.2	2.9
8	Italy	2.4	2.2
9	Canada	2.2	2.0
10	Brazil	2.2	2.0

Why Emerging Markets?

5 Year Rolling Returns of **S&P 500**, **EAFE** and **EM** Indices



Why Emerging Markets NOW?

MSCI EM vs. S&P 500

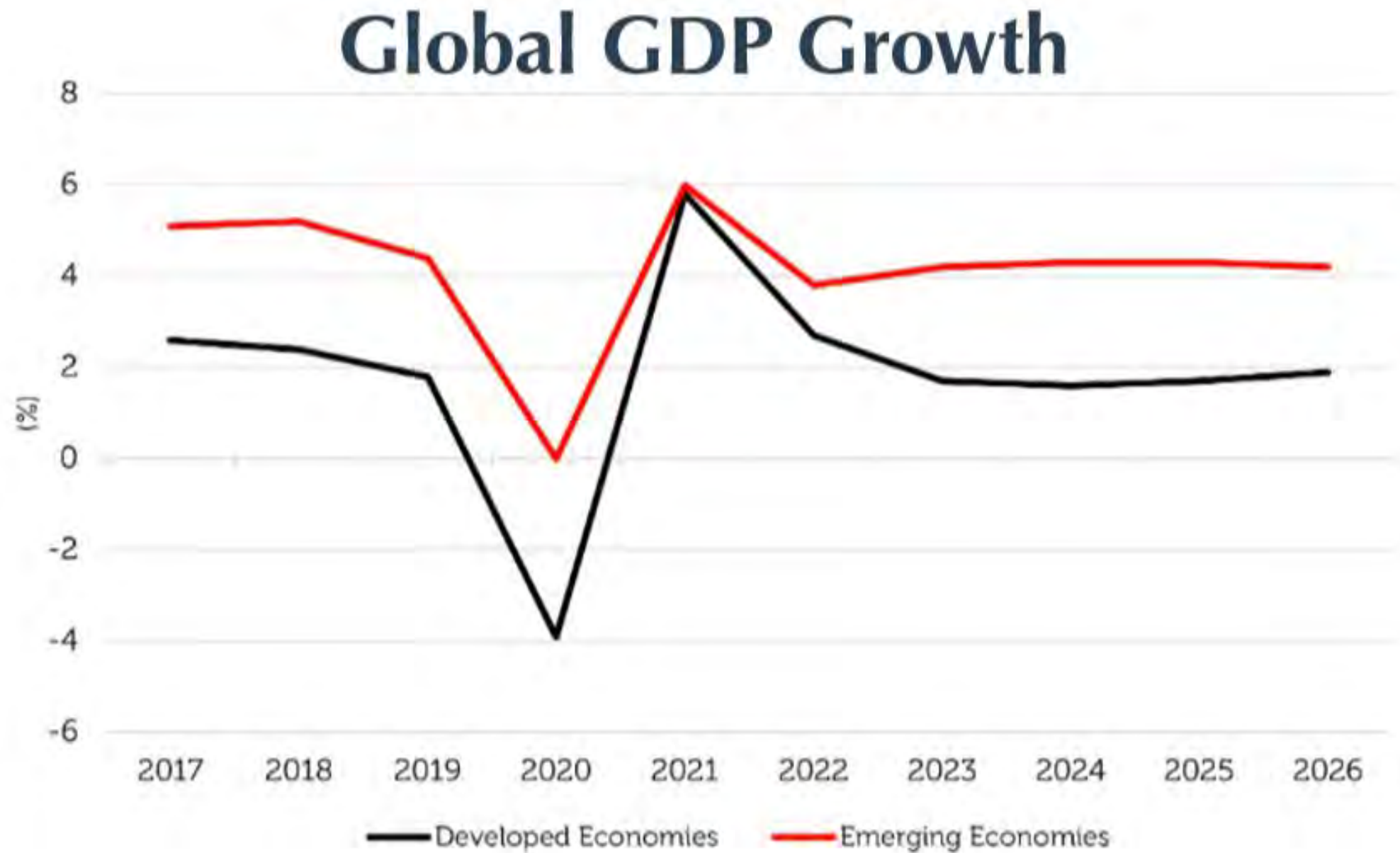


1997

2008

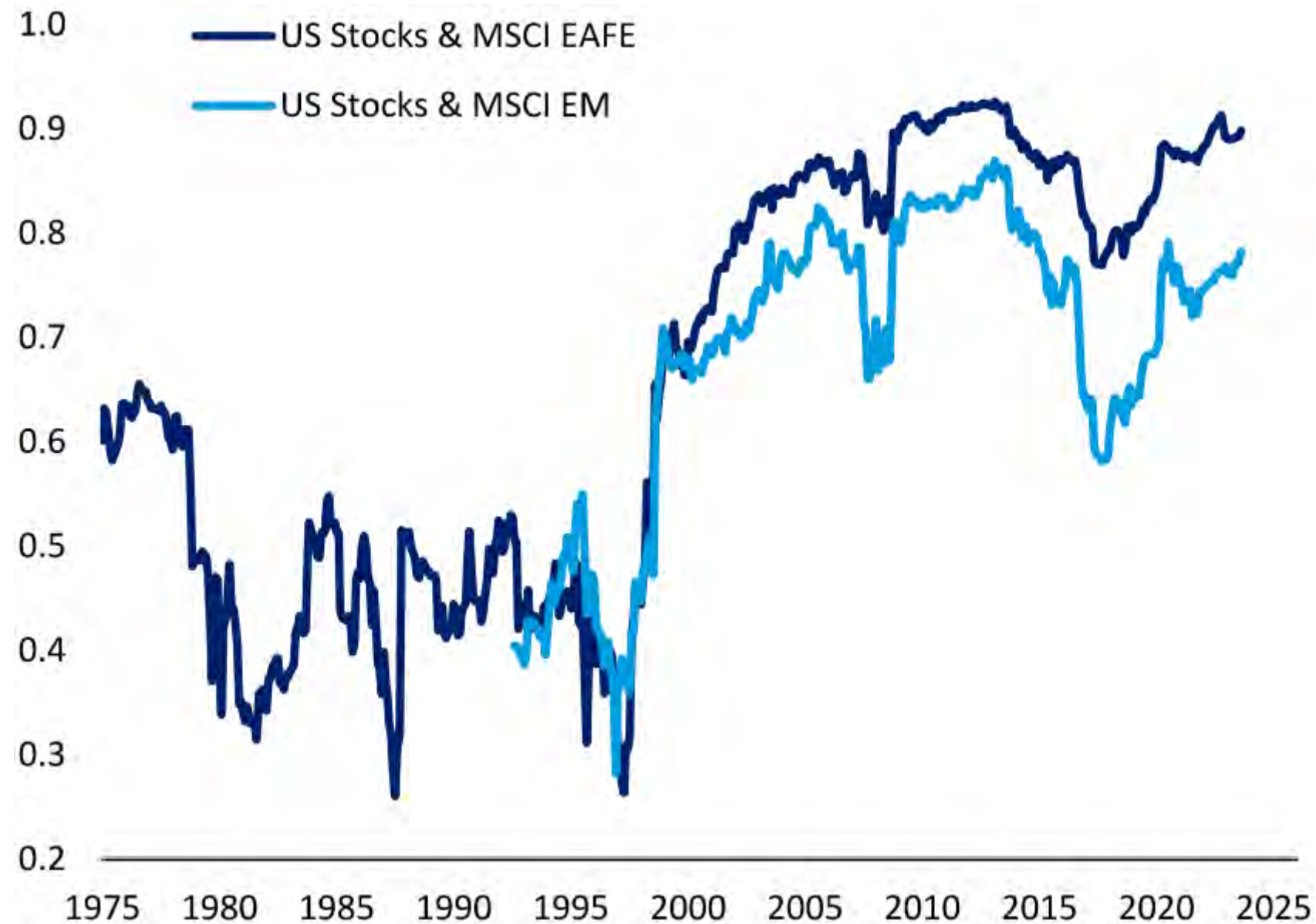
2020

EM 4.2% vs Developed 1.7%

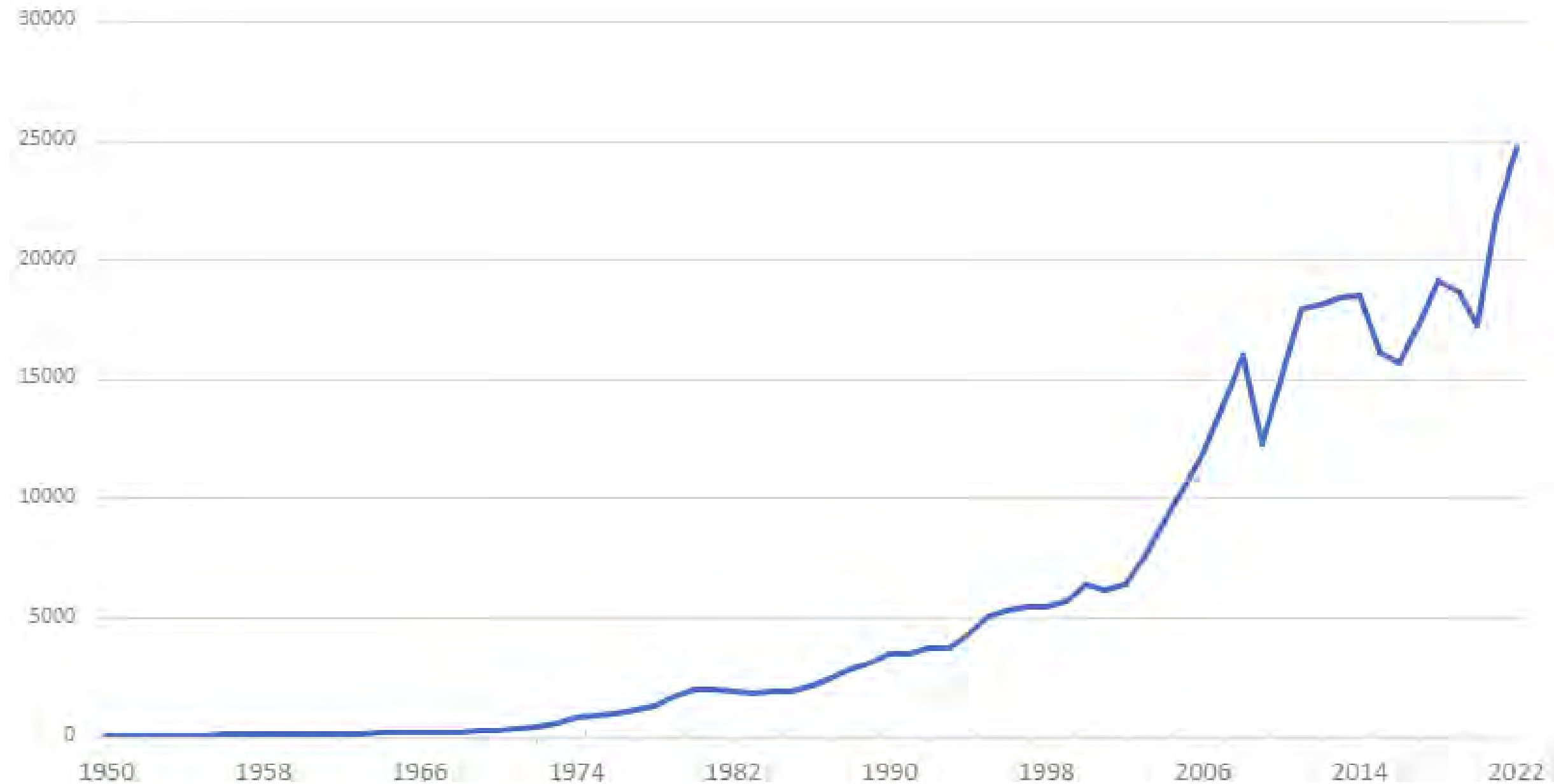


Diversification

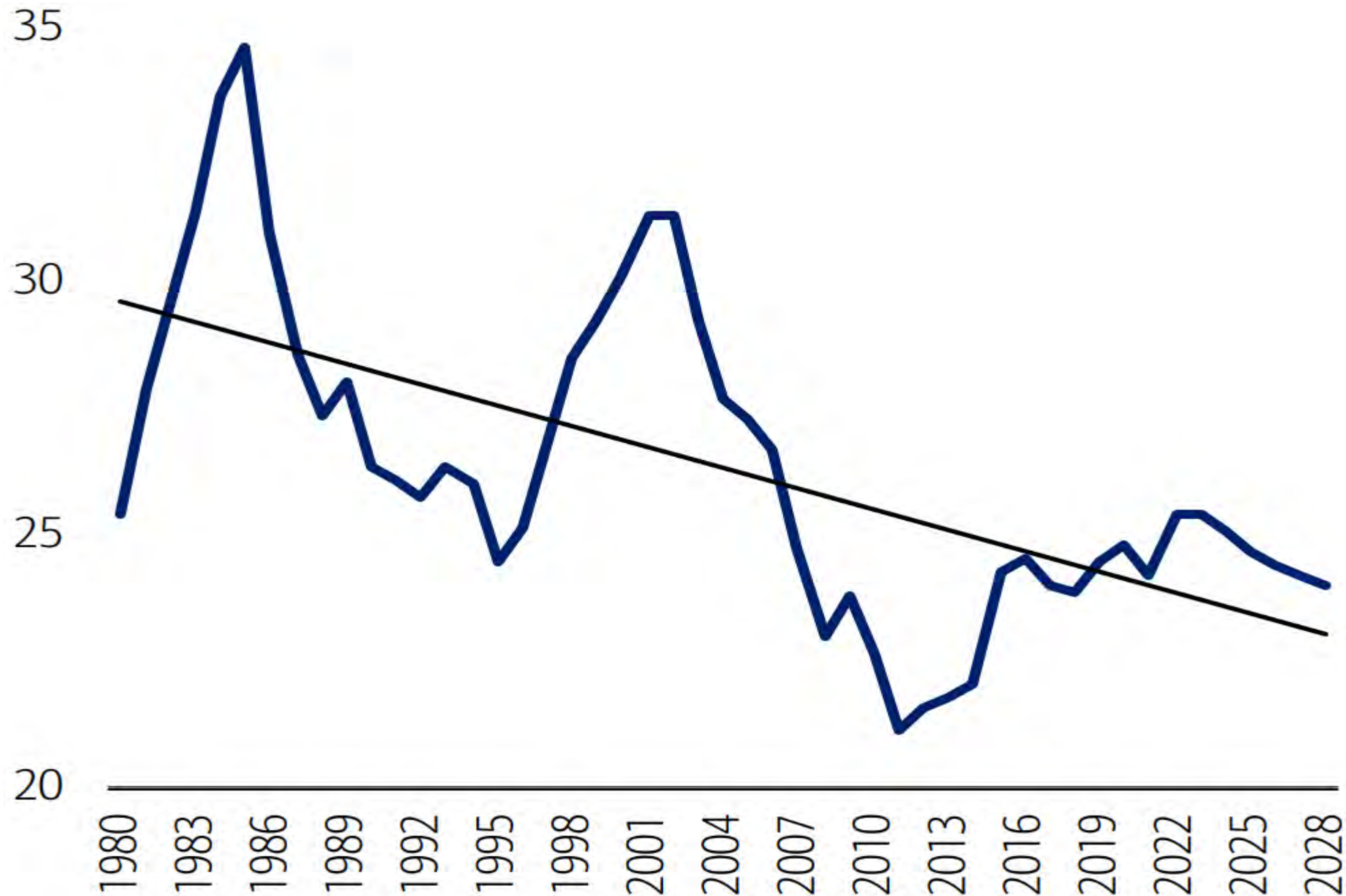
5 Year Rolling Correlation



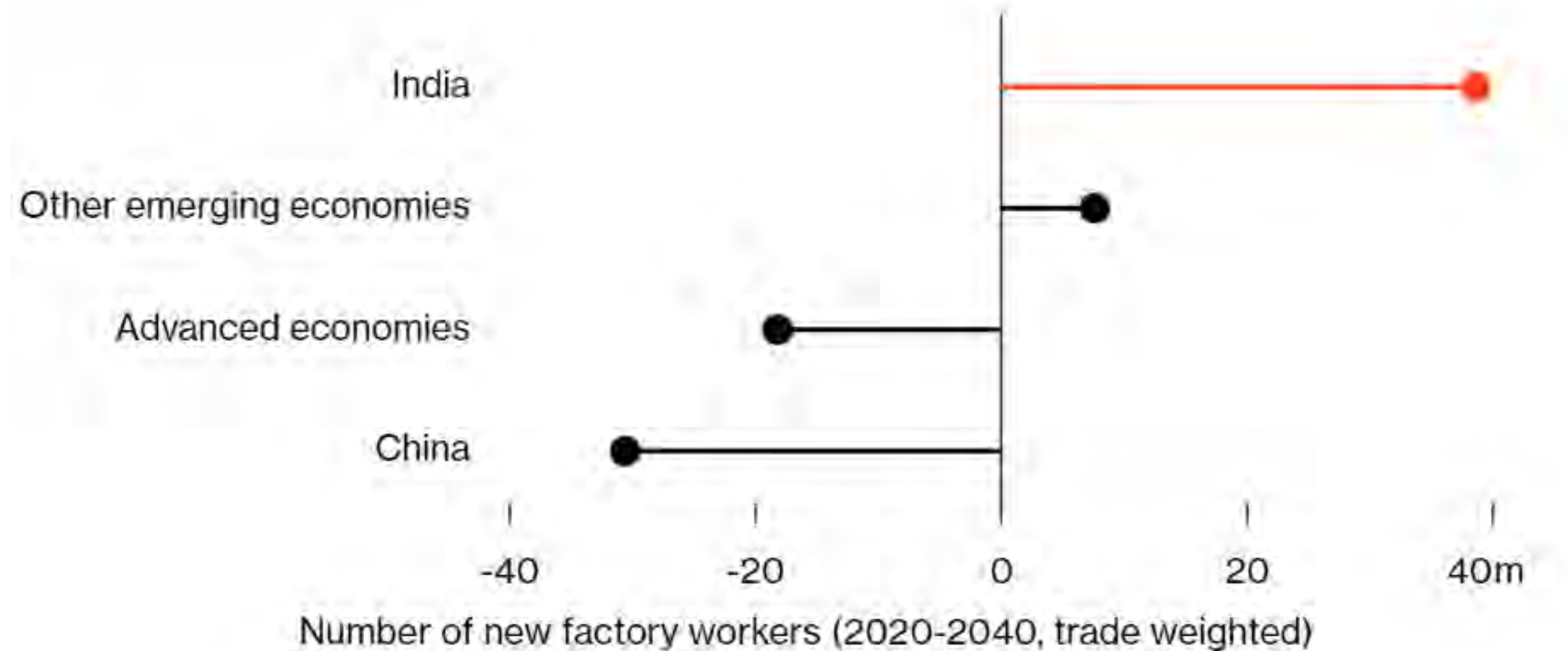
Global Trade Increasing



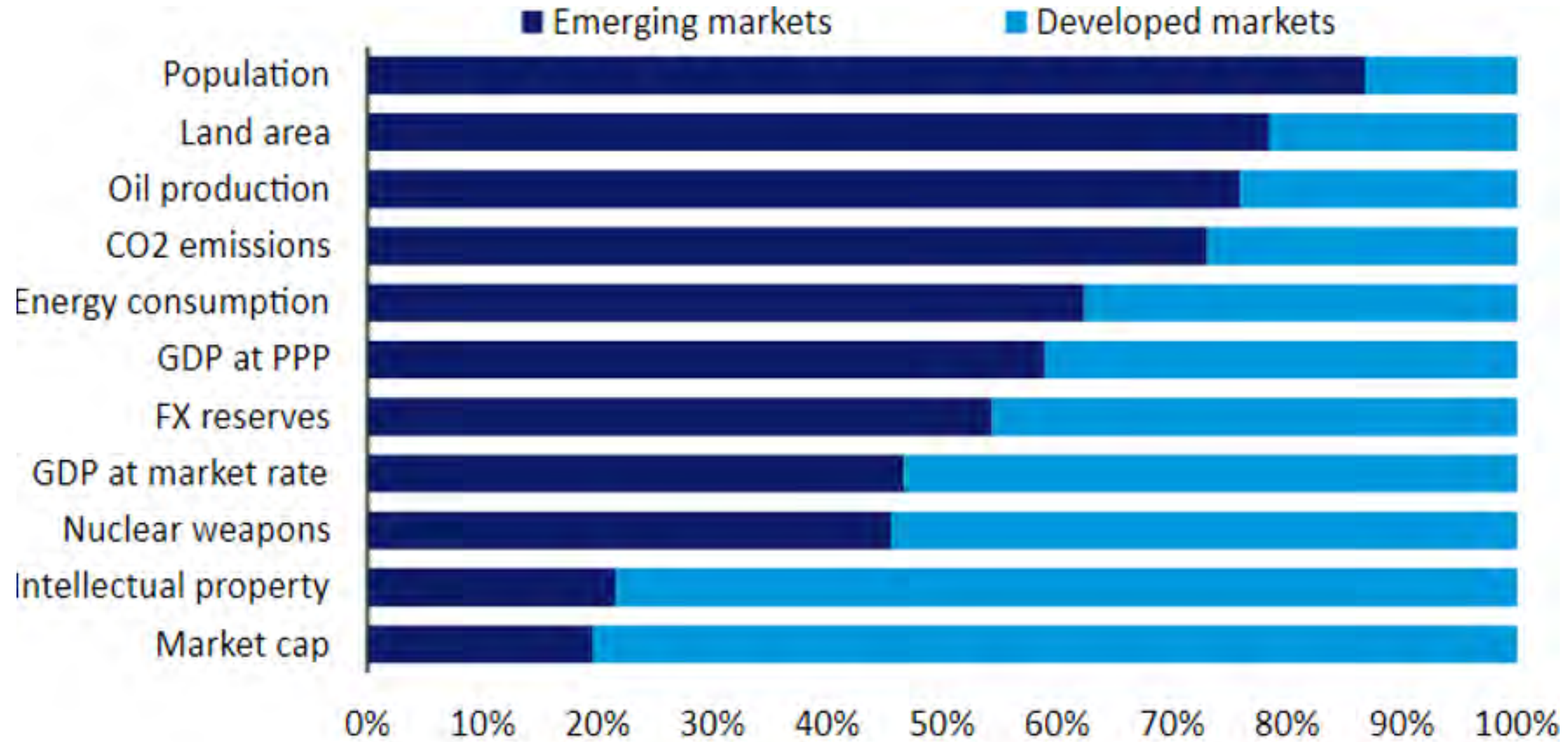
US GDP Share of Global Economy



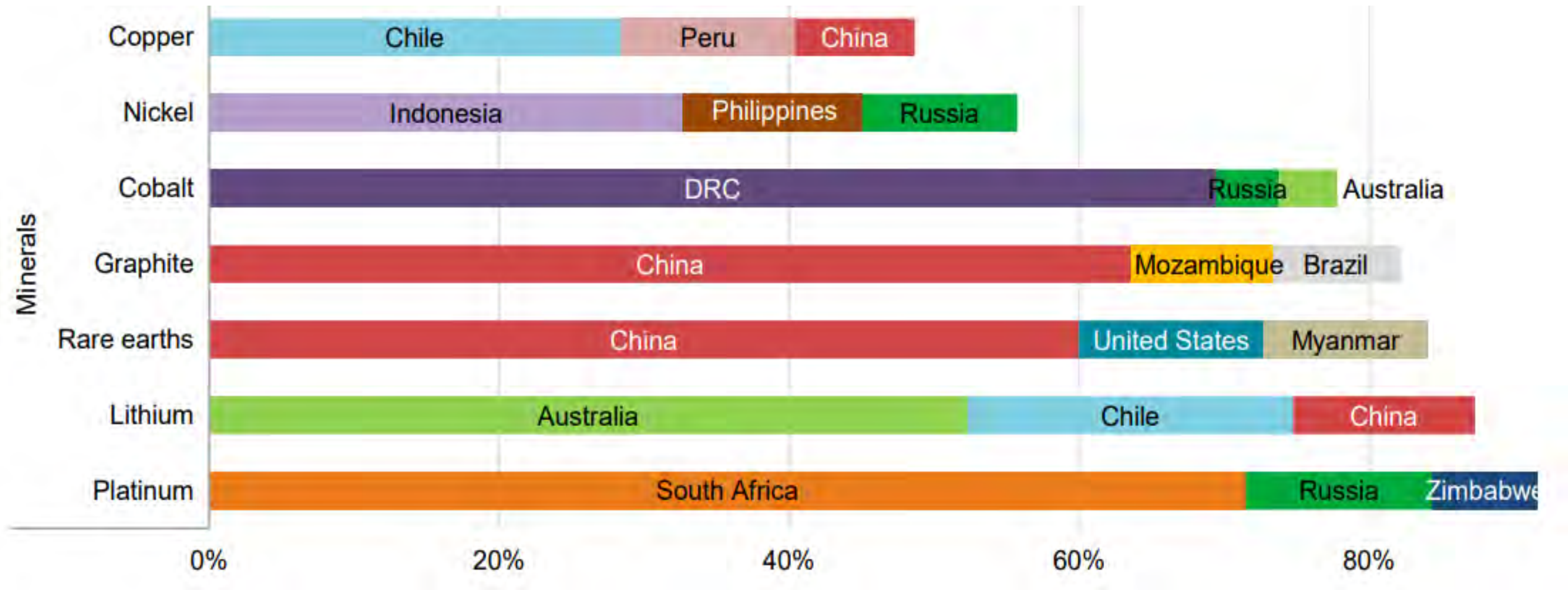
India's Labor Advantage



Emerging vs. Developed Markets

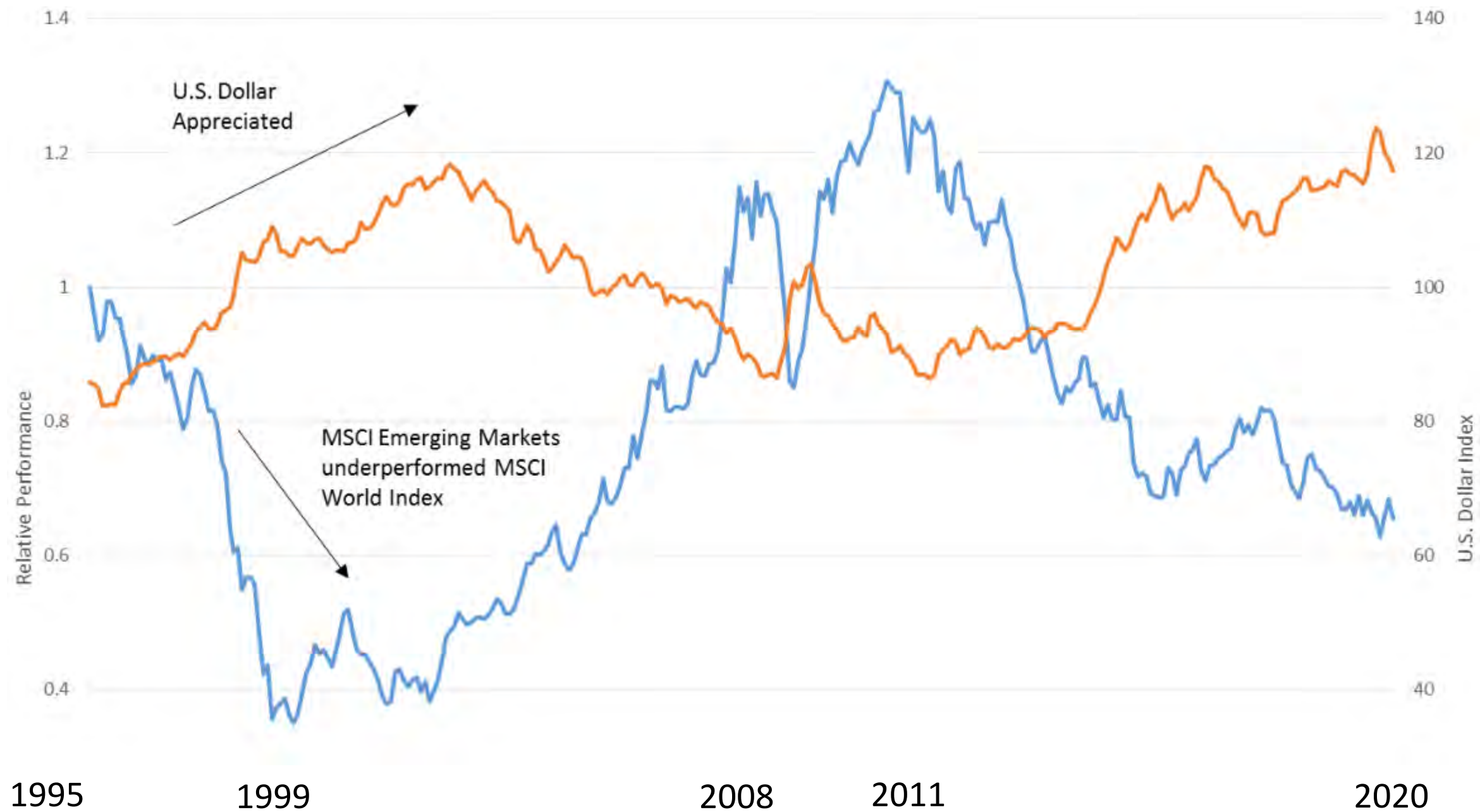


Top 3 Mineral Producers



Source: IEA (2020b); USGS (2021)

EM and the USD



Currency Impact



- Buy Becle
- Becle goes up 10%
- Peso falls 15% vs. U.S. dollar
- As a U.S. investor, you just **lost** 5% on that investment

- Buy Becle
- Becle goes up 10%
- Peso goes up 10% vs. U.S. dollar
- As a U.S. investor, you just **made 2x your return at 20%**

3 Year Currency Impact

<i>July 31, 2025</i>		3 Yr USD	3 Yr Local
US		16.8%	16.8%
China		8.2%	8.6%
India		10.3%	14.1%
Korea		8.4%	10.8%
Mexico		12.6%	9.7%
South Africa		13.4%	16.6%
Brazil		5.7%	8.4%
Taiwan		22.8%	22.7%

3 Year Currency Impact Mexican Peso to USD



Investment Vehicles

Mutual Funds

Daily Liquidity & Higher Expense

Exchange Traded Funds (ETF)

Passive

Commingled Funds

Monthly Liquidity - Long Term Investor

Separate Account

\$20 million minimum

All Indices are the same – right?

MSCI Index	1 yr	5	10	12/29/00
EAFE	12.8%	10.3%	6.1%	5.0%
ACWI ex-US	14.7	9.1	6.1	5.3
Emerging Market	17.2	5.4	5.8	8.1

All Indices are the same – right?

MSCI Index	EM	Countries	Stocks
EAFE	0%	21	695
ACWI ex-US	29%	46	1980
Emerging Market	100%	24	1202

Why is the Index Important?

Non-US Diversified Equity Universe	EM%
5th Percentile	33%
25th	20
Median	7
75th	0.2
95th	0
# of Observations	847

Real Assets

David Lee, CFA, President
Dahab & Associates

David Lee, CFA, joined Dahab Associates in 2002 and brought with him more than six years of investment experience. David began his career in 1996 at Gruntal & Co. He has held analytical and sales positions at Morgan Stanley, Multex.com and Spectra Securities Software. David became Dahab Associates' President in February 2013. Prior to this he served as the Chief Investment Officer and Director of Manager Research.

David received a BS in biochemistry from the State University of New York at Stony Brook in 1995. He received the designation of Chartered Financial Analyst (CFA) in 2000. David is a member of the CFA Institute and has spoken at various pension conferences including the Florida Public Pension Trustees Association (FPPTA), International Foundation of Employee Benefit Plans (IFEBP), Texas Association of Public Employee Retirement Systems (TEXPERS), and Georgia Association of Public Plan Trustees (GAPPT).



Real Assets: Timber, Farmland, Infrastructure, Commodities

David Lee, CFA
President

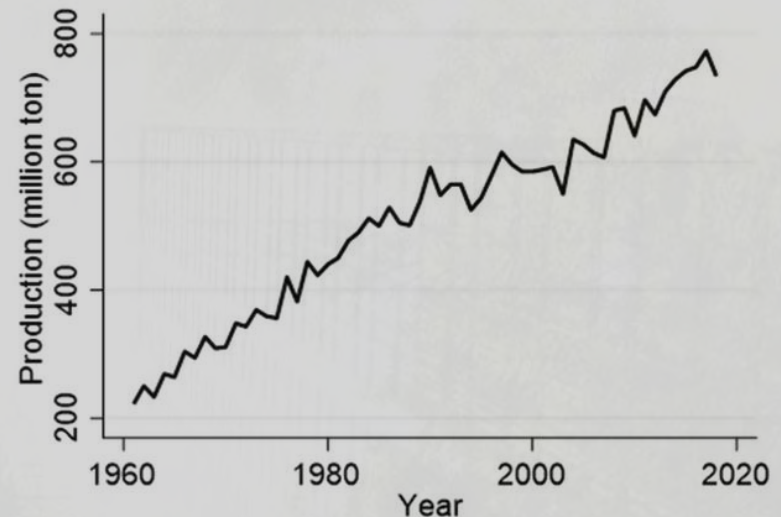
dlee@dahab.com
(631)-665-6181

DAHAB ASSOCIATES



What are Real Assets

- Real Assets are physical, tangible assets that have intrinsic worth
 - A pine forest in the Pacific Northwest, a field of corn, an oil pipeline, etc.
- Investment vehicles are varied
 - Public equity stocks, ETFs, Pooled Funds, or Separate Accounts
 - Real Asset ETFs are more of an equity surrogate, while Pooled Funds of Real Assets are closer to a fixed income surrogate
- The global consumption of wheat for 2025 is estimated to be 802 million metric tons.



Types of Real Assets

Timber:

- Forests either natural or planted, harvested for their wood

Farmland:

- The purchase and leasing or operation of commercial farms

Infrastructure:

- Fixed assets used to move or store a commodity or service

Commodities:

- Ownership of a basic good or raw material, or a contract for delivery or sale of a basic good or raw material

Potential Benefits of Real Assets

- Inflation mitigation
- Return enhancement relative to fixed income
- Diversification benefits due to low correlation to equity
- Asset value provides some downside protection

20-Year Quarterly Return Correlations

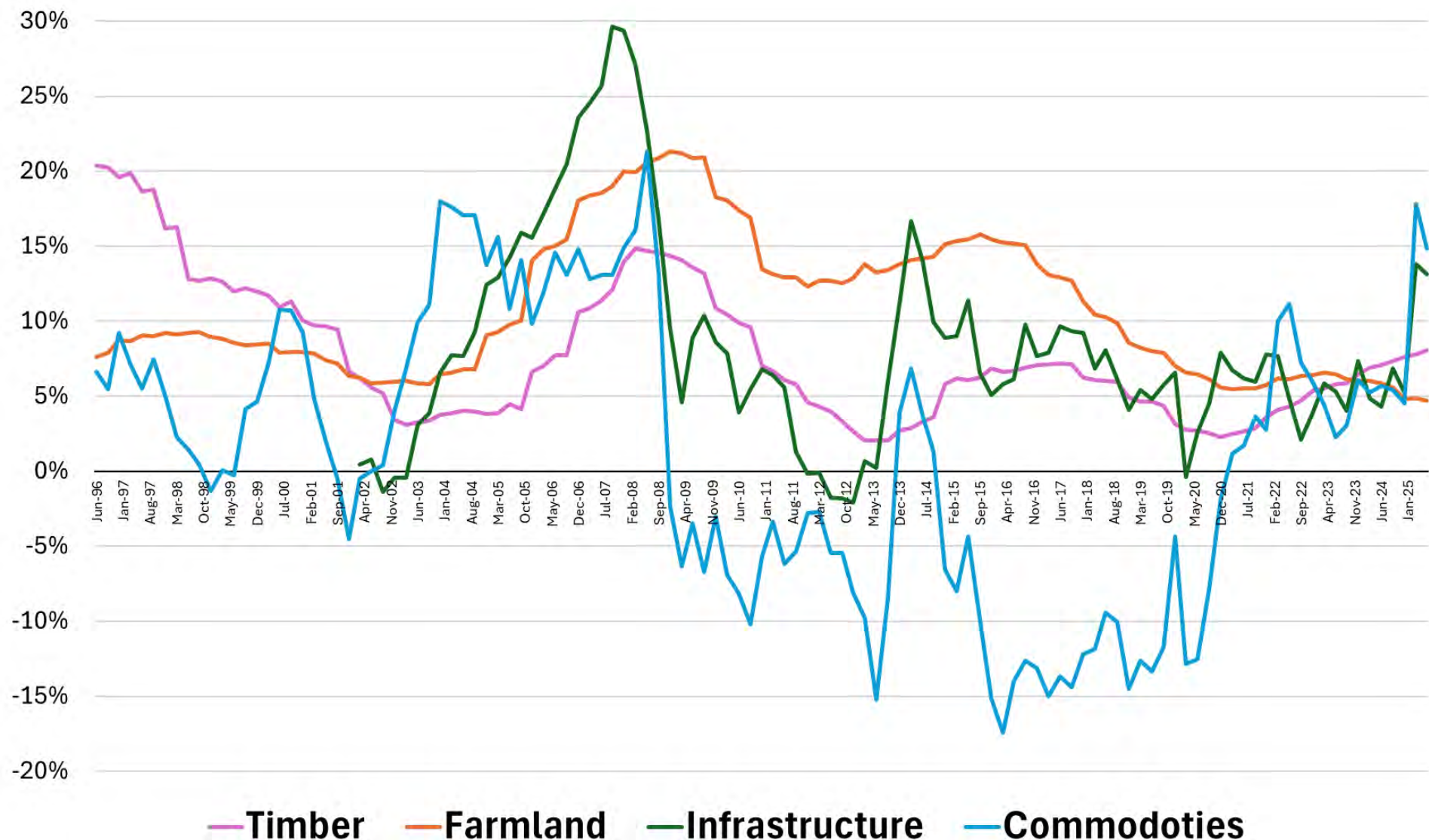
	S&P 500	Core Fixed	Timber	Farm	Infra	Comm
S&P 500	1.00	0.06	-0.09	0.01	0.80	0.49
Core Fixed	0.06	1.00	0.01	-0.01	0.19	-0.32
Timber	-0.09	0.01	1.00	0.71	-0.01	-0.11
Farm	0.01	-0.01	0.71	1.00	0.02	-0.13
Infra	0.80	0.19	-0.01	0.02	1.00	0.58
Comm	0.49	-0.32	-0.11	-0.13	0.58	1.00

Data range from 6/30/2005-6/30/2025

Potential Drawbacks of Real Assets

- The nature of the underlying assets and the audit process result in infrequent valuations, typically once per quarter
- Most investment vehicles are illiquid, and usually involve significant lock-up periods where capital cannot be withdrawn
- Many funds require a startup period, where they must first acquire assets or ramp-up production, delaying the potential return stream for some time past the initial funding

Rolling 5 Year Real Return



The Infrastructure index was not available for the entire period.
Periods ending 6/30/2025

Timber

Timber



- Forests either natural or planted, harvested for their wood
- Trees are categorized as hardwood or softwood
 - Hardwood (e.g. Maple, Beech, Birch, Oak)
 - Softwood (e.g. California Redwood, Douglas Fir, Pine)
- Purchase or lease timberland property
- Expected net of fee return of 5-9% with 3-5% annual yield

Managing the Trees

- Trees grow in volume and value as they mature
 - Volume growth of Southern Pine is approximately 6%-8% per year
 - Value (price per ton) increases as the tree matures

Pulp

11-15 years

\$6-\$10

→ Chip-n-Saw

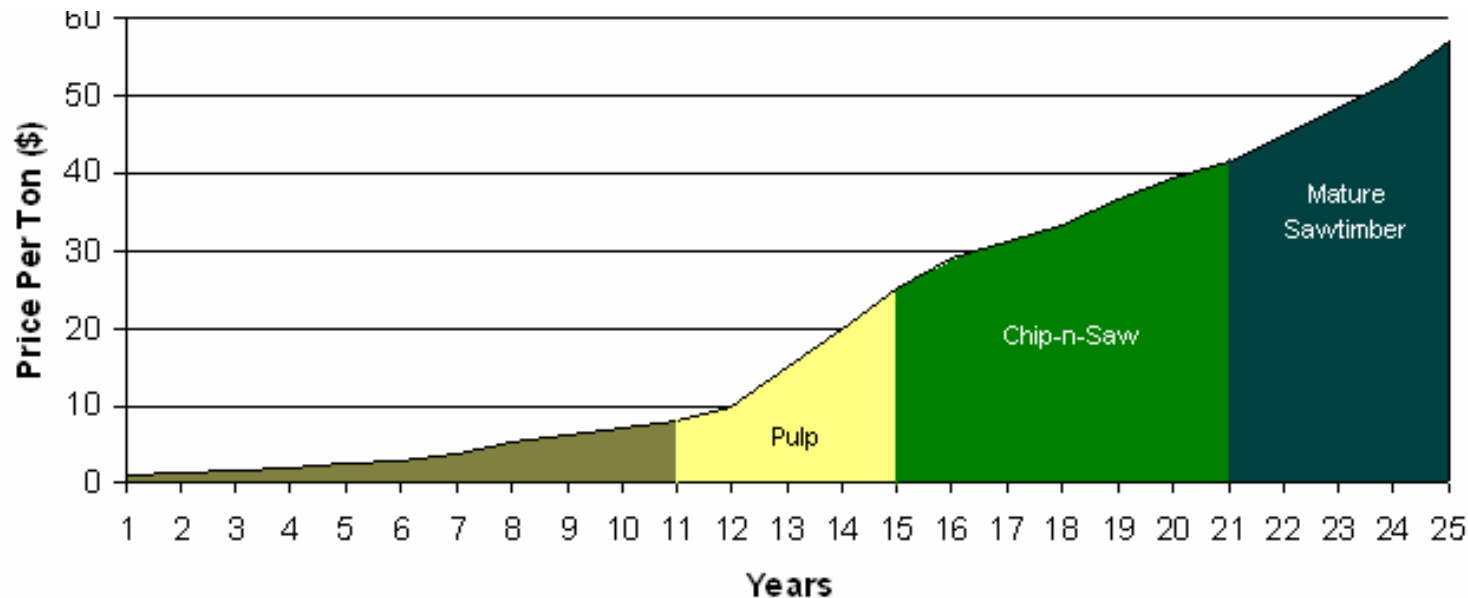
15-21 years

\$22-\$30

→ Mature Sawtimber

21+ years

\$40-\$50



Pre-Merchantable	\$0
Pulp	\$6-10
Chip-n-saw	\$22-30
Mature Timber	\$40-50

Potential Timberland Benefits

- Carbon credits may increase income stream
- Fixed stock of timberland is shrinking
- Increased demand from housing starts, which is related to population growth
- Ancillary revenue streams such as hunting rights, mineral rights, solar credits



Timber Drawbacks and Risks

- **Drawbacks**

- Liquidity
 - Investments could be locked up for 10-17 years
- Sensitivity to the U.S. housing market
 - The housing market makes up roughly 2/3rd of the timber demand

- **Risks**

- Natural
 - Fire, hurricanes, insects
 - Risk varies greatly across geographies
- Economic cycle
 - Associated with the supply/demand and fund characteristics
 - Lumber prices are volatile in the short-term but the overall impact can be reduced through active management and harvest scheduling



How to Invest in Timber

- **Public Equity and ETFs**

- WOOD – Fee 42 bps, average daily volume 15,000 shares
- CUT – Fee 61 bps, average daily volume 6,000 shares
- Weyerhaeuser (WY), Rayonier (RYN), or CatchMark (CTT)

- **Separate account**

- Higher minimum account size, typically in starting at \$20 million
- Lower fees relative to commingled funds
- The property doesn't have to be sold at a designated point in time

- **Pooled funds**

- Combine money from smaller investors to buy large timber properties
- Management fees are typically in the 1.5% range annually, with incentive fees upwards of 15% after a required return, mostly around 7%

Farmland

Farmland



- The purchase and leasing or operation of commercial farms
- Row Crops: planted annually
 - Lower margin crops that mature in 11-14 weeks
 - Grains & oil seeds: corn, soybeans and wheat
 - More stable income from rent and capital returns over time
 - 10-year average return: 10% annualized
- Permanent Crops: annual replanting is cost prohibitive
 - Mature in 3-7 years (good for 25+ years)
 - 70-80% of value is in the tree/vine
 - Nuts, citrus, apples, cranberries and grapes
 - More volatile income from farm operations and commodities
 - 10-year average return: 14% annualized

Farmland – Operating Structure

Ownership Structure	Strategy	Commodity Exposure	Commodity Risk	Expected 10 Year Performance
Fixed Cash Lease	Fixed rent with annual increase	Low	Low	Total Return 7.0 - 8.0%
Flex Cash Lease	Fixed rent with the potential for a bonus triggered by revenue	Moderate	Low to Moderate	Total Return 9.0 - 10.0%
Direct Operations	Owner pays 100% of the expenses and owns 100% of the crop	High	Moderate	Total Return 10.0 - 11.0%

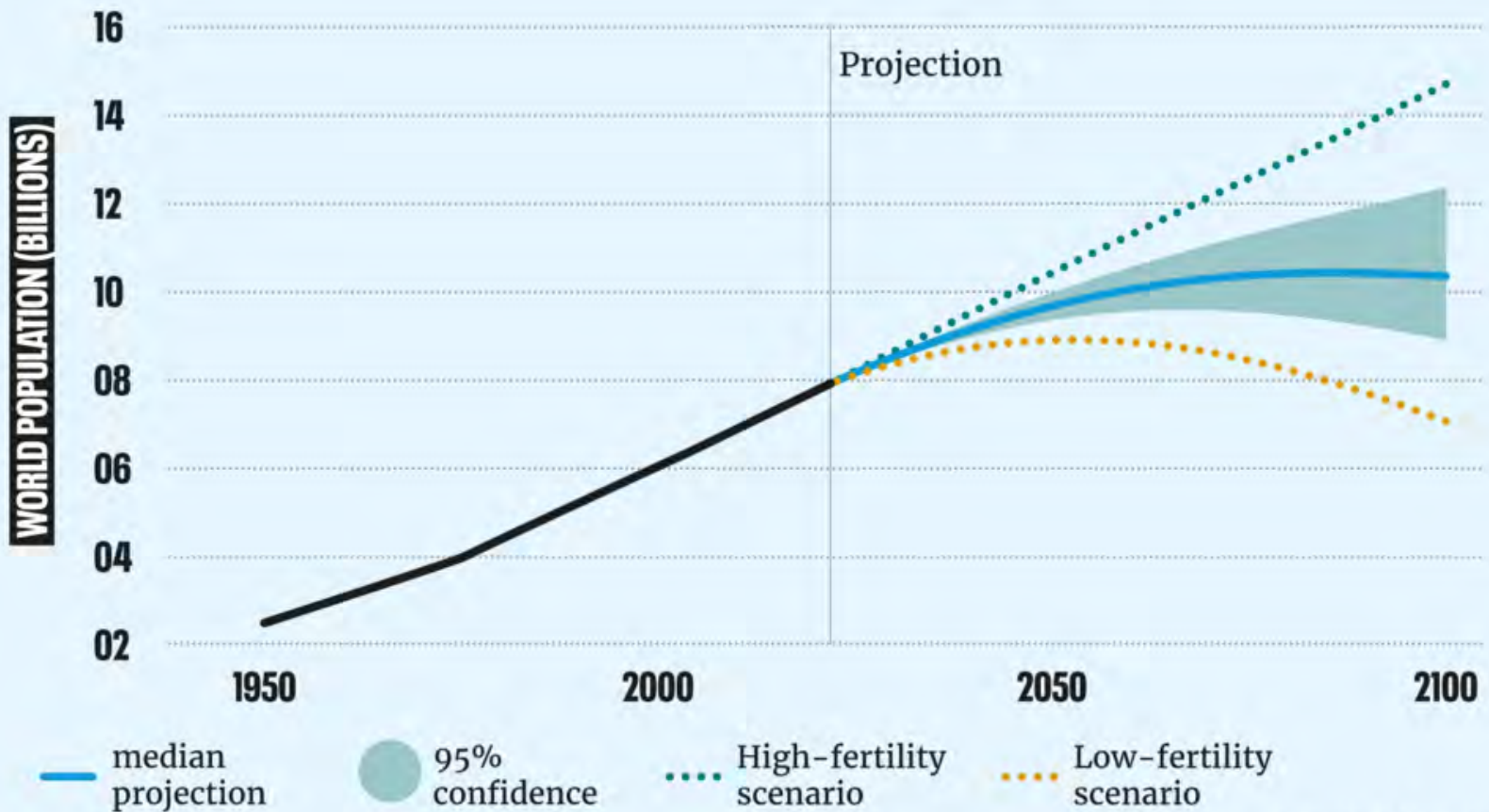
Risk and return increase along with commodity exposure

Potential Farmland Benefits

- Investment driven by 1) population and 2) affluence
- World population projected to be ~10 billion by 2050, increased standard of living has historically meant a higher protein diet
 - It can take 2lbs to 5lbs of grain to make 1lb of protein
- Fixed stock of arable land is shrinking
- Risk can be adjusted by the contract with the farmer:
 - Investor can own everything and accept all the risk/return
 - Investor can own only the land and collect rent, shifting risk/return to farmer
 - Contract can be structured to share risk/return in some manner

Potential Farmland Benefits

UN POPULATION PROJECTIONS TO 2100



Source: UN, 2022

Farmland Drawbacks and Risks

- **Drawbacks**

- **Liquidity**
 - Investments could be locked up for 10+ years
- **Fees**
 - Alongside a flat asset fee, they frequently include a carried interest fee over a hurdle
- **Few Institutional Managers**

- **Risks**

- **Commodity Prices**
 - Susceptible to market volatility, including geopolitical risk
- **Natural**
 - Insects, Weather, etc.
- **Soil Degradation**



How to Invest in Farmland

- **Public Equity and ETFs**

- REITS – Gladstone Land Corporation (LAND), and Farmland Partners (FPI)
- ETF – VanEck Vectors Agribusiness (MOO) – average daily volume 72,000 shares
- Agriculture related company stocks such as Deere (DE), or Monsanto (MON)

- **Separate account**

- Minimum account size generally >\$30 million

- **Pooled funds**

- Offered in both open-end and closed-end structures
- Closed-end fund terms range from 10-15 years
- Typical fees: 1% management, 20% performance

Infrastructure

Infrastructure



- Infrastructure defined: fixed assets used to move or store a commodity or service, originally associated with public-to-private ownership
- Key return drivers
 - Revenue growth
 - Operating cost control
 - Proactive maintenance expenditure
 - On-going capital investment
 - Optimal capital structure

Typical Infrastructure Portfolio

Utilities

- Utilities that want independence but have capex requirements
- Regulatory trends (environmental) shape the market

Power

- Assets with multiple revenue streams (energy, capacity, tolling, renewable credits)
- Diverse public/private/financial ownership, liquid market

Transportation

- Airports, railways, terminals in gateway ports
- Construction opportunities such as roads and bridges

Midstream

- Assets with value through the economic cycle
- Demand increase requires build out of supporting infrastructure

Communications

- Towers augmented by organic growth and acquisitions
- Build out of wireless networks to serve growing demand, emergency networks

Waste

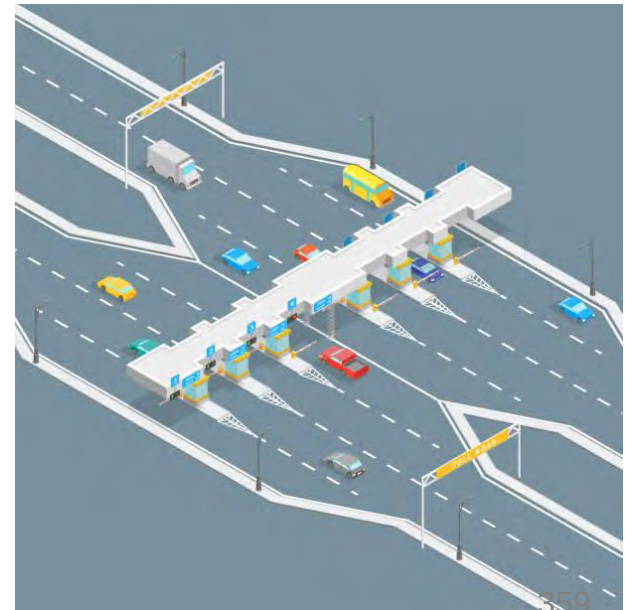
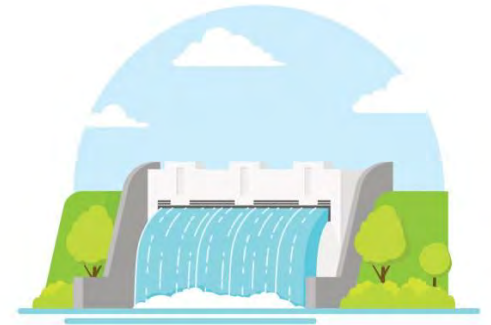
- Vertically integrated, platform expansion, operational efficiency, consolidation

Brownfield vs. Greenfield Deployments

- **Brownfield infrastructure** refers to existing infrastructure that has been in use and may need to be rehabilitated or remediated before it can be used again
 - Typically have lower upfront costs than greenfield investments, but they also come with higher risks
 - There is greater uncertainty about the condition of the existing infrastructure and the cost of remediation
- **Greenfield infrastructure**, on the other hand, refers to new infrastructure that is built from scratch
 - Higher upfront costs, but potentially lower risks
 - The condition of the land and cost of construction are more predictable
 - Can take longer to complete and may not be as profitable as brownfield investments

Potential Infrastructure Benefits

- Essential services for the community
- High barriers to entry
- Stable, predictable cash flows
- Low demand elasticity
- Long operational life



Infrastructure Drawbacks and Risks

- **Drawbacks**

- **Liquidity**
 - Like most other types of real assets, investments could be locked up for many years
- **Short track record**

- **Risks**

- **Change in regulation**
 - New standards and rules may drastically increase costs or cause delays during the lifetime of the investment
- **Economic sensitivity**
 - These are typically long-term investments, and are sensitive to recessions, interest rates, and political instability
- **Leverage**
 - Borrowed money is used to amplify the potential returns, however, it also magnifies the potential losses

How to Invest in Infrastructure

- **Public Equity and ETFs**

- ETF – iShares Global Infrastructure (IGF) – average daily volume 375,000 shares
- Infrastructure related company stock such as Caterpillar (CAT), or US Steel (X)

- **Separate account**

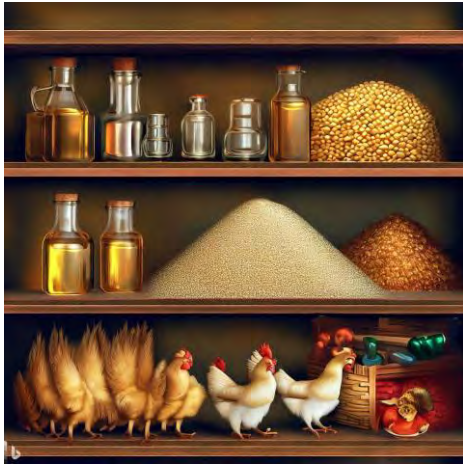
- Minimum account size typically >\$100 million range

- **Pooled funds**

- Typically offered in a closed-end structure
- Closed-end fund terms range from 8-15 years
- Typical fees: 1% management, 20% performance

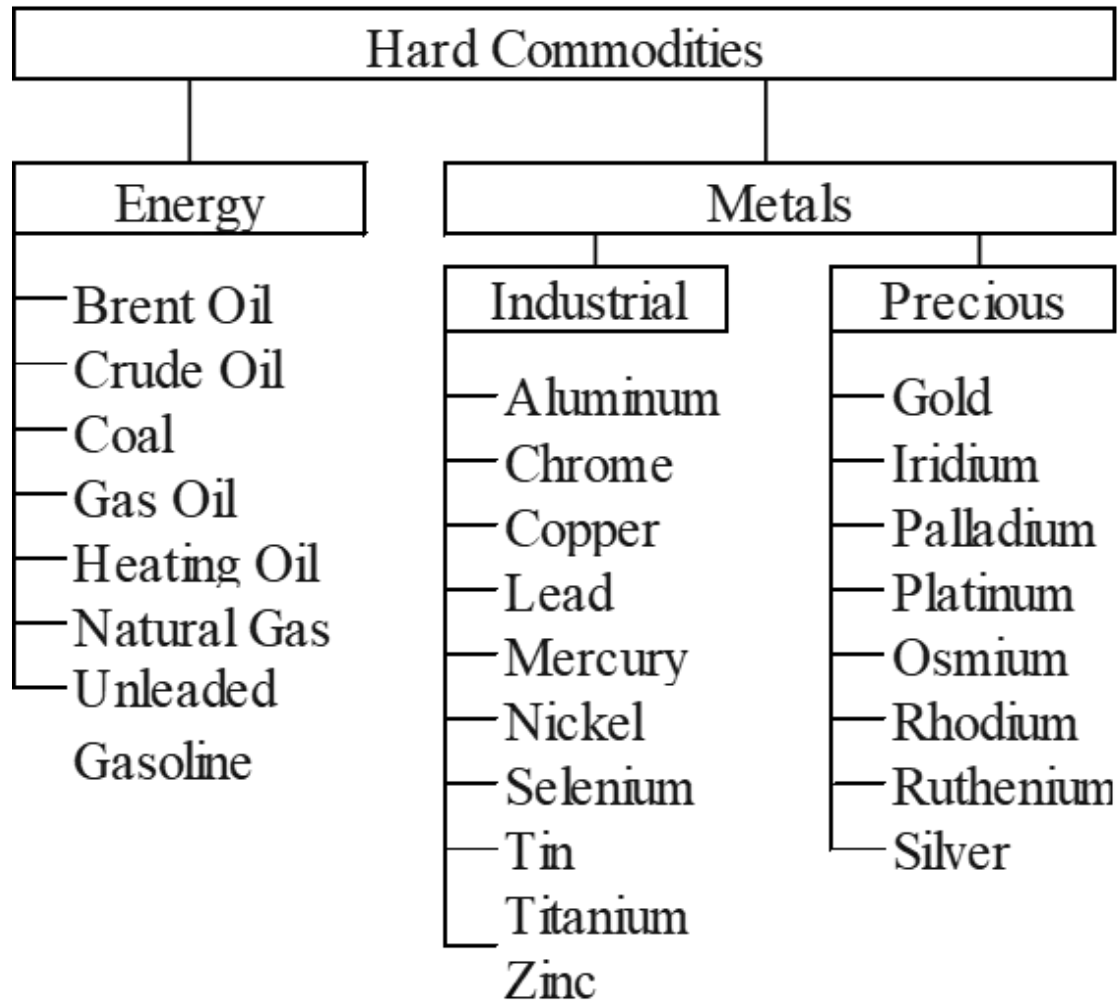
Commodities

Commodities

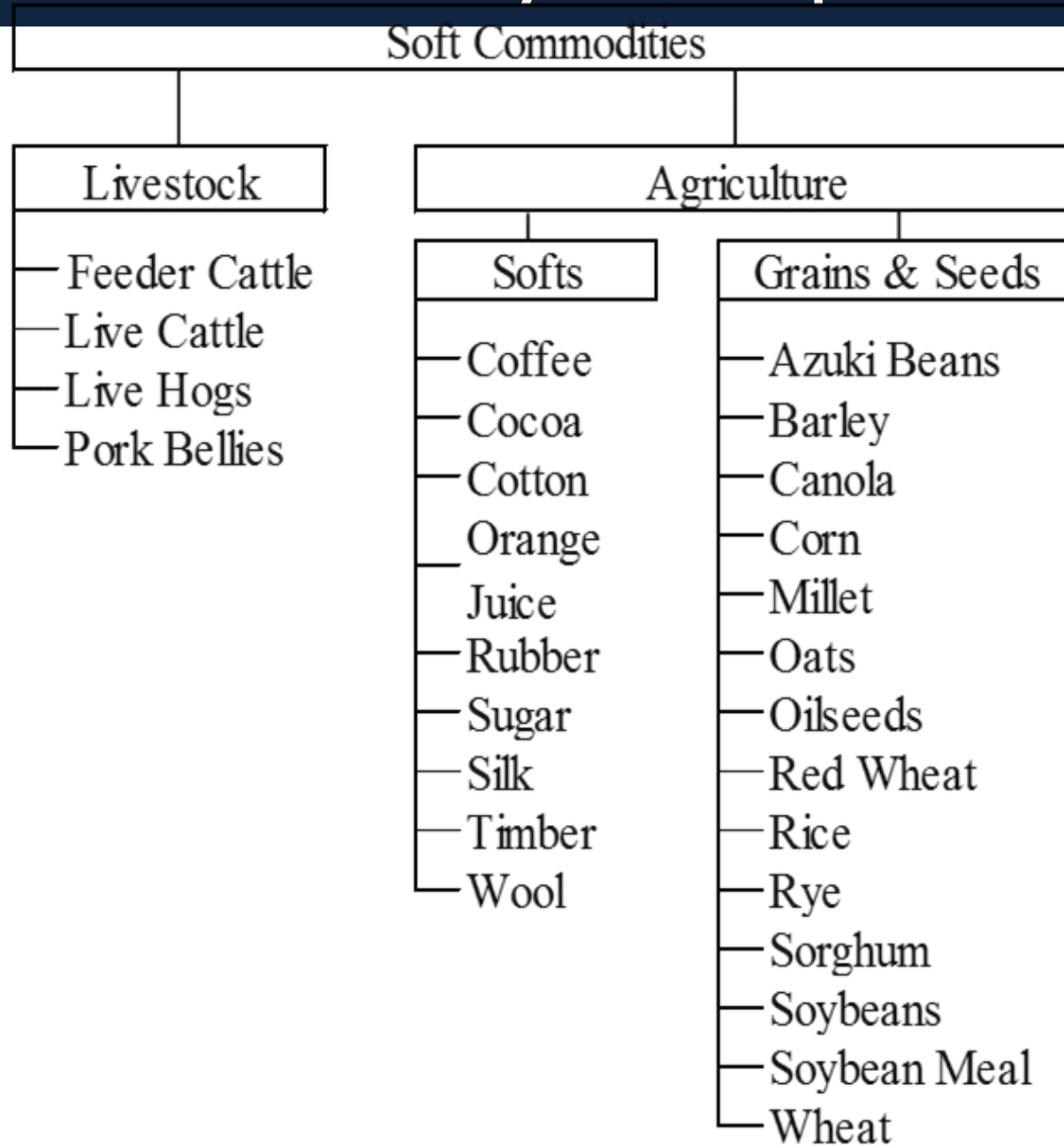


- Ownership of a basic good or raw material, or a contract for delivery or sale of a basic good or raw material
- Broken down into hard and soft:
 - Hard (things you can't eat) includes energy (oil, natural gas), precious metals (gold), base metals (copper)
 - Soft (things you can eat) includes livestock (cattle), soft agriculture (coffee, cotton), grains (corn)

Commodity Examples

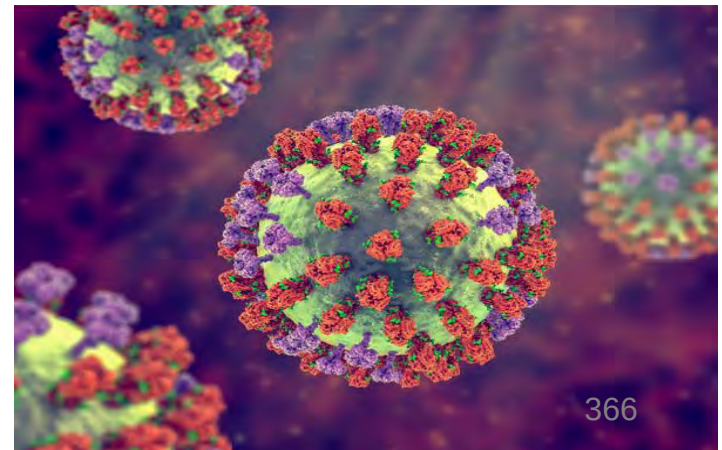


Commodity Examples



Unique Risks

- Ownership of any investment will involve risks, but commodities are potentially vulnerable to some unique risk profiles
 - Agricultural commodities may face outsized environmental risk (shifting climates), weather risk (flooding, droughts), and political risk (war affecting grain cultivation/shipments)
 - Livestock commodities may be vulnerable to disease risk (outbreak of an avian influenza decimating chicken stock)
 - Energy commodities are particularly vulnerable to geopolitical risk (OPEC alliance affecting global oil supply and pricing)



Potential Commodity Benefits

- Commodities are direct investment in resources that are used directly or become inputs for other products
- Commodity contracts can be highly liquid
- Returns vary tremendously based on time period and long-term cycles and can offer diversification benefits to more standard asset classes
- Commodities outperformed both equity and fixed income in a period of stagflation (1970's)



Commodity Drawbacks and Risks

- **Drawbacks**

- Volatility
- Low Return
 - Projected long-term gains are lower relative to other asset classes
- Suspect track-record of inflation protection

- **Risks**

- Geopolitical
 - Wars, political arguments, and export cartels effect markets
- Economic Sensitivity
- Counterparty Risk
 - Commodities are often traded on a futures basis. If the seller defaults on their obligation to deliver the commodity, the buyer will lose their investment

How to Invest in Commodities

- **Public Equity and ETFs**

- ETF iShares S&P GSCI Commodity (GSG) average daily volume 392,000 shares
- Commodity related company stock such as Exxon Mobil (Oil, XOM), Rio Tinto (Metals, RIO), and Archer Daniels Midland (Agriculture, ADM)

- **Pooled funds**

- Open and Closed Options Available
- Portfolio of Commodity Related Stocks
- Private Interests in Companies or Physical Commodity
- Commodity Trading Advisor (CTA) - Futures, Forwards, Swaps
- Fees are wide ranging from 0.5% bps to 1% plus performance fee of 15% over a hurdle

- **Direct Investment in Physical Commodity**

Behavioral Governance - Stewardship

Don Trone

Center for Board Fiduciaries

Don Trone, BCF™ is the CEO of the Center for Board Certified Fiduciaries (CBCF), which is affiliated with the Wake Forest University – School of Professional Studies. CBCF is offering the first executive education certificates in fiduciary studies and awards the peer reviewed BCF (Board Certified Fiduciary) mark. Don also is one of the Co-founders of 3ethos, which conducts original research in the field of Behavioral Governance (BG). BG is the follow-on to Behavioral Finance, except now the focus is on how the behaviors of key decision-makers impact the quality of their decision-making outcomes. Don was the founding CEO of fi360; founder and President of the Foundation for Fiduciary Studies; and the first person to direct the Institute for Leadership at the U.S. Coast Guard Academy. In 2015 Don was named by Investment Advisor magazine as the “Father of Fiduciary” and one of the 35 most influential people in the financial services industry. In 2003, he was appointed by the U.S. Secretary of Labor to represent the investment counseling industry on the ERISA Advisory Council, in 2007 he testified before the U.S. Senate Finance Committee on fiduciary best practices; and in 2015 he testified before the U.S. Department of Labor against the proposed DOL Rule. Don is a graduate of the U.S. Coast Guard Academy (Class President), and served for ten years on active duty, most notably as a long-range search and rescue helicopter pilot. He is a four time recipient of the Sikorsky Helicopter Rescue Award. He has a Master’s from The American College and has completed post-graduate studies in theology from the Pittsburgh Theological Seminary and Trinity Episcopal Seminary.



FPPTA Presentation

FLORIDA PUBLIC PENSION TRUSTEES ASSOCIATION

Behavioral Governance

Don Trone
CEO



BEHAVIORAL GOVERNANCE DEFINED

Behavioral Governance is a new body of research that studies the interrelationships between Leadership, Stewardship, and Governance



Leadership is your capacity to inspire and engage others.

Stewardship is your passion and discipline to protect the long-term interests of those you serve.

Governance is your ability to manage the details of a prudent decision-making process.

All decision-making dimensions are integrated with...

- Best practices when defined
- Leadership behaviors that impact the quality of decision-making outcomes
- Stewardship behaviors that impact the quality of decision-making outcomes
- Cognitive and behavioral biases that impact the quality of decision-making outcomes
- Legal substantiation (when applicable)



Great leaders have a framework
(Behavioral Governance) for responding to
emergencies, particularly those of a moral
or ethical nature.

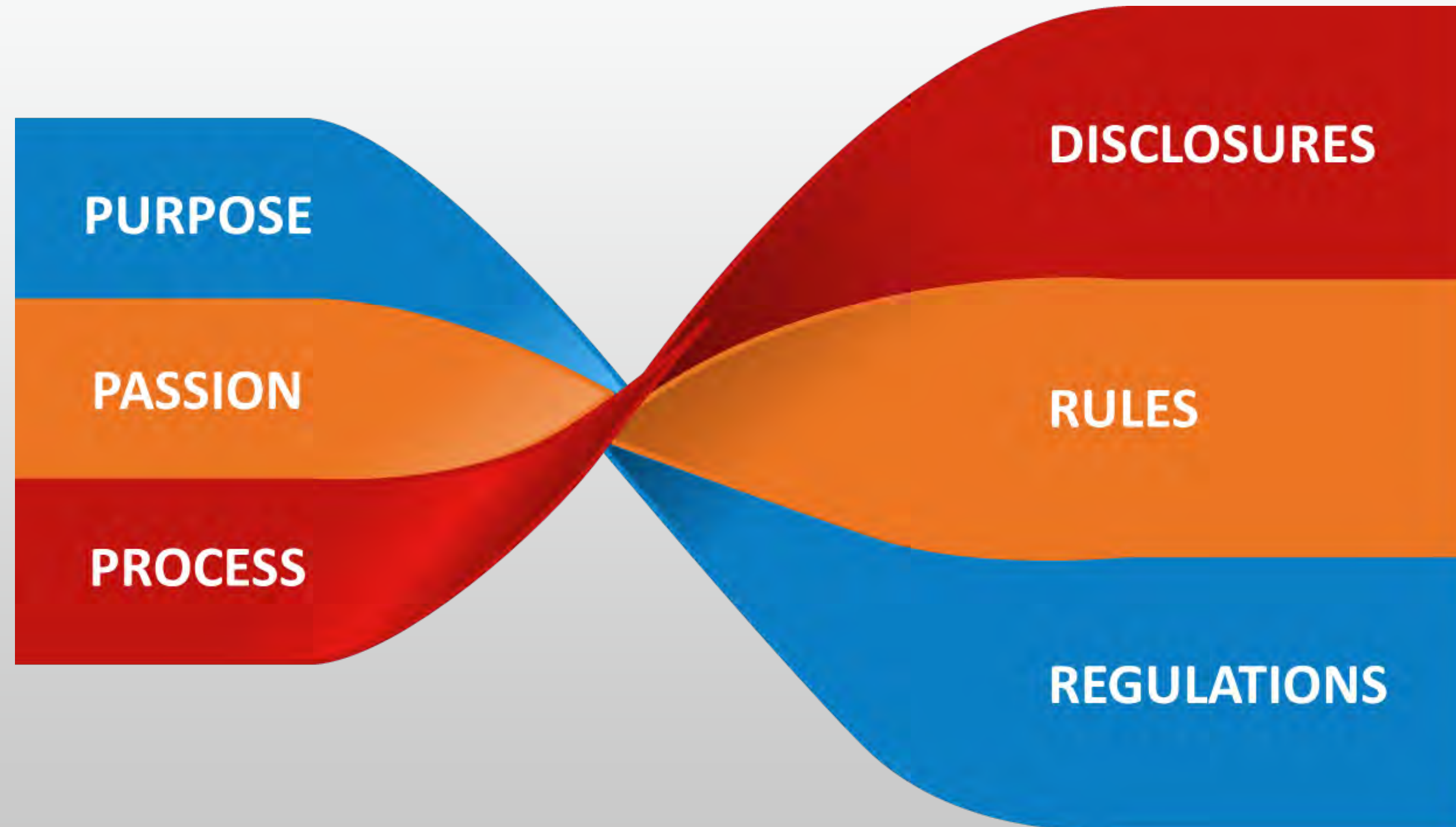
For they know that rarely does one receive
advance notice that, today, you're going to
be faced with an ethical dilemma.



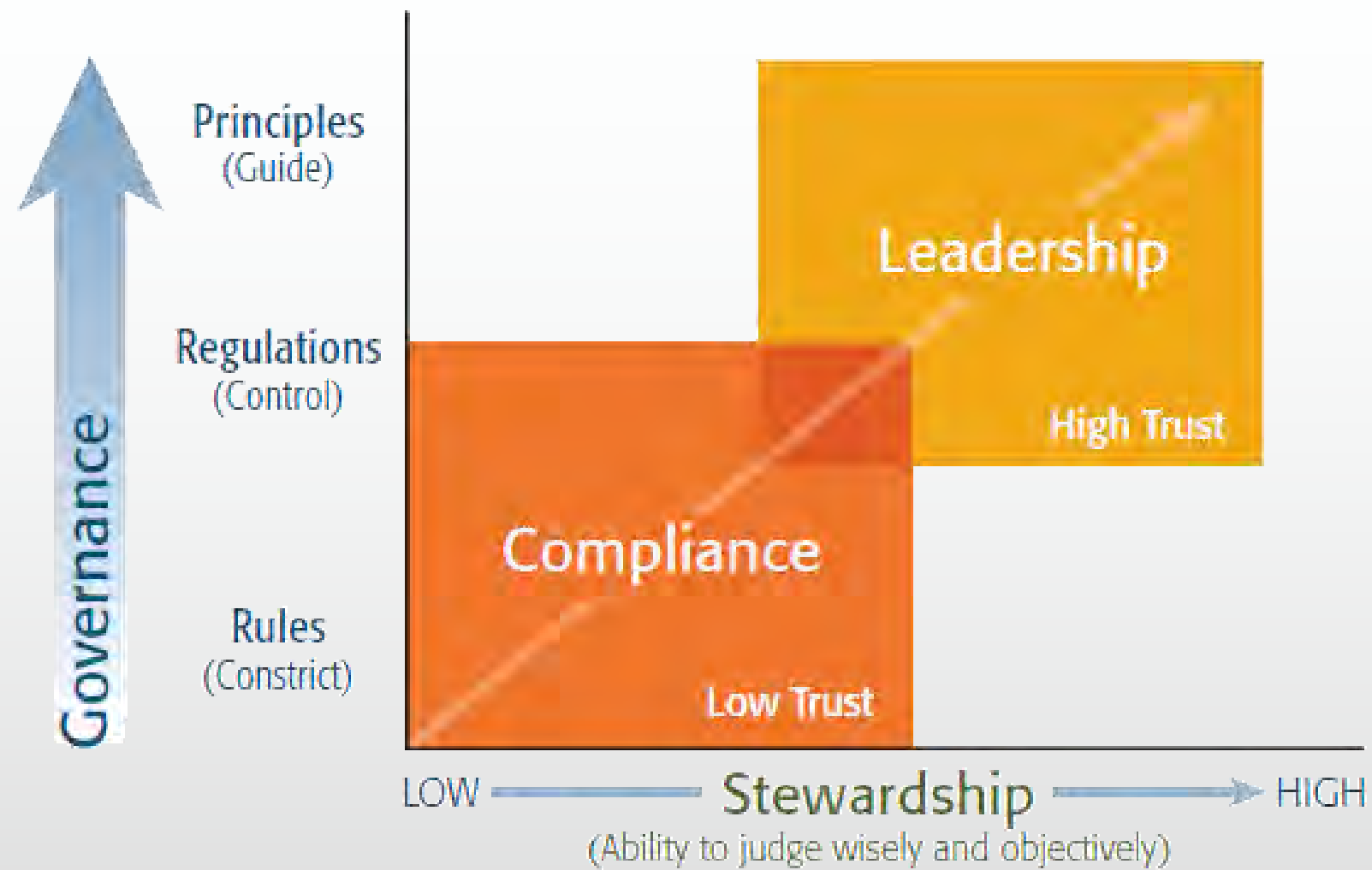


MORAL ASPITATION
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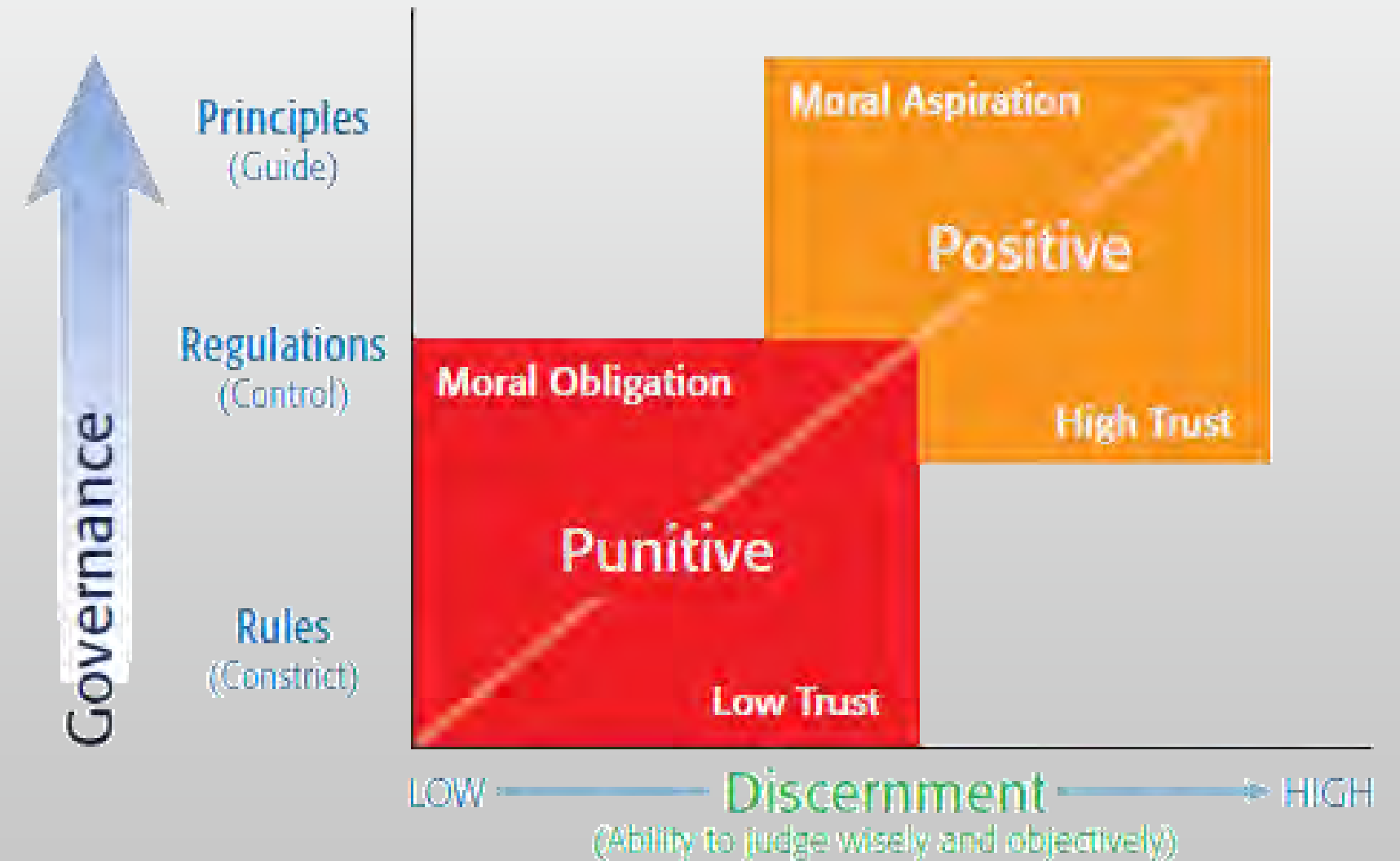
MORAL OBLIGATION
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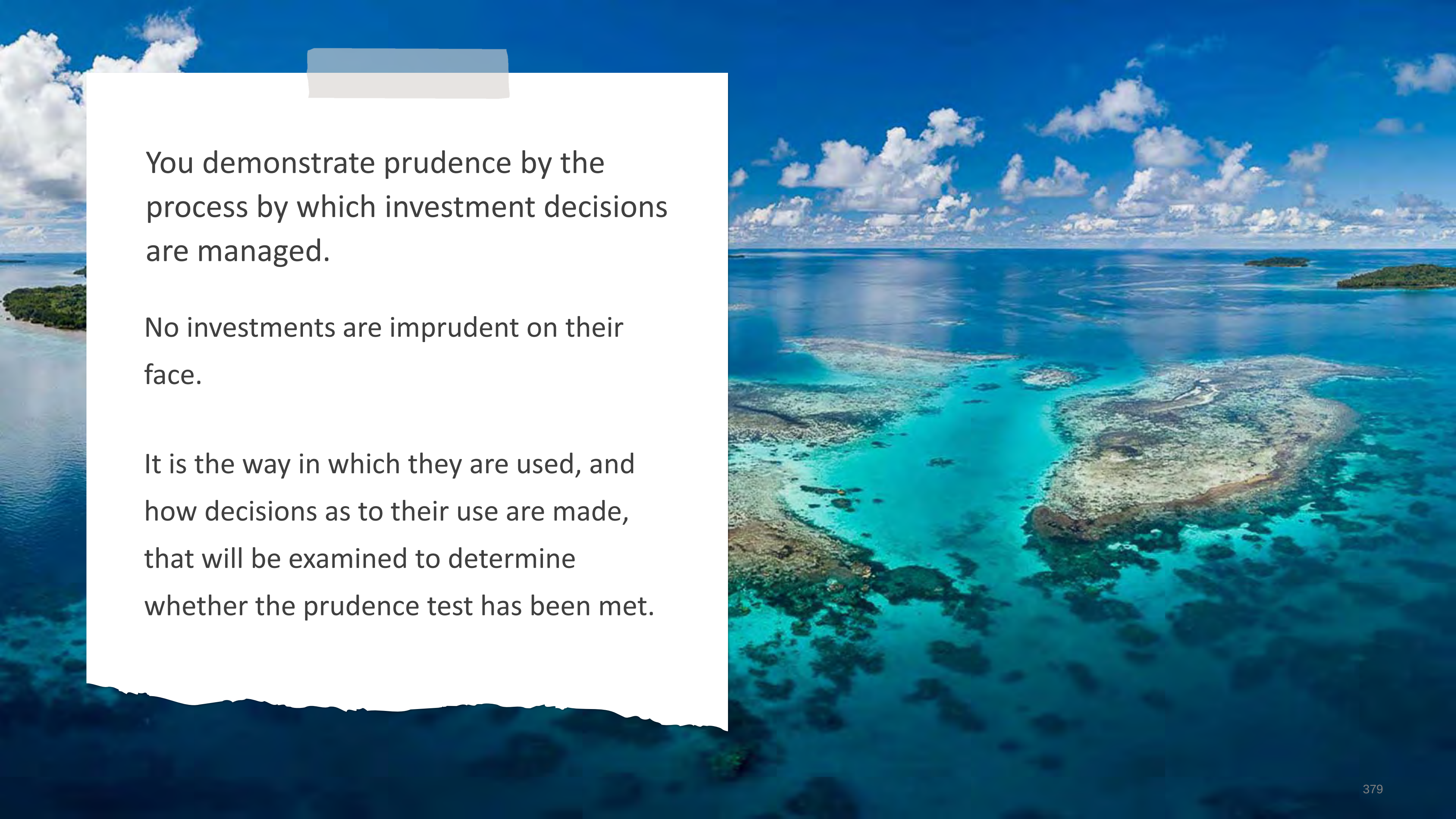
When the roles of regulators and politicians become indistinguishable, often the result are complex rules and regulations that do more harm than good.



Governance



Governance is your ability to manage the details of a prudent decision-making process.

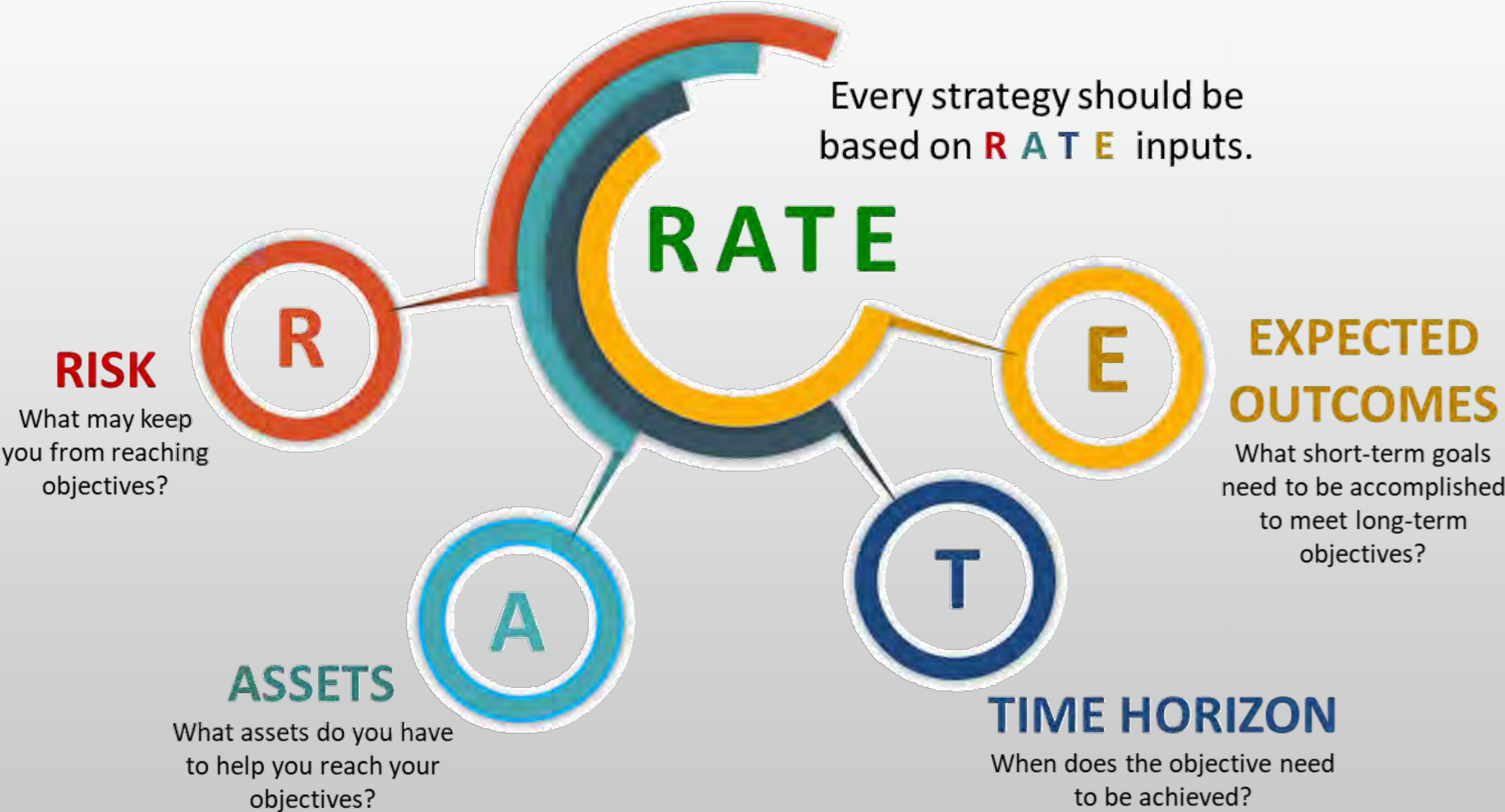
An aerial photograph of a tropical atoll, likely in the Maldives. The image shows a large, irregularly shaped island with a white sand beach and lush green vegetation. The surrounding water is a vibrant turquoise color, indicating shallow depths with coral reefs. In the distance, other smaller islands are visible under a bright blue sky with scattered white clouds. The overall scene is serene and beautiful, representing a pristine natural environment.

You demonstrate prudence by the process by which investment decisions are managed.

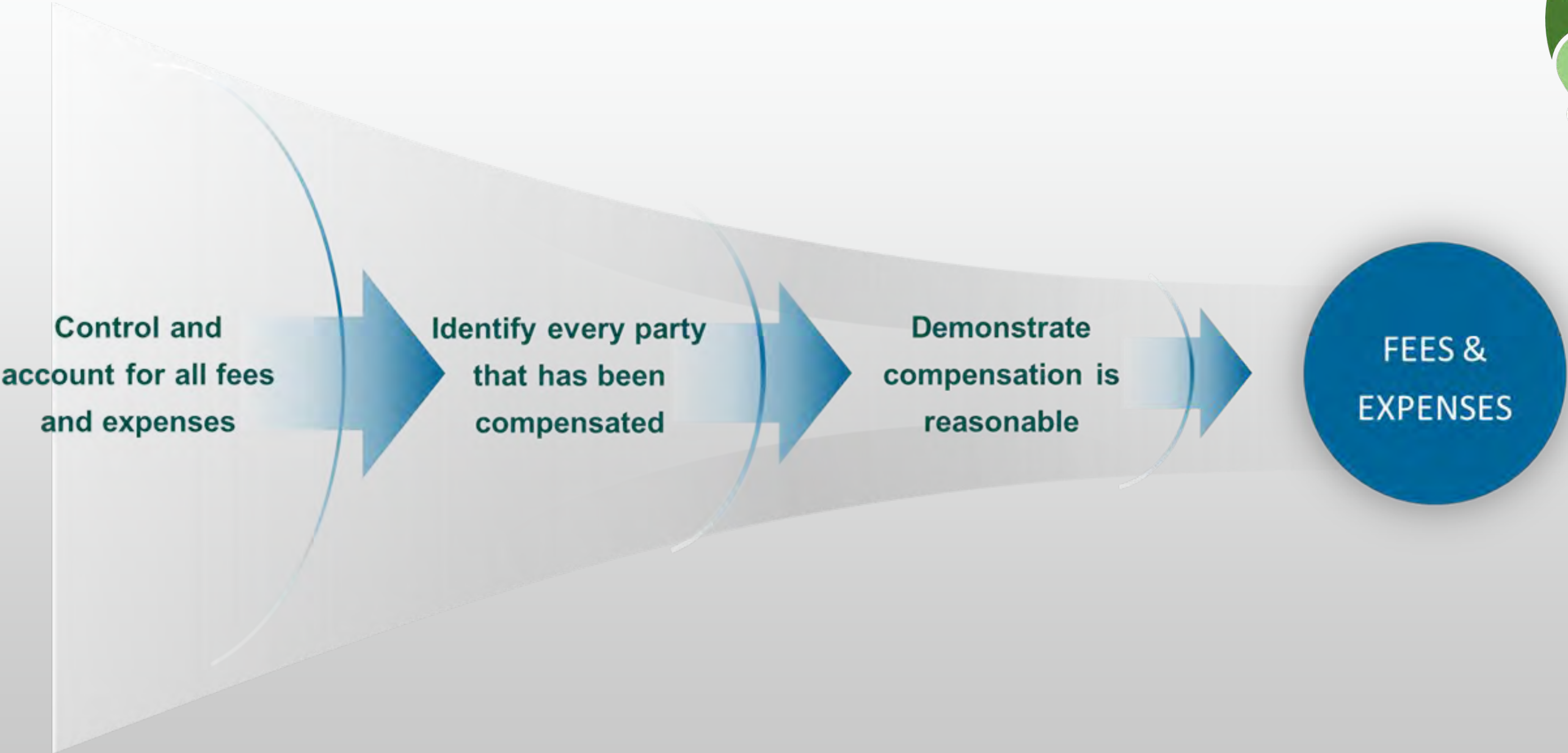
No investments are imprudent on their face.

It is the way in which they are used, and how decisions as to their use are made, that will be examined to determine whether the prudence test has been met.

STEP 2: EVERY STRATEGY SHOULD BE BASED ON RATE INPUTS



Step 4: CONTROL AND ACCOUNT FOR YOUR FEES AND EXPENSES

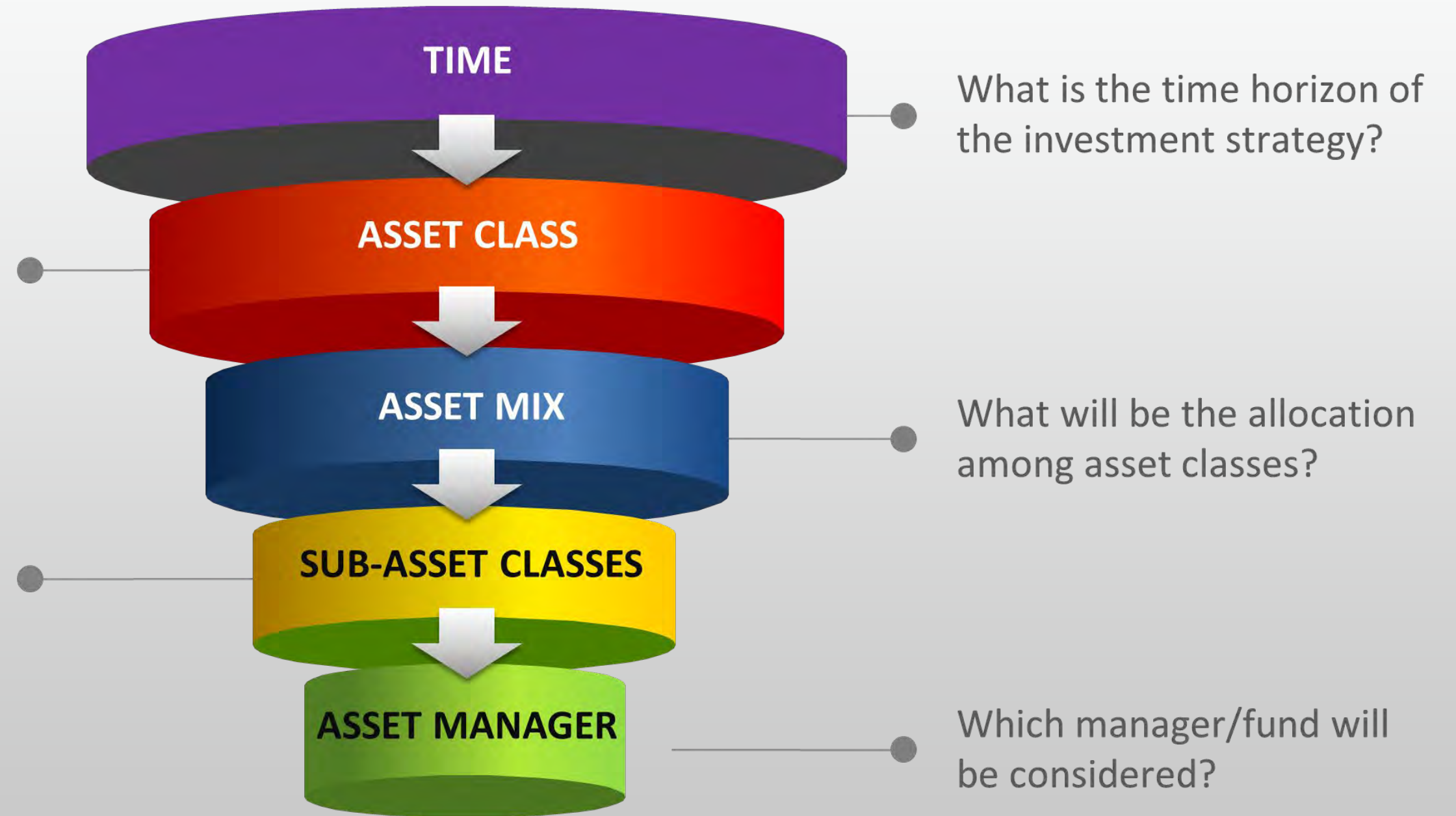


STEP 4: THE HIERARCHY OF DECISIONS

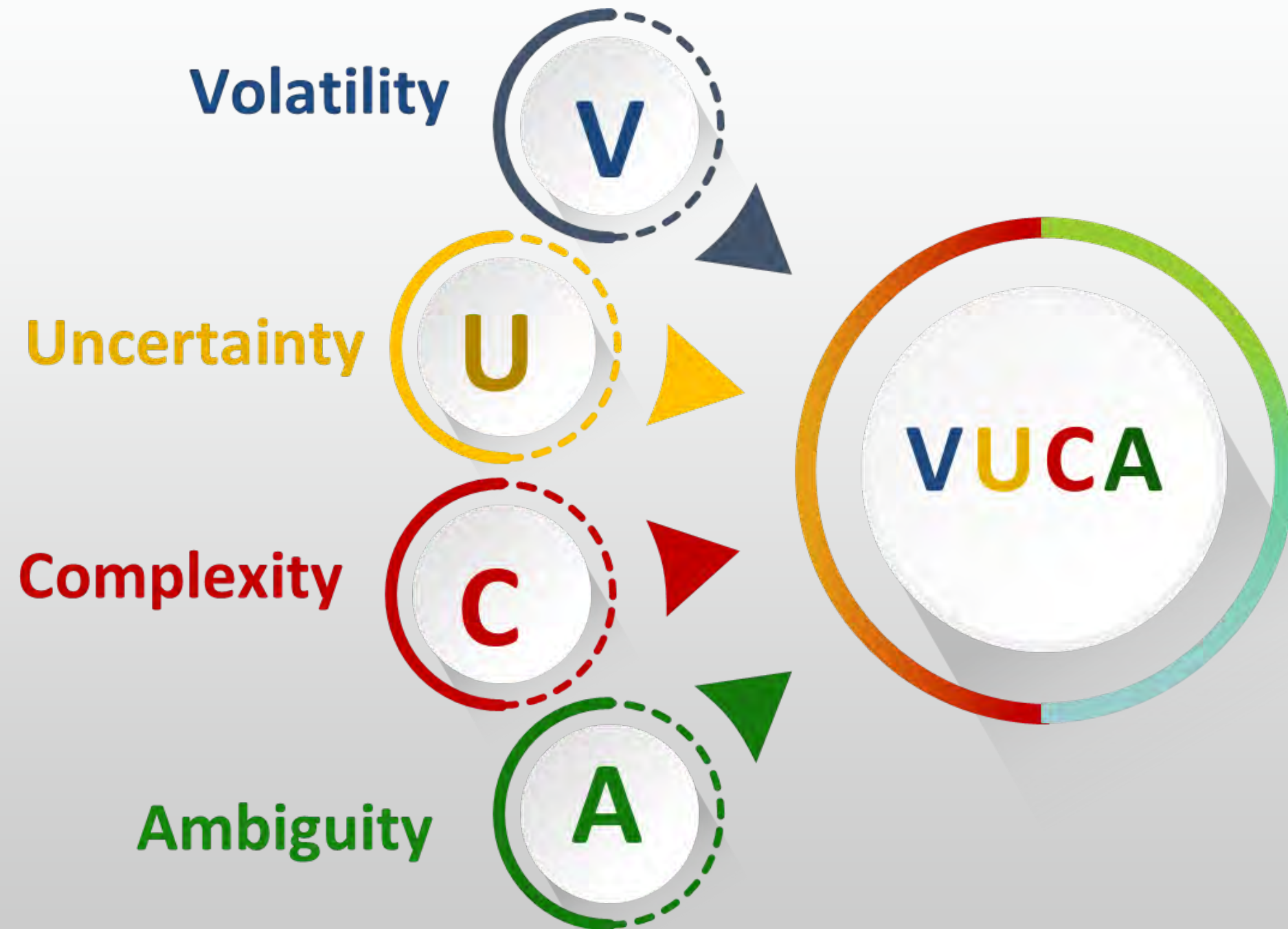


What asset classes are appropriate?

What sub-asset classes will be considered?



HOW TO LEAD IN A VUCA WORLD



VUCA is used to describe an environment that's experiencing constant and unpredictable change; an environment that becomes increasingly less responsive to traditional management and planning approaches.

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HOW TO LEAD IN A VUCA WORLD

- *“Embrace the suck”* (Source – Navy Seals)
- Practice resilience – the secret to success is learning how to fail.
- Make a friend of fear.
- Be attentive to increase awareness and decrease mind-wandering.
- Stretch – don’t always go after the low hanging fruit.
- Break down complex problems – simple is preferable to complex.

7 Hacks to Improve Portfolio Outcomes

Place the interests of those you serve first; not because you're subject to a regulatory standard, but because you're a leader and a steward.



7 Hacks to Improve Portfolio Outcomes

When designing a decision-making process:

- Ensure the process aligns with your purpose and passion
- Keep it simple – complexity is an inhibitor to the formation of trust



7 Hacks to Improve Portfolio Outcomes



Follow a structured process to be certain that all critical components of a strategy are being properly implemented.

Most shipwrecks are the result of an omission as opposed to a commission. It's not what the crew did...it's what the crew forgot to do.

7 Hacks to Improve Portfolio Outcomes

Base every strategy on an analysis of **RATE**

R Risks

A Assets

T Time horizon

E Expected outcomes





7 Hacks to Improve Portfolio Outcomes

you demonstrate prudence by the process by which decisions are managed.

No investment products or strategies are imprudent on their face. It is the way in which they are used, and how decisions as to their use are made, that will be examined to determine whether the prudence test has been met.

7 Hacks to Improve Portfolio Outcomes



Develop uniform search, due diligence, and monitoring criteria:

- Develop a process that can be consistently applied;
- Can be easily communicated to key decision-makers; and
- Can be used in both Step 4 - Execute and Step 5 – Examine.

7 Hacks to Improve Portfolio Outcomes



If you think a key decision-maker has a conflict...
they probably do.

7 Hacks to Improve Portfolio Outcomes

Place the interests of those you serve first; not because you're subject to a regulatory standard, but because you're a leader and a steward.



BENEFITS OF THE BEHAVIORAL GOVERNANCE FRAMEWORK



Simple decision-making process when operating in a complex and dynamic environment.

Basis for standards, prudent practices, and procedures which can be independently assessed and drive performance improvement.

Guides consistent decision-making across all levels, which facilitates delegation to staff, money managers, and service providers.

Helps to benchmark current status, prioritize work, and measure progress.

Helps to uncover procedural and behavioral risks of decision-makers.



Lead to Serve

Make your work and life meaningful.

Lead so that you can be of service to others.

Be the point of inspiration for moral, ethical, and prudent decision-making.

FPPTA Glossary of Terms

12(b)-1 Fees: Named for the SEC rule that permits investments companies that sell mutual funds to charge an additional, ongoing fee for advertising and marketing the funds.

218 Agreement: An agreement between the Social Security Administration and state government to provide Social Security coverage for public employees in accordance with state statutes.

401(a) Qualified Plans: A retirement plan that meets the requirements of IRC 401(a) and certain other sections. The plan, its employees, its employers, and its retirees receive favorable tax status.

401(a)(17) Limit: An annual limit on the amount of compensation used to calculate an employee's contributions to a pension plan to maintain plan's qualified status under IRC.

401(h) Retiree Medical Account: An account that contains money contributed on a pre-tax basis. A retiree may use the money to pay medical expenses for himself or herself, spouse, or dependents. The IRC does not tax the retiree on this money.

401(k) Plan: An employer-sponsored retirement saving account that permits employees to divert part of their pay into the plan and avoid current taxes on that income. Money directed to the plan may be partially matched by the employer, and investment earnings within the plan accumulate tax until they are withdrawn. The 401(k) is named for the section of the federal tax code that authorizes it.

403(b) Plan: Section 403(b) of the Internal Revenue Code permits employees of certain non-profit organizations such as schools and hospitals to set up tax-deferred retirement saving accounts. The plans are designated to compensate for the absence of profit-sharing plans at these organizations. Many such plans permit investments in mutual funds or annuities.

414(d): An IRC provision that defines governmental as a plan established and maintained for its employees by the government of the United States, by the government of the United States, by the government of any state or political subdivision, or by an agency or instrumentality of any of the foregoing.

414(h)(2) Pickup: An IRC provision that permits state or local government employers to treat employee contributions to a retirement plan as though the employer made them. The pickup allows an employee to exclude such contributions in gross income for tax purposes until the individual draws a retirement benefit.

415 Limits: An IRC provision that limits benefit payments from and contributions to pension plans. If plans fail to follow these limits, they may lose their qualified status. Section 415(b) sets an annual dollar limit on the benefit that can accrue or be paid to participants through a defined benefit plan in a given year, whereas Section 415(c) limits the total amount of employee and employer contributions that can be made annually to an individual's defined contribution plan.

415(m) Plan: An IRC provision that allows a retirement plan to pay a benefit that exceeds the 415 limits, but is otherwise lawful under statute of the state or local government.

457 (b) Plan: A defined contribution plan, also called a deferred compensation plan, available to all state and local governmental entities. Such plans permit employees to defer (that is, move into a tax-favored account) a portion of their pay. The employee typically directs the investments. Because of the tax-favored treatment, the employee pays no tax on contributions and earnings until the individual separates from service or meets other criteria. The IRC limits the amount of the yearly deferrals. The limit is adjusted for inflation.

529 Plans: Qualified state-administered tuition programs developed by state legislatures to encourage savings for postsecondary education. There are two types of plans: savings plans and prepaid tuition plans; both provide tax-free earnings on their investments.

8-k: A report required by the SEC of companies that announces unscheduled significant events of interest to shareholders and investors. Filed as soon as these events occur (rather than at the time of your next quarterly report) and available free on the SEC's website.

10-k: An audited annual report required by the SEC that provides a comprehensive summary of a company's financial performance and its outlook for the future and is available free on the SEC's website. Often called the annual report, the 10-k typically contains more detailed information about the company's financial condition than the annual report.

10-q: A quarterly report required by the SEC that offers an unaudited financial statement and continuing view of the company's financial position. Filed for each of the first three quarters of the company's fiscal year, and copies are available free on the SEC's website.

Absolute Return: Measures the actual rate of return of assets in a fund without regard for how that return compares to other funds. (See rate of return, relative return)

Accrual Rate: The percentage of salary level at which a pension benefit builds up, or accrues, over years of credited service in a typical defined benefit plan.

Accrued Benefit: The pension benefit an employee earns through participation in a plan as of a specific date. In a defined benefit plan, once vested, this is the annual benefit an individual receives at normal retirement age. In a defined contribution plan this is the balance in the plan account, whether vested or not.

Accrued Interest: Since bonds pay a fixed coupon on a regular schedule, bonds will, at any point, possess interest that is due to the bond holder. This accrued interest is bought and sold along with the principal amount when the bonds are traded. Accrued interest should be added to any accounting of portfolio market value; if the portfolio is liquidated, the account receives the accrued interest from each issue that is sold.

Accrued Liability: The actuarial present value of the plan's pension obligations as determined by an actuarial cost method. It projects the total obligation to cover the costs to provide pensions for former and present employees and builds these assets over time to cover the liabilities.

Active Management: An investing approach that aims to focus on specific investments to create a portfolio that outperforms the broad market benchmark for the targeted securities.

Active Participant: An employee not yet retired, participating in a retirement plan, whereby contributions are made to the plan by the active participant, the employer, or both.

Actuarial Assumptions: Projections of anticipated behavior associated with certain plan variables (such as mortality rates) that are developed by an actuary and then used to make estimates of future plan costs.

Actuarial Cost Method: A formal actuarial process used to measure the present value of future pension benefits and perhaps administrative expenses. Its purpose is to develop an allocation of pension costs and needed contributions to ensure that the plan is sufficiently funded to meet all pension obligations.

Actuarial Gains and Losses: Measures of the differences between actual plan experience and the experience that the plan's actuary had predicted based on the actuarial assumptions.

Actuarial Impact Statement: A description of the liabilities and funding requirements related to a proposed change in the retirement system.

Actuarial Valuation: The amount of pension contributions the employer will have to make each year to fund the actuarial liability.

Actuarial Value of Assets: The total value of a plan's assets used for performing an actuarial valuation.

Actuary: Professional who guides the fiduciaries of a pension fund with information for making sound short and long range planning decisions for events that might occur next year, 5, 10 or more years from now. Using actuarial, accounting, legal, financial, investment and human resource planning assumptions to assist with the projections.

Adjusted Gross Income (AGI): Taken from the individual's income tax return, this term means total annual income, less tax-exempt income, less other 'adjustments to income' such as deductible IRA contributions, self-employed health insurance premiums.

Administrator: The person appointed by a court to administer and settle the estate of a person dying without a will or the estate of a person whose will appoints an executor who cannot serve.

After-Tax Contributions: The Contributions to a retirement plan from wages that have been subject to income taxes.

Age Discrimination in Employment Act (ADEA): The 1967 federal law that prohibits discrimination in employment on the basis of age with respect to individuals who are 40 years of age or older. It specifically prohibits denying employment benefits to older employees, including long-term and short-term disability benefits, severance benefits, pension, or other retirement benefits, and early retirement incentives. The EEOC administers the ADEA.

Aggregate Cost Method: An actuarial cost method that spreads any unfunded present value of future benefits as a level percentage of future payrolls.

Alpha: The alpha is the premium or loss that a manager adds or subtracts by active management above or below the equivalent theoretical decision to be invested in the market represented by a select market index and "risk free" US Treasury Bills.

Alternative Investments: An investment in a nontraditional asset class typically not traded on a public market.

American Depositary Receipts (ADR): A security, created by a US bank and representing shares of a foreign security held in trust by the bank, that can be bought and sold like other US securities on domestic exchanges, thereby providing investors access to foreign securities without having to trade on foreign markets.

American Stock Exchange (AMEX): A private, not-for-profit organization located in New York City that handles roughly one-fifth of all securities transactions in the United States.

Annual Report: A report detailing the retirement plan's performance, including financial status and, typically, a summary of investments and investment performance. The annual report can also be the document issued by the public companies to disclose corporate information such as assets, liabilities, and profits to their shareholders.

Annual Required Contribution (ARC): The employer's periodic required contributions to a defined benefit plan, as defined by GASB. If an employer's contributions fall below the ARC, the shortfalls must appear in the employer's financial statements.

Annualized Return: Rate of return calculated for an interval of greater than 1 year, such as 2 years or 5 years, expressed in terms of the "average" return for each of the years in the period. (See rate of return)

Annuitant: An individual entitled to receive or receiving benefits from a plan.

Annuitize: The process of converting a sum of money into a series of payments by essentially trading its present value for future guaranteed periodic payments for a certain time period or for life.

Annuity: A series of regular payments, usually from an insurance company, guaranteed to continue for a specific time, usually the annuitant's lifetime, in exchange for a single payment to the company. With a deferred annuity, payments begin sometime in the future.

Asset: Something with a monetary value, e.g., stocks, real estate, accounts payable. Net assets are assets minus liabilities.

Asset Allocation: Proportion in which investments are divided among various types of securities, such as equities, bonds, cash equivalents or other assets. There are different levels of risk associated with different asset allocations. Overall risk, however, is reduced with an allocation to more than one type of security.

Asset-Backed Security: A bond backed by a pool of assets, often loan instruments that are usually hard to trade in their individual form. These assets are turned into tradable securities by their issuers and include, for example, home equity loans and credit card receivables.

Asset Class: Groupings of securities by type, such as equities, bonds, cash, etc.

Asset Valuation: The value of the assets of the plan, determined by using a standard methodology.

Average Life: For a bond with early redemption features (such as mortgage pass-through bonds) the average life is when, under typical conditions, half the principal has been returned to the bond holder. Non-callable bonds' average life is the same as their maturity.

Back End Load: A sales charge or commission due when an investment is sold; also called an exit or redemption fee, or a deferred sales charge. .

Balanced Fund: A diversified fund that holds a combination of different types of investments such as equities, bonds, cash or other assets. (See portfolio)

Balanced Market Index: This unique index is a blended market return benchmark reflecting the precise market equivalent asset mix from a portfolio's actual asset allocating experience. This custom theoretical index is constructed to show the equivalent of investing in the stock, bond and cash market indexes in precisely the same proportion as a real total pension fund has been committed, on average, to its own managed allocations to equities, bonds and cash. The balanced market index can be compared to the fund's actual returns for another measurement of relative performance.

Basis: Your cost, used in figuring gain or loss, when you sell a house or other property, such as stocks, bonds, or mutual funds. On real estate, basis includes the price you paid plus the cost of improvements.

Basis Points (BPS): A term that measures the relation between a bond's price and yield, used in calculating fees or asset performance. Equal to 1/100th of 1%. One basis point = .01% or .0001; think of it as a penny or 100 basis points equals \$1 or 1%. 0.75%, for example, is 75 basis points.

Basis Price: A method of pricing municipal bonds, Treasury bills, and certain other instruments, expressed as yield to maturity.

Bear Market: A declining trend in stock markets.

Bearish: A bear thinks the market is going to go down. This makes bearish the opposite of bullish.

Before-Tax Dollars: Gross earnings before federal and state income taxes and FICA taxes are deducted, thereby reducing the total amount of earnings subject to taxes, also called pre-tax dollars.

Benchmark: An unmanaged group of securities such as market index (Dow Jones Industrial Average Index) whose return can be used to measure investment performance of overall fund as well as that of individual investment managers.

Beneficiary: Person or organization entitled to receive income and/or principal under the terms of a trust, will, or defined benefit retirement plan. The person designated to receive the benefits of an insurance policy or a retirement plan such as an IRA.

Benefit: A payment received from a pension plan, which could include pension, disability, or survivor benefits.

Bequest: A gift or property by will.

Best Execution: Best execution implies that when a manager makes a trade through a broker, the trading strategy must result in the optimum investment decision value for the portfolio. Best execution sometimes includes trading obstacles because the “absolute best price” is not always received or paid in non-retail, institutional trading given the following market conditions: 1) a slight upward price adjustment where liquidity does not permit an easy sale on a difficult trade, 2) a “timing benefit or cost” from rapid variation in price occurring before the trade can actually be completed in the absence of liquidity, as well as other technical situations. Commissions paid on the trade are often dwarfed in comparison to those other benefits or costs associated with these trading obstacles. Also, best execution takes special factors into consideration which are difficult to quantify such as the value of the long standing working relationship between the manager and the broker, or the unique research or other proprietary services provided by the broker for the benefit of the manager’s client.

Beta: A statistical measure of market risk that indicates portfolio or security volatility by measuring how returns vary as the market moves up or down. Beta estimates the proportional change in a security fund’s rate of return corresponding to a given change in the market, where the market may typically be the S&P 500. If the beta is 1.0, a 10% increase in return of the return on the market will predict or estimate, on average, a similar 10% increase in the return of the particular portfolio or security. If beta is less than 1.0, such as .9, the portfolio or security is considered less risky than the market and will increase or decrease less than the market. Conversely, a beta higher than 1.0, such as 1.1, indicates a riskier portfolio and the portfolio or security will increase or decrease more than the market. (See risk, volatility)

Blue Chip Stock: There is not set definition of a blue-chip stock, but most people would agree it has at least three characteristics: It is issued by a well-known, respected company, has a good record of earnings and dividend payments, and is widely held by investors. Blue chips can go down, but, since they are unlikely to go bankrupt, are generally considered more conservative than holding a stock in small companies. Blue– chip stocks are usually high-priced and low-yielding. The term “blue chip” comes from the game of poker in which the blue chip holds the highest value.

Bonds: Fixed income securities formally issued by governments, agencies, corporations, or other entities guaranteeing the payment of the original investment plus interest by a specified future date, greater than 12 months in the future. Securities with maturities of less than 12 months are classified as cash equivalents. (See bond maturity, duration, fixed income)

Bond Fund: Funds that usually have the majority of their assets invested in bonds or cash equivalents. (See portfolio)

Bond Maturity: Specifies the period of time when the scheduled principal repayment is to be made. (See bond portfolio maturity, duration)

Bond Portfolio Maturity: In a bond portfolio, the maturity structure of each bond contributes to the repayment schedule for all the bonds, on average. This average period of years is often referred to as the bond portfolio maturity. (See bond maturity, duration, fixed income)

Bull Market: A rising trend in stock prices.

Bullish: A bull is someone who thinks the market is going up, which makes bullish the opposite or bearish.

Call (Option): An option to buy a certain amount of stock at a set price for a predetermined period of time.

Call /Prepayment Risk: The risk that a bondholder has bonds taken away (in exchange for cash) during a period of declining interest rates. A bond that is callable or a mortgage bond that can be prepaid will have a virtual ceiling on its price when rates fall and prices rise, callable bond's prices will eventually top out, limiting the "upside potential" of these bonds.

Callable Bond: A bond that can be redeemed by the issuer. Often, corporations issue bonds that are callable, giving the issuer the option of paying off the bonds when interest rates drop and issuing new, lower coupon bonds, which will reduce the company's annual expense.

Callable Securities: Investments (typically bonds, preferred stocks, or debentures) that permit the issuer to redeem the security before its maturity date.

Capital Gain: The profit made on the sale of property or securities. A short-term capital gain is made on holdings held less than a year; a long-term capital gain on those held for more than a year.

Capital Gains Distribution: Payments to mutual fund shareholders of gains realized on the sale of the fund's portfolio securities. These amounts are usually paid once a year and should be added to the basis of your investment.

Capital Loss: The loss taken on the sale of property or securities.

Cash/ Cash equivalents: securities (commercial paper, U.S. Treasury Bills, demand notes, short-term investment funds, etc.) with a term to maturity of less than one year. Considered a "risk free" investment when backed by the U.S. Government, in the form of Treasury Bills or Treasury Bonds that have a remaining time to maturity of less than a year.

Certificate of Deposit: Usually called a CD, a certificate of deposit is a short to medium term instrument (one month to five years) that is issued by a bank or savings and loan association to pay interest at a rate higher than that paid by a passbook account. CD rates move up and down with general market interest rates. There is usually a penalty for early withdrawal.

Certified Financial Planner (CFP): An individual trained in all areas of financial planning who has passed a national certifying exam, abides by a professional Code of Ethics, and meets the continuing educational requirements of the professional organization.

Certified Public Accountant (CPA): An individual trained in accounting and taxation who has passed a national certifying exam, abides by a professional Code of Ethics, and meets the continuing educational requirements of the professional organization.

Churning: Excessive buying and selling of investments with the view of earning commissions rather than obtaining optimum investment results.

Cola or Cost of Living Adjustment: A device to prevent inflation from eroding the value of a pension payment. A COLA can be a flat adjustment (e.g. 2% per year) or can be tied to an index. The index can be internal (e.g. adjustments are made if fund performance exceeds actuarial assumptions or other pre-determined levels) or external (e.g. based upon increases in the customer price index). The COLA with which most people are familiar is the one enacted in 1973 for Social Security and Supplemental Security Income Benefits. The Social Security COLA is based upon the Consumer Price Index.

Collateralized Mortgage Obligation: A mortgage-backed, investment-grade bond consisting of pooled mortgages that separates the cash flows into short, medium, and long classes (often called tranches) that are paid off in order of maturity date.

Collectively Bargained Plan: A retirement plan negotiated through a collective bargaining process between an employer and a union or employee representative.

Commercial Paper: An unsecured promissory note issued in the open market by large banks and corporations to raise short-term funds.

Commissions: The fee paid to a broker for trading a stock or bond. This fee may be explicit and separate from the price or it may be implicit and embedded in the price.

Common Stock: A unit of equity ownership in a corporation. Owners of common stock exercise control over corporate affairs and enjoy any capital appreciation. They are paid dividends only after preferred stock. Their interest in the assets, in the event of liquidation, is junior to all others.

Consultant: Registered investment advisory firm that assists fiduciaries with impartial judgment on managers investment performance, meeting objectives, understanding risk, selecting new managers, and long term asset allocation issues. There are two general types of consultants: independent consultants and broker consultants. Independent consultants are typically paid a fixed fee for their services.. Broker consultants are typically paid a variable fee for their services based on commissions generated by the fund.

Contribution: An addition by the sponsor of cash or securities to a fund.

Counsel: Lawyer who guides the fiduciaries' actions, and makes certain that Board actions or decisions are within the rules of the plan document and the laws prescribed by municipal, state and federal regulations.

Coupon: The interest the bond issuer pays to the bond holder, expressed as a percent (e.g., 6 5/8%). Normally half of the coupon is paid twice a year.

CPI (Consumer Price Index): The CPI measures changes in the consumer prices (food, transportation, housing, entertainment, medical care, etc.). It is published monthly by the U.S. Bureau of Labor, and it is used as a gauge for measuring inflation. The CPI is also used as a cost of living index.

Credit Risk: The risk that a bond issuer will become less creditworthy, leading to relative price under performance, or, in extreme circumstances, default. Ratings agencies review companies in order to judge their ability to meet future interest and principal payments and assign corresponding ratings.

Custodian /Trustee: Institution that keeps the independent ownership of assets for the benefit of the sponsor separate from all other sponsor funds. The custodian typically maintains records on financial transactions and assets, collects dividends and interest, settles security transactions, disburses checks, accepts contributions, administers the general cash flow of the fund, and provides statements showing financial details to the fiduciaries.

Data Base/Universe: A large statistical sample of fund information including returns, or other statistics. There are several universes in a data base displaying a variety of interesting information about similar funds, such as managed equity and bond returns. Values are arranged from best, 1st percentile, to worst, 99th percentile, to provide a range of performance with which to compare funds actual results to the specific universe. This investment information is collected from similar investors, and allows important comparisons about how specific investment results compare to similar funds.

Death Benefit: Funds paid to the designated beneficiary of a deceased plan participant.

Default: Occurs when the issuer misses a scheduled interest or principal payment. Generally, companies will take extreme measure to avoid defaulting, since it carries serious legal implications.

Deferred Account: An account that permits the delay of taxation until distributions occur.

Deferred Annuity: An annuity contract that delays the payment of income until some later date, such as when the annuity holder chooses to receive them, or when a specific age has been reached.

Deferred Compensation Plan: A plan that permits a portion of compensation that is earned to be tax-deferred (that is, not yet received for purposes of taxation) along with any money that it earns, with taxes due when the money is paid out of the plan, traditionally at retirement.

Deferred Retirement Option Plan (DROP): A retirement feature allowing an employee, eligible to retire and receive normal retirement benefits from the defined benefit plan, to defer the monthly benefits while continuing to work. The benefit payments are placed in separate account until the deferred retirement period ends. During this time the calculation for years of service and final compensation formula used to calculate pension benefits is frozen. DROPS can be used for phased retirement or to retain experienced employees.

Defined Benefit Plan (DB): A retirement plan in which the amount of the pension benefit is set by a formula established through the plan. Benefits are calculated based on age, length of service, and final salary. The benefit is payable as a lifetime annuity and possibly for the lifetime of the designated beneficiary. Benefits are typically paid out in substantially equal periodic payments. The plan funds these benefits through a combination of employee contributions, employer contributions, and investment returns. There are no individual accounts.

Defined Contribution Plan (DC): A tax sheltered vehicle that provides for an individual account for each participant and the benefits are based solely on the amount contributed to the participant's account plus any income, expenses, gains and losses, and forfeitures of accounts. A 401(k), 403(b) and 457(b) plan are defined contribution plans. At retirement, the account balance is the total funds available to provide an individual's retirement benefits and an individual can outlive the fund's balance.

Disbursements: Payments made directly out of the assets of a fund, such as to pensioners, for management fees, for consultant fees, for actuarial services or legal expenses.

Discount: A price less than par. Generally, demand is stronger for callable bonds if they are selling at a discount to par.

Diversification: Process of reducing or avoiding risk inherent in holding a limited number of securities in a portfolio, a limited number of industry sectors, concentrating in one asset class or in one style of investment management. By holding a variety of asset classes such as equities, bonds, cash, or real estate, or different manager styles, a higher level of diversity is assured. Further, risk of loss to the total asset holdings is reduced by the combination of dissimilar assets or styles.

Dividend: A share of company earnings paid out to stockholders. Dividends are declared by the board of directors and paid quarterly. Most are paid as cash, but they are sometimes paid in the form of additional shares of stock.

Dow Jones Industrial Average (DJIA): An index representing the general price movement of 30 widely held industrial stocks listed on the New York Stock Exchange. The value of the Dow is determined by dividing the sum of per-share prices of the 30 component stocks by an adjusted denominator.

Duration: The best measure of how a bond's price changes when interest rates change. Like maturity, duration is expressed in years: unlike maturity, duration also takes into account the income that a bond generates before maturity. As an example, a bond with a duration of 5.0 years will suffer a price decline of approximately 5.0% if interest rates rise by 1.00% and price rise of approximately 5.0% if interest rates decline 1.00%. Another bond with a duration of 9.0 years will suffer a price decline of approximately 9.0% from the same 1.00% increase in rates and a price increase of 9.0% if rates drop by 1.00%.

Early Retirement Age: The age at which a plan participant can retire and begin to receive reduced benefits under a pension plan's early retirement plan's early retirement provisions.

Early Retirement Incentive: Temporary changes in retirement plan benefits offered by the plan sponsor for a limited period of time, commonly called a retirement window, during which early retirement benefit reductions are usually waived and other incentives are offered to encourage early retirement.

Early Retirement: A provision that permits an employee to begin receiving retirement benefits before reaching normal retirement age, although the benefits will normally be reduced.

Early Withdrawal Penalty: A penalty imposed by the federal government on money withdrawn prematurely from a tax-deferred retirement plan, unless certain special circumstances, often unique to the type of plan, exist.

Equities: Publicly traded securities that represent ownership in companies. A claim on the success or failure of a firm to grow and /or pay dividends, often referred to as stocks.

Equity Fund: Funds that usually have the majority of their assets invested in equities or cash equivalents. (See portfolio)

Fiduciary: Fiduciary is a person who holds a legal or ethical relationship of trust with one or more other parties (person or group of persons). Typically, a fiduciary prudently takes care of money or other asset for another person.

Fixed Income: Securities backed by the promise that interest will be paid to the holder at a fixed rate until sale, maturity, or redemption. Categories include bonds, mortgages, and short-term assets. (See bonds)

Fixed Income Ratings: A grading system for bonds, designed to estimate the credit quality of a bond issue. There are two major ratings agencies, Moody's and Standard and Poor's. Investment grade ratings (from highest to lowest):

Moody's	S&P
Aaa	AAA
Aa	AA
A	A
Baa	BBB

Ratings below Baa/BBB represent non-investment grade ("junk") bonds, and possess a much higher degree of speculation than high-grade bonds.

Foreign Exchange Risk: The risk that a change in a currency's exchange rate (relative to U.S. dollars) will negatively impact the return on a foreign security when translated into dollars.

Gain/Capital Gain: The realized or unrealized increase in market value of a security or a portfolio at the end of a specified time period, excluding the effect of income, contributions and withdrawals.

GASB Statement 25: A statement issued by the Governmental Accounting Standards Board effective for periods beginning after June 15, 1996, establishing financial reporting standards for defined benefit pension plans and for the notes to the financial statements of defined contribution plans of the state and local governmental entities, including a statement of plan net assets, changes in plan net assets, schedule of funding progress, and schedule of employer contributions.

GASB Statement 27: A Statement issued by the Governmental Accounting Standards Board effective for periods beginning after June 15, 1997, establishing standards for the measurement, recognition, and display of pension expenditures/expenses and related liabilities, assets, note disclosures, and, if applicable, required supplementary information in the financial reports of state and local governmental employers.

GASB Statement 43: A statement issued by the Governmental Accounting Standards Board effective for periods beginning after December 15, 2005, for plans maintained by the largest employers, establishing uniform financial reporting standards for plans providing other postemployment benefits (OPEB) offered as part of the total compensation by state and local government employers, such as retiree health care, to include information about the fair value and composition of plan assets, plan liabilities, the funded status of the plan, and employer contributions to the plan.

GASB Statement 45: A statement issued by the Governmental Accounting Standards Board effective for periods beginning after December 15, 2006, for the largest state and local government employers, establishing standards for the measurement, recognition, and display of expenses/expenditures and related liabilities (assets) in the financial reports of state and local governmental employers relating to other postemployment benefits (OPEB) offered as part of the total compensation offered by state and local government employers such as retiree health care, to include information about fair value and composition of plan assets, plan liabilities, the funded status of the plan, and employer contributions to the plan.

Group Insurance: A contract made with an employer or an association that covers a group of persons related to that association.

Growth and Income Fund: A mutual fund which seeks to make shareholders' capital grow and also provide income. There can be wide variations in the relative emphasis on these two objectives.

Growth Fund: A mutual fund which seeks Capital Appreciation, that is, to make its shareholders' capital grow over time by investing primarily in stocks that increase in value. Dividends are a minor consideration.

Index: A measurement of a general market trend that is typically broad based. Examples of indexes are the S&P 500, a proxy for the general equity market; the Consumer Price Index, used to measure aggregate price changes in the economy; and many others noted in this glossary.

Index Fund: Collection of securities in a portfolio uniquely selected to replicate the performance or results of a specific index, such as the S&P 500.

Individual Retirement Account (IRA): A tax-sheltered account ideal for retirement investing because it permits investment earnings to accumulate tax deferred until they are withdrawn. The contribution limit is \$2,000 per year, and penalties usually apply for withdrawals before age 59½.

Inflation: The rate at which prices in general are going up (usually quoted on an annualized basis). The consumer price index (CPI) tracks many consumer goods, the producer price index (PPI) tracks many industrial goods and materials. Inflation is a decrease in the value of money and is thought generally to result from an increase in the supply of money (both actual dollar bills in circulation and readily spendable money such as checking account).

Interest Rate Risk: The degree to which a bond's price will change with movements in interest rates. For investment grade bonds, interest rate risk is by far the most important source of risk. Duration is the best measure of interest rate risk.

Investment Income: Cash dividends on equities, or interest on fixed income securities.

Investment Objective: Desired result against which the progress of an investment program can be measured. May be expressed as an absolute rate of return, percentages above inflation, or returns relative to other funds or indexes.

Keogh Plan: A tax-sheltered retirement account into which self-employed individuals can deposit up to 20% of earnings and deduct the contributions from current income. Investments within the Keogh grow tax deferred until they are withdrawn. Withdrawals from the plan are restricted before age 59½.

Large Cap: A term used to describe companies with between \$10 billion and \$200 billion in capitalization calculated by multiplying the company's current stock price by the number of shares available for trading.

Legal List: Term referring to a list of investments in which certain institutions and fiduciaries may either legally invest or are prohibited from investing.

Barclay /Corporate Bond Index : An index composed of approximately 5,000 publicly issued corporate and U.S. government debt rated Baa or better, with at least one year to maturity and at least \$1 million par outstanding, weighted by the market value of the issues included in the index. Its rates of return reflect total return with interest reinvested. The index is frequently used to represent the bond market.

Life Annuity: A form of annuity that pays monthly benefits during the life of the annuitant, with no residual payments to survivors.

Liquid Investment: An investment easily converted into cash without penalty and with little risk.

Liquidity: The ability to convert an investment into cash, reflecting the capacity of the marketplace to accommodate transactions involving the investment without unreasonable price changes.

Loss/Capital Loss: The realized or unrealized decrease in market value of a portfolio at the end of a specified time period, excluding the effect of income, contributions and withdrawals.

Manager: Investment firm selected to manage the assets of a fund in order to meet the fiduciaries' long range objectives by maximizing returns at minimum risk.

Manager Style: Classification of a portfolio or an investment manager based on the types of securities held, over a period of time. Manager styles include Value, Yield, Growth, Contrarian, Sector or Style Rotator, Undiversified, Small Capitalization, and others.

Mandatory Social Security: A term used to refer to a federal requirement that public employees and their employers that do not currently participate in the Social Security program be required to do so.

Marital Deduction: The amount of property that can be left to a spouse tax-free.

Marital Trust: (Sometimes referred to as a "Trust", "Q-Tip Trust", "Power of Appointment Trust") A trust qualifying as a bequest actually passing to the surviving spouse and therefore qualifying for the estate tax marital deduction. Examples of marital trusts are qualified terminable interest property trusts (QTIP) and general power of appointment trusts.

Market Cycle: Time period over which a broad market index, such as the S&P 500, falls from a high point to a low point and returns to a high point, or reverse (low/high/low). The first type of market cycle is called a peak-to-peak; the latter is called trough-to-trough. A market cycle is typically the shortest time a manager should be judged for relative performance because we are most fairly able to observe the manager's strength or weakness in both the rising and falling market conditions.

Market Risk : The market risk quantifies how much of the variation in a portfolio's rate of return can be explained by the market. Market risk in a security or portfolio is mathematically expressed as beta.

Maturity: See bond maturity.

Maturity or Term: The date that the principal amount of the bond is paid by the issuer to the bond holder (e.g., May 15, 2004). The maturity of a bond is a rough estimate of its price volatility.

Median: The Value of the middle fund in the universe (i.e. the 1500th fund of 3000 funds); not always precisely the arithmetic average. The median holds a ranking of 50th. (See relative return, rankings)

Mega Cap: A term used to describe companies with more than \$200 billion in the capitalization, calculated by multiplying the company's current stock price by the number of shares available for trading.

Micro Cap: A term used to describe companies with between \$50 million and \$300 million in capitalization, calculated by multiplying the company's current stock price by the number of shares available for trading.

Mid Cap: A term used to describe companies with between \$2 billion and \$10 billion in capitalization, calculated by multiplying the company's current stock price by the number of shares available for trading.

Minimum Distribution: The required annual amount that must be distributed from a qualified plan when an employee reaches age 70 1/2, so that the benefits are paid out over the participant's life expectancy.

Minimum Funding: The minimum amount an employer must contribute to adequately fund a defined benefit, money purchase, or target benefit pension plan according to IRS rules.

Money Market Fund: A mutual fund that invests in short-term corporate and government debt and passes the interest payments on to shareholders. A key feature of money-market funds is that their market value doesn't change, which makes them an ideal place to earn current market interest with a high degree of liquidity.

Money Market Indexes: Indexes representing the returns of professionally managed funds investing in cash and cash equivalents securities. (See cash/ cash equivalents).

Mortgage Backed Securities, Mortgages, or MBS: In their most common form, these are bonds (issued by one of three Government agencies) consisting of a large bundle of single-family Residential mortgages with the same interest rate. These are the so-called "pass-through" securities, since the homeowners' monthly principal and interest payments are passed-through to the bond holders. There are many more complex securities which are derived from pass-throughs, including CMOs, REMICSs, IOS, POs and so on. These securities introduce an additional element of risk, and must be carefully modeled and monitored.

Mutual Fund: An open-end investment company. Its portfolio is managed; that is, it buys or sells Securities according to changing conditions. It sells new shares on a continuous basis and buys back (redeems) outstanding shares. Buy and sell prices are equal to the fund's Net Asset Value (plus sales and redemption charges, if any). Contrasts with Closed-End Investment Company.

NASDAQ: The Computerized National Association of Securities Dealers Automated Quotation System that provides price quotations of securities traded over the counter.

National Public Fund Median Index: An index representing the median or average returns for the average public pension's total fund. Included are municipalities, counties, and states.

Par: The price the bondholder will receive for his bonds at maturity. In almost all cases, par is equal to a price of 100.

Peer Group: A very specific subset of the data base with important similarities allowing meaningful comparisons of investment results for the total fund or portion of the fund. Examples include public pension funds, balanced, equity or bond funds, funds with similar asset mix, and funds with similar risk levels.

Performance: See rate of return.

Policy: Guidelines prescribed to obtain investment objectives, including specifications of acceptable risk and diversification levels consistent with those objectives (e.g. limits on commitments to stock, bonds, cash or other investment vehicles) Policy is generally independent of a time horizon and is based on a neutral market outlook.

Political Risk: The risk that a security's price will decline as a result of a country's uncertain political future.

Power of Attorney: A legal document authorizing an individual to conduct the financial affairs of the maker of the Power of Attorney.

Premium: A price greater than par.

Prepayment: The rate at which a mortgage backed security is prepaying its principal. The prepayment rate is determined by the rate at which homeowners pay off their mortgages—either by refinancing, moving, or other form of accelerated payments. Since refinancing is such a big part of the prepayment equation, prepayments tend to accelerate when rates drop (homeowners pay off older, high interest loans) and slow down when rates rise. Prepayments act as a partial “call” on the bonds outstanding, reducing the bond holder's principal little by little. “PSA” and “CPR” are two common measures of prepayment speed.

Prime Rate: The loan rate banks advertise as their best rate; that is, available to their best customers.

Probate: The process of proving the validity of the will in court and executing the provisions of it under the guidance of the court.

Property: Includes cash, securities, real estate, and any other possessions.

Proxy/Proxy Voting: A proxy is a document empowering a person to act for another. Specifically, with regard to common stock owned by Pension Fund, a proxy empowers a person to vote in the Pension Funds' stead at stockholders meeting using the voting power held by the total number of shares of stock owned.

Quality Ratings: Several independent research companies provide ratings on stocks and bonds. In the case of both stocks and bonds, these ratings are intended to give an indication of the Issuers' financial soundness. Bond ratings assess a company's ability to pay bondholders interest and to repay principal in a timely manner. Stock ratings assess a company's balance sheet, relative industry position, dividend payment records and other features to fundamentally judge the stock's strength. These ratings provide an independent opinion about the quality of diverse and sometimes complex securities.

Rankings/ Percent Rank/ Percentile: During a given measurement period, a ranking between the 1st and 99th percentiles in a universe is given, representing the relative position of that fund or fund segment in the universe. For example, ranking of 5th means that the fund performed in the top 5% of all funds and that 95% of the funds performed below this return. When reviewing or comparing rankings, we must always be careful to understand what universe we are inspecting, what value we are reviewing and over what time period we are making observations. (See data base/universe, relative return, and median)

Rate of Return: A mathematical measure of the rate of change in the market value of a fund's assets. Rates of return reflect both realized and unrealized capital gains and losses, as well as total earnings from interest and dividends. Contributions of distributions that increase or decrease the total value of the fund have no effect on investment performance, often referred to as Performance or Total Return. (See absolute return, annualized return, and relative return)

Realization Gains/ Losses: Gains and losses that result from the actual sale of securities.

Registered Investment Advisor (RIA): By law, an individual or business that receives compensation of any form for advice or services related to money, securities, or any financial product must register with the SEC. The SEC does not approve or disapprove of the 'Registered Investment Advisor's' professional knowledge or practice. This designation simply means that the person or business entity has complied with the law and registered with the SEC.

Relative Return: Compares absolute returns against investment results of similar portfolios. A ranking is provided to determine if a manager performs better than, equal to, or worse than a peer group. For example, a 12% absolute return with a ranking of 45th means that the return ranked in the top 45% of the data base: 45% of the funds did better, 55% did worse. First percentile is best, 99th percentile is worst. Median is average or 50th percentile. (See median, rankings)

Risk: The uncertainty associated with the possibility that actual investment results may not coincide with the expected rate of return associated with a given level of assumptions about asset mix, quality of investments and other factors. There are many measure of risk such as beta, duration, standard deviation and other abstract statistics. High risk typically provides high returns couples with the chance of equally high losses. Low risk usually provides low returns with the chance of equally high losses. Low risk usually provides low returns with the chance of similar low losses. (See beta, duration, diversification, volatility)

S&P 500: Standard and Poor's benchmark indicator of 500 stocks, which tracks 400 industrial stocks, 20 transportation stocks, 40 financial stocks, and 40 public utilities. It is a market capitalization weighted index often used as an index against which money managers measure their performance.

Sectors: The major groupings of the bond market. In the U.S. markets, the three main sectors are Government Bonds, Corporate Bonds, and Mortgage Bonds. Each of these can be broken into sub- sectors (e.g., Corporate consist of finance, industrial, utility and yankee bonds).

Securities and Exchange Commission (SEC): A government agency responsible for the supervision and regulation of the securities industry.

Security: A generic term referring to stocks, bonds, and other investments.

Sharpe Ratio: Another measure of volatility combining two important risk elements: 1) portfolio return premiums earned over the "risk free" Treasury Bill rate, and 2) the fund's standard deviation of returns. The Sharpe Ratio assesses the volatility of a portfolio by analyzing how returns vary per unit of risk. The calculation is fairly simple. Take the return of the portfolio and subtract the "risk free" rate of Treasury Bill, then divide this return by the standard deviation of the portfolio's returns over the period.

Stock Market: An organized marketplace where securities are bought and sold on behalf of investors.

Total Return: Comprised of both the income and change in market value of a portfolio over some time period. Returns over multiple time periods are linked geometrically. Returns covering periods longer than on year are generally annualized a five year cumulative return of 50.0% would be expressed as a 8.5% annual return.

Trustee: Person or organization entrusted to manage, administer, and distribute the trust for the benefit of the trust beneficiaries, in strict compliance with the terms of the document. Trustees are held to a high fiduciary duty of loyalty to the beneficiaries, as well as to reasonableness in investing, and making distributions to trust beneficiaries.

Umbrella Insurance: Personal liability insurance protection that provides insurance beyond the underlying coverage of an individual's auto and homeowners insurance policies.

Universe: See data base.

Volatility: The degree to which a fund's rates of return have fluctuated over a time period. High volatility tends to be associated with investment policies and management strategies of an aggressive nature; low volatility tends to be associated with conservative policies and strategies. A fund's volatility is often assessed by using the statistical computations of standard deviation. (See beta, risk)

Yield: The return on an investment, either dividend or interest, expressed as an annual percentage of either the current market value or the cost of investment. The yield is the return divided by the current market value or cost. The most accurate measure of a bond yield, is yield to maturity (or alternative, Yield to worst) which allows comparisons between different types of bonds, and considers the present value of all future payments.

Yield Curve: The relationship between the maturities of bonds and their corresponding yields. Generally, bonds with longer maturities will have higher yields, forming a "normal" or "positively sloped" yield curve. These relationships change with economic activity, supply/demand, etc., leading to continuous shifts in the yield curve.

Yield Spread: The incremental yield advantage that a bond offers compared to a like-maturity U.S. Treasury. For instance, a 10 year maturity corporate bond yielding 7% would offer a yield spread of 75 basis points (.75%) over a 10 year Treasury yielding 6.25%.

Notes

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