

November 15, 2022



North Dakota PERS Defined Contribution Plans

Third Quarter 2022
Executive Summary

Alex Browning

Senior Vice President

Craig Chaikin, CFA

Senior Vice President

Ben Taylor

Senior Vice President

Perry Hopper, CFA, CAIA

Assistant Vice President

Callan

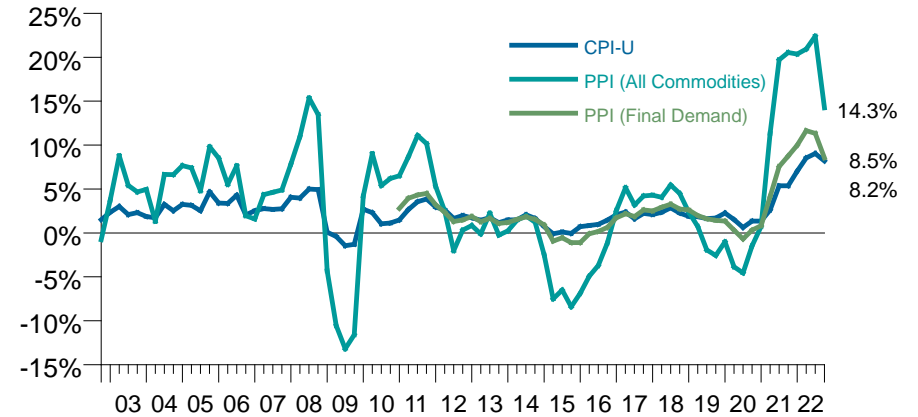
Market Update

U.S. Economy—Summary

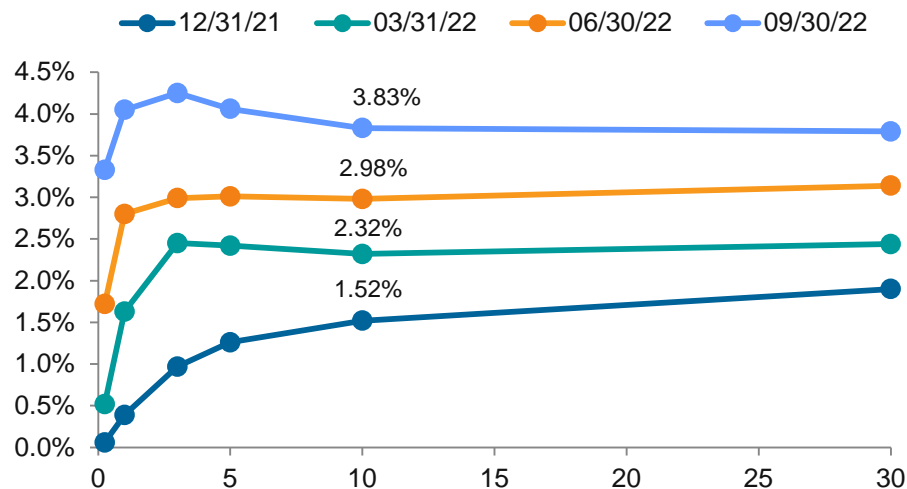
Third Quarter 2022

- After declining 0.6% in Q2, real U.S. GDP bounced back in the third quarter with an annualized growth rate of 2.6%, according to the advance estimate.
- Headline inflation remained elevated in September, climbing 8.2% year-over-year.
- The Federal Reserve made its third consecutive 75 basis point rate hike on September 21st (to a target range of 3.00–3.25%).
 - *The Fed made an additional 0.75% hike on 11/2/22.*
- The labor market continues to be a source of strength with unemployment remaining at 3.5% in September.

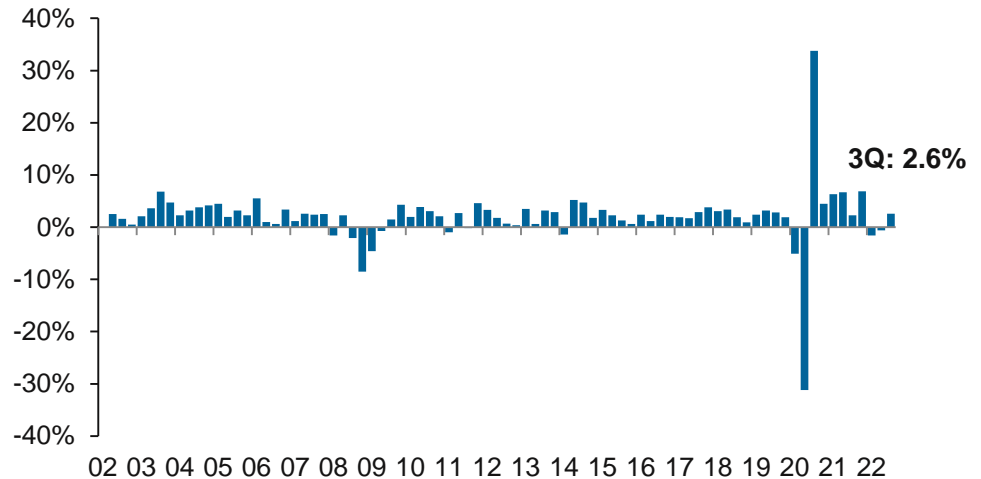
Inflation Year-Over-Year



U.S. Treasury Yield Curves



Quarterly Real GDP Growth



Sources: Bloomberg, Bureau of Labor Statistics, Callan. GDP reflective of 2Q22.

Callan Periodic Table of Investment Returns

Third Quarter 2022

Cumulative Returns Ending June 30, 2022						Monthly Returns		
Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years	Jul 2022	Aug 2022	Sep 2022
Real Estate 0.31%	Real Estate 20.96%	Real Estate 11.38%	Real Estate 9.26%	Large Cap Equity 11.40%	Large Cap Equity 11.70%	US Small-Mid 10.35%	Emerging Market Equity 0.42%	Real Estate 0.10%
High Yield -0.65%	High Yield -14.14%	Large Cap Equity 8.16%	Large Cap Equity 9.24%	Real Estate 8.87%	Real Estate 9.91%	Large Cap Equity 9.22%	Real Estate 0.10%	High Yield -3.97%
US Small-Mid -2.82%	U.S. Fixed Income -14.60%	US Small-Mid 5.36%	US Small-Mid 5.45%	US Small-Mid 8.39%	US Small-Mid 9.58%	High Yield 5.90%	High Yield -2.30%	U.S. Fixed Income -4.32%
U.S. Fixed Income -4.75%	Large Cap Equity -15.47%	High Yield -0.45%	High Yield 1.57%	High Yield 4.13%	High Yield 3.94%	Dev ex-U.S. Equity 4.97%	US Small-Mid -2.66%	Large Cap Equity -9.21%
Large Cap Equity -4.88%	US Small-Mid -21.11%	Dev ex-U.S. Equity -1.21%	U.S. Fixed Income -0.27%	Emerging Market Equity 3.88%	Dev ex-U.S. Equity 3.62%	U.S. Fixed Income 2.44%	U.S. Fixed Income -2.83%	Dev ex-U.S. Equity -9.26%
Dev ex-U.S. Equity -9.20%	Dev ex-U.S. Equity -23.91%	Emerging Market Equity -2.07%	Dev ex-U.S. Equity -0.39%	Dev ex-U.S. Equity 3.21%	Emerging Market Equity 1.05%	Real Estate 0.10%	Large Cap Equity -4.08%	US Small-Mid -9.53%
Emerging Market Equity -11.57%	Emerging Market Equity -28.11%	U.S. Fixed Income -3.26%	Emerging Market Equity -1.80%	U.S. Fixed Income 0.54%	U.S. Fixed Income 0.89%	Emerging Market Equity -0.25%	Dev ex-U.S. Equity -4.67%	Emerging Market Equity -11.72%

Sources: ● Bloomberg Barclays Aggregate ● Bloomberg Barclays Corp High Yield ● Bloomberg Barclays Global Aggregate ex US
● NCREIF ODCE Val Wtd ● MSCI World ex USA ● MSCI Emerging Markets ● Russell 2500 ● S&P 500

Callan

North Dakota PERS DC Plans

457 & 401(a) Investment Structure

Tier I: Asset Allocation	Tier II: Core	Tier III: Specialty
Target Date TIAA-CREF Lifecycle Retirement <i>5-Year Increments</i>	Capital Preservation Galliard Stable Value Vanguard Treasury MM	
Balanced TRP Capital Appreciation	Domestic Fixed Income Vanguard Total Bond Index Baird Core Plus Bond	Specialty Fixed Income MassMutual Inflation Protected PGIM High Yield Templeton Global Bond
	Large Cap U.S. Equity Franklin Growth Fund Allspring Growth Vanguard Dividend and Income Vanguard Institutional Index Hartford Dividend and Growth T. Rowe Price Equity Income	
	Mid Cap U.S. Equity PGIM Jennison Mid-Cap Growth Columbia Mid Cap Index Fund Virtus Ceredex Mid Cap Value	
	Small Cap U.S. Equity Brown Small Company Fund DFA U.S. Small Cap Northern Small Cap Value Fund	
	International Equity AF New Perspective Vanguard Total Intn'l Stock	Specialty International Equity Invesco Developing Markets
		Specialty Sector Fund Cohen & Steers Realty Shares
		Brokerage Window

Plan Performance Monitoring

As of September 30, 2022

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years
Asset Allocation Funds					
TIAA-CREF Lifecycle Ret. Inc	(4.00%)	(14.70%)	0.79%	2.25%	3.95%
LifeCycle Ret Income CB	(4.89%)	(15.19%)	1.10%	2.77%	4.18%
Callan Tgt Dt Idx 2010	(4.78%)	(14.39%)	0.72%	2.51%	3.89%
TIAA-CREF Lifecycle Ret. 2010	(3.94%)	(14.66%)	0.83%	2.30%	4.12%
LifeCycle 2010 CB	(4.78%)	(14.87%)	1.17%	2.85%	4.39%
Callan Tgt Dt Idx 2010	(4.78%)	(14.39%)	0.72%	2.51%	3.89%
TIAA-CREF Lifecycle Ret. 2015	(4.11%)	(15.17%)	1.11%	2.52%	4.47%
LifeCycle 2015 Cust Bnch	(4.98%)	(15.55%)	1.41%	3.08%	4.75%
CAI Tgt Dt Idx 2015	(4.91%)	(14.74%)	0.93%	2.69%	4.18%
TIAA-CREF Lifecycle Ret. 2020	(4.29%)	(15.89%)	1.30%	2.68%	4.85%
LifeCycle 2020 Cust Bnchm	(5.13%)	(16.16%)	1.72%	3.36%	5.23%
CAI Tgt Dt Idx 2020	(5.04%)	(15.16%)	1.32%	3.01%	4.76%
TIAA-CREF Lifecycle Ret. 2025	(4.49%)	(16.83%)	1.74%	2.99%	5.35%
LifeCycle 2025 Cust Bnch	(5.32%)	(16.87%)	2.14%	3.72%	5.80%
CAI Tgt Dt Idx 2025	(5.28%)	(15.90%)	1.91%	3.47%	5.45%
TIAA-CREF Lifecycle Ret. 2030	(4.73%)	(17.89%)	2.13%	3.28%	5.85%
LifeCycle 2030 Cust Bnch	(5.53%)	(17.67%)	2.60%	4.10%	6.39%
CAI Tgt Dt Idx 2030	(5.55%)	(16.78%)	2.46%	3.89%	6.12%
TIAA-CREF Lifecycle Ret. 2035	(5.05%)	(18.97%)	2.51%	3.53%	6.29%
LifeCycle 2035 Cust Bnch	(5.74%)	(18.48%)	3.04%	4.46%	6.95%
CAI Tgt Dt Idx 2035	(5.78%)	(17.55%)	3.01%	4.27%	6.68%
TIAA-CREF Lifecycle Ret. 2040	(5.26%)	(19.80%)	3.00%	3.83%	6.76%
LifeCycle 2040 Cust Bnch	(5.91%)	(19.09%)	3.58%	4.85%	7.53%
CAI Tgt Dt Idx 2040	(5.99%)	(18.23%)	3.36%	4.51%	7.04%
TIAA-CREF Lifecycle Ret. 2045	(5.48%)	(20.54%)	3.51%	4.08%	7.06%
LifeCycle 2045 Cust Bnch	(6.05%)	(19.59%)	4.16%	5.21%	7.91%
CAI Tgt Dt Idx 2045	(6.15%)	(18.70%)	3.59%	4.66%	7.24%
TIAA-CREF Lifecycle Ret. 2050	(5.55%)	(20.84%)	3.54%	4.11%	7.12%
LifeCycle 2050 Cust Bnch	(6.13%)	(19.88%)	4.22%	5.26%	8.00%
CAI Tgt Dt Idx 2050	(6.24%)	(18.99%)	3.64%	4.69%	7.31%
TIAA-CREF Lifecycle Ret. 2055	(5.63%)	(20.97%)	3.58%	4.13%	7.18%
LifeCycle 2055 Cust Bnch	(6.15%)	(19.96%)	4.31%	5.32%	8.09%
CAI Tgt Dt Idx 2055	(6.28%)	(19.10%)	3.66%	4.70%	7.34%
TIAA-CREF Lifecycle Ret. 2060	(5.66%)	(21.02%)	3.69%	4.20%	7.26%
LifeCycle 2060 Cust Bnch	(6.17%)	(20.04%)	4.39%	5.38%	8.19%
Callan Tgt Dt Idx 2055	(6.28%)	(19.10%)	3.66%	4.70%	7.34%
T. Rowe Capital Appreciation Adv	(2.66%)	(11.75%)	6.94%	8.27%	9.39%
S&P 500 Index	(4.88%)	(15.47%)	8.16%	9.24%	11.40%

Plan Performance Monitoring

As of September 30, 2022

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years
Large Cap U.S. Equity					
Franklin Growth Fund Advisor S&P 500 Index	(4.47%) (4.88%)	(23.64%) (15.47%)	6.68% 8.16%	8.86% 9.24%	11.14% 11.40%
Wells Fargo Growth Adm Russell 3000 Growth Index	(5.12%) (3.37%)	(38.34%) (23.01%)	2.58% 10.16%	7.92% 11.57%	10.04% 13.28%
Vanguard Dividend Growth Inv S&P 500 Index	(5.50%) (4.88%)	(6.18%) (15.47%)	7.15% 8.16%	10.27% 9.24%	11.30% 11.40%
Vanguard Institutional Index S&P 500 Index	(4.89%) (4.88%)	(15.50%) (15.47%)	8.14% 8.16%	9.21% 9.24%	11.38% 11.40%
Hartford Dividend and Growth R5 S&P 500 Index	(6.72%) (4.88%)	(9.30%) (15.47%)	7.66% 8.16%	8.35% 9.24%	10.62% 11.40%
T. Rowe Price Equity Income Russell 1000 Value Index	(6.47%) (5.62%)	(8.16%) (11.36%)	5.28% 4.36%	5.72% 5.29%	9.05% 8.15%
Mid Cap U.S. Equity					
PGIM Jennison Mid-Cap Growth Z Russell MidCap Growth Idx	(0.93%) (0.65%)	(27.28%) (29.50%)	6.01% 4.26%	8.29% 7.62%	9.24% 9.54%
Columbia Mid Cap Index Fund A S&P Mid Cap 400 Index	(2.60%) (2.46%)	(15.61%) (15.25%)	5.51% 6.01%	5.32% 5.82%	8.23% 8.74%
Virtus Ceredex Mid-Cap Value I Russell MidCap Value Idx	(4.83%) (4.93%)	(15.57%) (13.56%)	1.89% 4.50%	4.71% 4.76%	7.93% 7.66%
Small Cap U.S. Equity					
Brown Small Company Fund Investor Russell 2000 Growth Index	(2.73%) 0.24%	(35.58%) (29.27%)	(2.39%) 2.94%	3.79% 3.60%	8.26% 7.12%
DFA U.S. Small Cap Inst'l Russell 2000 Index	(3.23%) (2.19%)	(15.66%) (23.50%)	7.34% 4.29%	4.59% 3.55%	7.93% 7.51%
Northern Small Cap Value Fund Russell 2000 Value Index	(3.66%) (4.61%)	(12.73%) (17.69%)	2.36% 4.72%	1.45% 2.87%	5.76% 7.42%
Non-U.S. Equity					
AF New Perspective R4 MSCI ACWI	(6.12%) (6.82%)	(27.08%) (20.66%)	5.70% 3.75%	6.55% 4.44%	9.09% 7.42%
Vanguard Total Int'l Stock Adm FTSE GI All Cap ex US Idx	(10.51%) (9.66%)	(25.21%) (25.20%)	(1.18%) (0.93%)	(0.70%) (0.50%)	3.39% 3.58%
Invesco Developing Markets Y MSCI EM	(9.79%) (11.57%)	(35.38%) (28.11%)	(6.36%) (2.07%)	(3.32%) (1.80%)	2.86% 3.88%

Plan Performance Monitoring

As of September 30, 2022

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years
Fixed Income					
Vanguard Total Bond Index Adm	(4.65%)	(14.66%)	(3.27%)	(0.26%)	0.54%
Blmbg:Aggregate Flt Adj	(4.68%)	(14.61%)	(3.22%)	(0.23%)	0.59%
Baird Core Plus Bond Investor	(4.41%)	(15.31%)	(2.95%)	(0.09%)	1.00%
Blmbg:Univ ersal	(4.45%)	(14.92%)	(3.11%)	(0.18%)	0.86%
MM Premier InfI-Pr and Inc Srv c	(5.00%)	(12.51%)	0.56%	1.73%	2.12%
Blmbg:TIPS	(5.14%)	(11.57%)	0.79%	1.95%	2.21%
PGIM High Yield Fund Z	(1.42%)	(14.21%)	(0.45%)	1.95%	4.25%
Blmbg:HY Corp 1% Iss Cap	(0.61%)	(14.11%)	(0.61%)	1.45%	4.02%
Templeton Global Bond Advisor	(7.03%)	(13.74%)	(7.06%)	(4.50%)	(1.42%)
FTSE WGBI	(7.61%)	(22.14%)	(7.03%)	(3.07%)	(1.29%)
Capital Preservation					
Wells Fargo Stable Value J	0.38%	1.27%	1.40%	1.63%	1.45%
3-month Treasury Bill	0.46%	0.62%	0.59%	1.15%	0.95%
Vanguard Treasury MM Inv	0.47%	0.64%	0.52%	1.06%	0.87%
3-month Treasury Bill	0.46%	0.62%	0.59%	1.15%	0.95%
Sector Funds					
Cohen & Steers Realty Shares	(11.02%)	(16.06%)	0.14%	5.61%	6.52%
FTSE NAREIT All Eq Index	(10.83%)	(16.27%)	(1.10%)	4.10%	6.13%

Plan Investment Fees

As of September 30, 2022

Asset Class and Strategy	Ticker	Total Annual Operating Expense Ratio (Peer Ranking*)	Revenue Sharing %	Callan Peer Group Median**
Asset Allocation Funds				
TIAA-CREF Lifecycle Ret. Inc	TLIRX	0.62% ⁽²⁰⁾	0.25%	0.52%
TIAA-CREF Lifecycle Ret. 2010	TCLEX	0.62% ⁽¹⁹⁾	0.25%	0.44%
TIAA-CREF Lifecycle Ret. 2015	TCLIX	0.63% ⁽²⁰⁾	0.25%	0.50%
TIAA-CREF Lifecycle Ret. 2020	TCLTX	0.64% ⁽²⁰⁾	0.25%	0.51%
TIAA-CREF Lifecycle Ret. 2025	TCLFX	0.66% ⁽²⁰⁾	0.25%	0.53%
TIAA-CREF Lifecycle Ret. 2030	TCLNX	0.67% ⁽²⁰⁾	0.25%	0.54%
TIAA-CREF Lifecycle Ret. 2035	TCLRX	0.68% ⁽²⁰⁾	0.25%	0.55%
TIAA-CREF Lifecycle Ret. 2040	TCLOX	0.69% ⁽²⁰⁾	0.25%	0.55%
TIAA-CREF Lifecycle Ret. 2045	TFFRX	0.70% ⁽²⁷⁾	0.25%	0.57%
TIAA-CREF Lifecycle Ret. 2050	TLFRX	0.70% ⁽²⁰⁾	0.25%	0.56%
TIAA-CREF Lifecycle Ret. 2055	TTRLX	0.70% ⁽²⁷⁾	0.25%	0.55%
TIAA-CREF Lifecycle Ret. 2060	TLXRX	0.70% ⁽²⁰⁾	0.25%	0.58%
TIAA-CREF Lifecycle Ret. 2065	TSFRX	0.70%	0.25%	-
T. Rowe Capital Appreciation Adv	PACLX	0.97% ⁽¹⁰⁾	0.40%	0.70%
U.S. Equity				
Large Cap U.S. Equity				
Franklin Growth Fund Advisor	FCGAX	0.54% ⁽²⁰⁾	0.25%	0.74%
Wells Fargo Growth Adm	SGRFX	0.96% ⁽¹¹⁾	0.35%	0.74%
Vanguard Dividend Growth Inv	VDIGX	0.27% ⁽²⁴⁾	0.00%	0.63%
Vanguard Institutional Index	VINIX	0.04% ⁽²⁰⁾	0.00%	0.63%
Hartford Dividend and Growth R5	HDGTX	0.73% ⁽⁴⁵⁾	0.10%	0.70%
T. Rowe Price Equity Income	PRFDX	0.63% ⁽²⁰⁾	0.15%	0.70%
Mid Cap U.S. Equity				
PGIM Jennison Mid-Cap Growth Z	PEGZX	0.70% ⁽²⁴⁾	0.25%	0.84%
Columbia Mid Cap Index Fund A	NTIAX	0.45% ⁽²⁰⁾	0.35%	0.85%
Virtus Ceredex Mid-Cap Value I	SMVTX	0.99% ⁽¹⁴⁾	0.35%	0.85%
Small Cap U.S. Equity				
Brown Small Compay Fund Investor	BCSIX	1.25% ⁽⁷⁾	0.20%	0.96%
DFA U.S. Small Cap Inst'l	DFSTX	0.27% ⁽¹⁰⁰⁾	0.00%	0.95%
Northern Small Cap Value Fund	NOSGX	1.00% ⁽²⁴⁾	0.25%	0.93%
Non-U.S. Equity				
AF New Perspective R4	RNPEX	0.76% ⁽⁷⁵⁾	0.35%	0.87%
Vanguard Total Int'l Stock Adm	VTIAX	0.11% ⁽²⁰⁾	0.00%	0.86%
Invesco Developing Markets Y	ODVYX	0.95% ⁽²⁰⁾	0.25%	1.15%
Fixed Income				
Vanguard Total Bond Index Adm	VBTLX	0.05% ⁽²⁰⁾	0.00%	0.44%
Baird Core Plus Bond Investor	BCOSX	0.55% ⁽²⁰⁾	0.28%	0.48%
MM Premier Infl-Pr and Inc Srvc	MIPYX	0.67% ⁽²¹⁾	0.25%	0.45%
PGIM High Yield Fund Z	PHYZX	0.50% ⁽²²⁾	0.25%	0.68%
Templeton Global Bond Advisor	TGBAX	0.72% ⁽²⁷⁾	0.25%	0.62%
Capital Preservation				
Wells Fargo Stable Value J	CIT	-	0.50%	0.57%
Vanguard Treasury MM Inv	VUSXX	0.09% ⁽²⁰⁾	0.00%	0.15%
Sector Funds				
Cohen & Steers Realty Shares	CSRSX	0.88% ⁽²⁰⁾	0.25%	0.84%

Fees for Stable Value funds are supplied by the manager. Fee information is provided by the recordkeeper. This data is not audited by Callan.

* A higher peer group ranking is more favorable.

** The peer group median is for the total annual operating expense ratio. Funds in the peer group may or may not contain revenue sharing.

Active Managers On Watch

As of September 30, 2022

Templeton Global Bond:

- Templeton has experienced a decline in assets that is worth monitoring
- The manager has underperformed its benchmark over the trailing three, five, and seven-year periods
- The fund has experienced turnover at the analyst level
- Global Fixed Income as a strategy in the fixed income line-up being reviewed as part of the investment structure analysis

Allspring Growth

- Allspring Growth was added to the watch list in 4Q21 as a result of the organizational structure change.
- Wells Fargo announced the sale of Wells Fargo Asset Management to private equity firms GTCR and Reverence Capital in 2021. The change in firm ownership warrants monitoring as the investment team assimilates to the new ownership structure.
- Additionally, performance has struggled relative to the benchmark and peer median.