INVESTMENT COMMENTARY

The year 2022 may be remembered as "The Great Inflation", but the 4th quarter of 2022 provided a more positive end to an otherwise brutal calendar year. Geopolitical concerns persist, but Ukraine appears to have gone on the offensive against Russia and, despite legacy Covid concerns, China seems to have pivoted from their stringent "zero-Covid" policies in response to local public protests. Meanwhile, US investors have not forgiven nor forgotten Chairman Powell's "transitory" pivot talk, as the markets shrugged off the Fed's elevated inflation and interest rate outlooks. The FOMC met two times during the fourth quarter delivering an historic fourth consecutive 75 basis point rate hike in November, followed by another 50 basis point hike in December, increasing the target funds rate to 4.25 to 4.50%. Additionally, Chairman Powell confirmed the Fed's monthly quantitative tightening program continues to reduce the Fed balance sheet by $95 billion per month. The December FOMC statement opened consistent with the previous meetings; "Recent indicators point to modest growth in spending and production. Job gains have been robust in recent months, and the unemployment rate has remained low. Inflation remains elevated, reflecting supply and demand imbalances related to the pandemic, higher food and energy prices, and broader price pressures." U.S. Real Gross Domestic Product (GDP) increased at an annual rate of +3.2% during the third quarter of 2022, while nominal U.S. GDP (not adjusted for inflation) came in at +9.23% for the same period. The Conference Board forecasted on December 14, 2022, that 2022 Real GDP growth will come in at 1.9% year-over-year and that 2023 growth will slow to 0% year-over-year. Inflation, as measured by the U.S. Consumer Price Index (CPI), rose by 7.1% in November. The Bureau of Labor Statistics (BLS) reported the unemployment rate decreased slightly in December to 3.5%, while the U-6 measure of total unemployed remained at 6.4%, well below its 10.3% historical average. The Conference Board Consumer Confidence Index ended December at 108.3, up sharply from 101.4 in November.

The S&P 500 returned +7.56% in the 4th quarter but remained deep in negative territory (-18.11%) for 2022. The tech-heavy NASDAQ 100 almost made it into positive return territory (-0.04%) in the 4th quarter but lost nearly one-third of its value (-32.38%) in 2022. The Bloomberg U.S. Aggregate Index generated a positive return in the quarter (+1.87%); however, the index's (-13.01%) annual return in 2022 represents the worst year in Index history dating back to 1976. Additionally, the benchmark 10-year Treasury endured its worst year ever (-17.83) in 2022, producing a double-digit negative return for only the second time in history. Credit spreads widened modestly, as interest rates rose across the curve. The yield inversion between 2- and 10-year Treasuries widened an additional 10 bps to -55 bps. The 2-year Treasury yield increased 15 bps to 4.43%, while the 10-year Treasury yield edged up 5 bps to finish the quarter at 3.88%. For the quarter Treasuries returned +0.72%. Investment grade (IG) corporate bonds reversed their recent performance and were the top performing investment grade sector, returning +3.63%. U.S. High Yield Corporate Bonds continued to outperform investment grade bonds and returned +4.17%. All other sectors generated positive quarterly returns including U.S. Agency Securities (+1.86%), Government-Related Credit (+2.24%), Mortgage-backed Securities (+2.14%), Commercial MBS (+1.02%) and Asset-backed Securities (+0.81%).

We believe the question today is not whether the U.S. is heading for an economic contraction or will the NBER declare a recession, but rather will the pending contraction look/feel like the Fed's "soft landing" or something more severe? The predominant threat to Global economic growth remains post-pandemic inflation, with OECD nations reporting double-digit year-over-year inflation that continues to significantly erode purchasing power. In 2023 we anticipate Covid-related factors will continue to dissipate, and post-Covid consumption patterns will normalize from goods-driven to service-oriented, mitigating the impact of supply-chain disruptions on global inflation. However, we believe the Fed's 2% inflation target would be difficult to achieve with an economic "soft-landing". We believe there are numerous sticky global inflationary factors that will elevate secular U.S. inflation levels above the 2% target. The Fed's 2022 monetary policy delivered seven successive rate hikes (425 bps) since March in addition to monthly Quantitative Tightening beginning in June, which has successfully halted the rise in U.S. inflation. 2022 monetary policy soaked up most of the excess fiscal stimulus and managed to deflate asset bubbles in the housing market, tech stocks, and cryptocurrency, while strengthening the US

dollar, which added to the global economic slowdown. However, with 3.5% unemployment and roughly 1.7 job openings for every unemployed, wage inflation is running ahead of the Fed's control, specifically in the non-housing core services sector, which is 55% of the PCE Index. With wage inflation climbing at 5%+ and productivity growing at approximately 1%, we believe we have a way to go to achieve the 2% inflation target or "real" GDP growth.

Throughout PIA's multi-decade firm history, we have rarely had the benefit of more reliable indicators pointing toward the probability of a future recession. The inversion of the 3-month to 10-year Treasury yield curve has flawlessly predicted future recessions with a 100% historical correlation, and the yield curve has been inverted since late October 2022. The Composite Index for Leading Economic Indicators (LEI) historically has deteriorated only when preceding a recession, and the LEI has declined steadily since May 2021. The ISM Purchasing Managers Index (PMI) is a key LEI component for predicting economic expansion/contraction and is now at its lowest level since early 2016. Additionally, there are strong anecdotal indications of a future recession. Ten of the last thirteen rate hike cycles have resulted in recession, and current monetary policy is battling 40+ year inflation levels and M2 money supply that peaked at $21.7 trillion in March 2022. At the same time, U.S. households and corporate balance sheets are unusually healthy for this stage in an economic/monetary cycle. We believe the Fed will need to hold a funds terminal rate of no less than 5.25% for no less than 6-12 months to get inflation down to/below the 3% level. However, we believe there are multiple paths to dampen financial conditions and constrict inflation. PIA also looks at the San Francisco Fed Proxy funds rate, which is intended to measure overall financial market conditions, considering the impact of the Fed's balance sheet and forward guidance in addition to the Fed funds rate. The Fed Proxy rate suggests that financial conditions are substantially tighter than the current Fed funds rate would portend, similar to what would be expected if the Funds rate exceeded 6% by January 2023. Lastly, a deepening recession beyond our current expectations could provide a path to 5%+ unemployment but closer to the 2% inflation target.

In the fourth quarter, we maintained our portfolio duration modestly short relative to our respective benchmarks. We continue to overweight corporate debt, with a focus on high quality credits with strong balance sheets. Our Industrial credits provide incremental risk-adjusted yield, and our Financials are senior domestic debt, which we believe offer attractive compensation for their sector volatility. In our Plus strategies, we maintained our high yield credit exposure, as these spreads continue to offer relative value. Our portfolios remained underweight Agency MBS, but we continue to evaluate opportunities in the sector, with mortgage rates increasing as the Fed continues their quantitative tightening program.

PIA Investment Strategy Group

KEY RATES

	12/31/22	9/30/22	12/31/21
Fed Funds Target Rate	4.25-4.5%	3.0-3.25%	0.0-0.25%
3 Month LIBOR	4.77	3.75	0.21
On-the-run Treasuries:			
3 Months	4.34	3.25	0.03
6 Months	4.75	3.90	0.18
2 Years	4.43	4.28	0.73
5 Years	4.00	4.09	1.26
10 Years	3.88	3.83	1.51
30 Years	3.96	3.78	1.90

Source: Bloomberg

KEY ECONOMIC INDICATORS

as of	12/31/22	12/31/21
U.S. $ (DXY)	103.5	95.7
Oil	80.3	77.0
Gold	1,824.0	1,829.2
CRB	277.70	232.4
GDP	3.2	7.0
CPI	7.1	7.0
Core (Ex - Food & Energy)	4.7	5.0
Unemployment Rate	3.7	3.9
Consumer Confidence	108.3	115.2
S&P/Case-Shiller – Comp-20	8.6	18.5

Source: Bloomberg

INDEX RETURNS

	4Q'22	YTD	1-Year
Bloomberg –			
Universal	2.24%	-12.99%	-12.99%
Aggregate	1.87	-13.01	-13.01
Gov-Credit	1.80	-13.58	-13.58
Int. Gov-Credit	1.54	-8.23	-8.23
Corporate	3.63	-15.76	-15.76
Treasury only	0.72	-12.46	-12.46
1-3 year Gov	0.73	-3.81	-3.81
ICE BofA – 1-yr T-Note	0.76	-1.02	-1.02
High Yield	4.17	-11.19	-11.19
Global Aggregate	4.55	-16.25	-16.25
Emerging Markets Debt	6.59	-15.26	-15.26
S&P 500	7.56	-18.11	-18.11
DJIA	16.01	-6.86	-6.86
NASDAQ 100	-0.04	-32.38	-32.38
MSCI EAFE	17.40	-13.92	-13.92

Source: Bloomberg

SECTOR RETURNS

4Q'22	Total Return	Excess Return
U.S. Treasuries	0.72%	0.00%
Government-related U.S. Agency	1.86	1.01
Government-related Credit	2.24	1.40
Corporate	3.63	2.89
Corporate Financials	3.23	2.29
Corporate Industrials	3.85	3.18
Corporate Utilities	3.80	3.26
Corporate AAA-rated	2.56	2.47
Corporate AA-rated	2.80	2.34
Corporate A-rated	3.31	2.55
Corporate BBB-rated	4.07	3.27
Corporate High-Yield	4.17	3.06
Mortgage-backed Securities-FR	2.14	1.06
CMBS	1.02	-0.10
ABS	0.81	-0.20

Source: Bloomberg

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BENCHMARK DESCRIPTION

Bloomberg U.S. Universal Index represents the union of the U.S. Aggregate Index, U.S. Corporate High-Yield Index, Investment-Grade 144A Index, Eurodollar Index, U.S. Emerging Markets Index, and the non-ERISA eligible portion of the CMBS Index. The index covers USD-denominated, taxable bonds that are rated either investment-grade or below investment-grade. Some U.S. Universal Index constituents may be eligible for one or more of its contributing subcomponents that are not mutually exclusive. These securities are not double-counted in the index. You can not invest directly in an index.

Bloomberg U.S. Aggregate Bond Index is an unmanaged index that covers the investment grade fixed rate bond market with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities. The issues must be rated investment grade, be publicly traded, and meet certain maturity and issue size requirements. You can not invest directly in an index.

Bloomberg U.S. Aggregate Ex-Credit Index (LB Agg (Ex-Credit)) The index covers the U.S. investment grade fixed rate bond market, with index components for government, mortgage pass-through securities, and asset-backed securities. These major sectors are subdivided into more specific indices that are calculated and reported on a regular basis. You can not invest directly in an index.

Bloomberg U.S. Government/Credit Bond Index includes securities in the Government and Credit Indices. The Government Index includes treasuries (i.e., public obligations of the U.S. Treasury that have remaining maturities of more than one year) and agencies (i.e., publicly issued debt of U.S. Government agencies, quasi-federal corporations, and corporate or foreign debt guaranteed by the U.S. Government). The Credit Index includes publicly issued U.S. corporate and foreign debentures and secured notes that meet specified maturity, liquidity, and quality requirements. You can not invest directly in an index.

Bloomberg U.S. Intermediate Government/Credit Bond Index is the Intermediate component of the U.S. Government/Credit index. The Government/Credit Index includes securities in the Government and Credit Indices. The Government Index includes treasuries (i.e., public obligations of the U.S. Treasury that have remaining maturities of more than one year) and agencies (i.e., publicly issued debt of U.S. Government agencies, quasi-federal corporations, and corporate or foreign debt guaranteed by the U.S. Government). The Credit Index includes publicly issued U.S. corporate and foreign debentures and secured notes that meet specified maturity, liquidity, and quality requirements. You can not invest directly in an index.

Bloomberg U.S. 1-3 Year Government Bond Index consist of securities in the U.S. Government Index with a maturity from 1 up to (but not including) 3 years. Securities issued by the U.S. Government (i.e., securities in the Treasury and Agency Indices). Inclusions: Public obligations of the U.S. Treasury with a remaining maturity of one year or more. Publicly issued debt of U.S. Government agencies, quasi-federal corporations, and corporate or foreign debt guaranteed by the U.S. Government. You can not invest directly in an index.

Bloomberg U.S. Treasury Index includes public obligations of the U.S. Treasury. Treasury bills are excluded by the maturity constraint but are part of a separate Short Treasury Index. In addition, certain special issues, such as state and local government series bonds (SLGs), as well as U.S. Treasury TIPS, are excluded. STRIPS are excluded from the index because their inclusion would result in double-counting. Securities in the Index roll up to the U.S. Aggregate, U.S. Universal, and Global Aggregate Indices. You can not invest directly in an index.

Bloomberg U.S. Corporate Bond Index covers USD-denominated, investment-grade, fixed-rate, taxable securities sold by industrial, utility, and financial issuers. It includes publicly issued U.S. corporate debentures and secured notes that meet specific maturity, liquidity, and quality requirements. Securities in the index roll up to the U.S. Credit and U.S. Aggregate indices. The U.S. Corporate Index was launched on January 1, 1973. You can not invest directly in an index.

ICE BofA 1-Year US Treasury Note Index is comprised of a single issue purchased at the beginning of the month and held for a full month. At the end of the month that issue is sold and rolled into a newly selected issue. The issue selected at each month-end rebalancing is the outstanding Treasury note that matures closest to, but not beyond, one year from the rebalancing date. To qualify for selection, an issue must have settled on or before the month-end rebalancing date. You can not invest directly in an index.

Bloomberg Corporate U.S. High Yield Index - covers the universe of fixed rate, non-investment grade debt. Eurobonds and debt issues from countries designated as emerging markets (e.g., Argentina, Brazil, Venezuela, etc.) are excluded, but Canadian and global bonds (SEC registered) of issuers in non-EMG countries are included. Original issue zeroes, step-up coupon structures, 144-As and pay-in-kind bonds (PIKs, as of October 1, 2009) are also included. The index includes both corporate and non-corporate sectors. The corporate sectors are Industrial, Utility, and Finance, which include both U.S. and non-U.S. corporations. The Yankee sector has been discontinued as of 7/1/00. The bonds in the former Yankee sector have not been removed from the index, but have been reclassified into other sectors. You cannot invest directly in an index.

Bloomberg Global Aggregate Index provides a broad-based measure of the global investment-grade fixed-rate debt markets. The Global Aggregate Index contains three major components: the U.S. Aggregate Index (USD 300 million), the Pan-European Aggregate Index (EUR 300 million), and the Asian-Pacific Aggregate Index (JPY 35 billion). In addition to securities from these three benchmarks (94.4% of the overall Global Aggregate market value), the Global Aggregate Index includes Global Treasury, Eurodollar (USD 300 million), Euro-Yen (JPY 35 billion), Canadian (CAD 300 million), and Investment-Grade 144A (USD 300 million) index-eligible securities not already in the three regional aggregate indices. The Global Aggregate Index family includes a wide range of standard and customized subindices by liquidity constraint, sector, quality, and maturity. The Global Aggregate Index is a component of the Multiverse Index. You can not invest directly in an index.

Bloomberg Global Emerging Markets Index consists of the fixed and floating-rate USD-denominated U.S. Emerging Markets Index and the primarily EUR and GBP-denominated fixed-rate Pan-European Emerging Markets Index and includes emerging markets debt from the following regions: Americas, Europe, Asia, Middle East, and Africa. For the index, an emerging market is defined as any country that has a long term foreign currency debt sovereign rating of Baa1/BBB+/BBB+ or below using the middle rating of Moody's, S&P, and Fitch. The index does not overlap with the U.S. Corporate High-Yield Index or the Pan Euro Corporate High-Yield Index, but may overlap with other investment-grade Aggregate Indices if the securities meet their index eligibility rules. You can not invest directly in an index.

S&P 500 Index – The S&P 500 index includes 500 leading companies in leading industries of the U.S. economy. The S&P 500 is designed to be a leading indicator of U.S. equities and is meant to reflect the risk/return characteristics of the large cap universe. You can not invest directly in an index.

The NASDAQ-100 Index is a modified capitalization-weighted index of the 100 largest and most active non-financial domestic and international issues listed on the NASDAQ. No security can have more than a 24% weighting. The index was developed with a base value of 125 as of February1, 1985. Prior to December 21, 1998 the Nasdaq 100 was a cap-weighted index. You can not invest directly in an index.

The Dow Jones Industrial Average (DJIA) is an index used to measure the performance of the U.S. financial markets. Introduced on May 26, 1896 by Charles H. Dow, it is the oldest stock price measure in continuous use. Over the past century "the Dow" has become the most widely recognized stock market indication in the U.S. and probably in the entire world. Most of the stocks included in the index are listed on the New York Stock Exchange, and are all large blue-chip companies that reflect the health of the U.S. economy. All but a handful of these have major business operations throughout the world, thus providing some insight into the economic well-being of the global economy. You can not invest directly in an index.

MSCI EAFE Index is a capitalization weighted index that monitors the performance of stocks from Europe, Australiasia, and the Far East. You can not invest directly in an index.

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