



REGULAR MEETING – PENSION BOARD OF TRUSTEES AGENDA

**FEBRUARY 12, 2025, 6:00 PM
ZOOM AND ROOM 220**

To allow public access, anyone may access a meeting by telephone and/or Zoom, or a recording in the City of Norwalk YouTube channel. Specific instructions and links can be found at norwalkct.gov/meetings.



Members of the public may call in to participate. Callers will not be able to see the meeting participants. All participants will be muted upon entering the meeting. To speak, dial *9 on the phone and you will be called on by the host of the meeting during the public comment section. All speakers must state their name and address. Comments must be on a topic on the agenda, and are limited to three minutes. Anyone disrupting the orderly conduct of the meeting, including by using threatening, hateful, or sexually-explicit language, will be removed. Please find the information using the link above.



Members of the public who wish to provide "live comments" may also use the Zoom meeting platform. All participants will be muted upon entering the meeting. To speak, click the "raise your hand indicator" and you will be called by the host of the meeting during the public comment section. All speakers must state their name and address. Comments must be on a topic on the agenda, and are limited to three minutes. Anyone disrupting the orderly conduct of the meeting, including by using threatening, hateful, or sexually-explicit language, will be removed. Please find the information using the link above.



Members of the public who wish to provide public comment are encouraged to submit those via email in advance of the meeting. For these comments to be included into the record, they must be submitted by 12:00 p.m. the day of the meeting. Please email Tina Fogell at tfogell@norwalkct.gov with the subject line "Public Comment" to provide written public comment prior to the meeting.

- I. CALL TO ORDER**
- II. ROLL CALL**
- III. ACCEPTANCE OF MINUTES**
 - A. Regular Meeting: January 8, 2025**
- IV. PUBLIC PARTICIPATION**
- V. APPROVAL OF PENSION APPLICATIONS**
 - A. Grid Sheet**
- VI. REPORTS**
 - A. TCW/MetWest Core Plus Fixed Income Presentation**

B. Pension December Flash Report

C. Review of Pension Experience Study

VII. PERFORMANCE REVIEW

VIII. ADJOURNMENT

UPCOMING MEETINGS

March 12, 2025

**CITY OF NORWALK
PENSION BOARD
REGULAR MEETING
JANUARY 8, 2025**

ATTENDANCE: James Hendrickson, Acting Chair; Richard Baskin, David Pramer, Robert Raleigh, Eileen Romeo

STAFF: Chitsamay Lam, Comptroller

OTHERS: Britton Murdoch, Callan LLC; ~~Myrlin Valentin~~ Kevin Schmidt, Callan LLC

CALL TO ORDER

Mr. Hendrickson, the Acting Chairman, called the meeting to order at 6:00 p.m.

APPROVAL OF MINUTES

• December 11, 2024

**** MR. BASKIN MOVED TO APPROVE THE MINUTES OF THE DECEMBER 11, 2024 MEETING.**

**** MR. PRAMER SECONDED.**

**** THE MOTION TO APPROVE THE MINUTES OF THE DECEMBER 11, 2024 MEETING AS SUBMITTED PASSED.**

PUBLIC COMMENTS

There was no one from the public who wished to address the Board at this time.

APPROVAL OF PENSION APPLICATIONS

There were no pension applications to review at this time.

2024 REVIEW AND 2025 WORK PLAN

Mr. Murdoch from Callan reviewed the ~~market activity~~ Board's accomplishments in 2024 and the work plan for 2025. ~~He said that the Capital Group would be giving a presentation for the Defined Contributions Committee.~~ The Board requested Callan to add Walter Scott International Equity and Principal Smid Cap Growth Equity to the manager presentations in 2025. Questions and comments were fielded from the Board throughout the presentation.

PERFORMANCE REVIEW

~~Mr. Murdoch suggest that they schedule one of the fixed income managers to present. This was agreeable to all.~~

Mr. Murdoch reviewed the asset allocation and performance for the Pension Plan as of ~~August~~ November 30, 2024. Questions and comments were fielded from the Board throughout the presentation.

ADJOURNMENT

**** MR. PRAMER MOVED TO ADJOURN.**

**** MR. BASKIN SECONDED.**

**** THE MOTION PASSED UNANIMOUSLY.**

The meeting adjourned at 6:15 p.m.

Respectfully submitted

S. L. Soltes
Telesco Secretarial Services

APPROVAL OF PENSION APPLICATIONS

MEETING OF: February 12,2025

Name	Years of Service	Type of Pension	Option Selected
Donna Ball BOE Secretary Commencement date	22 years 01/03/2025	Regular	Standard



TCW Core Plus Fixed Income

FOURTH QUARTER 2024 | FOR INSTITUTIONAL USE ONLY

PRESENTATION TO:

Callan LLC

FEBRUARY 12, 2025

Table of Contents

- I. TCW Overview
- II. Fixed Income Fixed Income Investment Philosophy and Process
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- IV. Market Outlook
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 - GIPS® Composite Report

I. TCW Overview



FOR INSTITUTIONAL USE ONLY

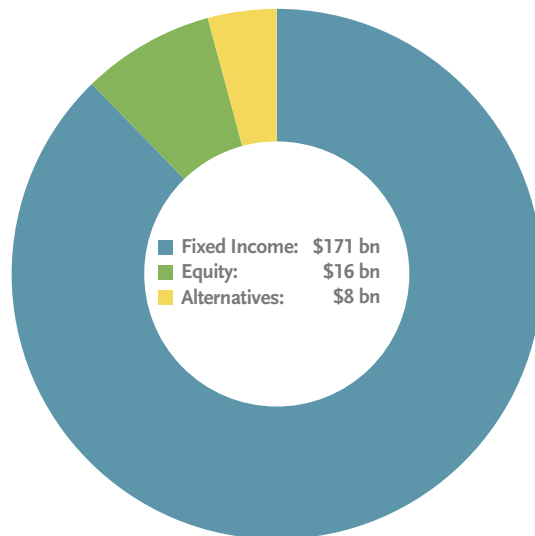
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TCW Overview

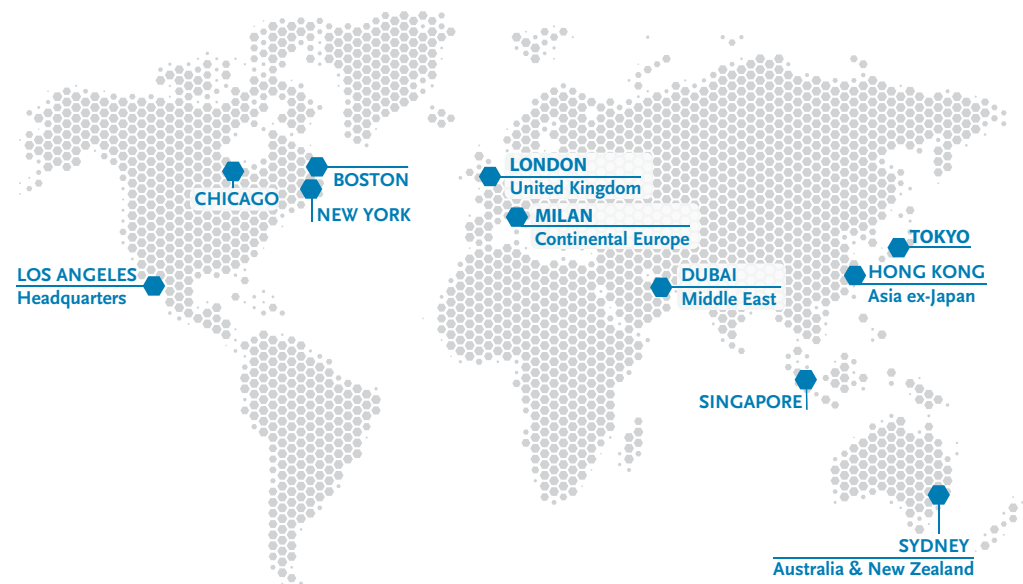
AS OF DECEMBER 31, 2024

- TCW is a leading global asset management firm, providing solutions to clients since **1971**
- TCW's team-managed approach brings a structured, **collaborative** approach to informed and **experienced** investment decisions across asset classes
- Privately held, TCW employs more than **640** highly tenured, experienced and motivated professionals

Firm AUM: \$195 Billion¹



Global Footprint



Source: TCW

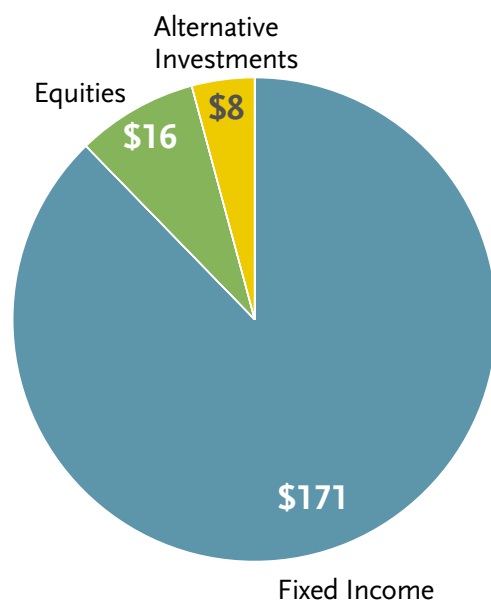
Comprises the assets under management, or committed to management, of The TCW Group, Inc. and its subsidiaries. Totals may not reconcile due to rounding.

¹ Includes respective allocations for multi-asset products.

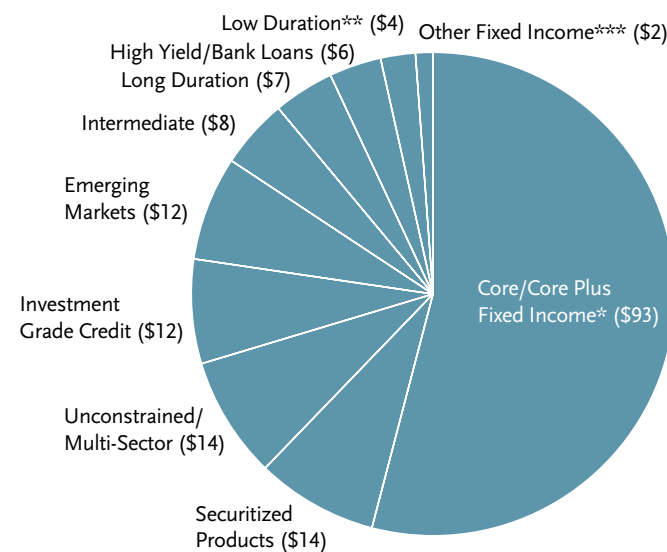
TCW Assets Under Management

AS OF DECEMBER 31, 2024

Firm AUM: \$195 Billion¹



Fixed Income Assets by Strategy: \$173 Billion²



Source: TCW

Note: Totals may not reconcile due to rounding.

Comprises the assets under management, or committed to management, of The TCW Group, Inc. and its subsidiaries.

¹ Includes respective allocations for multi-asset products.

² Total invested assets by strategy includes cross-held positions and excludes cross-held cash in the TCW Central Cash Fund. It is not meant to reconcile to overall net firm AUM.

* Includes Core, Core Plus, and Opportunistic Core Plus Fixed Income.

** Includes Low Duration and Ultra Short/Cash Management.

*** Includes U.S. Government, Government/Credit, and Global.

TCW Global Fixed Income Team

JANUARY 2025

	GENERALIST PORTFOLIO MANAGERS										
	Jerry Cudzil			Bryan Whalen, CFA – CIO				Ruben Hovhannisyan, CFA			
	CREDIT			RATES		EMERGING MARKETS		SECURITIZED			
SPECIALIST PORTFOLIO MANAGERS	Brian Gelfand		Steven Purdy	Bret Barker Jamie Patton		Penny Foley Dave Robbins		Liza Crawford		Peter Van Gelderen	
SENIOR PORTFOLIO MANAGERS	Mike Carrion, CFA (L) Tammy Karp		Drew Sweeney Ken Toshima	Chris Hays Jae Lee				Palak Pathak, CFA			
RESEARCH	Analysts		Associates	Economics/Strategy		Corporate Credit		Agency RMBS		Non-Agency MBS/ABS	
	Kim Ardoin (L)	Peter Johnson, CFA	Annie Bian	Blaise Antin	Mauro Roca, PhD	Stephen Keck, CFA		Pat Ahn	Dominic Bea		
	Pedro Cardoso	Griffith Lee	Connor Budka	Gannon Earhart	Brett Rowley	Jeffrey Nuruki, CFA		Jason Cheng	Maggie D'Arcy (L)		
	Marie Choi	Robert Main, CFA	Yvonne Ho	Lin Jing Leong, CFA(S)		Nick Verdi (L)	Javier Segovia, CFA	Gordon Li, CFA	Phillip Dominguez, CFA		
	Nikhil Chopra	Chet Malhotra	Ori Maoz					Nanlan Ye	Malea Figgins (L)		
	Keval Dattani, CFA(L)	Tom Nguyen, CFA	Jesse Torrez					CMBS	Michael Hsu		
	Nick Diaz	Tania Salomon	David Ying					Simon Deery	Madison Perry		
	Isabella Freeman	Simon Shnyder, CFA						Da-Wei Hong	Colman Slain		
TRADING	Russel Higgins (L)		Ivy Thung (S)					Zhao Zhao			
	Alex Bibi, CFA		Melicia Shen	Jeannie Fong		Justin Becker		Asset-Backed Finance		Dylan Ross	
	Daniel Pace, CFA		Joel Shpall	Michael Pak, CFA		Sherwin Chan (S)		Jean Atkinson		Sarah Fox	
PORTFOLIO SPECIALISTS	Jimmy Rong		Evan Tich	Lawrence Rhee		Jason Shamaly Alex Stanojevic		Adam August, CFA		Max Scherr	
				Dave Vick, CFA (Multi-Sector) + 7 Portfolio Analysts							
	Conrad Chen			Anisha Goodly						Jeffrey Katz	
Insurance Portfolio Management		Portfolio Analytics		COO – Fixed Income		Global Investment Risk		Client Portfolio Management		Sustainable Investment Group	
Keith Luna		Milan Pfeisinger, CFA		Marcos Gutierrez		Ross Killian (+21)		Patrick Moore Mark McNeill, CFA		Jamie Franco (+9)	

Fixed Income Investment Committee consists of Generalist, Specialist, and Senior Portfolio Managers.

(L) = London; (S) = Singapore

II. Fixed Income Investment Philosophy and Process

Fixed Income

Key differentiators

TCW's competitive advantage, we believe, is driven by our unique portfolio management structure and investment philosophy.

We are well positioned to deliver standard and custom solutions across a broad spectrum of products.

TENURED & COLLABORATIVE INVESTMENT TEAM

- 76 Investment professionals, with an average of 17 years of investment experience
- Generalist/Specialist Portfolio Manager structure is the foundation of our team-based process
 - Generalist PMs have worked together for over 13 years
- A scalable approach built around communication and collaboration
 - Ensures continuity of process
 - Leverages nearly 30 years of through-the-cycle management experience

DISCIPLINED PROCESS EMPHASIZES VALUE AND PREPAREDNESS

- A value-oriented, iterative process combining top-down and bottom-up analysis
- A combination of dynamic risk budgeting and disciplined dollar cost averaging delivers results over a full cycle
- Sector management and bottom-up security selection are key alpha drivers

EXPERIENCED

- Proactive, fundamental credit underwriting and a constant focus on preserving liquidity allows us to take advantage during times of stress
- We manage \$171 billion in fixed income assets globally, including nearly \$50 billion in fixed income mutual fund assets across the TCW Fund families

As of December 31, 2024

Fixed Income Philosophy

Key tenets of TCW's value investing approach



TEAMS OUTPERFORM INDIVIDUALS

- Investment process emphasizes communication, collaboration, and teamwork
- De-personalization of the investment process ensures consistency



A VALUE-ORIENTED APPROACH DELIVERS RESULTS ACROSS CYCLES

- Fundamental market measures, like fixed income credit spreads, are mean reverting
- Technical factors can temporarily drive pricing away from fundamentals
- Application of the value-oriented approach during periods of underperformance can lead to significant outperformance



OUTPERFORMANCE MAY BE ACHIEVED THROUGH

- Disciplined implementation of a strategic framework that is both macro- and cycle-aware combined with opportunistic, bottom-up fundamental research
- The preparedness to move quickly to allocate during periods of volatility
- Managing sources of portfolio liquidity that can be tapped to capture undervalued assets
- Exploitation of persistent inefficiencies



PROPRIETARY TECHNOLOGY AMPLIFIES OUR COMPETITIVE EDGE

- A robust suite of proprietary analytic and surveillance programs assist portfolio construction and portfolio performance

Fixed Income Investment Process

A team-based, disciplined, and dynamic investment process designed to identify and capture value



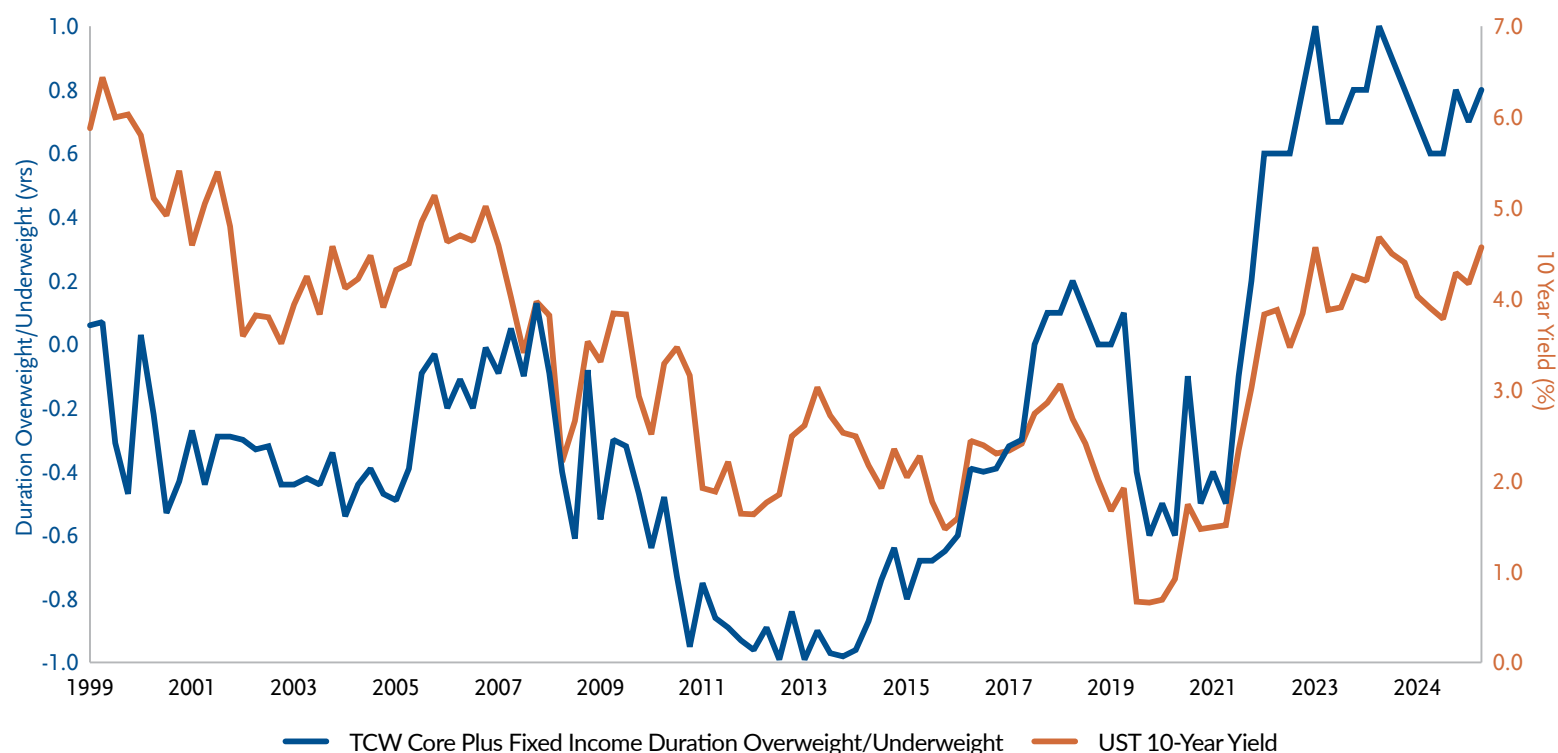
- Our **value-based investment process** is a collaboration between the **Generalist** and **Specialist** Portfolio Managers, with sector views informing the overall long-term economic and market outlook in a team-based setting.
- **Generalist Portfolio Managers** are responsible for driving the **top-down process** including setting the long-term economic view and establishing the risk budget with respect to **Sector Allocation and Duration & Yield Curve Positioning**.
- **Specialist Portfolio Managers** lead the **bottom-up process** including managing research teams, making **security selections**, identifying relative value, and executing trades.
- Trading execution is based on a **dollar cost averaging** approach, as cost averaging reduces volatility by diversifying entry and exit through time and price.
- Focus on **capital preservation, liquidity optimization, and disciplined implementation** with ongoing and **active portfolio management** and **risk monitoring**.

Duration Management and Historical Positioning

SUPPLEMENTAL INFORMATION

- Long-term outlook is primary driver of duration and yield curve strategy
- Dollar-cost averaging approach gradually moves duration up and down
- Duration is only one of multiple active management tools

TCW CORE PLUS FIXED INCOME HISTORICAL DURATION POSITIONING



Source: TCW
Based upon the representative account, as of September 30, 2024.

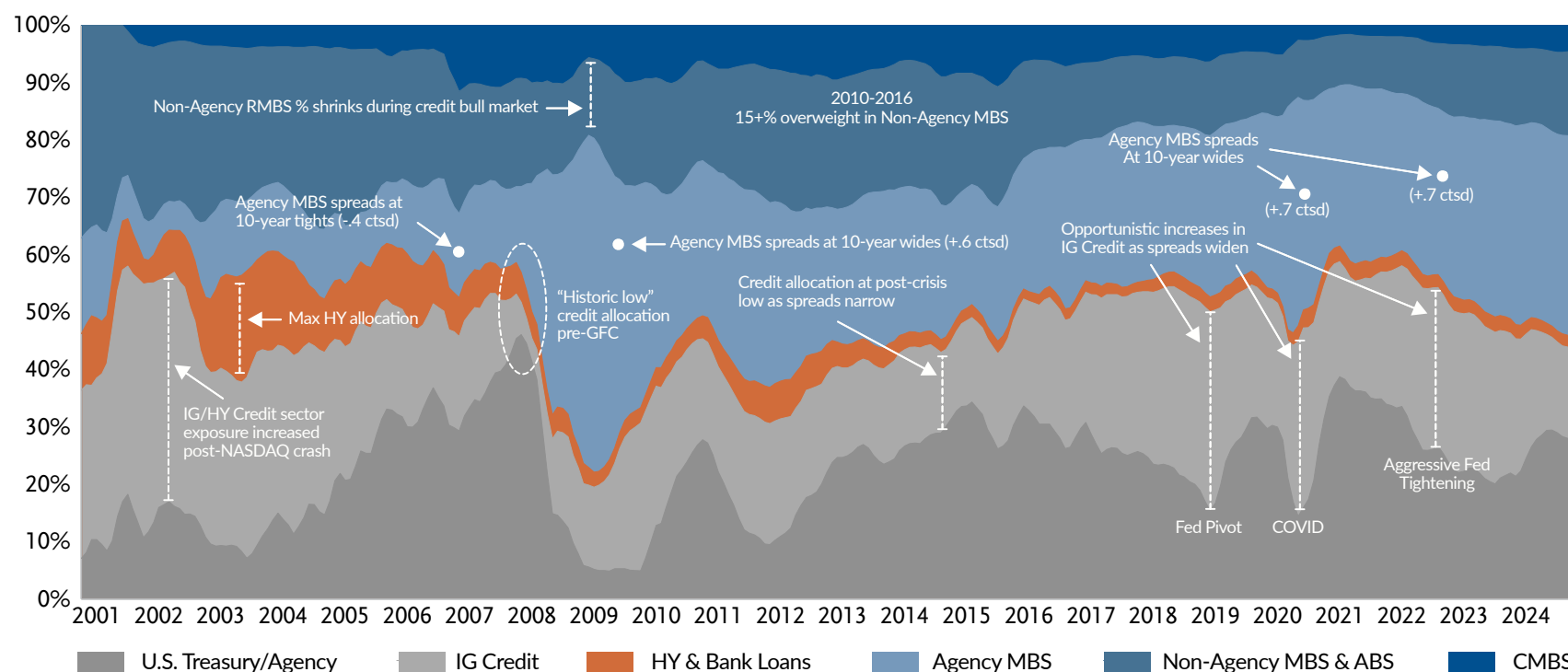
Sector Management and Historical Positioning

SUPPLEMENTAL INFORMATION

"Investors should be greedy when others are fearful and fearful when others are greedy."

– Warren Buffett

TCW CORE PLUS FIXED INCOME HISTORICAL SECTOR POSITIONING¹



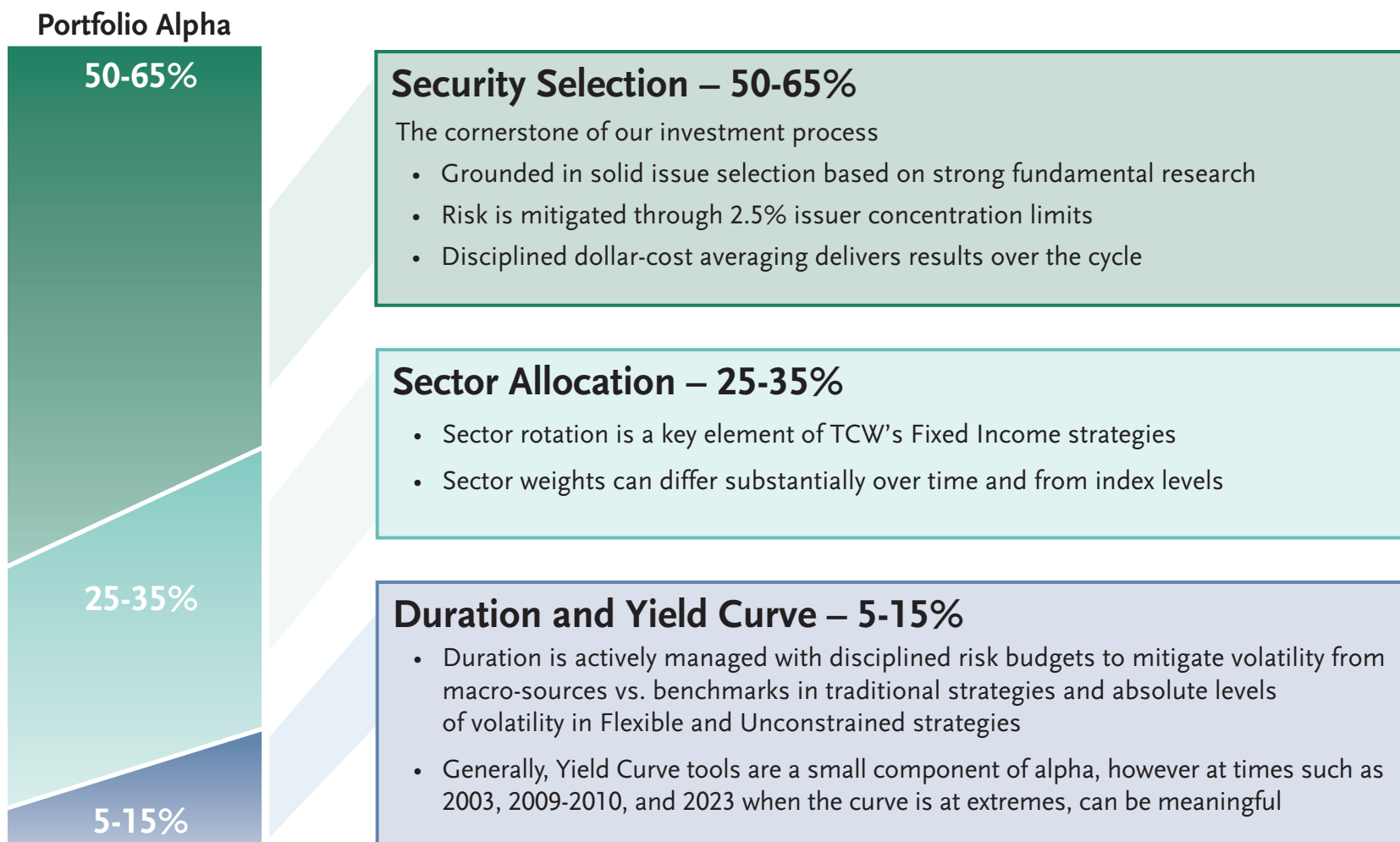
Source: TCW

Portfolio characteristics and securities are subject to change at any time. As of September 30, 2024.

¹ Based upon the representative account's 3-month rolling market value of assets, excluding cash & equivalents, interest rate swaps/options, and equities.

TCW Historical Sources of Alpha

Bottom-up security selection and sector management are key alpha drivers



Source: TCW
Portfolio characteristics and securities are subject to change at any time. Past performance is no guarantee of future results.

III. TCW Core Plus Fixed Income

TCW Core Plus Fixed Income Summary Characteristics

AS OF DECEMBER 31, 2024 | SUPPLEMENTAL INFORMATION

	TCW Core Plus Fixed Income	Bloomberg U.S. Aggregate Bond Index
Yield to Worst	5.51%	4.91%
Effective Duration	6.92 Years	6.08 Years
Average Maturity	7.24 Years	8.33 Years
Average Convexity	0.50 Years	0.56 Years
Average Quality	AA	AA

Sector Composition (%)

	TCW Core Plus Fixed Income	Bloomberg U.S. Aggregate Bond Index
Government ¹	29.27	45.16
IG Credit	14.46	26.14
High Yield Credit	2.55	0.00
Agency MBS	37.27	25.13
Non-Agency MBS	12.02	0.00
CMBS	5.09	1.52
ABS	5.45	0.45
Emerging Markets	0.74	1.60
Other ²	0.34	0.00
Cash & Equivalents ³	-7.20	0.00

Quality Composition (%)

	TCW Core Plus Fixed Income	Bloomberg U.S. Aggregate Bond Index
AAA	73.94	3.32
AA	5.06	73.19
A	7.27	11.20
BBB	11.11	12.29
BB	2.49	0.00
B	1.61	0.00
CCC & Below	5.53	0.00
Not Rated	0.20	0.00
Cash & Equivalents ³	-7.20	0.00

Source: TCW

¹ Includes U.S. Treasuries, U.S. Agencies, and Developed Market Sovereigns.

² Other includes mark-to-market exposure from Options, Swaps, and other derivatives.

³ Cash balance may be negative due to unsettled month-end trades.

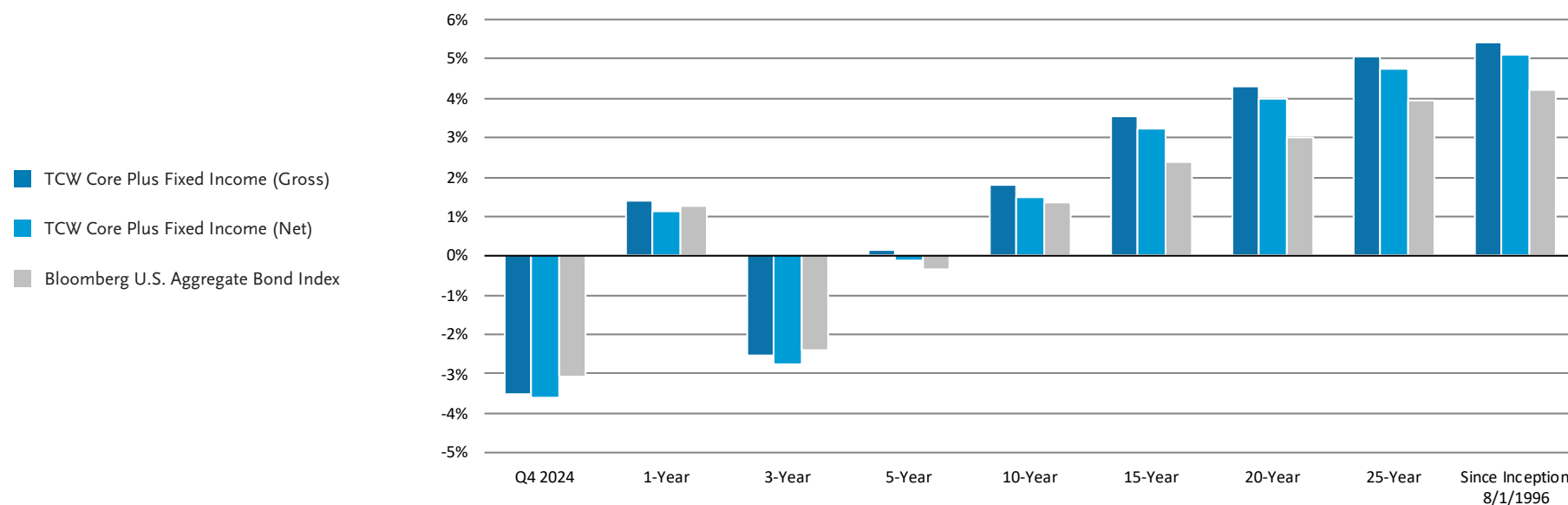
Based upon a representative account. Portfolio characteristics and securities are subject to change at any time.

Due to rounding, totals may not add up to 100%.

TCW Core Plus Fixed Income Composite Performance

AS OF DECEMBER 31, 2024 | SUPPLEMENTAL INFORMATION

	Annualized								Since Inception 8/1/1996
	Q4 2024	1-Year	3-Year	5-Year	10-Year	15-Year	20-Year	25-Year	
TCW Core Plus Fixed Income (Gross)	-3.52%	1.39%	-2.51%	0.15%	1.80%	3.55%	4.30%	5.04%	5.41%
TCW Core Plus Fixed Income (Net)	-3.58%	1.13%	-2.77%	-0.12%	1.50%	3.25%	4.01%	4.75%	5.12%
Bloomberg U.S. Aggregate Bond Index	-3.06%	1.25%	-2.41%	-0.33%	1.35%	2.37%	3.01%	3.94%	4.23%
Under/Outperformance (Gross)	-46 bps	+14 bps	-10 bps	+48 bps	+45 bps	+118 bps	+129 bps	+110 bps	+118 bps
Under/Outperformance (Net)	-52 bps	-12 bps	-36 bps	+21 bps	+15 bps	+88 bps	+100 bps	+81 bps	+89 bps



Source: TCW

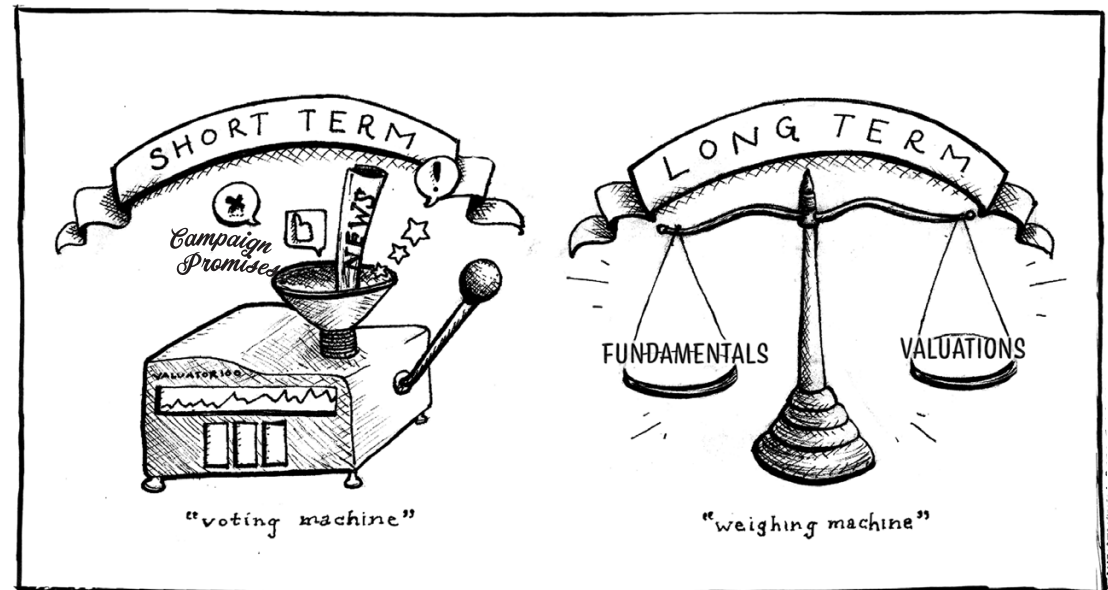
Net returns presented reflect the deduction of all fees, expenses, and performance allocations and include accrued and reinvested dividends and interest. Individual results may vary. Past performance is no guarantee of future results. Please see the GIPS® Composite Report and additional disclosures in the appendix, which are an integral and important part of this presentation.

IV. Market Outlook

FEBRUARY 2025

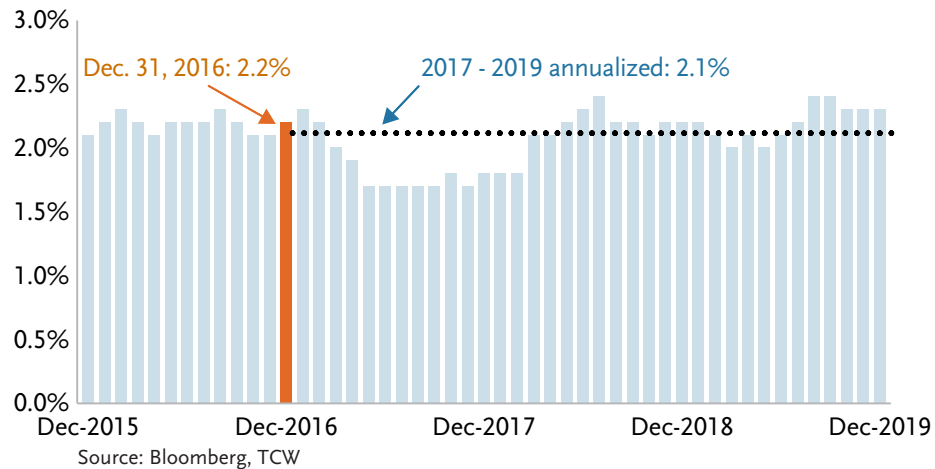
*“In the short run, the market is a voting machine,
but in the long run, it is a weighing machine.”*

– Benjamin Graham

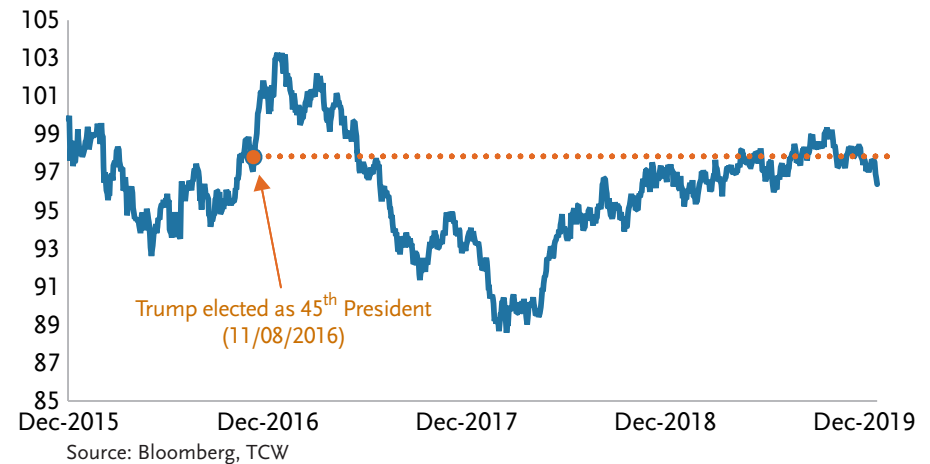


Trumponomics 1.0: If History Is Any Guide...

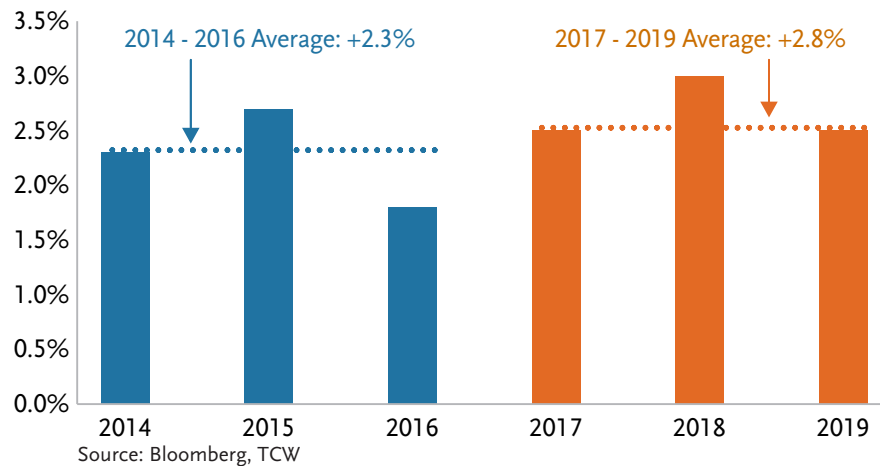
Core CPI YoY: Before and After Trump's First Election



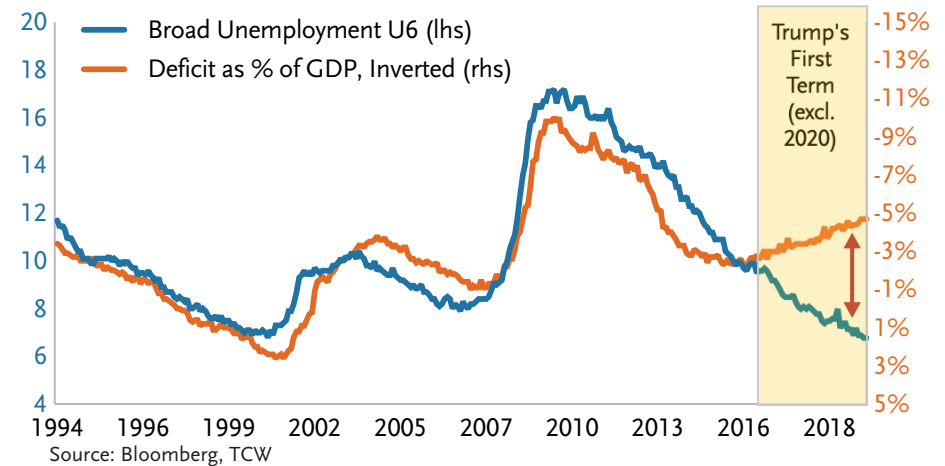
U.S. Dollar Index (DXY)



Real GDP Growth: Accelerated During Trump's First Term...



... But Was Accompanied by Deficits Decoupling from Fundamentals



Trumponomics 2.0: Macro and Valuations Backdrop

Fiscal Position/Market Valuations

	12/31/2016	Now*	
U.S. Government Debt/GDP	105%	124%	↑
Federal Deficit as % of GDP	-3.00%	-6.92%	↑
Fed Policy Rate	0.75%	4.50%	↑
2 Yr UST Yield	1.18%	4.20%	
10 Yr UST Yield	2.44%	4.51%	
IG Credit OAS (bps)	118	76	↓
HY Corp OAS (bps)	409	260	↓
Agency MBS 30 CC	91	135	
S&P 500 Index	2,239	6114	
S&P 500 LTM Return	12.00%	27.91%	↑
S&P 500 Forward P/E	17.10x	23.05x	↑
U.S. Dollar Index (DXY)	102.2	107.9	↑
Gold	1,148	2810	
Oil (WTI)	53.70	72.16	

Macro Fundamentals

	12/31/2016	Now*	
U.S. Real GDP Growth YoY	2.2%	2.5%	↑
China GDP Growth YoY	6.9%	5.4%	↓
Eurozone GDP Growth YoY	2.0%	0.9%	↓
U.S. Core CPI YoY	2.2%	3.2%	
Change from 1 Yr Ago	0.1%	-0.7%	↓
Unemployment Rate	4.7%	4.1%	
Change from 1 Yr Ago	-0.3%	0.3%	↑
Full Time Employment YoY	1.3%	0.3%	↓
Job Openings Rate	3.90%	4.5%	
Change from 1 Yr Ago	unchanged	-0.8%	↓
Hiring Rate	3.7%	3.4%	↓
Savings Rate	5.0%	4.4%	↓
Real Retail Sales YoY	3.1%	1.0%	↓
Credit Card Delinquency Rate*	3.7%	7.1%	↑
Auto Loan Delinquency Rate*	2.2%	2.9%	↑

*Four quarter moving sum

*Based on most recent available data as of January 31, 2025
Source: Bloomberg, TCW

Trumponomics 2.0

- **What is the market pricing in?**
 - Higher inflation (tariffs and immigration), higher growth regime, higher corporate profitability (lower taxes), higher fiscal deficit, strong dollar, deregulation
- **What appears to be NOT priced in?**
 - **Historical experience** – evidence from Trump 1.0 experience suggests a much more benign policy impact than what is being priced in currently
 - **Different starting point vs 2016** – debt to GDP, fiscal deficit, and market valuations are very different from Trump 1.0 starting point
 - Impact of **interaction/linkages between different policies** -- e.g. stronger dollar should in theory offset tariffs impact, higher interest rates would hurt corporate profitability, lower immigration will result in higher wages, but also lower consumption which is disinflationary
 - **Economic cycle** – market pricing seems to ignore the reality of cyclical slowdown in labor market and consumption, which if continued (our base case), should be more consequential for monetary policy in the near term than the potential (long-term) impacts of the policies to be implemented

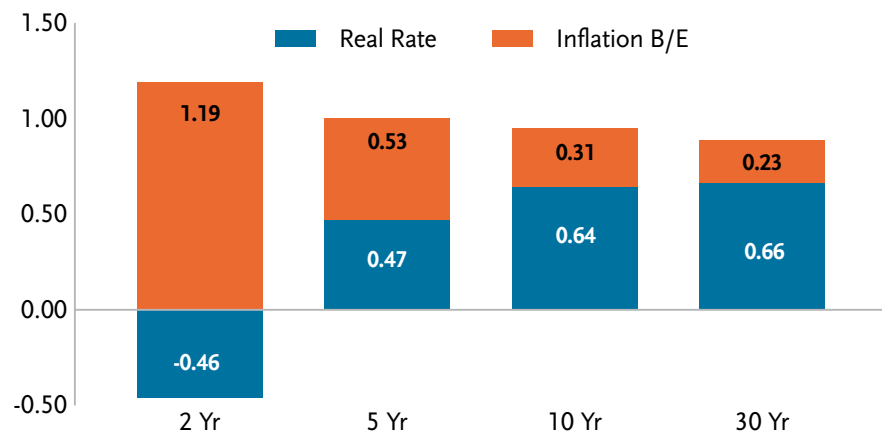
Trumponomics 2.0: Thoughts on Likely Policy Impacts

	Tariffs	Immigration	Tax Cuts	Deregulation
Implementation Scope	Smaller than market expectation: - Use tariffs as a negotiating tool - Better than consensus view for China but still a material negative impact. - Benign for rest of the world	Deport criminals Slow border crossings	Extend Trump's tax cuts (TCJA) Eliminate taxes on tips, social security benefits and overtime pay Lower corporate taxes	Energy deregulation Banking system deregulation More M&A friendly administration
U.S. GDP	small negative to neutral	small negative	small positive	small positive
U.S. Inflation (Core PCE)	neutral to modest increase (depends on USD appreciation)	neutral	small increase	neutral to modest positive
Global Growth	Negative, but slightly more sanguine view on growth impact than consensus	neutral	neutral to modest positive	neutral
U.S. Front-End Yields	neutral	neutral	modest increase	neutral
U.S. Long-End Yields	neutral	modest increase	modest increase	neutral
USD	small to moderate increase	neutral	neutral	neutral
Credit	small negative	small negative	small positive	small positive
Equities	small negative	small negative	small positive	small positive

➡ Certain elements of Trump 2.0 policies will be stimulative for the economy, but the aggregate impact of all policies will be much more benign and less consequential than what the market is pricing in

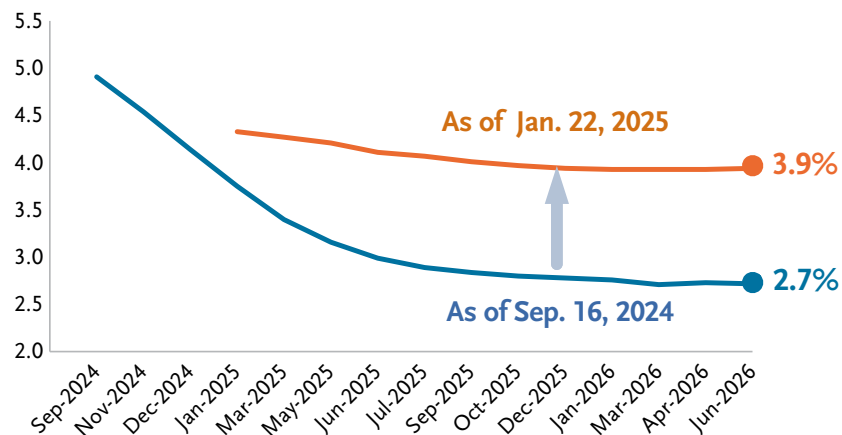
Trumponomics 2.0: What Is the Rates/FX Market Pricing In?

U.S. Treasury Yield Changes Since Mid-September Lows (%)



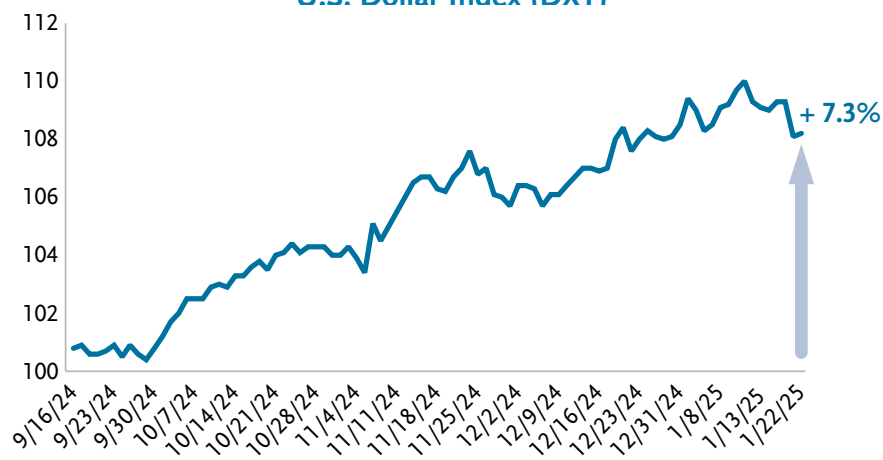
Source: Bloomberg, TCW

Market Implied Fed Funds Rates



Source: Bloomberg, TCW

U.S. Dollar Index (DXY)



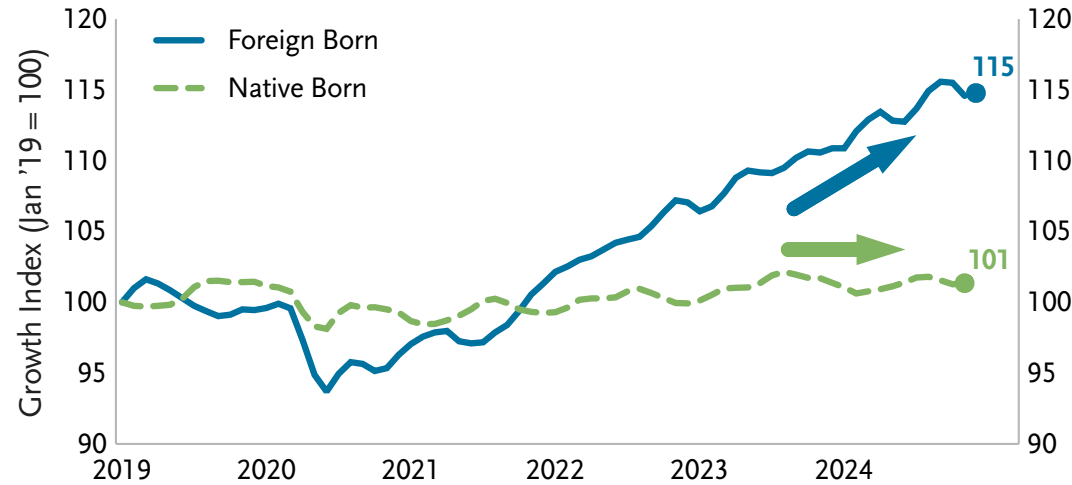
Source: Bloomberg, TCW

The market is pricing in:

- >1% higher inflation in the next 2 years and 0.5% lower real growth
- Sharply higher USD, which in theory should offset (at least some) tariff impacts
- 1.2% higher terminal Fed Funds rate

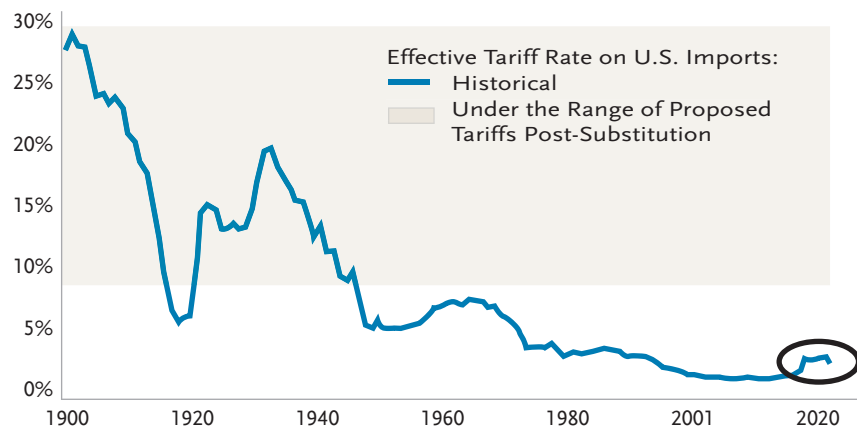
Trumponomics 2.0 Unrestrained – Too Big of a Self-Inflicted Wound...?

U.S. Labor Force Growth: Has Been Driven by Immigrants



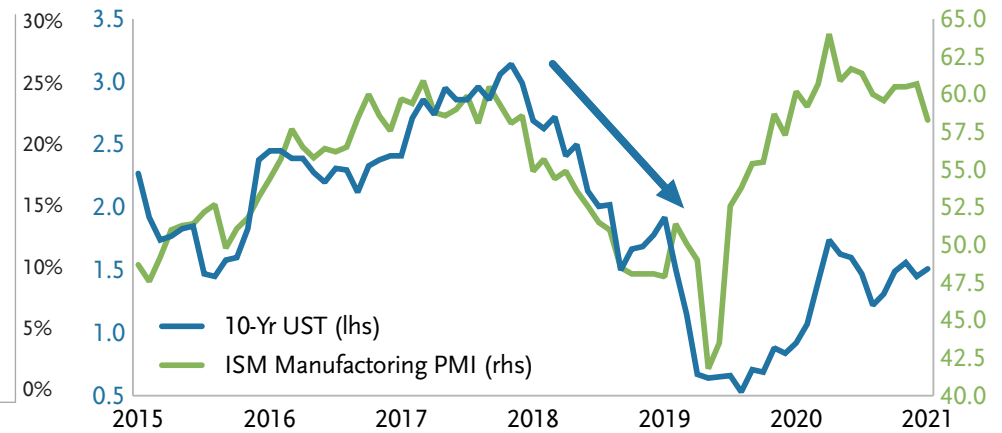
Source: TCW, Bloomberg

Trump's Tariff Proposals Are Massive



Source: Yale University, BCA

Trade Wars Come at a Cost

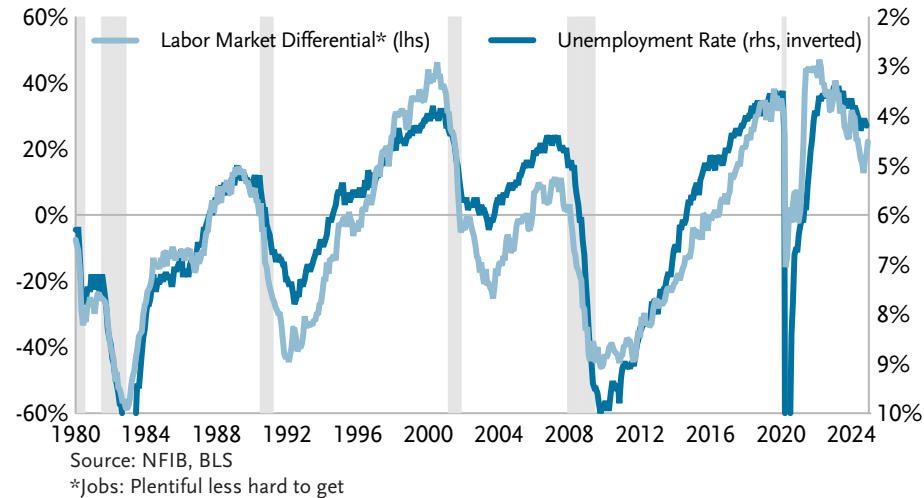


Source: TCW, Bloomberg

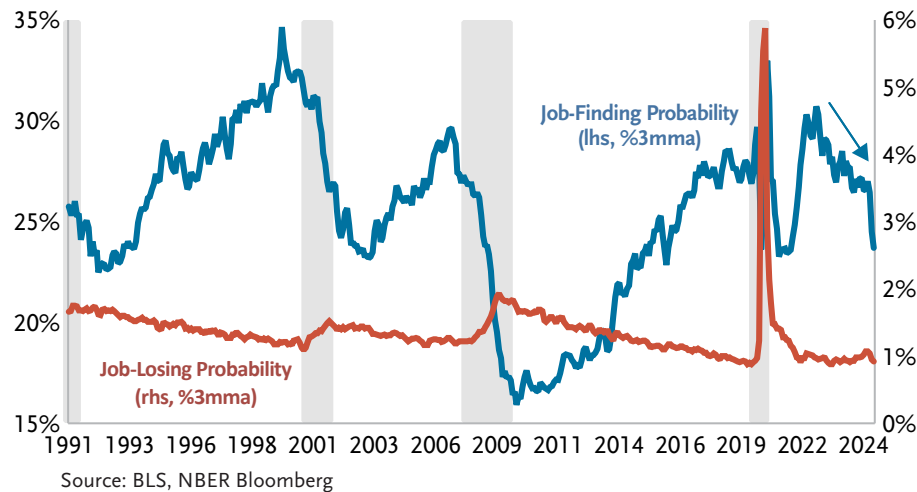
Taking the Pulse of the (Late Cycle) Economy

Labor Market Forward Looking Indicators Are Flashing Warning Signs

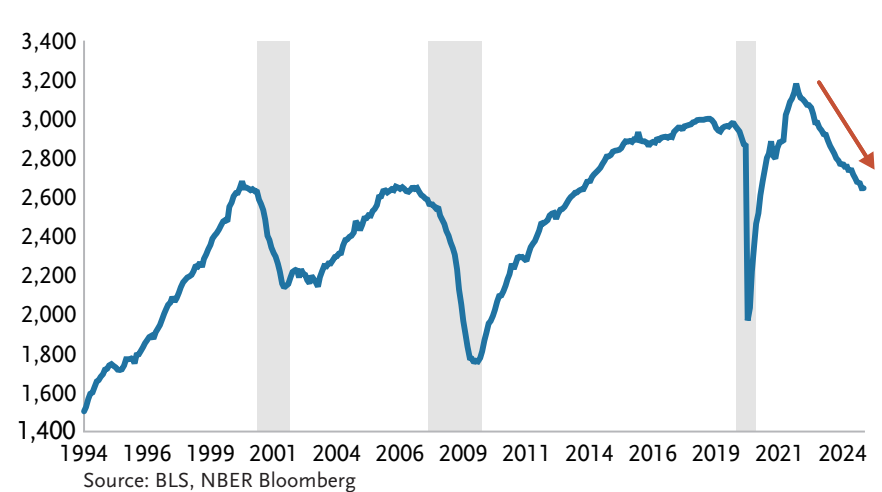
From Plentiful to Hard to Get:
The Labor Market is Signaling a Slowdown



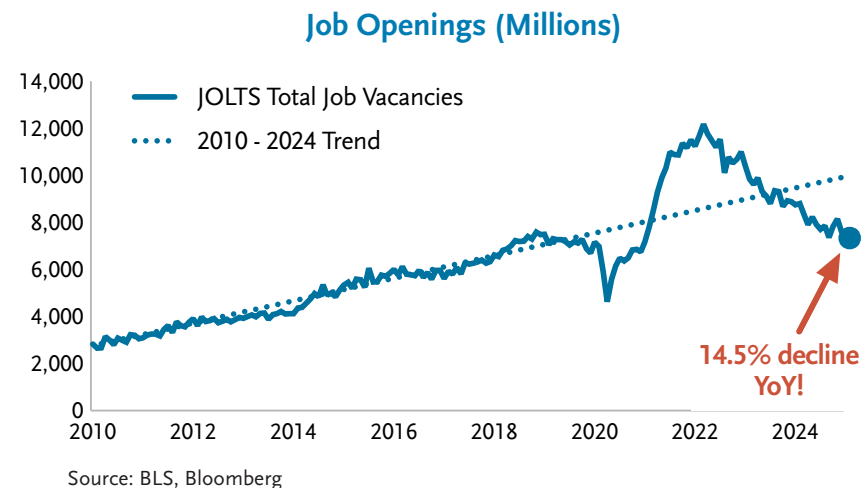
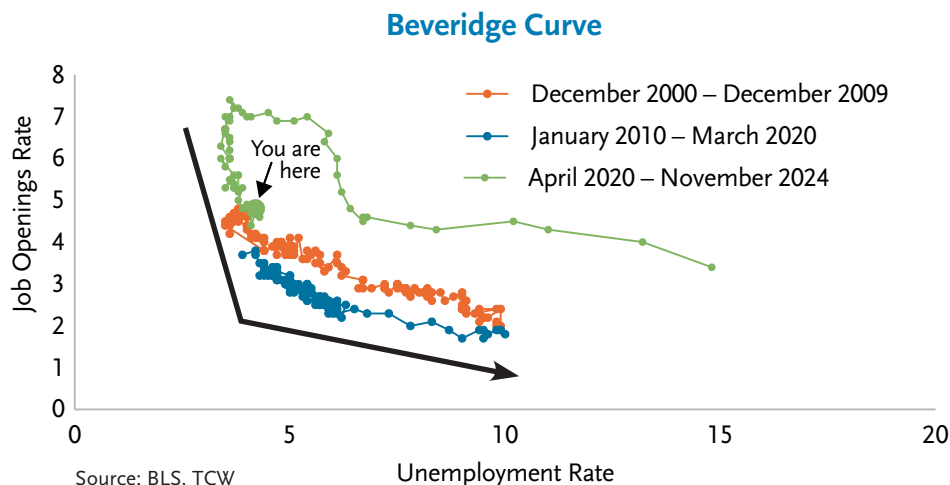
Job-Finding and Job-Losing Probability



Temporary Help Services Employment



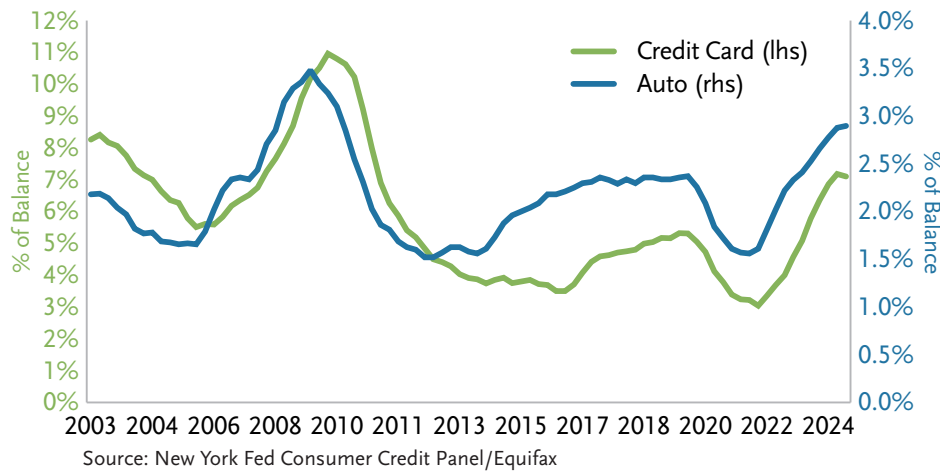
Labor Market About to Splash Ice Cold ‘Beveridge’ on U.S. Growth Expectations...?



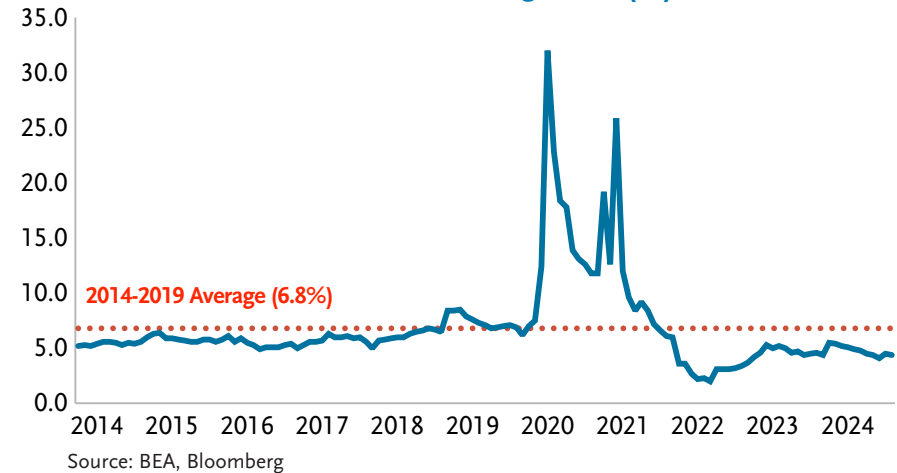
- One of the unique features of the current cycle was extraordinarily tight labor supply due to post-Covid labor market dislocation (early retirements, permanent disabilities, relocations, etc.)
- As a result, job vacancies have exceeded labor supply for a long time, and consequently, the initial phase of labor market cooling was not accompanied by rising unemployment rate until very recently, masking the deterioration in labor market conditions and leading some observers to believe that “this time is different”
- The recent increase in unemployment rate suggests that we are now past the kinked point on the beveridge curve and hence, further cooling of labor market will be accompanied by rising unemployment rate

Consumer ⇒ Running on Empty?

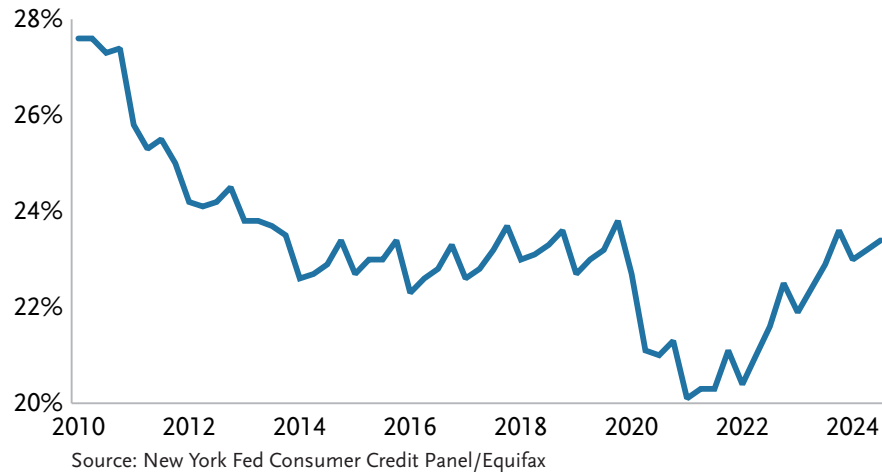
Transition into Delinquency (90+) by Loan Type



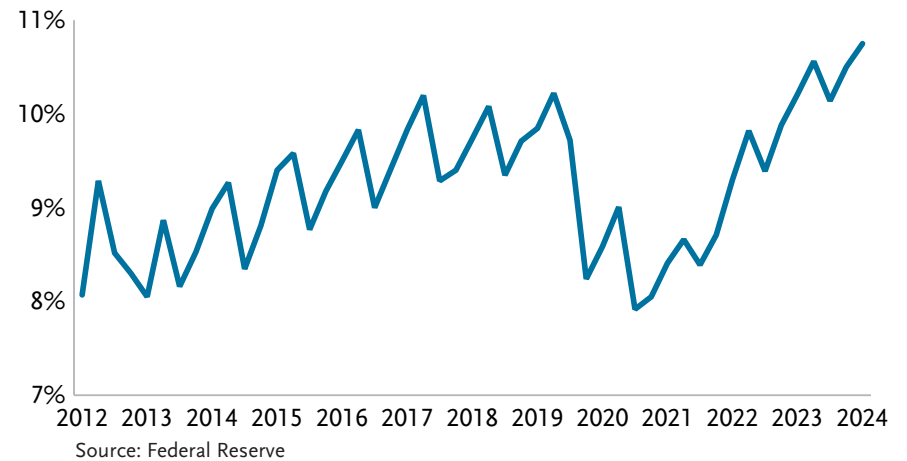
Household Savings Rate (%)



Credit Card Utilization Rate (%)

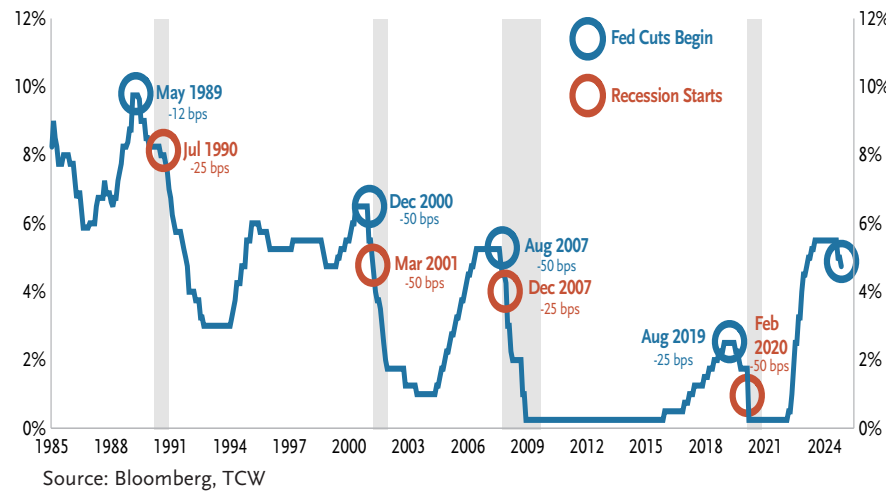


Share of Active Accounts Making the Minimum Payment

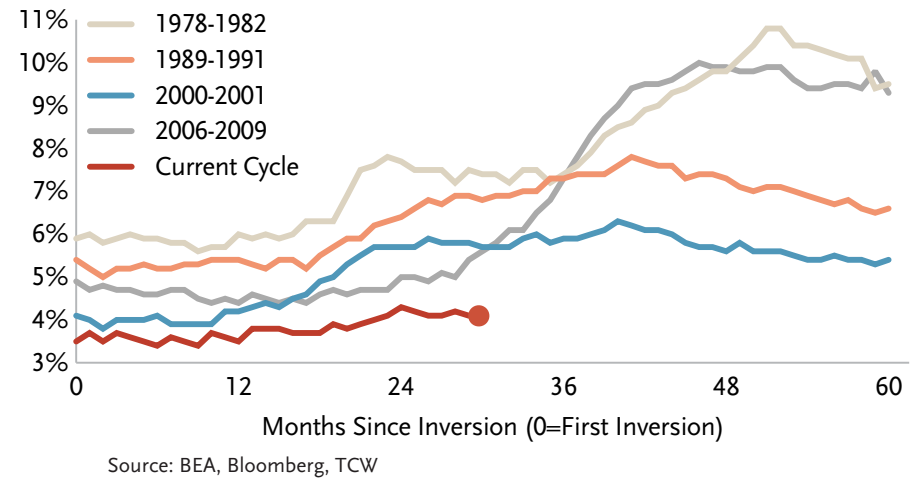


Can This Cycle Defy the Laws of Economic Gravity?

Recessions Often Start Not Long After The Fed Begins Cutting Rates

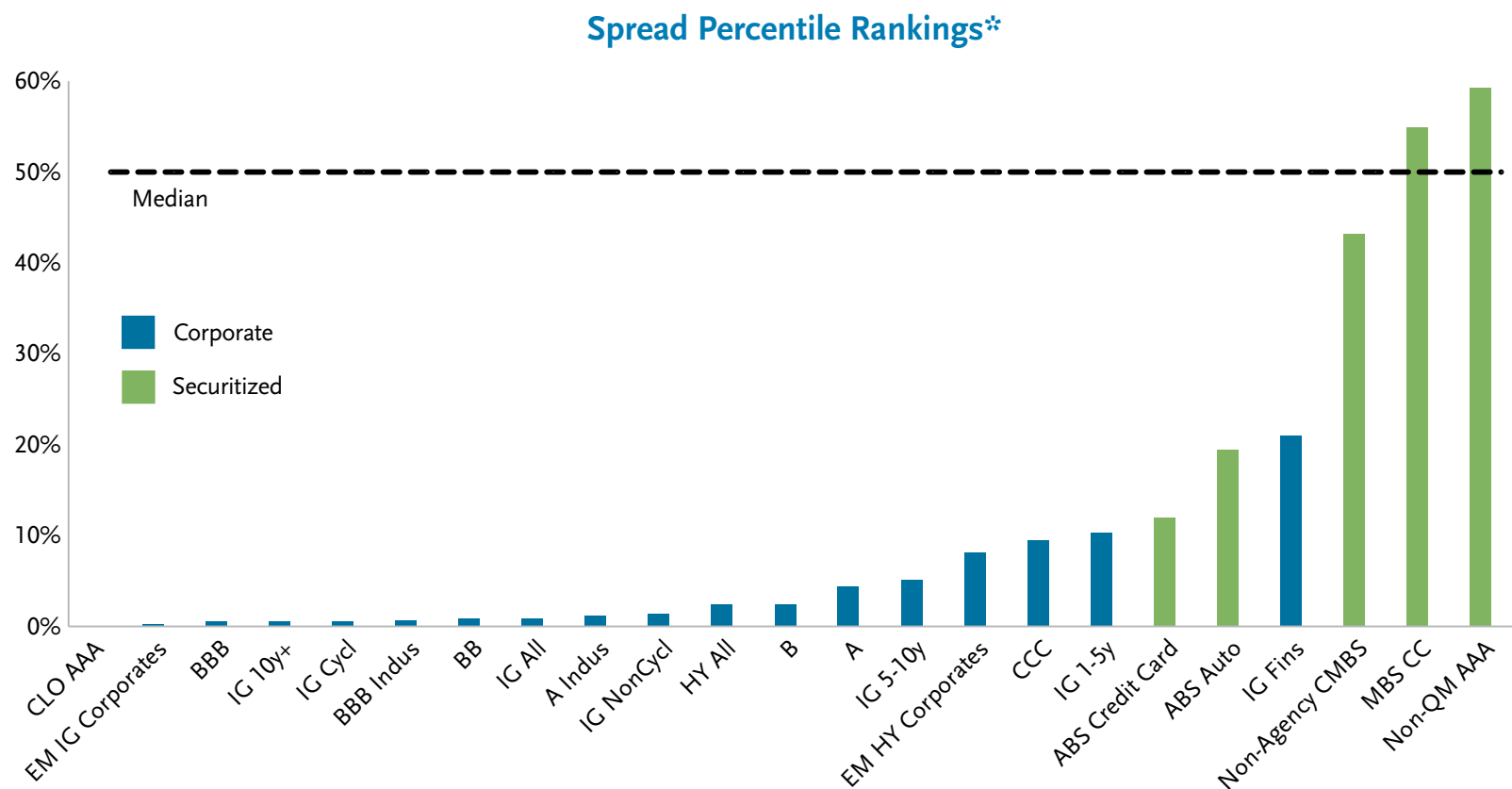


Evolution of Unemployment Rate After Yield Curve Inversion



History Does Not Repeat, But It Does Rhyme...

Relative Value: Corporate Credit vs. Securitized



Source: Barclays, Bloomberg, Wells Fargo, Palmer Square, JPM

* Percentile calculations are based on historical spread data available for the following sectors and periods: Agency MBS (2000), ABS Credit/Auto (2002), Corporates (2000), CMBS (2008), CLOs (2011), Non-QM AAA (2017), EM (2001).

As of January 10, 2025.

Executive Summary

Macro View

- We expect Trumponomics 2.0 policies impact will be much more benign than what the market is currently pricing in
 - Some policies, e.g. tax cuts and deregulation, will be stimulative, but the impact of these policies should not change the late cycle trajectory of the economy
- Massive fiscal spending has boosted the economy since 2023, but lagged impacts of higher rates are starting to impact the economy (evidence of weakness in labor market, consumption)
- Disinflationary trends are firmly in place, although the last mile of inflation is ‘bumpy’
- Only one Fed cut is priced in by the end of 2025, but economic contraction will likely result in more aggressive cutting cycle than what is being priced in
- Short-to-intermediate maturity interest rates are attractive
- Corporate credit spreads are near historic tight and reflect too much optimism
- Agency MBS and select securitized credit sectors remain the most attractive risk/return opportunity

Positioning*

- Long 0.8 yrs duration, with emphasis on 2-5 year maturities
- Net overweight spread product exposure vs. the index, comprised of large overweight to securitized and underweight to corporate credit
 - Large overweight to agency MBS, non-Agency RMBS, select ABS types;
 - Opportunistic in high quality CMBS
 - Defensive on corporate credit

* Based on a representative Core Plus portfolio.

V. Appendix

TCW Core Plus Fixed Income GIPS® Composite Report

ASSET-WEIGHTED AND TIME-WEIGHTED RATES OF RETURN

	Annual Return		Bloomberg U.S. Aggregate Bond Index (%)	# of Portfolios	Total Composite Assets at End of Period (U.S.\$ millions)	Composite Internal Dispersion	Composite 3-Year Standard Deviation Annualized	Benchmark 3-Year Standard Deviation Annualized	Total Firm Assets (MSD) ¹ (U.S.\$ millions)
	Gross (%)	Net (%)							
2014	6.31	6.00	5.97	59	64,915.37	0.14	2.80	2.67	144,768
2015	0.63	0.33	0.55	84	90,417.74	0.08	2.77	2.92	165,036
2016	2.95	2.64	2.65	81	98,918.29	0.10	2.63	3.02	177,187
2017	3.86	3.54	3.54	79	104,770.70	0.09	2.45	2.81	191,104
2018	0.62	0.31	0.01	71	94,355.00	0.03	2.62	2.88	179,091
2019	9.54	9.21	8.72	68	108,352.10	0.11	2.86	2.91	204,309
2020	9.56	9.24	7.51	65	122,623.62	0.15	3.54	3.40	233,633
2021	-0.73	-1.02	-1.54	66	128,334.43	0.09	3.52	3.40	247,535
2022	-14.15	-14.38	-13.01	62	98,608.00	0.35	6.44	5.85	190,370
2023	6.44	6.15	5.53	63	93,504.25	0.12	8.08	7.24	192,123

The TCW Group, Inc. is divided into three divisions: the Marketable Securities Division; the Alternative Products Division; and the Managed Accounts Division. On February 23, 2010, The TCW Group, Inc. acquired Metropolitan West Asset Management. On January 1, 2011, the Marketable Securities Division and Metropolitan West Asset Management completed a merger. Accordingly, effective January 1, 2011, Metropolitan West Asset Management was included within the Firm definition.

1. Effective January 1, 2000, the Marketable Securities Division (MSD) was established to provide investment advisory services in the marketable securities area. The Marketable Securities Division is defined as the Firm for purposes of reporting performance in accordance with the Global Investment Performance Standards (GIPS®).

2. The Marketable Securities Division of The TCW Group, Inc. claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. The Marketable Securities Division of The TCW Group, Inc. has been independently verified for the periods January 2000 through December 2023.

A firm that claims compliance with the GIPS standards must establish policies and procedures for complying with all the applicable requirements of the GIPS standards. Verification provides assurance on whether the firm's policies and procedures related to composite and pooled fund maintenance, as well as the calculation, presentation, and distribution of performance, have been designed in compliance with the GIPS standards and have been implemented on a firm-wide basis. The TCW Core Plus Fixed Income Composite has had a performance examination for the periods January 1, 2011 - December 31, 2022. The verification and performance examination reports are available upon request.

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3. The TCW Core Plus Fixed Income Composite (Composite) includes all portfolios managed in the strategy, except for those subject to material client restrictions, which are, therefore, deemed non-discretionary. Portfolios included in the composite are present for an entire month.

4. Results are time-weighted and geometrically linked to yield quarterly returns, and include all items of income, gain and loss.

5. Results are based on trade-date transactions.

6. A list of composite descriptions, a list of limited distribution pooled fund descriptions, and a list of broad distribution pooled funds are available upon request.

7. The internal dispersion of annual returns is measured by the standard deviation across asset-weighted portfolio gross returns represented within the composite for the full year. Periods with five or fewer portfolios are not statistically representative and are not presented.

8. Asset-weighted results use beginning of period market values. Unless stated otherwise, asset-weighted results are shown for the entire period. Equal-weighted results represent the simple average of all composite accounts present for the entire period.

9. All numerical information is reported in U.S. dollars.

10. Gross results do not reflect the deduction of management fees and other custodial fees. Including these costs would reduce the shown returns. The net Composite returns reflect the actual advisory fees, which include performance fees if applicable, paid in each portfolio. Certain clients could pay a significantly higher or lower fee which would result in different net returns. A fee which is 0.50% higher than the separate account fee will result in the total return being reduced, over five years, by 2.53% on a compound basis. Net results do not include the deduction of custodial fees or other administrative expenses, which will also reduce the returns shown. In general, advisory fees are paid quarterly in arrears based upon total assets. Performance results include accrued and reinvested interest. The Marketable Securities Division assumes that the fee charged is deducted from the portfolio equally at the end of each month in a quarter.

11. TCW makes no representation that future investment performance will conform to past performance and it should never be assumed that past performance foretells future performance.

12. TCW's policies for valuing investments, calculating performance, and preparing GIPS Reports are available upon request.

13. There is a \$10 million minimum asset level for portfolios included in the Composite at the beginning and end of the month from 2000 to the present. From inception to December 31, 1999, portfolios in the Composite must have had a minimum market value of \$5 million at the beginning and end of the month.

Source: TCW



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TCW Core Plus Fixed Income GIPS® Composite Report (cont'd)

ASSET-WEIGHTED AND TIME-WEIGHTED RATES OF RETURN

14. The Composite has an inception date of August 1, 1996 and was created in 1Q 2011. Returns for periods prior to the 10-year track record presented in this report are available upon request.
15. The Composite is constructed of portfolios with an asset level in excess of \$10,000,000 in assets managed to an average duration of +/- 1 year of the Bloomberg U.S. Aggregate Bond Index or similar benchmark. The portfolios will usually have broad exposure to investment grade, non-investment grade, and non- U.S. fixed income securities. The composite includes all accounts with moderate deviations away from the sectors represented in the Bloomberg U.S. Aggregate Bond Index composition. Effective May 1, 2013, the Composite definition changed to better clarify the security types and sector allocations of portfolios included within the Composite. There were no composite membership changes as a result of this clarification.
16. The benchmark is the Bloomberg U.S. Aggregate Bond Index. The index return along with all index related information, including the benchmark 3-year standard deviation annualized, is not subject to independent examinations. The Bloomberg U.S. Aggregate Bond Index covers the U.S. investment grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities. The index is not available for direct investment; therefore its performance does not reflect a reduction for fees or expenses incurred in managing a portfolio. The securities in the index may be substantially different from those in the Composite.
17. The Composite's separate account fee schedule is as follows: 0.275% on the first \$100 million
0.200% on the remaining balance
18. Derivatives are not a driving factor in the Composite's strategy, but may be used in certain portfolios where such use is consistent with client investment guidelines. Certain derivative instruments such as credit default swaps, treasury futures, and option contracts may be utilized to add incremental value, to hedge credit risk exposure, and/or to tactically adjust the duration and/or yield curve exposure.
19. Withholding tax is not deducted from the portfolios contained in the Composite.
20. A Significant Cash Flow Policy has been applied to the Composite beginning June 2020. When a portfolio's net amount of contributions or net amount of withdrawals over a ten day period during a month equals or exceeds 20% of the portfolio's beginning monthly market value, the portfolio is deemed to be temporarily non-discretionary and is removed from the Composite for the month. Upon the first month that this portfolio's total net amount of contributions or net amount of withdrawals over a ten day period during the month are less than 20%, the portfolio is reassigned to the Composite. From April 2020 through May 2020 this policy applied to a portfolio's total amount of inflows or outflows of capital in a month that equaled or exceeded 15%. From July 2019 through March 2020 this policy applied to a portfolio's total amount of inflows or outflows of capital in a month that equaled or exceeded 25%. From October 2006 through June 2019 this policy applied only to net withdrawals of capital. Additional information regarding the treatment of Significant Cash Flows is available upon request.
21. Gross-of-fees returns were used to calculate the three-year annualized ex post standard deviation and the internal dispersion of the composite.
22. Performance presented for the investment periods prior to January 1, 2011 occurred while members of the portfolio management team were affiliated with MetWest. Such members of the portfolio management team were the only individuals responsible for investment management decisions at MetWest. The team and the decision-making process have remained intact and independent within the Marketable Securities Division. In the Marketable Securities Division's opinion, such performance track record conforms to the GIPS standards with regard to the portability of investment results, and, as such, all historical performance results from MetWest have been linked to the on-going performance results of the Composite. Performance records of MetWest are available upon request.

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December 31, 2024



City of Norwalk Monthly Report

Investment Measurement Service Monthly Review

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City of Norwalk
December 31, 2024

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Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of December 31, 2024, with the distribution as of November 30, 2024. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

Asset Distribution Across Investment Managers

	December 31, 2024					November 30, 2024		
	Market Value	Weight	Target	Net New Inv.	Inv. Return	Market Value	Weight	Target
Total Equity	\$365,669,696	68.22%	65.00%	\$(9,270,287)	\$(10,231,669)	\$385,171,653	69.87%	65.00%
U.S. Equity	\$203,915,748	38.05%	35.00%	\$(9,065,410)	\$(8,284,084)	\$221,265,242	40.14%	35.00%
BR Russell 1000 Index Non-Lend	151,261,600	28.22%		(9,000,000)	(4,363,701)	164,625,301	29.86%	
LSV	26,073,917	4.86%		(51,252)	(1,899,015)	28,024,184	5.08%	
Principal Dynamic Growth	26,580,232	4.96%		(14,158)	(2,021,367)	28,615,757	5.19%	
International Equity	\$116,921,572	21.81%	23.00%	\$(39,877)	\$(1,647,170)	\$118,608,619	21.52%	23.00%
Developed Markets	\$95,456,109	17.81%	-	\$(39,877)	\$(1,616,092)	\$97,112,078	17.62%	-
Silchester	61,294,160	11.44%		(39,877)	(630,455)	61,964,492	11.24%	
Walter Scott	34,161,949	6.37%		0	(985,637)	35,147,586	6.38%	
Emerging Markets	\$21,465,462	4.00%	-	\$0	\$(31,078)	\$21,496,541	3.90%	-
BlackRock EM Alpha Tilts	21,465,462	4.00%		0	(31,078)	21,496,541	3.90%	
Global Equity/Long Short	\$24,030,416	4.48%	4.00%	\$0	\$(300,416)	\$24,330,831	4.41%	4.00%
ABS Global	24,030,416	4.48%		0	(300,416)	24,330,831	4.41%	
Private Equity*	\$20,801,960	3.88%	3.00%	\$(165,000)	\$0	\$20,966,960	3.80%	3.00%
Pantheon USA IV	20,827	0.00%		0	0	20,827	0.00%	
Pantheon USA VI	133,623	0.02%		0	0	133,623	0.02%	
Pantheon USA VII	422,621	0.08%		0	0	422,621	0.08%	
Pantheon Europe Fund V A	291,466	0.05%		0	0	291,466	0.05%	
Pantheon Global Fund III	59,955	0.01%		0	0	59,955	0.01%	
Pantheon US Select 2014	19,873,468	3.71%		(165,000)	0	20,038,468	3.64%	
Domestic Fixed-Income	\$88,411,192	16.50%	19.00%	\$0	\$(1,584,811)	\$89,996,003	16.33%	19.00%
Prudential Cons Core Bond	39,336,749	7.34%		0	(668,755)	40,005,503	7.26%	
Metropolitan West CIT	49,074,443	9.16%		0	(916,056)	49,990,500	9.07%	
Absolute Return	\$36,763,583	6.86%	6.00%	\$0	\$452,017	\$36,311,566	6.59%	6.00%
UBS AIS	36,763,583	6.86%		0	452,017	36,311,566	6.59%	
Real Assets	\$35,199,231	6.57%	6.00%	\$0	\$(964,930)	\$36,164,161	6.56%	6.00%
PIMCO All Asset	35,199,231	6.57%		0	(964,930)	36,164,161	6.56%	
Cash	\$9,939,237	1.85%	4.00%	\$6,335,935	\$11,853	\$3,591,449	0.65%	4.00%
Cash Account	9,939,237	1.85%		6,335,935	11,853	3,591,449	0.65%	
Total Fund	\$535,982,939	100.0%	100.0%	\$(2,934,353)	\$(12,317,540)	\$551,234,832	100.0%	100.0%

*Market values are preliminary and adjust for asset flows.

Investment Manager Returns

The table below details the rates of return for the fund's investment managers over various time periods ended December 31, 2024. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended December 31, 2024

	Fiscal YTD	Last 12 Months	Last 36 Months	Last 60 Months	Last 84 Months
Total Equity	4.96%	13.48%	4.60%	9.31%	8.64%
U.S. Long Equity	9.07%	21.93%	6.78%	13.57%	12.60%
Russell 3000 Index	9.03%	23.81%	8.01%	13.86%	13.16%
BR Russell 1000 Index Non-Lendable	8.99%	24.49%	8.42%	14.28%	13.59%
Russell 1000 Index	9.00%	24.51%	8.41%	14.28%	13.58%
LSV	7.59%	7.53%	6.48%	9.30%	6.64%
Russell 2000 Value Index	8.98%	8.05%	1.94%	7.29%	6.13%
Principal Dynamic Growth	10.98%	22.62%	(1.24%)	14.67%	13.76%
Russell 2500 Growth Index	9.59%	13.90%	(0.02%)	8.08%	8.85%
International Equity	(1.29%)	1.91%	1.34%	3.61%	3.47%
MSCI ACWI ex US Index	0.05%	6.09%	1.35%	4.61%	4.04%
Developed Markets	(1.48%)	0.51%	2.06%	4.07%	4.02%
MSCI EAFE Index	(1.44%)	3.82%	1.65%	4.73%	4.10%
Silchester	0.40%	1.21%	5.22%	5.60%	4.24%
MSCI EAFE Val Idx	1.14%	5.68%	5.88%	5.09%	3.45%
Walter Scott	(5.05%)	(1.43%)	-	-	-
MSCI EAFE Index	(1.44%)	3.82%	1.65%	4.73%	4.10%
MSCI EAFE Growth	(3.94%)	2.05%	(2.58%)	4.00%	4.45%
Emerging Markets	(0.90%)	7.91%	(1.91%)	1.55%	1.04%
BlackRock EM Alpha Tilts	(0.90%)	7.91%	(1.91%)	1.55%	-
MSCI Emerging Mkts Idx	0.34%	8.05%	(1.48%)	2.10%	1.78%
Global Equity/Long Short	6.55%	14.76%	2.83%	5.44%	5.39%
HFRI FOF: Strategic Index	5.10%	11.36%	2.05%	5.30%	4.22%
ABS Global	6.56%	14.95%	4.69%	6.18%	5.54%
MSCI World Index	6.20%	18.67%	6.34%	11.17%	10.24%
Private Equity(1)	0.17%	4.69%	3.44%	14.45%	13.30%
Pantheon USA IV	0.00%	0.00%	(3.32%)	(0.50%)	(0.03%)
Pantheon USA VI	0.75%	(5.28%)	(6.36%)	(9.10%)	(8.03%)
Pantheon USA VII	0.20%	(6.61%)	(2.66%)	7.25%	6.99%
Pantheon Europe Fund V A	3.04%	11.06%	(1.31%)	9.46%	12.00%
Pantheon Global Secondary Fund III	0.00%	0.00%	(2.01%)	(0.40%)	1.05%
Pantheon US Select 2014	0.20%	5.12%	3.96%	16.22%	16.54%
Private Equity Benchmark(2)	0.17%	4.69%	3.44%	14.45%	13.30%

*Fiscal year starts 7/1 and ends 6/30.

(1) Private Equity has a 1 quarter lag in valuation.

(2) Private Equity benchmark is a composite of Private Equity performance.

Investment Manager Returns

The table below details the rates of return for the fund's investment managers over various time periods ended December 31, 2024. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended December 31, 2024

	Fiscal YTD	Last 12 Months	Last 36 Months	Last 60 Months	Last 84 Months
Domestic Fixed Income	1.98%	1.17%	(2.67%)	(0.30%)	1.03%
Prudential Cons Core Bond	2.15%	1.65%	(2.13%)	(0.24%)	1.05%
Metropolitan West Fund (2)	1.90%	0.90%	(3.01%)	(0.30%)	1.09%
Blmbg Aggregate Index	1.98%	1.25%	(2.41%)	(0.33%)	0.97%
Absolute Return	6.27%	10.08%	7.24%	7.60%	6.46%
UBS AIS	6.27%	10.08%	7.24%	7.60%	6.46%
HFRI FOF: Conservative Index	3.09%	6.60%	4.01%	5.21%	4.48%
Real Assets	2.09%	4.12%	(0.01%)	4.41%	4.34%
PIMCO All Asset Fund	2.09%	4.12%	(0.01%)	4.61%	4.22%
Blmbg US TIPS 1-10	1.69%	3.09%	(0.10%)	2.69%	2.85%
Cash	2.62%	5.47%	4.19%	2.68%	2.57%
Cash	2.62%	5.47%	4.19%	2.68%	2.57%
3-month Treasury Bill	2.55%	5.25%	3.89%	2.46%	2.35%
Total Fund	4.33%	10.41%	3.19%	7.15%	6.77%
Total Fund Custom Benchmark (1)	4.14%	11.18%	3.18%	7.23%	6.91%
Annual Discount Rate: 6.5%					

*Fiscal year starts 7/1 and ends 6/30.

(1) The Total Fund Custom Benchmark is 35.0% Russell 3000 Index, 19.0% MSCI ACWI ex-US, 19.0% Bloomberg Aggregate Index 3.0% Norwalk Private Equity, 8.0% HFRI FOF Strategic, 6.0% Bloomberg US TIPS 1-10 Year Index, 6.0% HFRI FOF Conservative, 4% 3-month Treasury Bill.

(2) On August 24, 2022 switched from Mutual Fund to CIT.

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Past performance is no guarantee of future results.

City of Norwalk Pension Plans



**Experience Study for
the Four-Year Period
Ending June 30, 2023**

Prepared as of June 30, 2023

December 23, 2024

Board of Trustees
City of Norwalk Pension Plans
125 East Avenue
Norwalk, CT 06851

Members of the Board:

We are pleased to submit the results of an investigation of the economic and demographic experience for the City of Norwalk Pension Plans. The purpose of the investigation was to assess the reasonability of the actuarial assumptions for the plans and recommend adjustments where necessary. The actuarial assumptions are used by the actuary to provide a best estimate of the value of all benefits expected to be paid by the plans over future years. The valuation uses various methods in determining the required funding necessary to accumulate a sufficient amount of assets to fully fund the expected benefit payments.

This experience study covers the four-year period from July 1, 2019 to June 30, 2023. We have analyzed the valuation data provided over this period and assessed the performance of all economic and demographic assumptions utilized in the actuarial valuations over the study period. As a result of the investigation, it is recommended that several modifications to the current assumptions be adopted by the Board for future use. Specifically, we recommend modifications to the assumed demographic rates of withdrawal, disability, retirement, and mortality. We also recommend a change in the rate of inflation but do not recommend any further adjustments to the economic assumptions (e.g., investment rate of return, payroll growth assumption) as they remain reasonable in our opinion. Changing the actuarial assumptions will not change the actual cost of future benefits but will impact the measurement of the expected value of future benefits and the required contributions to maintain actuarial soundness.

This report provides details of the analysis and reasoning for recommended modifications to the assumptions. The analysis of demographic assumptions primarily focuses on the comparison of the actual and expected cases of separation from active service due to withdrawal, disability and retirement, actual and expected number of deaths, and actual and expected salary increases above wage inflation. Several of the tables included in the report are based on current assumed rates and, for comparison purposes, the new proposed rates.

Use of the new assumptions, when adopted by the Board, will commence with the June 30, 2024 valuation and are suitable for use until further experience indicates that additional modifications are necessary.



In order to prepare the measurement of the impact on liabilities in this report, we have utilized actuarial models that we developed to measure liabilities and develop actuarial costs. These models include tools that we have produced and tested, along with commercially available valuation software that we have reviewed to confirm the appropriateness and accuracy of the output. In utilizing these models, we develop and use input parameters and assumptions about future contingent events along with recognized actuarial approaches to develop the needed results.

We hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the principles prescribed by the Actuarial Standards Board (ASB) and the Code of Professional Conduct and Qualification Standards for Public Statements of Actuarial Opinion of the American Academy of Actuaries.

We further certify that, in our opinion, the assumptions developed in this report satisfy Actuarial Standards of Practice, in particular, No. 27 (Selection of Economic Assumptions for Measuring Pension Obligations) and No. 35 (Selection of Demographic and Other Non-economic Assumptions for Measuring Pension Obligations).

We note that as we prepare this report, the world has been in a pandemic during much of the experience study period. We have taken this into consideration as we reviewed the experience, particularly regarding mortality, retirement, termination, disability, and salary increase patterns. While we do not believe that there is yet sufficient data to warrant the significant modification of any of our assumptions specifically due to COVID-19, we will continue to monitor the emerging data and advise the Board in the future of any adjustments that we believe would be appropriate.

The experience investigation was performed by, and under the supervision of, independent actuaries who are members of the American Academy of Actuaries with experience in performing valuations for public retirement systems. The undersigned meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

Edward J. Koebel, FCA, EA, MAAA
Chief Executive Officer

Ben Mobley, ASA, FCA, MAAA
Consulting Actuary



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SECTION I: EXECUTIVE SUMMARY

The purpose of an actuarial valuation is to provide the best estimate of the expected future costs of a retirement system. An actuarial valuation for each of the City of Norwalk Pension Plans is prepared annually to determine the actuarial contribution rates required to fund the system on an actuarial reserve basis, (i.e., the current assets plus future contributions, along with investment earnings will be sufficient to provide the benefits promised by the system). The valuation requires the use of certain assumptions with respect to the occurrence of future events, such as rates of investment return, death, termination of employment, retirement age, and salary changes to estimate the obligations of the system.

The basic purpose of an experience study is to determine whether the actuarial assumptions currently in use have adequately anticipated the actual emerging experience. This information, along with the professional judgment of Plan personnel and advisors, is used to evaluate the appropriateness of continued use of the current actuarial assumptions. When analyzing experience and assumptions, it is important to recognize that actual experience is reported in the short term while assumptions are intended to be long-term estimates of experience. Therefore, actual experience is expected to vary from study period to study period, without necessarily indicating a change in assumptions is needed.

CavMac has performed a study of the experience of the plans for the four-year period ending June 30, 2023. This report presents the results, analysis, and resulting recommendations of our study. It is anticipated that the changes, if approved, will first be reflected in the June 30, 2024 actuarial valuation.

These assumptions have been developed in accordance with generally recognized and accepted actuarial principles and practices that are consistent with the applicable Actuarial Standards of Practice adopted by the Actuarial Standards Board (ASB). While the recommended assumptions represent our best estimate of future experience, there are other reasonable assumption sets that could be supported by the results of this experience study. Those other sets of reasonable assumptions could produce liabilities and costs that are either higher or lower.

Our Philosophy

Similar to an actuarial valuation, the calculation of actual and expected experience is a fairly mechanical process, and differences between actuaries in this area are generally minor. However, the setting of assumptions differs, as it is more art than science. In this report, we have recommended changes to certain assumptions. To explain our thought process, we offer a brief summary of our philosophy:

- **Do Not Overreact:** When we see significant changes in experience, we generally do not adjust our rates to reflect the entire degree of difference. We will typically recommend rates somewhere between the old rates and the new experience. If the experience during the next study period shows the same result, we will probably recognize the trend at that point in time or at least move further in the direction of the observed experience. On the other hand, if experience returns closer to its prior level, we will not have overreacted, possibly causing volatility in the actuarial contribution rates.





SECTION I: EXECUTIVE SUMMARY

- **Anticipate Trends:** If there is an identified trend that is expected to continue, we believe that this should be more fully recognized. An example is the retiree mortality assumption. It is an established trend that people are living longer. Therefore, we believe the best estimate of liabilities in the valuation should reflect the expected increase in life expectancy.
- **Simplify:** In general, we attempt to identify which factors are significant and eliminate or ignore the ones that do not materially improve the accuracy of the liability projections.

The following summarizes the findings and recommendations with regard to the assumptions utilized for the plans. Detailed explanations for the recommendations are found in the sections that follow.

Recommended Economic Assumption

Economic assumptions are some of the most visible and significant assumptions used in the valuation process. The items in the broad economy modeled by these assumptions can be very volatile over short periods of time, as clearly seen in the economic recovery from the pandemic in 2021 followed by the downward trend in global markets in 2022. Our goal is to focus on the emerging long-term trends in the midst of this volatility so that we can then apply reasonable assumptions.

Most of the economic assumptions used by actuaries are developed through a building-block approach. For example, the expected return on assets is based on the expectation for inflation plus the expected real return on assets. As this is usually the most significant source of annual gains and losses to a mature pension plan, it is important that each of these components, inflation and real return, are primarily based on long-term future expectation and not the short-term historical performance.

At the core of the economic assumptions is the inflation assumption. As we discuss later in the report, although the plans have experienced higher than normal inflation recently due to the recovery from the pandemic, we believe that long-term inflation will settle back down in the pre-pandemic 2.50% range. Therefore, **we are recommending that the price inflation assumption be reduced from 2.60% to 2.50%.**

We are recommending that the long-term expected return on assets assumption remain at 6.50%, reflecting the 2.50% inflation assumption and a 4.00% real rate of return assumption. This will be discussed in detail later in this report, but a real rate of return of 4.00% is supported by the forecasting models developed using the 41 sets of capital market assumptions included in the Horizon Actuarial Services, LLC. Survey conducted in 2024 and the Board's target asset allocation.

We are also recommending that the general wage inflation assumption be set at a rate of 3.00%. Although there have been higher rates of wage inflation in the last two years, it is primarily attributable to higher than expected inflation rather than the real (above price inflation) rate of wage increases. Please note that we are not sure of the current assumption as it was not disclosed in the prior actuary's report.





SECTION I: EXECUTIVE SUMMARY

We are also recommending that the payroll growth assumption used for the amortization increase rate for the City's Police and Fire Plans be continued at a rate of 2.75%. We believe this is a reasonable assumption to use in the amortization of the unfunded accrued liability under the level percentage of payroll amortization method.

Actuarial Methods

The basic actuarial methodologies used in the valuation process include the:

- Actuarial Cost Method
- Asset Valuation Method
- Amortization Method

Based on our review, discussed in full detail in Section III of this report, we recommend no changes in these actuarial methods at this time, except we are recommending the City consider going to separate base amortization for any new gains or losses, due to plan experience, assumption changes or benefit changes for the Police and Fire Plans.

Section III of this report discusses the actuarial methods.

Recommended Demographic Assumption Changes

In the experience study, actual demographic experience for the study period is compared to that expected based on the current actuarial assumption. Comparing the actual incidence of the event to what was expected (called the Actual-to-Expected ratio, or A/E ratio) then provides the basis for our analysis.

Mortality is perhaps the most important demographic assumption when valuing the liabilities of a pension plan. The issue of future mortality improvement is one that the actuarial profession has become increasingly focused on studying in recent years. There have been significant improvements in longevity in the past, although there are different opinions about future expectations. We believe it is prudent to anticipate that this trend will continue to some degree in the future.

The plans currently reflect mortality improvements with the use of a generational mortality approach. This approach directly anticipates future improvements in mortality by using a different set of mortality rates for each year of birth, with the rates for later years of birth assuming lower mortality rates than the rates for earlier years of birth. The varying mortality rates by year of birth create a series of tables that contain "built-in" mortality improvements, e.g., a member who turns age 65 in 2045 has a longer life expectancy than a member who turns age 65 in 2025. When using generational mortality, the A/E ratios for the observed experience are set near 100% since future mortality improvements will be taken into account directly in the actuarial valuation process.





SECTION I: EXECUTIVE SUMMARY

The current mortality assumptions are based on the RP-2014 family of mortality tables using a generational mortality approach as described above. The Society of Actuaries (SOA) has recently published new mortality tables developed exclusively from public sector retirement system experience. **We are recommending changes in the mortality assumptions to be based on the new Pub-2010 family of mortality tables that match the Connecticut Municipal Employees Retirement System. These published mortality tables will be discussed in the demographic section of this report.**

The following is a list of other recommended changes to the demographic assumptions for the City.

- **Retirement:** Recommend increasing rates of retirement for the Police Plan and extending rates of retirement to age 48 for the Fire Plan and other slight modifications to better match retirement experience.
- **Disability:** Recommend increase in the rates of disability for the Police Plan as experience has shown much more actual disability retirements than expected.
- **Withdrawal:** Recommend simplifying rates of withdrawal for all plans to a service-based table and recommend increases to the Police Plan to better match the experience.
- **Merit Salary Scale:** Recommend no change in the merit salary scale as we believe the higher than expected recent increase in salaries has been due to the inflationary recovery from the pandemic.

Section IV of this report provides additional details of these recommended changes.





SECTION I: EXECUTIVE SUMMARY

Financial Impact

Although the assumption changes, if approved, will first be reflected in the June 30, 2024 valuation, we have provided the following table which highlights the impact of the recommended changes on the unfunded actuarial accrued liability (UAAL), amortization period, actuarially determined employer contribution (ADEC), and funded ratio based on the June 30, 2023 valuation results.

Summary of Results
(\$ in Thousands)

City Plan	June 30, 2023 Valuation	With Recommended Assumptions
Discount Rate	6.50%	6.50%
UAAL	\$63,346	\$58,878
Amortization Period	13.0 years	13.0 years
Funding Ratio	77.8%	79.1%
ADEC		
Normal Cost	\$1,425	\$1,599
Amortization Payment	6,568	6,105
Interest	200	193
Total ADEC	\$8,193	\$7,897

Food Service Plan	June 30, 2023 Valuation	With Recommended Assumptions
Discount Rate	6.50%	6.50%
UAAL	\$1,697	\$1,648
Amortization Period	13.0 years	13.0 years
Funding Ratio	68.3%	68.9%
ADEC		
Normal Cost	\$114	\$117
Amortization Payment	176	171
Interest	7	7
Total ADEC	\$297	\$295





SECTION I: EXECUTIVE SUMMARY

Police Plan	June 30, 2023 Valuation	With Recommended Assumptions
Discount Rate	6.50%	6.50%
UAAL	\$56,719	\$60,740
Amortization Period	13.0 years	13.1 years
Funding Ratio	72.0%	70.6%
ADEC		
Normal Cost	\$1,506	\$1,692
Amortization Payment	5,362	5,702
Interest	257	277
Total ADEC	\$7,125	\$7,671

Fire Plan	June 30, 2023 Valuation	With Recommended Assumptions
Discount Rate	6.50%	6.50%
UAAL	\$41,039	\$43,662
Amortization Period	13.0 years	13.1 years
Funding Ratio	74.6%	73.4%
ADEC		
Normal Cost	\$1,112	\$1,302
Amortization Payment	3,879	4,101
Interest	187	203
Total ADEC	\$5,178	\$5,606





SECTION II: ECONOMIC ASSUMPTIONS

There are four economic assumptions used in the actuarial valuations performed for the plans. They are:

- Price Inflation
- Investment Return
- Wage Inflation
- Payroll Growth

Note that future price inflation has an indirect impact on the results of the actuarial valuation through the development of the assumptions for investment return and the rates of salary increases. However, it is not directly used in the valuation process.

Actuarial Standard of Practice (ASOP) No. 27, *“Selection of Economic Assumptions for Measuring Pension Obligations”* provides guidance to actuaries in selecting economic assumptions for measuring obligations under defined benefit plans. ASOP No. 27 was revised in September, 2013 and no longer includes the concept of a “best estimate range”. Instead, the revised standard now requires that each economic assumption selected by the actuary should be reasonable which means it has the following characteristics:

- It is appropriate for the purpose of the measurement;
- It reflects the actuary’s professional judgment;
- It takes into account historical and current economic data that is relevant as of the measurement date;
- It reflects the actuary’s estimate of future experience, the actuary’s observation of the estimates inherent in market data, or a combination thereof; and
- It has no significant bias (i.e., it is not significantly optimistic or pessimistic), except when provisions for adverse deviation or plan provisions that are difficult to measure are included and disclosed, or when alternative assumptions are used for the assessment of risk.

Each economic assumption should individually satisfy this standard. Furthermore, with respect to any particular valuation, each economic assumption should be consistent with every other economic assumption over the measurement period.

In our opinion, the economic assumptions recommended in this report have been developed in accordance with ASOP No. 27. The following table shows our recommendations followed by detailed discussions of each assumption.





SECTION II: ECONOMIC ASSUMPTIONS

Item	Current	Proposed
Price Inflation	2.60%	2.50%
Real Rate of Return*	<u>3.90</u>	<u>4.00</u>
Investment Return	6.50%	6.50%
Price Inflation	2.60%	2.50%
Real Wage Rate	<u>N/A</u>	<u>0.50</u>
Wage Inflation	N/A	3.00%
Payroll Growth	2.75%	2.75%

* net of investment expenses.





SECTION II: ECONOMIC ASSUMPTIONS

Inflation

The assumed rate of inflation is the expectation of the long-term annual rate of increase in the Consumer Price Index and is a component of all economic assumptions. This is also called price inflation.

It is important that the inflation assumption be consistently applied throughout the economic assumptions utilized in an actuarial valuation. This is called for in ASOP No. 27 and is also required to meet the parameters for determining pension liabilities and expense under Governmental Accounting Standards Board (GASB) Statements No. 67 and 68.

The long-term relationship between price inflation and investment return has long been recognized by economists. The basic principle is that the investor demands a more or less level “real return” – the excess of actual investment return over price inflation. If inflation rates are expected to be high, investment return rates are also expected to be high, while low inflation rates are expected to result in lower expected investment returns, at least in the long run.

The current price inflation assumption is an assumed annual rate of 2.60%.

Past Experience

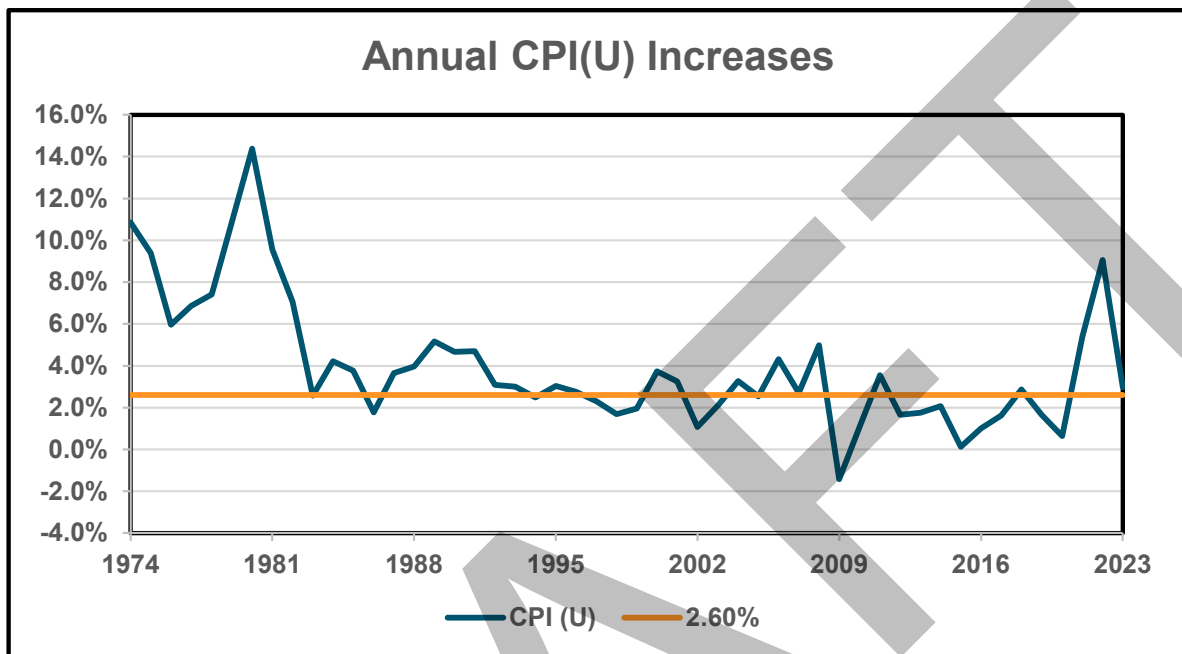
The Consumer Price Index, US City Average, All Urban Consumers, CPI (U), has been used as the basis for reviewing historical levels of price inflation. The table below provides historical annualized rates and annual standard deviation of the CPI-U over periods ending June 30th.

Period	Number of Years	Annualized Rate of Inflation	Annual Standard Deviation
1933 – 2023	90	3.60%	3.40%
1973 – 2023	50	3.10%	3.90%
1983 – 2023	40	2.80%	1.76%
1993 – 2023	30	2.50%	1.86%
2003 – 2023	20	2.60%	2.23%
2013 – 2023	10	2.70%	2.67%

The following graph illustrates the historical levels of price inflation measured as of June 30th of each of the last 50 years and compared to the current 2.60% annual rate currently assumed.



SECTION II: ECONOMIC ASSUMPTIONS



As can be seen from the table on the previous page, over the last 30 years, the average annual rate of increase in the CPI-U has been just over 2.50%. The higher annual rates over the past two years have increased this average.

Forecasts

Based upon information contained in the “Survey of Professional Forecasters” for the fourth quarter of 2024 as published by the Philadelphia Federal Reserve Bank, the median expected annual rate of inflation for the next ten years is 2.23%. Although 10 years of future expectation is too short of a period for the basis of our inflation assumption, the information does provide some evidence that the consensus expectations of these experts are for rates of inflation slightly less than our current assumption of 2.60% for the near-term future.

The spread between the yield on treasury securities (bonds) and the inflation indexed yield on Treasury Inflation Protected Securities (TIPS) of the same maturity is referred to as the “breakeven rate of inflation” and represents the bond market’s expectation of inflation over the period to maturity.



SECTION II: ECONOMIC ASSUMPTIONS

The table below provides the breakeven rates of inflation as of the beginning of December 2024.

Years to Maturity	Breakeven Rate of Inflation
10	2.24%
20	2.45%
30	2.29%

The bond market's expectation for the rate of inflation over the 30-year period is 2.29% which is lower than 30-year historical annualized rates and the current 2.60% assumed rate of inflation.

Social Security Administration

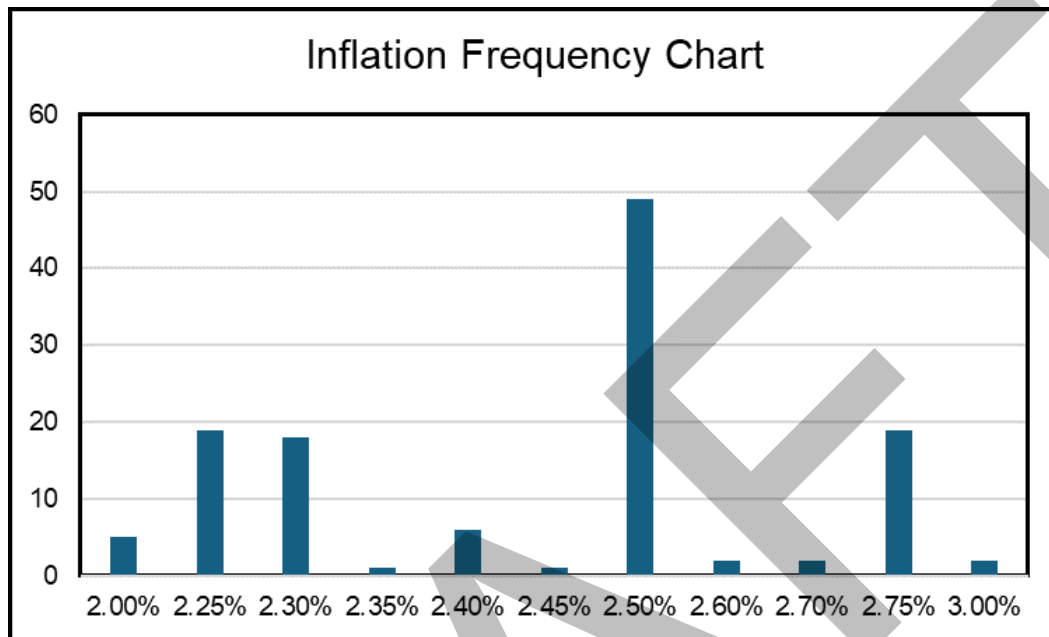
Although many economists forecast lower inflation than the assumption used by most retirement plans, they are generally looking at a shorter time horizon than is appropriate for a pension valuation. To consider a longer, similar time frame, we looked at the expected increase in the CPI by the Office of the Chief Actuary for the Social Security Administration. In the 2024 annual report, the projected ultimate average annual increase in the CPI over the next 75 years was estimated to be 2.40%, under the intermediate (best estimate) cost assumption. The range of inflation assumptions used in the Social Security 75-year modeling, which includes a low and high-cost scenario, in addition to the intermediate cost projection, was 1.80% to 3.00%. These rates remained unchanged from their 2023 annual report.

Peer Comparison

While we do not recommend the selection of any assumption based on what other systems use, it does provide another set of relevant information to consider. The following chart shows the inflation rate assumptions of 124 systems in the Research Database of the National Association of State Retirement Administrators (NASRA) for FY 2023 data. Based on the current data, the average inflation assumption is 2.46%. The assumptions are from actuarial valuations reported in FYE 2023. Although actual inflation spiked after the recovery from the pandemic, we have not really seen many plans increasing this assumption as we believe most systems expect long-term inflation to return to rates at or near where the Federal Reserve is targeting.



SECTION II: ECONOMIC ASSUMPTIONS



Recommendation

Inflation's short-term volatility has increased in the short-term, however, the longer-term annualized rate of inflation has remained relatively stable. Although the 10-year average of 2.70% and the 30-year average of 2.50% are slightly above and below the System's assumed rate of 2.60% respectively, the forecasts are for rates of inflation less than the assumption over the next 30 years. Further, the monetary policy of the Federal Reserve continues to target a 2.0% annual rate of inflation as measured by the rate of change in Personal Consumption Expenditures (PCE). Since the year 2000, the rate of change in the PCE has been 0.3% to 0.4% less than the rate of inflation as measured by the change in the CPI (U). We concur with these forecasts and recommend lowering the inflation assumption for the System from 2.60% to 2.50%.

Price Inflation Assumption	
Current	2.60%
Recommended	2.50%



SECTION II: ECONOMIC ASSUMPTIONS

Investment Rate of Return

Background

The assumed investment return is one of the most significant assumptions in the annual actuarial valuation process as it is used to discount the expected benefit payments for all active, inactive and retired members. Minor changes in this assumption can have a major impact on valuation results. The investment return assumption should reflect the asset allocation target for the funds as established by the Board.

The current assumption is 6.50%, consisting of a price inflation assumption of 2.60% and a real rate of return assumption of 3.90%.

Long Term Perspective

Because the economy is constantly changing, assumptions about what may occur in the near term are volatile. Asset managers and investment consultants usually focus on this near-term horizon in order to make prudent choices regarding how to invest the trust funds. For actuarial calculations, we typically consider very long periods of time. For example, a newly-hired employee who is 25 years old may work for 35 years, to age 60, and live another 30 years, to age 90 (or longer). The retirement system would receive contributions for the first 35 years and then pay out benefits for the next 30 years. During the entire 65-year period, the system is investing assets related to the member. For such a typical career employee, more than one-half of the investment income earned on assets accumulated to pay benefits is received after the employee retires. In addition, in an open, ongoing system like the Police and Fire Plans, the stream of benefit payments is continually increasing as new hires replace current members who leave covered employment due to death, termination of employment, and retirement. This difference in the time horizon used by actuaries and investment consultants is frequently a source of debate and confusion when setting economic assumptions.





SECTION II: ECONOMIC ASSUMPTIONS

Historical Rates

The following table shows the actual and average money-weighted returns, net of investment expenses for the City Plan (the other plans have similar results) over the past five years.

Year Ended June 30:	Annual Money-Weighted Rate of Return, Net of Investment Expense
2020	2.11%
2021	27.74%
2022	-11.26%
2023	9.20%
2024	11.40%
Average	7.84%

The results above certainly demonstrate the volatility that occurs from year to year in market returns for the City and it shows that over this period, the City has seen better than expected returns which help offset assumption changes and/or experience losses. However, while important to review and analyze, historical returns over such a short time period are not credible for the purpose of setting the long-term assumed future rate of return.

Future Expectation Analysis

ASOP 27 provides that the actuary may rely on outside experts in setting economic assumptions. For a broad view of expected returns, we reviewed the *Survey of Capital Market Assumptions: 2024 Edition* produced by Horizon Actuarial Services, LLC to see what investment professionals are currently developing for expected returns. The Horizon survey includes both 10-year and 20-year timeframe for capital market assumptions. However, we believe the 20-year timeframe is more practical when forecasting because the majority of the present value of liability is within the first 20 years of our valuation date. Using the current Plan target asset allocation, we determine the estimated 20-year annual expected rate of return at the 50th percentile to be 7.37%. The average annual rate price inflation assumption over the 20-year period in the Horizon Survey is 2.44%.





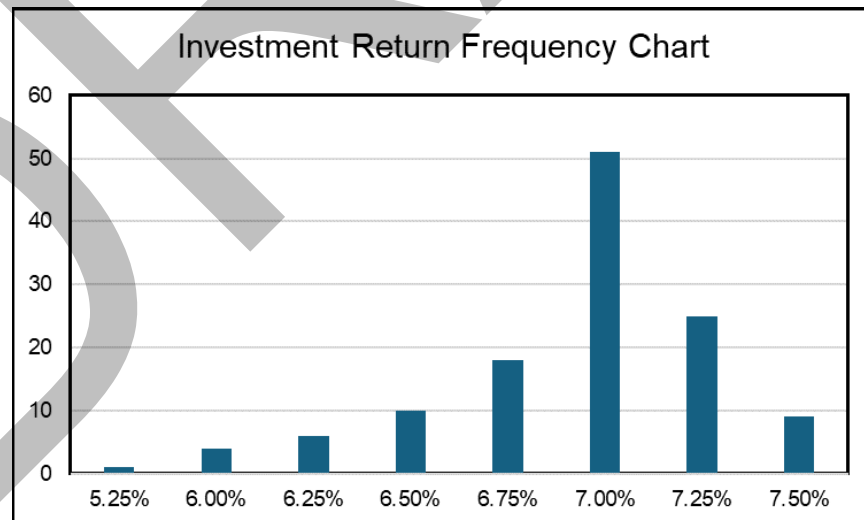
SECTION II: ECONOMIC ASSUMPTIONS

Time Span In Years	Mean Rates of Real Return	Standard Deviation	Statistical Analysis of Expected Real Return Distribution				
			Rates of Real Return by Percentile				
			5 th	25 th	50 th	75 th	95 th
1	5.68%	13.15%	-14.48%	-3.55%	4.87%	14.01%	28.59%
5	5.03%	5.83%	-4.27%	1.02%	4.87%	8.86%	14.88%
10	4.95%	4.12%	-1.68%	2.13%	4.87%	7.68%	11.85%
20	4.91%	2.91%	0.19%	2.92%	4.87%	6.85%	9.76%
30	4.89%	2.37%	1.03%	3.28%	4.87%	6.48%	8.84%
50	4.88%	1.84%	1.89%	3.63%	4.87%	6.11%	7.94%

Adding in the recommended inflation assumption of 2.50%, the median annual return expected using the Horizon survey is 7.37% for the 20-year timeframe. The 2024 survey average expected return on a hypothetical plan decreased 0.16% from the 2023 expectation.

Peer Comparison

The following chart shows the nominal investment return assumptions of 124 plans from the National Association of State Retirement Administrators (NASRA) Issue Brief entitled, "Public Pension Plan Investment Return Assumptions", updated March, 2023. The median nominal investment return from this survey is 7.00%.





SECTION II: ECONOMIC ASSUMPTIONS

Recommendation

By actuarial standards, we are required to maintain a long-term perspective in setting all assumptions, including the investment return assumption. Therefore, we believe actuaries must be careful not to let recent experience or short-term expectations excessively impact our judgment regarding the appropriateness of the current assumption over the long term.

There has been a significant trend in lowering the investment return assumption for pension plans across the country. According to the March, 2024 NASRA Issue Brief, the median return assumption has decreased from 8.00% in 2010 to 7.00% in 2023. We continue to favor an assumption which is less than the median rate of return based on current capital market assumptions for the longer timeframes and recommend no change to the current 6.50% annual rate of investment return assumption.

Below is a breakdown of the building block approach as recommended under ASOP No. 27.

Investment Return Assumption		
	Current	Recommended
Real Rate of Return*	3.90%	4.00%
Inflation	<u>2.60</u>	<u>2.50</u>
Net Investment Return	6.50%	6.50%

* net of investment expenses.





SECTION II: ECONOMIC ASSUMPTIONS

Wage Inflation

Background

The wage inflation assumption is composed of the price inflation assumption and an assumption for the real rate of wage increases. The salary increase assumption combines the wage inflation assumption with an assumption for promotion and longevity, often called merit increases. Merit assumptions are generally age and/or service related and will be dealt with in the demographic assumption section of the report. The excess of wage growth over price inflation is also considered the increase in productivity that labor provides.

Please note that we are not sure of the current wage inflation assumption as it was not disclosed in the prior actuary's report.

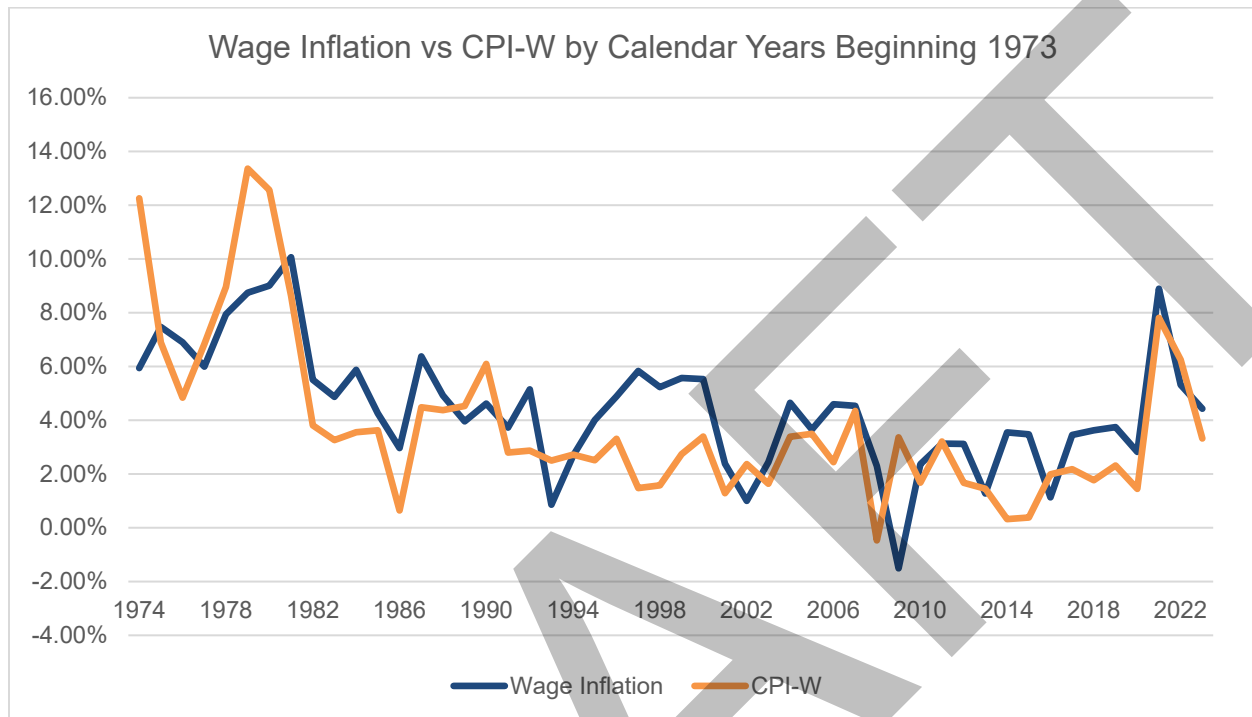
Past Experience

The Social Security Administration maintains data on overall average wage growth in the United States and publishes the National Average Wage Index (NAWI). While this is the most comprehensive data available, it is based on all wage earners in the country so it can be influenced by the mix of jobs as well as by changes in certain sectors of the workforce that may not be seen by all segments.

Below is historical information on real wage inflation which use the National Average Wage Index and inflation as measured by CPI (W). Currently, this wage data is only available through the calendar year 2023. We remove the rate of price inflation as measured by CPI (W) for each year from the data to review the historical real rate of wage inflation.



SECTION II: ECONOMIC ASSUMPTIONS



Based on the data in the chart above, it is difficult to assess a clear trend in the real rate of wage growth for our purposes. The recent historical impact of the pandemic on both wages and inflation are clearly evident in the recent rates.

Historical Data of Real Wage Growth Rate			
Ending 12/31/2023	Wage Inflation	Price Inflation	Real Wage Growth
10 Yr	4.03%	2.57%	1.46%
20 Yr	3.41%	2.52%	0.89%
30 Yr	3.59%	2.47%	1.11%
40 Yr	3.76%	2.76%	1.00%
50 Yr	4.44%	3.91%	0.53%

Over the 50-year period ending 12/31/2023, the annual real wage growth rate was negative 16 of the 50 years, nearly one-third of the time. This is commonly due to the lag in the rates of wage increases compared to rates of price inflation. For our purposes, we favor the longer term annualized rates of real wage growth when considering this historical data in general.





SECTION II: ECONOMIC ASSUMPTIONS

The City's recent salary data over the study period for all plans is not useful for assessing the real rate of "across the board" wage increases due to the extreme rates of price inflation over the period. Any actual experience resulting in higher than expected rates of salary increases is attributable to the difference in the actual and expected rate of price inflation and not the assumed rate of real wage growth.

Recommendation

We are recommending setting the rate of real wage growth to 0.50% and adding it to the proposed 2.50% rate of price inflation assumptions results in an assumed rate of wage inflation of 3.00%.

Wage Inflation Assumption	
	Recommendation
Price Inflation	2.50%
Real Wage Growth	<u>0.50%</u>
Wage Inflation	3.00%





SECTION II: ECONOMIC ASSUMPTIONS

Payroll Growth for Amortization Method

For all four pension plans, the current amortization of the Unfunded Accrued Liabilities (UAL) is based on the assumption of increasing payroll, called the level percentage of payroll amortization methodology. Therefore, the valuation requires an assumption regarding future annual increases in total covered payroll.

Since the City and Food Service Plans are closed to new members, payroll is expected to decline. Several years ago, these plans began to decrease this payroll growth assumption annually by 0.25% until it reaches 0% for the 2027 valuation. At that point, the amortization methodology will be the level dollar amortization.

Since the Police and Fire Plans are still open to new members and total payroll is expected to continue to increase, the assumption for payroll growth is currently 2.75%.

We recommend the payroll growth assumption be retained at 2.75% for the Police and Fire Plans and remain on the current declining schedule for the City and Food Service Plans.





SECTION III: ACTUARIAL METHODS

Actuarial Cost Method

There are various actuarial cost methods, each of which has different characteristics, advantages and disadvantages. However, Governmental Accounting Standard Board (GASB) Statement Numbers 67 and 68 require that the Entry Age Normal cost method be used for financial reporting. Most systems do not want to use a different actuarial cost method for funding and financial reporting. In addition, the Entry Age Normal method has been the most common funding method for public systems for many years. This is the cost method currently used by the plans.

The rationale of the Entry Age Normal (EAN) cost method is that the cost of each member's benefit is determined to be a level percentage of their salary from date of hire to the end of their employment with the employer. This level percentage multiplied by the member's annual salary is referred to as the normal cost and is that portion of the total cost of the employee's benefit that is allocated to the current year. The portion of the present value of future benefits allocated to the future is determined by multiplying this percentage times the present value of the member's assumed earnings for all future years including the current year. The Entry Age Normal actuarial accrued liability is then developed by subtracting from the present value of future benefits that portion of costs allocated to the future. To determine the unfunded actuarial accrued liability, the value of plan assets is subtracted from the Entry Age Normal actuarial accrued liability. The current year's cost to amortize the unfunded actuarial accrued liability is developed by applying an amortization factor.

It is to be expected that future events will not occur exactly as anticipated by the actuarial assumptions in each year. Actuarial gains/losses from experience under this actuarial cost method can be directly calculated and are reflected as a decrease/increase in the unfunded actuarial accrued liability. Consequently, the gain/loss results in a decrease/increase in the amortization payment, and therefore the contribution rate.

Considering that the Entry Age Normal cost method is the most commonly used cost method by public plans, that it develops a normal cost rate that tends to be less volatile and is the required cost method under calculations required by GASB disclosures, **we recommend use of the Entry Age Normal actuarial cost method be continued.**





SECTION III: ACTUARIAL METHODS

Actuarial Value of Assets

In preparing an actuarial valuation, the actuary must assign a value to the assets of the fund. An adjusted market value is often used to smooth out the volatility that is reflected in the market value of assets. This is because most employers would rather have annual costs remain relatively smooth, as a percentage of payroll or in actual dollars, as opposed to a cost pattern that is extremely volatile.

The actuary does not have complete freedom in assigning this value. The Actuarial Standards Board also has basic principles regarding the calculation of a smoothed asset value, Actuarial Standard of Practice No. 44 (ASOP 44), *Selection and Use of Asset Valuation Methods for Pension Valuations*.

ASOP 44 provides that the asset valuation method should bear a reasonable relationship to the market value. Furthermore, the asset valuation method should be likely to satisfy both of the following:

- Produce values within a reasonable range around market value, AND
- Recognize differences from market value in a reasonable amount of time.

In lieu of both of the above, the standard will be met if either of the following requirements is satisfied:

- There is a sufficiently narrow range around the market value, OR
- The method recognizes differences from market value in a sufficiently short period.

These rules or principles prevent the asset valuation methodology from being used to manipulate annual funding patterns. No matter what asset valuation method is used, it is important to note that, like a cost method or actuarial assumptions, the asset valuation method does not affect the true cost of the plan; it only impacts the incidence of cost.

The current asset valuation method for the plans determines the actuarial value of assets at the valuation date as the expected actuarial value at the end of the year adjusted 20% toward the actual market value. If the market value is higher than the expected actuarial value, the adjustment increases the actuarial value by 20% of the difference and vice versa when market value is lower than the expected actuarial value. In our opinion, this method, called the 20% write-up method, is among the least volatile smoothing methods typically in use.

The current 20% write-up method used by the plans is acceptable by ASOP 44 standards and we recommend no change in this methodology.





SECTION III: ACTUARIAL METHODS

Amortization of the Unfunded Actuarial Accrued Liability

The actuarial accrued liability is the portion of the actuarial present value of future benefits that are not included in future normal costs. Thus, it represents the liability that, in theory, should have been funded through normal costs for past service. Unfunded actuarial accrued liability (UAAL) exists when the actuarial accrued liability exceeds the actuarial value of plan assets. These deficiencies can result from:

- (i) plan improvements,
- (ii) experience that is less favorable than expected, or
- (iii) assumption changes that increase liabilities.

There are a variety of different methods that can be used to amortize the UAAL. Each method results in a different payment stream and, therefore, has cost implications. For each methodology, there are three characteristics:

- The period over which the UAAL is amortized,
- The rate at which the amortization payment increases, and
- The number of components of UAAL (separate amortization bases).

Amortization Period: The amortization period can be either closed or open. If it is a closed amortization period, the number of years remaining in the amortization period declines by one in each future year. Alternatively, if the amortization period is an open or rolling period, the amortization period does not decline but is reset to the same number each year. This approach essentially “refinances” the System’s debt (UAAL) every year

Amortization Payment: The level dollar amortization method is similar to the method in which a homeowner pays off a mortgage. The liability, once calculated, is financed by a constant fixed dollar amount, based on the amortization period until the liability is extinguished. This results in the liability steadily decreasing while the payments, though remaining level in dollar terms, in all probability decrease as a percentage of payroll. (Even if a plan sponsor’s population is not growing, inflationary salary increases will usually be sufficient to increase the aggregate covered payroll).

The rationale behind the level percentage of payroll amortization method is that since normal costs are calculated to be a constant percentage of pay, the unfunded actuarial accrued liability should be paid off in the same manner. When this method of amortizing the unfunded actuarial accrued liability is adopted, the initial amortization payments are lower than they would be under a level dollar amortization payment method, but the payments increase at a fixed rate each year so that ultimately the annual payment far exceeds the level dollar payment. The expectation is that total payroll will increase at the same rate so that the amortization payments will remain constant, as a percentage of payroll. In the initial years, the level percentage of payroll amortization payment is often less than the interest accruing on the unfunded actuarial accrued liability meaning that even if there are no experience losses, the dollar amount of the unfunded actuarial accrued liability will grow (called negative amortization). This is particularly true if the plan sponsor is paying off the unfunded actuarial accrued liability over a long period, such as 20 or more years.





SECTION III: ACTUARIAL METHODS

Amortization Bases: The UAAL can be amortized either as one single amount or as components or “layers”, each with a separate amortization base, payment and period. If the UAAL is amortized as one amount, the UAAL is recalculated each year in the valuation and experience gains/losses or other changes in the UAAL are folded into the single UAAL amortization base. The amortization payment is then the total UAAL divided by an amortization factor for the applicable amortization period.

If separate amortization bases are maintained, the UAAL is composed of multiple amortization bases, each with its own payment schedule and remaining amortization period. In each valuation, the unexpected change in the UAAL is established as a new amortization base over the appropriate amortization period beginning on that valuation date. The UAAL is then the sum of all of the outstanding amortization bases on the valuation date and the UAAL payment is the sum of all of the amortization payments on the existing amortization bases. This approach provides transparency in that the current UAAL is paid off over a fixed period of time and the remaining components of the UAAL are clearly identified. Adjustments to the UAAL are also separately identified in each future year. One downside of this approach is that it can create some discontinuities in contribution rates when UAAL layers/components are fully paid off. If this occurs, it likely would be far in the future, with adequate time to address any adjustments needed.

Currently, the amortization methodology is based on the level percentage of payroll amortization method for all four plans. However, because the City and Food Services Plans are closed, we are decreasing the payroll assumption by 0.25% each year until it reaches zero and then these plans will be using the level dollar amortization method by the 2027 valuation. The Police and Fire Plans use a payroll assumption of 2.75% as discussed in the prior Section. We recommend continuation of these methodologies and assumptions.

However, we do recommend that the Police and Fire Plans begin using a layered approach to the amortization schedule introducing new separate amortization bases each year for experience gains and losses, assumption changes, and benefit changes that will then be amortized over their own closed, 15-year period beginning the year it is established.





SECTION IV: DEMOGRAPHIC ASSUMPTIONS

There are several demographic assumptions used in the actuarial valuations performed for the City of Norwalk Pension Plans. They are:

- Rates of Withdrawal
- Rates of Disability Retirement
- Rates of Service Retirement
- Rates of Mortality
- Rates of Salary Increase

The Actuarial Standards Board has issued Actuarial Standard of Practice (ASOP) No. 35, “*Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*”, which provides guidance to actuaries in selecting demographic assumptions for measuring obligations under defined benefit plans. In our opinion, the demographic assumptions recommended in this report have been developed in accordance with ASOP No. 35.

The purpose of a study of demographic experience is to compare what actually happened to the membership during the study period with what was expected to happen based on the assumptions used in the most recent Actuarial Valuations.

Detailed tabulations by age, service and/or gender are performed over the entire study period. These tabulations look at all active and retired members during the period as well as separately annotating those who experience a demographic event, also referred to as a decrement. In addition, the tabulation of all members together with the current assumptions permits the calculation of the number of expected decrements during the study period.

Instead of relying entirely on the counts of actual and expected decrements, we utilized a weighted experience approach which better reflects the impact demographic experience has on liability measures. We weight decrements from active service with the monthly salary of the individual members and we weight the post-retirement mortality experience with the monthly retirement benefits of the individuals. We still review the actual counts of actual and expected decrements but it is used for informational purposes only.

If the actual experience differs significantly from the overall expected results, or if the pattern of actual decrements, or rates of decrement, by age, gender, or service does not follow the expected pattern, new assumptions are recommended. Recommended changes usually do not follow the exact actual experience during the observation period. Judgment is required to extrapolate future experience from past trends and current member behavior. In addition, non-recurring events, such as early retirement windows, need to be taken into account in determining the weight to give to recent experience.





SECTION IV: DEMOGRAPHIC ASSUMPTIONS

The following tables outline the demographic gain or (loss) that each plan has experienced over the past four years. The impacts below show the increase (loss) or decrease (gain) in the unfunded accrued liability in each of the valuation years. We use this analysis to assist us when developing our proposed assumptions. If the Plan experiences certain gains or (losses) in every year of the study, that means there is a good indication that the assumptions need to be adjusted. For instance, over the past three valuations, the Police Plan has over \$3M in losses due to disability retirements. There is a pattern there that needs to be addressed.

City Plan	2020	2021	2022	2023
Retirement	\$497,727	\$362,742	\$(31,583)	\$341,327
Disability	8,150	14,640	14,904	29,399
Active Mortality	(200,445)	(158,387)	(34,860)	264,551
Withdrawal	(532,410)	956,111	622,912	(97,036)
Pay Increases	76,077	(415,942)	(423,336)	213,175
Retiree Mortality	833,591	2,203,950	2,304,581	(1,225,395)

Food Service Plan	2020	2021	2022	2023
Retirement	\$41,497	\$(52,541)	\$(51,936)	\$(68,244)
Disability	(288)	(422)	(171)	(111)
Active Mortality	34,716	39,043	(5,738)	(5,765)
Withdrawal	11,141	57,058	(2,064)	57,886
Pay Increases	90,147	124,616	(150,356)	(51,974)
Retiree Mortality	(25,940)	84,907	(50,576)	(55,245)

Police Plan	2020	2021	2022	2023
Retirement	\$673,298	\$511,974	\$(752,980)	\$(576,856)
Disability	73,241	(1,087,176)	(999,639)	(1,143,233)
Active Mortality	2,103	1,895	(1,114)	(13,997)
Withdrawal	(28,056)	118,659	1,569,487	320,242
Pay Increases	(577,941)	(505,728)	275,235	(679,245)
Retiree Mortality	(181,055)	234,006	275,410	222,369





SECTION IV: DEMOGRAPHIC ASSUMPTIONS

Fire Plan	2020	2021	2022	2023
Retirement	\$314,401	\$278,106	\$(393,250)	\$(1,492,665)
Disability	112,521	(916,013)	120,209	(319,875)
Active Mortality	(15,753)	(22,810)	(163,052)	(212,227)
Withdrawal	184,464	25,459	151,097	9,607
Pay Increases	1,346,422	(1,009,554)	(77,687)	(950,390)
Retiree Mortality	(178,785)	30,057	41,449	(69,756)

The remainder of this section presents the results of the demographic study. We have prepared numerous tables that show a comparison of the actual and expected decrements and in some cases, the overall ratio of actual to expected results (A/E Ratios) under the current assumptions. Salary adjustments, other than the economic assumption for wage inflation discussed in the previous section, are treated as demographic assumptions.





SECTION IV: DEMOGRAPHIC ASSUMPTIONS

Rates of Withdrawal

The rates of withdrawal are used to determine the expected number of separations from active service which will occur as a result of resignation or dismissal. As mentioned earlier, the experience data using a salary weighted analysis is a better way to reflect the impact to measures of the rates. Since the City Plan and Food Services Plan are closed to new members, the actual experience for withdrawals is declining over time as more active employees are approaching retirement eligibility. In fact, most active members in these two plans have over 10 years of experience as of the most recent valuation.

In addition, Police and Fire Plans typically demonstrate low levels of withdrawal experience when compared to general employees or teachers. However, we have seen an upward trend in the number of withdrawals from Police retirement plans across the country and the City of Norwalk is experiencing similar results.

The current rates of withdrawal, as developed by the previous actuary, for the City and Food Services Plans are based on a select and ultimate age basis. For the Police and Fire Plans, the current rates of withdrawal are based on age-only tables. However, as evidenced from the actual experience over the past four years, we believe there is a better correlation to separations due to withdrawal to a member's eligibility service only. The actual salary weighted ratios and counts of withdrawals for each plan is shown in the following table:

Service Levels	City Plan	Food Services Plan	Police Plan	Fire Plan
Under 5	0.3015	0.0596	0.0244	0.0429
5-10	0.0918	0.0282	0.0533	0.0000
10-15	0.0650	0.0000	0.0351	0.0220
15-20	0.0246	0.2271	0.0000	0.0000
20-25	0.0331	0.2480	0.0400	0.0000
25 & Over	0.0000	0.0000	0.0000	0.0000
Total	0.0444	0.0523	0.0348	0.0136
Actual Counts	33	7	18	5
Expected Counts	22	4	5	3

As you see from the table above, the actual number of withdrawals were more than expected for all four Plans and, other than a few cells, the salary weighted ratios are fairly uniform across most service levels. While we do not expect any more withdrawals for service levels under 10 years for the City and Food Service Plans, we put more weight on the experience for the service levels after 10 years. Therefore, we recommend an adjustment to the rates to reflect the recent experience and move the A/E ratios toward a more desired range.





SECTION IV: DEMOGRAPHIC ASSUMPTIONS

The following tables show the proposed rates of withdrawal for each of the four Plans. While simple, we believe these new rates of withdrawal will better match remaining withdrawal experience for the City and Food Service Plans and increase expectations for future withdrawals for Police and Fire Plans that may match recent actual experience.

Withdrawal Rates	City Plan	Food Services Plan	Police Plan	Fire Plan
Under 5 Years	0.0300	0.0300	0.0300	0.0125
5 - 9	0.0300	0.0300	0.0300	0.0125
10 - 14	0.0300	0.0300	0.0300	0.0125
15 - 19	0.0300	0.0300	0.0200	0.0000
20 - 24	0.0300	0.0300	0.0200	0.0000
25 & Over	0.0000	0.0000	0.0000	0.0000





SECTION IV: DEMOGRAPHIC ASSUMPTIONS

Rates of Disability Retirement

The rates of disability retirements are used to determine the expected number of separations from active service due to a service connected or non-service connected disability. It is important to recognize that public safety employees are typically exposed to more hazards than general employees but are typically required to meet certain fitness standards. Also, since the passage and expansion of the Heart-Lung Bill, there are several more presumptions that disabilities result from service-connected causes for public safety positions compared to general employees.

Over the past four years, there have been very few disability retirements from the four plans but based on the current decrements, as developed by the previous actuary, there were very few expected. In the table below, we show the actual and expected number of disability retirements.

Disability Retirements	City Plan	Food Services Plan	Police Plan	Fire Plan
Actual	3.00	0.00	7.00	3.00
Expected	2.42	0.36	1.78	1.83
A/E Ratio	1.24	0.00	3.93	1.69

The goal for the A/E ratio under disability experience is a ratio of 1.0. The ratio for the Police Plan is well above this goal and as mentioned earlier in the report, this plan has experienced over \$3M in losses due to disability retirements. Therefore, we recommend increases in the expected rates of disability for the Police Plan to better reflect the latest trends. The following table shows proposed sample changes in the rates of disability retirement for the Police Plan.

Central Age	Current Police Rates	Proposed Police Rates
20	0.030%	0.060%
25	0.043%	0.086%
30	0.064%	0.128%
35	0.098%	0.196%
40	0.158%	0.316%
45	0.259%	0.518%
50	0.448%	0.996%
55	0.845%	1.690%
60	1.204%	2.408%





SECTION IV: DEMOGRAPHIC ASSUMPTIONS

Rates of Service Retirement

The rates of retirements are used to determine the expected number of separations from active service due to election of retirement under the applicable retirement provisions. The current rates of service retirement, as developed by the previous actuary, for all four plans are based on age and service combinations. We believe this correlation is the best fit for each of the City Plans and recommend the same approach to setting rates of retirement in the future. The actual salary weighted A/E ratios and counts of retirement for the City and Food Services Plans are shown in the following table:

Age Groups	City Plan		Food Services Plan	
	Less than 20 Years	20 & More Years	Less than 20 Years	20 & More Years
55 – 61	0.8763	1.3790	1.6011	3.8396
62	1.6240	0.3976	3.2571	0.0000
63 – 64	0.6851	0.4908	0.0000	0.0000
65 – 69	1.1298	1.0145	0.3224	0.0000
70 & Over	0.8074	0.8196	0.7558	1.2910
Total	0.9431	1.0062	0.6849	0.8631
Actual Counts	36	56	9	4
Expected Counts	33	50	13	5

As you see from the table above, the actual number of service retirements were slightly more than expected for the City Plan (92 vs. 83) and slightly less than expected for the Food Services Plan (13 vs. 18). As mentioned earlier, in setting any demographic assumptions, we would like the A/E ratios to be as close to 1.0 as possible. Since, in aggregate, the City Plan is fairly close to 1.0, we are suggesting only minor changes to the rates of retirement to bring the ratios close to 1.0 in all cells.

In addition, for the Food Services Plan, we are recommending higher rates of retirement at earlier ages but lower rates of retirement at normal retirement ages. We hope that with these adjustments, the A/E ratio will be closer to 1.0 in the next experience study. Below are the tables of our current and proposed rates of retirement for the City Plan and Food Services Plan.

City Plan and Food Services Plan – Current Rates of Retirement				
Age	Years of Service			
	Less than 10	10-19	20-34	35 and Over
55-61	0%	5%	9%	15%
62	9%	10%	20%	15%
63-64	9%	10%	10%	50%
65-69	14%	17%	15%	50%
70-79	20%	22%	30%	15%
80+	100%	100%	100%	100%





SECTION IV: DEMOGRAPHIC ASSUMPTIONS

City Plan – Proposed Rates of Retirement				
Age	Years of Service			
	Less than 10	10-19	20-34	35 and Over
55-61	N/A	5%	10%	20%
62	N/A	15%	12%	20%
63-64	N/A	8%	8%	20%
65-69	N/A	18%	16%	30%
70-79	N/A	20%	25%	30%
80+	100%	100%	100%	100%

Food Services Plan – Proposed Rates of Retirement				
Age	Years of Service			
	Less than 10	10-19	20-34	35 and Over
55-61	N/A	7%	15%	15%
62	N/A	20%	12%	10%
63-64	N/A	8%	8%	10%
65-69	N/A	10%	15%	15%
70-79	N/A	20%	30%	30%
80+	100%	100%	100%	100%

The actual salary weighted A/E ratios and counts of retirement for the Police and Fire Plans are shown in the following table. Please note that there were no retirements with less than 20 years of service from either of these Plans.

Age Groups	Police Plan	Age Groups	Fire Plan
	20 & More Years		20 & More Years
48	0.4762	55 – 59	0.7895
49 – 64	1.8935	60 – 64	0.3846
65 – 69	3.3333	65 – 69	0.5263
70 & Over	0.0000	70 & Over	0.0000
Total	1.9890	Total	1.0843
Actual Counts	18	Actual Counts	9
Expected Counts	9	Expected Counts	8

As you see from the table above, the actual number of service retirements were double than expected for the Police Plan and slightly more than expected for the Fire Plan. However, one of the immediate things we noticed during our analysis was that there were no rates of retirement for members in the Fire Plan before the age of 55. Yet, the actual experience shows that 4 active members retired from the Fire Plan before they reached age 55 over the past four years. We also realize that the current rates of retirement for the Police Plan need to increase as there was quite a few more retirements than expected.





SECTION IV: DEMOGRAPHIC ASSUMPTIONS

Below are the tables of our current and proposed rates of retirement for the Police and Fire Plans.

Police Plan – Current Rates of Retirement						
Age	Years of Service					
	Less than 20	20	21-24	25-29	30-34	35 and Over
48	0%	30%	30%	30%	30%	20%
49 - 64	0%	30%	3%	8%	12%	20%
65 - 69	0%	30%	10%	10%	15%	50%
70+	100%	100%	100%	100%	100%	100%

Fire Plan – Current Rates of Retirement				
Age	Years of Service			
	Less than 10	10-19	20-34	35 and Over
55 - 59	0%	10%	10%	20%
60 - 64	0%	10%	20%	20%
65 - 69	0%	10%	20%	50%
70+	100%	100%	100%	100%

Police Plan – Proposed Rates of Retirement						
Age	Years of Service					
	Less than 20	20	21-24	25-29	30-34	35 and Over
48	0%	20%	20%	20%	20%	20%
49 - 64	0%	20%	8%	12%	25%	25%
65 - 69	0%	20%	25%	25%	25%	50%
70+	100%	100%	100%	100%	100%	100%

Fire Plan – Proposed Rates of Retirement				
Age	Years of Service			
	Less than 10	10-19	20-34	35 and Over
48 – 54	0%	10%	10%	10%
55 - 59	0%	10%	10%	20%
60 - 64	0%	10%	15%	20%
65 - 69	0%	10%	20%	25%
70+	100%	100%	100%	100%





SECTION IV: DEMOGRAPHIC ASSUMPTIONS

Rates of Mortality

One of the most important demographic assumptions in the valuation is mortality because it defines the expectation for how long benefit payments will be made. The longer members live, the greater the true cost of future benefit obligations will be.

For many years, rates of mortality have been declining, meaning people, in general, are living longer. Consequently, we anticipate that mortality tables will need to be updated periodically. Because of potential differences in mortality, we break down our study by gender (males and females) and by status (healthy retirees, beneficiaries, disabled retirees, and active members).

Because of the substantial amount of data required to construct a mortality table, actuaries usually rely on standard tables published by the Society of Actuaries. Actuaries then use various adjustments such as age or scaling adjustments to the standard, published mortality tables in order to better match the expected trend in mortality rates of a specific group.

In 2019, the Society of Actuaries released a family of mortality tables named the Pub-2010 tables. While prior pension mortality tables have been based solely on private corporate and union retirement plans, these new tables are based entirely on public sector plan data. These tables are split by three membership types: Public Safety, Teachers, and General Employees to reflect the observed differences in mortality patterns related to the three groups. Tables are further split for healthy retirees, disabled retirees, contingent beneficiaries, and employees. There are still other breakdowns in these tables for at, above or below median annuity values. We anticipate that this family of tables will be a good starting point in developing a recommended mortality assumption.

The issue of future mortality improvement is one that the actuarial profession has become increasingly focused on studying and monitoring. This has resulted in changes to the relevant Actuarial Standard of Practice, ASOP 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*. This ASOP requires the pension actuary to make and disclose a specific recommendation with respect to future improvements in mortality after the valuation date, although it does not require that an actuary assume there will be future improvements. There have been significant improvements in longevity in the past, although there are different opinions about future expectations, and thus there is a subjective component in the estimation of future mortality improvement. We believe it is prudent to anticipate that the trend will continue to some degree in the future and that it is appropriate to reflect some future mortality improvement as part of the mortality assumption.





SECTION IV: DEMOGRAPHIC ASSUMPTIONS

There are two, widely used ways to reflect future improvements in mortality:

- (1) Static table with “margin”
- (2) Generational mortality

The first approach of reflecting mortality improvements is through the use of a static mortality table with “margin.” Under this approach, the Actual to Expected Ratio is intentionally targeted to be over 100% so that mortality can improve without creating actuarial losses over the period prior to the next experience study. In this manner, it could be expected that as mortality improves, each successive experience study will require mortality assumption changes which will have an increase to the measured liabilities.

Another approach, referred to as generational mortality, directly anticipates future improvements in mortality by using a different set of mortality rates based on each year of birth, with the rates for later years of birth assuming lower mortality than the rates for earlier years of birth. The varying mortality rates by year of birth create a series of tables that contain “built-in” mortality improvements, e.g., a member who turns age 65 in 2045 has a longer life expectancy than a member who turns age 65 in 2025. When using generational mortality, the Actual to Expected Ratios for the observed experience are set near 100% as future mortality improvements will be considered directly in the actuarial valuation process.

The generational approach is the preferred method for recognizing future mortality improvements in the valuation process because it is more direct and results in longer life expectancy for members who are younger, consistent with established trends in improved longevity. In this manner, with future mortality improvements already considered, the adjustments to the mortality assumptions in each experience study will be expected to be minor and not significantly impact the measured liabilities.

Our analysis of mortality experience uses a benefit weighted approach to tabulating the data and analyzing the experience on the basis of the impact on the liability of the System rather than the headcounts of members. Once the data is weighted, we then assess the credibility of the data using the least fluctuation credibility theory (LFCT) method to determine if the data is sufficient to establish an assumption based entirely on the experience (fully credible) or to what extent we blend the current experience with a reasonable standard table of expected mortality for the populations (partially credible).

Since the City of Norwalk’s data is not sufficiently large enough to be fully credible (there would need to be about 1,600 observed male deaths and 1,700 observed female deaths to be considered fully credible under Limited Fluctuation Credibility Theory methods), we also considered the mortality assumption used by the Connecticut Municipal Employees’ Retirement System (MERS) in our analysis. This is a much larger retirement system with significantly more mortality experience and it is reasonable to think that the City of Norwalk would have similar patterns of mortality. MERS recently completed an experience investigation for the period ending June 30, 2022.





SECTION IV: DEMOGRAPHIC ASSUMPTIONS

Reviewing the gains and losses that the City has experienced over the past four years due to mortality (from pages 26 and 27 of this report), the patterns for mortality are clearly defined as the result of the COVID-19 pandemic. In the immediate years after the pandemic, there are mortality gains due to more deaths than expected and in the most recent valuation year, there is a loss due to mortality as the plans have experienced better health. Setting a mortality assumption with this much volatility is extremely difficult so we would rather use a standard table with a simple set forward approach to be conservative with no adjustments.

The relevant mortality tables selected from that MERS study for general employees was a proposed mortality assumption based on the 2010 Pub-G Healthy Retiree Table with a one-year set forward and projected generationally with the MP-2021 improvement scale. We propose this table to be used for the City and Food Service Plan going forward.

Similar to the City and Food Services Plans, we apply a one-year set forward to the standard table to accomplish a reasonable adjustment for the proposed mortality table for the Public Safety plans. The result is the proposed mortality assumption based on the 2010 Pub-S Healthy Retiree Table with a one-year set forward and projected generationally with the MP-2021 improvement scale for the Police and Fire Plans.





SECTION IV: DEMOGRAPHIC ASSUMPTIONS

Rates of Salary Increases due to Merit and Promotional

The rates of salary increase due to merit and promotion, often called the merit scale, represent the increase in annual salaries in excess of wage inflation. The assumptions for the annual rates of salary increases are the compound rate of increase of both wage inflation and the service-based merit scale. As presented earlier in the Economic Assumptions Section of this report, we are recommending setting a wage inflation assumption of 3.00% annually. For this analysis, we relied on a building block approach to separate out the apparent merit scale at each year of service by taking the average increase in salary at each year of service less the actual price inflation and apparent real rate of wage inflation over the period.

The following tables show the Actual to Expected (A/E) ratios of total annual salary increases for each Plan.

Central Age Groups	City Plan	Food Services Plan
35	0.8314	1.1918
40	0.8178	1.4988
45	1.1982	1.8105
50	1.0709	1.6031
55	1.1454	0.0789
Total	1.0345	1.1196

Central Service Groups	Police Plan	Fire Plan
5	0.8752	1.1441
10	0.9779	1.3163
15	1.0046	1.3400
20	0.8892	1.2927
25	1.3792	1.3381
Total	1.1430	1.2987

As you can see from the tables above, the actual salary increases were more than expected for each of the four pension plans over the past four-year period. However, as stated many times in this report, we acknowledge that over the last four years, the United States has seen considerable higher increases in salaries for many citizens, especially in the public sector, as these salary increases were needed to respond to the post-pandemic increases in price inflation. **Therefore, our recommendation is to not increase the salary increase tables at this time to respond to the most recent data but review this assumption very carefully during the next experience study to see if this pattern continues.**





SECTION V: OTHER ASSUMPTIONS AND METHODS

Miscellaneous Assumptions

We recommend no modifications to the following miscellaneous assumptions:

Administrative Expenses: Estimated based on the average of administrative expenses paid from the trust over the prior 2 years rounded to the nearest \$1,000.

Spouse Age: Husbands are assumed to be three years older than their wives where spouse age is missing.

Percent Married: 70% of active members are assumed to be married.

Timing of Decrement and Pay Increases: Middle of the year

DROP Plan: For the Police Plan, 50% of active members are assumed to elect DROP at their earliest eligible age. For the Fire Plan, 33% of active members are assumed to elect DROP at their earliest eligible age.





APPENDIX A: CPI(U) INDEX

Historical June CPI (U) Index

Year	CPI (U)	Year	CPI (U)
1963	30.6	1994	148.0
1964	31.0	1995	152.5
1965	31.6	1996	156.7
1966	32.4	1997	160.3
1967	33.3	1998	163.0
1968	34.7	1999	166.2
1969	36.6	2000	172.4
1970	38.8	2001	178.0
1971	40.6	2002	179.9
1972	41.7	2003	183.7
1973	44.2	2004	189.7
1974	49.0	2005	194.5
1975	53.6	2006	202.9
1976	56.8	2007	208.352
1977	60.7	2008	218.815
1978	65.2	2009	215.693
1979	72.3	2010	217.965
1980	82.7	2011	225.722
1981	90.6	2012	229.478
1982	97.0	2013	233.504
1983	99.5	2014	238.343
1984	103.7	2015	238.638
1985	107.6	2016	241.018
1986	109.5	2017	244.955
1987	113.5	2018	251.989
1988	118.0	2019	256.143
1989	124.1	2020	257.797
1990	129.9	2021	271.696
1991	136.0	2022	296.311
1992	140.2	2023	305.109
1993	144.4		





APPENDIX B: CAPITAL MARKET ASSUMPTIONS AND ASSET ALLOCATION

The tables below and on the following page are extracted from materials from our GASB 67 reports as of June 30, 2024.

Real Rates of Return and Target Allocation by Asset Class

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Domestic Equity	35.00%	5.15%
Non-U.S. Equity	23.00	5.00
Global Equity Long/Short	4.00	5.15
Private Equity	3.00	6.25
Domestic Fixed Income	19.00	2.75
Absolute Return	6.00	3.55
Liquid Real Assets	6.00	3.50
Cash	<u>4.00</u>	0.50
Total	100.00%	





APPENDIX C: SOCIAL SECURITY ADMINISTRATION WAGE INDEX

Year	Wage Index	Annual Increase	Year	Wage Index	Annual Increase
1963	4,396.64	2.45%	1994	23,753.53	2.68%
1964	4,576.32	4.09	1995	24,705.66	4.01
1965	4,658.72	1.80	1996	25,913.90	4.89
1966	4,938.36	6.00	1997	27,426.00	5.84
1967	5,213.44	5.57	1998	28,861.44	5.23
1968	5,571.76	6.87	1999	30,469.84	5.57
1969	5,893.76	5.78	2000	32,154.82	5.53
1970	6,186.24	4.96	2001	32,921.92	2.39
1971	6,497.08	5.02	2002	33,252.09	1.00
1972	7,133.80	9.80	2003	34,064.95	2.44
1973	7,580.16	6.26	2004	35,648.55	4.65
1974	8,030.76	5.94	2005	36,952.94	3.66
1975	8,630.92	7.47	2006	38,651.41	4.60
1976	9,226.48	6.90	2007	40,405.48	4.54
1977	9,779.44	5.99	2008	41,334.97	2.30
1978	10,556.03	7.94	2009	40,711.61	(1.50)
1979	11,479.46	8.75	2010	41,673.83	2.36
1980	12,513.46	9.01	2011	42,979.61	3.13
1981	13,773.10	10.07	2012	44,321.67	3.12
1982	14,531.34	5.51	2013	44,888.16	1.28
1983	15,239.24	4.87	2014	46,481.52	3.55
1984	16,135.07	5.88	2015	48,098.63	3.48
1985	16,822.51	4.26	2016	48,642.15	1.13
1986	17,321.82	2.97	2017	50,321.89	3.45
1987	18,426.51	6.38	2018	52,145.80	3.62
1988	19,334.04	4.93	2019	54,099.99	3.75
1989	20,099.55	3.96	2020	55,628.60	2.83
1990	21,027.98	4.62	2021	60,575.07	8.89
1991	21,811.60	3.73	2022	63,795.13	5.32
1992	22,935.42	5.15	2023	66,621.80	4.43
1993	23,132.67	0.86			

