#### Agenda

#### Marin County Employees' Retirement Association (MCERA) Retirement Board Strategic Workshop

#### One McInnis Parkway, First Floor San Rafael, CA May 16-17, 2022

This meeting will be held via videoconference pursuant to MCERA Board of Retirement Resolution 2021-22/01, which invoked Government Code section 54953(e) for all MCERA Board and standing committee meetings through June 3, 2022.

Instructions for watching the meeting and/or providing public comment, as well as the links for access, are available on the <u>How to Watch Meetings</u> page of MCERA's website. Please visit <u>https://www.mcera.org/retirementboard/agendas-minutes/watchmeetings</u> for more information.

The Board of Retirement encourages a respectful presentation of public views to the Board. The Board, staff and public are expected to be polite and courteous, and refrain from questioning the character or motives of others. Please help create an atmosphere of respect during Board meetings.

Please note that the times certain provided for agenda items herein are estimates only, and that scheduled items may last longer, or shorter, than stated herein. Agendized topics will not commence earlier than as stated on the agenda; however, they may start later than is agendized.

#### Day 1 May 16, 2022

#### Meeting Chair Stephen Silberstein

9:00 a.m. Call to Order/Roll Call

#### **Open Time for Public Expression**

Open time for public expression, from three to five minutes per speaker, on items not on the Board Agenda. While members of the public are welcome to address the Board during this time on matters within the Board's jurisdiction, except as otherwise permitted by the Ralph M. Brown Act (Government Code Sections 54950 et seq.), no deliberation or action may be taken by the Board concerning a non-agenda item. Members of the Board may (1) briefly respond to statements made or questions posed by persons addressing the Board, (2) ask a question for clarification, or (3) provide a reference to staff for factual information.

9:00 a.m. – 10:00 a.m. **China Investment Considerations** Dr. Robert Spalding, Author and Former U.S. Air Force Brigadier General (Ret.) 10:00 a.m. – 11:00 a.m. **Inflation: A Historical Perspective and Looking Forward** Jay Kloepfer, Executive Vice President, Head of Capital Markets Research, Callan LLC

11:00 a.m. – 12:00 p.m. **COVID-19 Mortality Impacts and Projections** Graham Schmidt, ASA, FCA, MAAA, EA Consulting Actuary, Cheiron

12:00 p.m. – 1:15 p.m. Lunch Break

1:15 p.m. – 2:15 p.m. **Tail Risk Hedging** Mark Spitznagel, Chief Investment Officer Brandon Yarckin, Chief Operating Officer Ron Lagnado PhD, Director, Research Universa Investments L.P.

2:15 p.m. – 2:30 p.m. Closing and Follow-up Items from Today's Agenda

> Day 2 May 17, 2022

9:00 a.m. Call to Order/Roll Call

#### **Open Time for Public Expression**

#### **TOPIC OF GENERAL INTEREST**

Reconsideration of State of Emergency conditions under Assembly Bill (AB) 361 (ACTION) Reconsider and take possible action to invoke Government Code section 54953(e), and to extend MCERA Resolution 2021/22-01 Authorizing Teleconferencing for Board and Standing Committee Meetings through June 16, 2022, because at least one of the following circumstances exists:

- 1. The State of Emergency proclaimed remains in effect and continues to directly impact the ability of the members to meet safely in person; or
- 2. State or local officials continue to impose or recommend measures to promote social distancing.

9:00 a.m. – 10:00 a.m. **Meet MCERA Members** Michelle Hardesty, Assistant Retirement Administrator Syd Fowler, Department Analyst 10:00 a.m. – 11:00 a.m. **MCERA Retiree Population by Geography and Economic Impact** Michelle Hardesty, Assistant Retirement Administrator Syd Fowler, Department Analyst

#### Closing and Follow-up Items from Today's Agenda

11:00 a.m. – 11:30 a.m.

**Note on Process:** Items designated for information are appropriate for Board action if the Board wishes to take action. Any agenda item from a properly noticed Committee meeting held prior to this Board meeting may be considered by the Board.

**Note on Voting:** As provided by statute, the Alternate Safety Member votes in the absence of the Elected General or Safety Member, and in the absence of both the Retired and Alternate Retired Members. The Alternate Retired Member votes in the absence of the Elected Retired Member. If both Elected General Members, or the Safety Member and an Elected General Member, are absent, then the Elected Alternate Retired Member may vote in place of one absent Elected General Member.



Agenda material is provided upon request. Requests may be submitted by email to <u>MCERABoard@marincounty.org</u>, or by phone at (415) 473-6147.

MCERA is committed to assuring that its public meetings are accessible to persons with disabilities. If you are a person with a disability and require an accommodation to participate in a County program, service, or activity, requests may be made by calling (415) 473-4381 (Voice), Dial 711 for CA Relay, or by email at least five business days in advance of the event. We will do our best to fulfill requests received with less than five business days' notice. Copies of documents are available in alternative formats upon request.

The agenda is available on the Internet at <u>http://www.mcera.org</u>

#### **China Investment Considerations**

This is a discussion with no backup.

## Callan



May 16, 2022

Inflation: A Historical Perspective and Looking Forward

**Jay Kloepfer** Capital Markets Research



**Historical Background** 

## History of CPI: CPI vs. PCE

The two most common measures of inflation are the Consumer Price Index (CPI) and the Personal Consumption Expenditures Index (PCE).

CPI is well known as it is the measure used to adjust social security, and a reference rate for financial contracts, such as TIPS.

PCE, on the other hand, is the preferred measure of the Federal Reserve, which references PCE in its stated inflations goals.

In general, CPI tends to report higher inflation. Why?

- Index weights are not the same. CPI is based on a survey of what households are buying, while PCE is based on a survey of what businesses are selling.
- Coverage or scope is not the same. CPI only covers out of pocket expenditures on goods and services, while PCE includes expenditures that are not paid for directly, such as employer provided insurance.
- Accounting for changes (formula) is not the same. PCE attempts to account for changes in spending in response to prices, while CPI tends to be more static.



## **History of CPI: Components**



#### CPI Component Weights by Decade + Latest Revision

The CPI component weights represent high-level categories made up of may subcomponents.

- As the CPI calculation has changed some subcomponents may have been shifted around.
  - For example, education used to be counted as part of "other goods and services".

Weight changes have been modest but there is a noticeable downward trend in food and beverages with much of the weight going toward housing.

The following slides show the year-over year (YoY) inflation of each of these components as well as the weighted contribution to inflation.

In general we saw that food and beverages, housing, and transportation are the primary contributors to inflation across time.

- Transportation includes the cost of fuel and the volatility of the component reflects that fact.
- The primary component of housing is shelter which is measured by the cost of rent for renter-occupied housing and what the cost of rent would be if homeowners rented out their homes.

#### History of CPI: YoY Inflation by Component (Jan 1968 – Mar 2022)



Callan

Medical care

--- Recreation

Education and communication --- Other goods and services

### History of CPI: Weighted Contribution to CPI by Component (Jan 1968 – Mar 2022)



### Year-over-Year CPI and Inflation Regimes



## Inflationary and Disinflationary Periods Jan 1926 - Mar 2022

Using the methodology described on the next page, we identified 18 inflationary periods and 20 disinflationary.

Average YoY inflation over this period was 3.0%.

### Methodology for Defining Inflationary & Disinflationary Periods

For the chart on the prior page, we set out to define inflationary periods using the following methodology\*:

- Inflation represented by year-over-year (YoY) change in the CPI for All Urban Consumers index level.
- A new inflation regime begins when YoY inflation exceeds 2%, representing the FOMC's target percentage.
- An inflation regime ends when the YoY inflation level is 50% below the peak of a given regime.
  - As an example, if inflation peaks at 5% and then declines to 2.5%, the inflation regime is defined as ending at that 5% peak.
  - Allows an inflation regime to continue if there is a pause or slight decline in inflation followed by a resumed upward trend.

Next we defined disinflationary periods:

 After defining inflationary periods, we easily identified remaining periods where inflation was declining from a peak to represent disinflationary regimes.

Non-inflation periods were those that did not meet the criteria for either an inflationary or deflationary environment.

\*The methodology was inspired by the work of Ben Funnel et al. in "The Best Strategies for Inflationary Times." Ben Funnell is the joint lead Portfolio Manager within Man Group's multi-asset offering

### Snapshot of 3Q72 – 4Q74 Inflation: Summary

#### Inflationary Periods Jan 1926 - Mar 2022



During this period:

- Peak YoY inflation reached 12.3% and the index level rose 24% over the entire period.
- GDP rose 6.8% from June 1973 to December 1973, then declined 1.9% during 1974.
- The unemployment rate fell from 5.7 in June 1972 to 4.6 in October 1973 but then rose to 7.2 by December 1974.

#### 3Q72 – 4Q74 Inflation: Detailed History

After World War II, with the extremely high unemployment of the 1930s still fresh in lawmakers' minds, Congress passed the Employment Act of 1946.

• This gave the Fed the dual mandate of maximum employment and stable prices.

Heading into the 70's the Phillips Curve was still the prevailing economic theory and led to the general belief that low unemployment rates could be "bought" with modestly higher rates of inflation.

The Bretton Woods agreement, which provided a fixed rate of exchange between world currencies and the U.S. dollar while linking the dollar to gold, began to falter.

- Growth in global trade increased the demand for U.S. dollars until U.S. dollar reserves held abroad exceeded the U.S. stock of gold.
- Therefore the U.S. could no longer maintain complete convertibility at the existing price of gold.
- In the summer of 1971 President Nixon halted the exchange of dollars for gold, and for the first time in history most of the industrialized world's currencies were unanchored and left with only a paper money standard.



Without an anchor, attempts to create full employment increased money supply and raised prices without reducing unemployment.

Further, the OPEC oil embargo that began in October 1973 quadrupled oil prices while Nixon's wage and price controls only temporarily slowed the rise in prices while exacerbating shortages, particularly for food and energy.

Source: The Great Inflation article by Michael Bryan of the Federal Reserve Bank of Atlanta https://www.federalreservehistory.org/essays/great-inflation



### 3Q72 – 4Q74 Inflation: Inflation Drivers

## Weighted Contribution to CPI 3Q72 - 4Q74



Pairing the weights of different CPI components with the component-level YoY inflation allows us to calculate weighted contribution to inflation.

During this time period the food and beverage shortage noted previously shows up in the component's high contribution to inflation.

The rising oil prices show up in the spike in Transportation's contribution to inflation toward the end of 1973.

### Snapshot of 1Q87 – 3Q90 Inflation: Summary

#### Inflationary Periods Jan 1926 - Mar 2022



During this period:

- Peak YoY Inflation reached 6.2% and the index level rose 20% over the entire period.
- GDP rose steadily throughout this time, gaining 13.1% overall.
- The unemployment rate fell from 6.6 in January 1987 to 5.0 in March 1989, then rose to 5.9 by September1990.

#### 1Q87 – 3Q90 Inflation: Detailed History

Coming out of the Great Inflation, which includes the prior case study as well as a second bout in the late 1970's, Federal Reserve policy began to shift under new chairman Paul Volcker.

 Volcker took over as chairman in 1979 and stated a philosophy that he had "...no choice but to deal with the inflationary situation because over time inflation and the unemployment rate go together.... Isn't that the lesson of the 1970s?"

CPI declined through most of the 1980's amid the backdrop of the 1970's and a renewed effort to tamp down inflation.

However, tight monetary policy led to recessions in 1980 and 1981-1982 as the Fed tried to get inflation under control.

During this time the Reagan Administration was also enacting significant tax cuts (with a few tax increases along the way to compensate for taking the cuts too far).

As inflation receded and the economy came out of recession, the tax cuts led to the start of an economic boom that came with inflation from 1987-1990.

• Year-over-year inflation was modest relative to the 1970's with a peak reading of 6.2%, but the index level rose 20% overall during this nearly four year period.

Sources: Federalreservehistory.org, Investopedia, The American Presidency Project https://www.federalreservehistory.org/essays/recession-of-1981-82



#### 1Q87 – 3Q90 Inflation: Inflation Drivers





The late 1980's saw a broad-based economic boom and the contributors to inflation reflect this.

In contrast to the 1970s case study, in the late 1980's there was less dispersion among inflation contributors.

- Housing contributed the most to inflation but averaged only 1.6% during this time.
- That compares to an average of 2.4% for housing and 3.0% for food and beverage in the prior case study.



## **Current State and Looking Forward**

### **Down Equity and Fixed Income Markets in 1Q22**

#### Negative returns for stocks and bonds at the same time are unusual

## Global equity markets are down sharply following the invasion of Ukraine:

- -Similar impact across developed markets
- Greater impact on small cap and emerging markets

## Fixed income down with sharply higher inflation and interest rates:

- Blmbg Aggregate: -5.9% (and much worse since, -9.5% through April)
- -CPI-U: +8.5% for the year ended 1Q22

## Number of times stocks and bonds have been down together:

- 37 quarters in almost 100 years, about 10% of the quarters
- -But just twice on annual basis

## Inflation spiked to the highest rate reported in decades (8.5%)

## Economic data show growth hit "pause" in the U.S.:

- GDP fell 1.4% in 1Q22, down from almost 7% growth in 4Q21
- Forecasters are revising growth estimates for 2022 down to 3% or lower

\*Cambridge PE data through 09/30/21.

Sources: Bloomberg, Callan, Cambridge, Credit Suisse, FTSE Russell, MSCI, NCREIF, S&P Dow Jones Indices



	Returns	for	Periods	ended	3/31/22
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	1 Quarter	1 Year	5 Years	10 Years	25 Years
U.S. Equity					
Russell 3000	-5.28	11.92	15.40	14.28	9.53
S&P 500	-4.60	15.65	15.99	14.64	9.44
Russell 2000	-7.53	-5.79	9.74	11.04	8.88
Global ex-U.S. Equity					
MSCI World ex USA	-4.81	3.04	7.14	6.25	5.25
MSCI Emerging Markets	-6.97	-11.37	5.98	3.36	
MSCI ACWI ex USA Small Cap	-6.52	0.03	7.89	7.28	6.70
Fixed Income					
Bloomberg Aggregate	-5.93	-4.15	2.14	2.24	4.71
90-day T-Bill	0.04	0.06	1.13	0.63	2.01
Bloomberg Long Gov/Credit	-10.95	-3.11	4.60	4.72	6.93
Bloomberg Global Agg ex-US	-6.15	-7.89	1.27	0.06	3.40
Real Estate					
NCREIF Property	5.33	21.87	8.54	9.61	9.50
FTSE Nareit Equity	-3.86	26.49	9.63	9.81	9.69
Alternatives					
CS Hedge Fund	2.13	7.47	5.48	4.71	6.61
Cambridge Private Equity*	5.01	48.84	21.29	17.11	15.64
Bloomberg Commodity	25.55	49.25	9.00	-0.70	1.90
Gold Spot Price	6.86	13.90	9.33	1.57	7.07
Inflation - CPI-U	3.12	8.54	3.35	2.28	2.37

### The Fed's New Inflation Framework

### Targeting Core Personal Consumption Expenditures Index



PCE Excluding Food and Energy (Chain-Type Price Index)

- Inflation worries are in the headlines, and the data are challenging the Fed's dual mandate to manage inflation and unemployment

- Inflation had consistently undershot the Fed's 2% target, prompting the Fed to change its inflation framework
- -Fed's aim is to achieve an average of 2% inflation over the medium term, which is not specifically defined
- Personal Consumption Expenditures (PCE) Index is the Fed's target, different from and typically lower than CPI-U, which had a yearover-year gain of 8.5% in March 2022

Sources: Federal Reserve Bank of St. Louis, U.S. Bureau of Economic Analysis

#### **Inflation Rebounds and Spurs Headline Concerns**

#### CPI and PPI remain at sharply elevated rates in 1Q22

## Inflation fell dramatically at the onset of the pandemic, starting in February 2020.

- The recovery to pre-pandemic levels in the Consumer Price Index required a 2.6% yearover-year change
- 8.5% jump in 1Q CPI-U represents added pressure from the war in Ukraine on top of kinks in supply chains and labor markets after more than a year of global economic disruption and shutdown
- Producer prices had been tumbling for more than a year prior to the pandemic; recovery to 2018 price *levels* happened by 2Q21, and generated eye-popping year-over-year percentage changes. The sharp rise in PPI continues into 2022.
- Prices for transportation goods, energy, and food are driving the elevated rates in both the Consumer and Producer Price Indices



#### **Consumer and Producer Price Indices – Inflation Year-Over-Year**

Source: Federal Reserve Bank of St. Louis



### Gasoline Prices Are Top of Mind for Consumers, Now Above Early 2010s Peaks

A highly visible inflation measure; feeds expectations



Average Price: Gasoline, Unleaded Regular (Cost per Gallon / 3.785 Liters) in U.S. City Average

Source: Federal Reserve Bank of St. Louis



### Inflation vs. Interest Rates Over the Long Term

#### Federal Funds vs. Consumer Price Index



We are now looking at an inflation spike that is above the last rise in inflation from 2005–2008

The gap between inflation and the Fed Funds rate is larger than that seen just before the GFC

-History suggests that the Fed Funds rate is typically above inflation, not below it

This gap of 8.5% CPI vs. 25 bps Fed Funds rate is unprecedented in the history of the CPI, going back to 1961

-Resolution to the historic relationship requires the Fed Funds rate to rise and inflation to fall

Source: Federal Reserve Bank of St. Louis

### Inflation Is Currently a Problem: What Key Variables Should We Track?

The majority of the working-age and younger population has no experience with sustained inflation

#### Key variables to track:

- -Personal Consumption Expenditure index—the Fed's preferred measure of inflation
  - Typically lower and less volatile than CPI-U
- -Spread between inflation and the Fed Funds rate—at an extreme, suggesting some adjustment is coming in both variables
- -Five year, five-year forward rate, and 10-year breakeven rate
  - -Bond market expectations
  - -Long enough horizon to minimize short-term emotion and reaction to immediate events
- Philadelphia Fed survey of professional forecasters

#### Inflation Forecasts – Professional Forecasters



Mean Probabilities for Core PCE Inflation in 2022

Inflation Ranges (Q4 over Q4)

2022 inflation forecasts have risen substantially since the 4Q21 survey

- Inflation in the 3% to 3.9% range now forecast with almost 50% probability

First round of forecasts for 2023 are lower than for 2022

- -2.0% to 2.4% is the highest probability scenario
- Still some bias to higher levels
- -Note: there are no previous forecasts for comparison yet for 2023

Source: Philadelphia Federal Reserve, Survey of Professional Forecasters

#### Mean Probabilities for Core PCE Inflation in 2023



Inflation Ranges (Q4 over Q4)

#### **10-Year Breakeven Rate – Bond Market Forecast of Inflation**



- 10-year breakeven inflation rate is the difference in yield between the nominal 10-year Treasury and the 10-year Treasury Inflation Protected Security (TIPS)
  - Extra yield nominal Treasury would have to earn to maintain the same purchasing power as a TIPS investment
- Current values of implied inflation are approaching 3%
  - Includes current high levels of inflation

### 5-Year, 5-Year Forward Rate – Bond Market Forecast of Inflation



- The 5-Year, 5-year forward rate is the bond market's estimate of the 5-year inflation rate 5 years from now

- Excludes current high levels of inflation
- The market expects that inflation for the years 2027 through 2031 will be less than 2.5%



#### **Contributors to Recent Inflation: Primary Categories**

## Transportation, including new and used cars, parts, and gasoline, saw a spike in inflation

- Year-over-year prints are almost three times higher than any other category
- With a meaningful 18% weight in the index\*, transportation also has the highest weighted contribution to headline CPI

#### Housing and food and beverage have also been significant contributors to headline CPI

 Inflation within these categories has been far lower than transportation, but their large index weights make them meaningful contributors to overall inflation

# 3.6%

**Contribution to March 2022 YOY Inflation** 



	Primary	Year-over-Year Change											
Primary Category	Category Weight	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
All Items	100.0%	4.2%	5.0%	5.4%	5.4%	5.3%	5.4%	6.2%	6.8%	7.0%	7.5%	7.9%	8.5%
Food & Bev	14.3%	2.3%	2.1%	2.4%	3.4%	3.7%	4.5%	5.1%	5.8%	6.0%	6.7%	7.6%	8.5%
Housing	42.4%	2.6%	2.9%	3.1%	3.4%	3.5%	3.9%	4.5%	4.8%	5.1%	5.7%	5.9%	6.4%
Apparel	2.5%	1.9%	5.6%	4.9%	4.2%	4.2%	3.4%	4.3%	5.0%	5.8%	5.3%	6.6%	6.8%
Transportation	18.2%	14.9%	20.0%	21.5%	19.4%	17.8%	16.6%	18.7%	21.1%	21.1%	20.8%	21.1%	22.6%
Medical Care	8.5%	1.5%	0.9%	0.4%	0.3%	0.4%	0.4%	1.3%	1.7%	2.2%	2.5%	2.4%	2.9%
Recreation	5.1%	2.1%	1.6%	2.4%	3.5%	3.4%	3.5%	3.9%	3.2%	3.3%	4.7%	5.0%	4.8%
Education & Communication	6.4%	1.7%	1.9%	2.1%	1.1%	1.2%	1.7%	1.8%	1.7%	1.6%	1.6%	1.6%	1.5%
Other Goods & Svcs	2.7%	2.7%	2.7%	2.5%	2.9%	3.5%	3.4%	4.2%	4.4%	4.5%	4.9%	5.6%	5.5%

\*Category weights received a revision for 2022. The Transportation weight is up from 15% to 18% with this revision. Source: U.S. Bureau of Labor Statistics



### **Contributors to Recent Inflation: Primary and Sub-Categories**

				Year-over-Year Change											
Primary Category	Primary Category Weight	<sup>7</sup> Subcategory	Sub- Category Weight	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Νον	Dec	Jan	Feb	Mar
		Food at home	8.2%	1.2%	0.7%	0.9%	2.6%	3.0%	4.5%	5.4%	6.4%	6.5%	7.4%	8.6%	10.0%
Food & Bev	14.3%	Food away from home	5.2%	3.8%	4.0%	4.2%	4.6%	4.7%	4.7%	5.3%	5.8%	6.0%	6.4%	6.8%	6.9%
		Alcoholic beverages	0.9%	1.9%	1.6%	1.9%	2.4%	2.6%	2.8%	2.2%	1.9%	2.3%	2.7%	3.5%	3.7%
		Shelter	32.9%	2.1%	2.2%	2.6%	2.8%	2.8%	3.2%	3.5%	3.8%	4.1%	4.4%	4.7%	5.0%
Housing	42.4%	Fuels and utilities	4.6%	5.7%	6.4%	6.4%	7.0%	7.9%	8.2%	10.4%	10.0%	9.5%	12.0%	11.0%	12.5%
		Household furnishings & ops	4.8%	3.5%	4.6%	4.1%	3.8%	4.0%	5.1%	6.2%	6.5%	7.4%	9.0%	9.7%	10.1%
		Men's and boys' apparel	0.6%	2.1%	4.2%	2.3%	3.0%	3.9%	4.4%	6.3%	7.8%	7.8%	6.6%	8.6%	7.8%
		Women's and girls' apparel	1.0%	-0.3%	4.8%	5.3%	4.6%	3.6%	0.6%	2.1%	3.4%	4.4%	3.6%	4.9%	6.3%
Apparel	2.5%	Footwear	0.6%	3.9%	7.1%	6.5%	4.6%	5.1%	6.5%	5.2%	4.7%	6.0%	6.1%	7.0%	6.6%
		Infants' and toddlers' apparel	0.1%	1.7%	3.1%	-0.5%	-1.2%	-1.4%	3.0%	7.6%	4.5%	4.6%	8.8%	12.4%	13.0%
		Jewelry and watches	0.2%	9.5%	12.4%	11.2%	9.5%	10.7%	6.8%	6.1%	5.2%	7.2%	6.2%	4.2%	2.7%
Transportation	18 2%	Private transportation	17.4%	15.5%	20.3%	21.9%	19.8%	18.5%	17.8%	20.3%	22.8%	22.6%	22.1%	22.1%	23.2%
Папэропацоп	10.2 /0	Public transportation	0.8%	7.0%	15.9%	17.3%	14.0%	8.4%	1.6%	-1.1%	-0.6%	2.4%	4.0%	8.3%	14.9%
Medical Care	8 5%	Medical care commodities	1.5%	-1.7%	-1.9%	-2.2%	-2.1%	-2.5%	-1.6%	-0.4%	0.2%	0.4%	1.4%	2.5%	2.7%
	0.070	Medical care services	7.0%	2.2%	1.5%	1.0%	0.8%	1.0%	0.9%	1.7%	2.1%	2.5%	2.7%	2.4%	2.9%
		Video and audio	1.5%	2.9%	3.0%	4.0%	3.7%	3.6%	3.5%	3.3%	3.2%	2.1%	3.2%	3.0%	2.6%
		Pets, pet products and services	1.1%	2.4%	2.5%	2.9%	3.2%	2.4%	3.3%	3.8%	3.5%	4.1%	4.4%	5.5%	7.5%
		Sporting goods	0.6%	7.0%	9.0%	7.5%	5.7%	7.6%	7.5%	8.7%	8.4%	6.3%	8.2%	7.1%	7.9%
Recreation	5.1%	Photography	0.1%	1.5%	3.1%	1.5%	2.2%	2.6%	2.3%	2.0%	3.2%	3.6%	3.4%	2.0%	3.2%
		Other recreational goods	0.4%	1.8%	2.1%	1.5%	1.3%	1.1%	-0.6%	-0.3%	1.1%	2.5%	2.9%	3.5%	2.7%
		Other recreation services	1.5%	-0.2%	-2.4%	-0.5%	3.5%	3.2%	3.1%	3.9%	1.9%	3.0%	5.7%	5.8%	4.3%
		Recreational reading materials	0.1%	5.5%	3.8%	0.7%	1.5%	1.3%	2.8%	1.7%	2.2%	0.3%	0.0%	4.1%	1.6%
Education &	6 A9/	Education	2.7%	0.8%	1.0%	1.2%	1.2%	1.4%	2.0%	2.0%	2.1%	2.0%	2.1%	2.1%	2.5%
Communication	0.4 /0	Communication	3.7%	2.4%	2.6%	2.8%	1.1%	1.0%	1.5%	1.5%	1.3%	1.3%	1.2%	1.1%	0.8%
Other Goods	2 7%	Tobacco and smoking products	0.5%	6.8%	7.3%	7.0%	6.4%	6.3%	6.7%	8.5%	8.9%	9.0%	7.0%	7.0%	6.9%
& Svcs	2.1 /0	Personal care	2.2%	1.7%	1.6%	1.5%	2.1%	2.8%	2.6%	3.2%	3.3%	3.4%	4.3%	5.2%	5.1%

Subcategories highlighted in blue were the biggest contributors to March YOY headline CPI due to a combination of high index weights and high inflation within the subcategory

- These components combined make up over 70% of the index weight

Other subcategories such as public transportation, infants' and toddlers' apparel, and sporting goods have also seen high inflation but do not contribute as much to headline inflation due to lower index weights

Source: U.S. Bureau of Labor Statistics

### **Contributors to Recent Inflation: Weighted Contribution Over Time**



## Looking at the six subcategories highlighted before, and combining the remaining 20, shows how impactful those few areas have been in driving inflation

Combining those 20 subcategories would only make them the third-largest contributor to inflation over the last 1¼ years even if they
were a single category

#### Private transportation stands out because the category has not seen inflation readings this high since 1980

- If private transportation were at its long-term average of 2.5%, March headline inflation would have dropped from 8.5% to 5.4%

### Inflation Scenario Analysis: Reverting to Average Inflation by Primary Category

## The longest common inflation history for all primary categories goes back to 1994.

The chart below shows what headline inflation would have been in March if a single category was at its long-term average

- Using the long-term average for YoY Transportation inflation and using actual March 2022 YoY inflation for all other categories would have dropped headline inflation to 5.3% (see chart below)
  - This results from Transportation being over 20 percentage points above its long-term average

		1		
Primary Category	Weight	March 2022 YOY Inflation	Average YOY Inflation	Difference
Food & Bev	14.3%	8.5%	2.5%	6.0%
Housing	42.4%	6.4%	2.5%	3.8%
Apparel	2.5%	6.8%	-0.3%	7.0%
Transportation	18.2%	22.6%	2.4%	20.2%
Medical Care	8.5%	2.9%	3.5%	-0.6%
Recreation	5.1%	4.8%	1.2%	3.6%
Education & Communication	6.4%	1.5%	1.9%	-0.3%
Other Goods & Svcs	2.7%	5.5%	3.3%	2.2%
All Items	100.0%	8.5%	2.3%	6.2%

#### March 2022 YOY CPI-U by Category if Category Was at Long-Term Average



### Annualized Large Cap Equity Returns by Inflation Environment

January 1926 to March 2022

Inflation Environment	# of Quarters in This Environment	Annualized Nominal S&P 500 Return	Annualized Real S&P 500 Return
Inflation	142	7.35%	1.51%
Disinflation	157	10.93%	9.41%
Non-Inflation	86	14.55%	13.43%
All Periods	385	10.38%	7.29%

Calculating the annualized return across all of the quarters we identified as inflationary, disinflationary, or neither reveals that large cap equities prefer the low and stable inflation of non-inflation periods over any other environment.

It is also clear that inflationary environments are the least favorable for equities, especially in real terms.

However, the nominal returns are still strong in these periods with an annualized return of almost 7.3%.



### **Annualized Fixed Income Returns by Inflation Environment**

January 1926 to March 2022

Inflation Environment	# of Quarters in This Environment	Annualized Nominal Intmdt Gov Return	Annualized Real Intmdt Gov Return
Inflation	142	3.53%	-2.04%
Disinflation	157	6.84%	5.22%
Non-Inflation	86	3.24%	2.18%
All Periods	385	4.81%	1.81%

Fixed income fared much better in disinflationary environments with strong positive returns in nominal and real terms.

Fixed income posted negative real returns in inflationary environments.





### Equity Returns by Inflation/GDP Quadrant: Real

Over this time period median inflation was 2.78% and median GDP was 3.05%.

High inflation and low GDP is the worst environment for equities while low inflation and high GDP is the best environment.

In real terms large cap equities fared better when both inflation and GDP were low but small cap equities did better when both inflation and GDP were high.

Source: Callan LLC

### So What If We Are Wrong About Inflation?

#### How can we be wrong on the upside?

- -Length of the current spike how long is transitory?
- Inflation expectations revive to the point of a wage/price spiral, as in the 1970s
  - Producers exert pricing power
  - -Labor exerts wage pricing power
- Commodities enter a super-cycle with elevated prices for a number of years
- -Fed will be unsuccessful in fighting inflation
- -Geopolitical upheaval extends for a number of years, with attendant impact on food, energy, commodity prices
- -Broader war beyond Ukraine, involving NATO an entirely different scenario, beyond current consensus expectations

#### Can we be wrong on the downside?

- -Fed commitment to fighting inflation over economic growth pushes the U.S. economy into recession
  - Inflation eases from shrinking demand
  - -Interest rates are cut
  - Option B: demand falls but inflation remains sticky, due to supply disruptions new form of stagflation
- Cessation of conflict in Ukraine relieves pressure on prices sooner than expected, and rate increases push inflation down faster, back in line with expectations for transitory inflation held prior to the war

#### How much would the current inflation spike change the consensus 10-year projection?

- -Current consensus assumes the spike is transitory and that the U.S. will average back toward an annual rate of 2.0% in 10 years
- One or two years of extra elevated inflation may push the consensus projection up by 50 bps to 100 bps per year, but that assumes the elevated inflation does not adversely impact growth and interest rates in the next several years


## **Special Focus on Russia-Ukraine War**

#### Russia-Ukraine War Has a Dramatic Impact on Eastern Europe/Central Asia

Exacerbating challenges from inflation and supply chain

Direct impact of the war varies by country within the EECA bloc, depending on strength of economic ties with Russia and Ukraine.

#### Key determinants:

- -Flow of goods and services: dependence on Russia for goods or for markets in which to sell
- Tourism: primarily Russian tourism to EECA countries
- Foreign direct investment: Russian investment in EECA is substantial
- -Remittances: foreign workers in Russia remitting salaries to EECA

Even without close ties, countries within the EECA, western Europe, Africa, and Latin America are vulnerable

- -New supply chain bottlenecks piled on those created by the pandemic
- Energy: supply and prices
- Food: Russia and Ukraine are vital suppliers to regional and global food supplies; serious concerns about 2022 spring planting and harvest later in the year; potential for disaster in food-insecure parts of the globe

#### Forecasts for EECA and CEB Blocs Downgraded by Russia-Ukraine War

Comparing forecasts before and after the start of the war



Which EECA Countries Will See the Weakest Growth in 2022?



#### Which CEB Countries Will See the Weakest Growth in 2022?



EECA = Emerging Europe and Central Asia CEB = Central Europe and the Balkans EU = European Union

Projections for 2022 provided by IHS Markit



Source: IHS Markit

#### **Dependence on Russia and Ukraine Within EECA Bloc**

Exports and imports within EECA; commodity reliance within CEB



Belarus Most Dependent by Far on Russia and Ukraine as Export Markets



#### Belarus Also Most Reliant on Russia and Ukraine as Import Markets

Several CEB Countries Reliant on Imported Commodities



EECA = Emerging Europe and Central Asia

- **CEB = Central Europe and the Balkans**
- **EU = European Union**

Projections for 2022 provided by IHS Markit

Source: IHS Markit



#### Trade Exposures to Russia and Ukraine, Across Europe and Central Asia

#### Trade Exposures to Russia and Ukraine, 2020





#### Severe dependency on Russia for food and energy imports within EECA bloc

#### Trade Exposures to Russia and Ukraine, 2020





Sources: IMF Global World Outlook 04/22; Direction of Trade Statistics; United Nations, Comtrade database; and IMF staff calculations

Note: Energy includes crude petroleum, refined petroleum, petroleum gas, and coal. Data labels use International Organization for Standardization (ISO) country



#### **Timeline of Index Changes Related to Ukraine Invasion**

2/23/22	Bloomberg announces review of recent Russian sanctions that resulted in no changes to Bloomberg equity indices. However, it announces that sanctioned VEB and its subsidiaries will be removed from its indices and no newly issued sovereign debt nor debt from VEB will be included going forward. Existing sovereign debt will remain in its indices.
2/24/22	Russia invades Ukraine. Office of Foreign Assets Control issues a directive detailing prohibitions related to new debt and equity of certain Russia-related entities.
2/25/22	Moscow Exchange closed. FTSE Russell Policy Advisory Board and Equity Country Classification Advisory Committee hold a meeting to review Russia.
2/27/22	Russia temporarily prohibits non-residents from selling securities. Bloomberg Index announces removal of Russia sovereign debt from Global IG indices IF Moody's or Fitch downgrades the country to below investment grade by 2/28/22 London noon time.
2/28/22	The Intercontinental Exchange (ICE) announces it will exclude new issuance from any sanctioned entities beginning with 2/28/22 rebalances, and removal of debt of blocked entities at the 3/31/22 rebalances. MSCI launches a consultation with international institutional investors on the accessibility and investability of the Russian equity market.
3/1/22	J.P. Morgan announces new debt from sanctioned Russian entities will not be eligible for its indices from 3/1/22 but no changes on existing Russian bonds. Ratings downgrade of Russia and Ukraine that occurred in the last week of February will be reflected at 3/31/22 rebalance.
3/2/22	The European Union announces that seven Russian banks would be excluded from the SWIFT messaging system on March 12. S&P Dow Jones initiates a consultation on potential to remove stocks listed and/or domiciled in Russia.
3/4/22	Bloomberg announces all index securities with a country of risk of Russia will exit the indices at 3/31/22 rebalance with a valuation of near zero.
3/7/22	J.P. Morgan announces Russia will be excluded from all its fixed income indices on 3/31/22. FTSE Russell removes Russia from its equity indices.
3/9/22	MSCI and S&P Dow Jones remove Russia from their equity indices.
3/24/22	Moscow Exchange resumes trading in 33 Russian equities.

Sources: Bloomberg, Callan research, FTSE Russell, ICE, JP Morgan, MSCI, S&P Dow Jones

#### A Look at Equity Performance During Military Conflicts

#### Equity market reaction (%) to geopolitical events

	Ead Paliay	S&P 500			European / U.K. Equities		
Event	Stance	Next Day	30-Day	To Worst	Next Day	30-Day	To Worst
Downing of MH17 (2014)	Steady	-0.2	-1.3	-3.6	-1.2	-5.3	-2.1
Crimea Conflict (2014)	Steady	0.8	0.7	n/a	0.0	0.8	-4.6
U.S. Invasion of Iraq (2003)	Easing	2.5	2.2	-3.0	2.8	6.3	-6.9
September 11 Attacks (2001)	Easing	n/a	0.4	-11.6	-5.2	2.0	-16.4
Kosovo War (1999)	Tightening	2.2	7.5	n/a	0.2	4.0	-1.4
Iraq Invasion of Kuwait (1990)	Easing	-3.0	-9.3	-16.9	-3.2	-13.2	-26.2
Iran-Iraq War (1980)	Tightening	0.1	2.1	-4.4	n/a	3.2	n/a
Arab Oil Embargo (1973)	Tightening	-0.2	-5.7	-16.4	n/a	3.3	-9.8
Cuban Missile Crisis (1962)	Tightening	-3.8	9.4	-3.8	n/a	1.6	n/a
Pearl Harbor Attack (1941)	n/a	-3.8	-2.9	-10.2	n/a	-1.2	-1.2
German Invasion of Poland (1939)	n/a	1.1	14.4	n/a	n/a	-5.2	-5.2

Impact of conflicts on equity returns has been historically muted.



#### **COVID-19 Mortality Impacts and Projections**

Backup for this agenda item will be provided in an updated meeting packet before the meeting as soon as it is available.



April 2022

## UNIVERSA INVESTMENTS L.P. MARIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION PRESENTATION







# THE PETERSBURG MERCHANT TRADE (THE OTHER SAINT PETERSBURG PARADOX)



The Petersburg Merchant Trade (The Other Saint Petersburg Paradox)

Merchant

Shipment is Successf	ul	Shipment is Lost	
Starting Wealth 11,000 rubles		Starting Wealth	11,000 rubles
Cost of Shipment Proceeds	-8,000 <sub>rubles</sub> +10,000 <sub>rubles</sub>	Cost of Shipment Proceeds	-8,000 rubles 0 rubles
Ending Wealth Profit	13,000 rubles +2,000 rubles (+18%)	Ending Wealth Loss	3,000 <sub>rubles</sub> -8,000 <sub>rubles</sub> (-73%)
Arithm	etic Expected Return: 0.9	95 x 18% + 0.05 x -73	% = +14%

Geometric Return without Insurance:  $((1.18)^{0.95} \times (0.27)^{0.05}) = 1.098 = +9.8\%$ 

The Petersburg Merchant Trade (The Other Saint Petersburg Paradox)

	Shipment is Successference Starting Wealth	ul 11,000 <sub>rubles</sub>	Shipment is Lost Starting Wealth	11,000 rubles					
	Cost of Shipment Proceeds	-8,000 <sub>rubles</sub> +10,000 <sub>rubles</sub>	Cost of Shipment Proceeds	-8,000 rubles 0 rubles					
Merchant	Ending Wealth Profit	13,000 rubles +2,000 rubles (+18%)	Ending Wealth Loss	3,000 <sub>rubles</sub> -8,000 <sub>rubles</sub> (-73%)					
	Arithmo	Arithmetic Expected Return: 0.95 x 18% + 0.05 x -73% = +14%							
	Geometric Re	eturn without Insurance: ((1	.18) <sup>0.95</sup> x (0.27) <sup>0.05</sup> )	= 1.098 = +9.8%					
	Premium Payoff	Premium -800 <sub>rubles</sub> Payoff N/A <sub>rubles</sub>		-800 rubles +10,000 rubles					
Contract	Net Payoff	-800 rubles	Net Payoff	+9,200 rubles					
	Arithmet	ic Expected Cost: 0.95 x -8	800 + 0.05 x 9200 =	-300 rubles					

The	Merchant	Shipment is SuccessfulStarting Wealth11,000 rubles		Shipment is Lost Starting Wealth	11,000 rubles		
Petersburg Merchant Trade (The Other Saint Petersburg		Cost of Shipment Proceeds	oceeds +10,000 <sub>rubles</sub>		-8,000 <sub>rubles</sub> 0 <sub>rubles</sub>		
		Ending Wealth Profit	Ending Wealth13,000 rublesProfit+2,000 rubles (+18%)		3,000 <sub>rubles</sub> -8,000 <sub>rubles</sub> (-73%)		
		Arithmetic Expected Return: 0.95 x 18% + 0.05 x -73% = +14%					
Paradox)		Geometric Return without Insurance: ((1.18) <sup>0.95</sup> x (0.27) <sup>0.05</sup> ) = 1.098 = +9.8%					
	Insurance Contract	Premium -800 <sub>rubles</sub> Payoff N/A <sub>rubles</sub>		Premium Payoff	-800 rubles +10,000 rubles		
		Net Payoff	-800 rubles	Net Payoff	+9,200 rubles		
		Arithmetic Expected Cost: 0.95 x -800 + 0.05 x 9200 = -300 rubles					
	Merchant with Insurance	Ending Wealth Profit	12,200 rubles 1,200 rubles (+11%)	Ending Wealth Profit	12,200 rubles 1,200 rubles (+11%)		
		Geometric Return with Insurance (with No Risk): +11%					
			Net Portfolio Effect from	Insurance: +1.2%			

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#### AN INSIDIOUS WEALTH TAX:

#### THE GREATER THE LOSS, THE GREATER THE PROFIT NEEDED TO GET BACK TO EVEN



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# THE PETERSBURG MERCHANT TRADE AMONG RISK MITIGATION STRATEGIES

## CAN THE CURE BE BETTER THAN THE DISEASE?

**UNIVERSA**"

#### UNIVERSA

#### A TAXONOMY OF THE THREE PROTOTYPICAL SAFE HAVENS



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### THREE CARTOON SAFE HAVEN PROTOTYPE PAYOFF PROFILES (BY SIMULTANEOUS SPX RETURNS)



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## FREQUENCY DISTRIBUTION OF SPX ANNUAL RETURNS



## UNIVERSA

#### 10,000 PATHS OF 25-YEAR COMPOUNDED SPX RETURNS, BY ROLLING A D120 DIE



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#### XS AND OS PROFILES: RISK-MITIGATION SCOREBOARD



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## THE CURE CAN BE BETTER



#### **BSPP: Cost-Effectiveness of Various Risk Mitigation Strategies**



Portfolios are shown below to illustrate the historical effect of hypothetical allocations to various risk mitigation strategies. All the portfolios are rebalanced annually.

Lising 2008 as a provider risk the			Proxy For Risk	Mar 2	2008 – Dec 2	2021	Jan	2009 - Dec 2	2019
percentage allocation to each risk mitigation strategy is determined based on equating to a 10% return in each portfolio	Hypothetical Portfolios	Risk Mitigation Allocation	2008 (Mar-Dec) Return	CAGR	Vs 20Y Treasury + S&P	Vs S&P	CAGR	Vs 20Y Treasury + S&P	Vs S&P
	20Y Treasury + S&P	33.2%	-10.0%	11.0%		-1.0%	11.7%		-3.0%
	The allocation amount to o	each risk m	itigation str	ି ategy is size	ed to result	in the same	e systematic	: risk.	
	BSPP + S&P	0.6%	-10.0%	13.9%	2.9%	2.0%	14.3%	2.6%	-0.4%
0.6% Capital Allocation = 38% BSPP Protection Size	Long Vol + S&P	30.6%	-10.0%	10.0%	-0.9%	-1.9%	10.4%	-1.3%	-4.3%
	CTAs + S&P	56.2%	-10.0%	6.6%	-4.4%	-5.4%	6.9%	-4.8%	-7.7%
1.7% Capital Allocation = 100% BSPP Protection Size	Gold + S&P	97.3%	-10.0%	4.9%	-6.1%	-7.0%	5.4%	-6.3%	-9.3%
to target making +20% net during a	Tail Risk Index + S&P	51.4%	-10.0%	4.5%	-6.5%	-7.4%	3.7%	-8.0%	-11.0%
(1.7% is the targeted risk budget for one year absent a market crash)	Hedge Funds*	100.0%	-18.0%	4.3%	-6.6%	-7.6%	5.4%	-6.3%	-9.3%
	BSPP + S&P	1.7%	24.5%	16.4%	5.4%	4.4%	13.6%	1.9%	-1.0%
	Unhedged S&P		-30.7%	11.9%	1.0%		14.7%	3.0%	

\*A -10% return in 2008 could not be achieved in a Hedge Fund + S&P portfolio, so 100% of the portfolio is in Hedge Funds.

© 2014-2022 Universa Investments L.P. This document was provided solely to the noted recipient at its unsolicited request. This document may not be copied, distributed or otherwise reproduced without Universa's express written permission. 20Y Treasury: iShares 20+ Year Treasury Bond ETF, Long Vol: CBOE Eurekahedge Long Volatility Index, CTAs: Barclay CTA Index, Gold: Gold Commodity Spot, Tail Risk Index: CBOE Eurekahedge Tail Risk Index: HFRI Fund Weighted Composite Index CFTC-Required Disclosure. These results are based on simulated or hypothetical performance results that have certain inherent limitations. Unlike the results in an actual performance record, these results do not represent actual trading. Also, because these trades have not actually been executed, these results may have under- or over-compensated for the impact, if any, of certain market factors, such as lack of liquidity. Simulated or hypothetical trading programs in general are also subject to the fact that they are designed with the benefit of hindsight. No representation is being made that any account or fund will or is likely to achieve profits or losses similar to those being shown. AN INVESTOR MAY LOSE ALL OF ITS INVESTMENT IN A BSPP PORTFOLIO. ALSO SEE DISCLOSURES REGARDING THESE CHARTS ON THE LAST TWO PAGES OF THIS PRESENTATION.



### THE MECHANICS OF TAIL RISK HEDGING

Provide cost-effective risk mitigation (BSPP), allowing the investor to lower less cost-effective risk mitigation (Fixed Income/Hedge Funds)

Minimize the impact of the largest drawdowns by making the investor's portfolio asymmetric

The portfolio drag in rising markets should be less than its portfolio benefit over time

Create asymmetric beta in the investor's portfolio

Provide dry powder in a crash to redeploy or meet Defined Benefit obligations





Avoidance of mistakes made during GFC (selling at the bottom) Recognition that ad hoc de-risking or market timing are not effective/reliable

Growing awareness of the implicit cost (performance drag) of conventional risk mitigation via diversification

Pressure to increase risk to achieve return target and avoid lowering discount rate

# HOW DOES THE INVESTOR AVOID THE MISTAKE OF CUTTING THE TAIL RISK HEDGE IN A BULL MARKET?

Do not account for the tail risk hedge as a line-item expense

Incorporate the tail risk hedge in the strategic allocation with an appropriate tail risk hedging benchmark

Recognize that conventional risk mitigation has a cost and maintain an awareness of the historical long-term benefits of tail risk hedging to CAGR

Manage expectations of the tail risk hedge's performance around less severe drawdowns/corrections



#### Cutting a tail risk hedge in a bull market is an investment mistake driven by behavioral risk

# Good investors are aware of cognitive biases that can lead to a host of investment mistakes in general

Anchoring, Performance Chasing, Loss Aversion, Hindsight, Illusion of Control, Overconfidence, etc...

Tail risk hedging is itself a mitigator of behavioral risk

- Avoid panic selling of equities at the bottom
  - Avoid attempting to time the market
    - Avoid over-rebalancing
- Maintain a long-term view and take necessary risk

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General Information Regarding Performance Charts (pg 14). Universa prepared the charts herein. They have not been reviewed or audited by an independent accountant or other independent testing firm. More detailed information regarding the manner in which the charts were calculated is available on request. The performance results do not reflect actual trading and may not reflect the impact that material economic and market factors may have had on Universa's decision-making were it actually managing a BSPP strategy using its updated multi-factor approach described below during those time periods. Any actual fund that Universa manages will invest in different securities than those incorporated in the hypo thetical and other performance charts shown. There is no representation that any fund that Universa actually manages will perform as the performance charts indicate. An investor may lose all of its investment in a BSPP portfolio.

Protection Size Performance (pg 14). The performance incorporated is Universa's calculation of profits and losses as a percentage of Protection Size. "Protection Size" is the amount of equity market risk that the client seeks to protect. The amount of capital required to achieve a certain Protection Size is significantly lower than the Protection Size (typically 1/30th at inception). The amount of capital required fluctuates during the course of an investment in a BSPP fund and across funds, while the Protection Size itself remains constant (unless a client effects a change).

Performance of actual capital invested in a BSPP fund thus will differ significantly from the results incorporated in the chart. For example, if a client chooses to fund its Protection Size with 1.67% of capital, a 0.10% return on Protection Size during the first month of investment would translate to a 6.0% return on capital for that month and similarly a -0.10% return would translate to a -6.0% return on capital.

Some Universa BSPP clients have selected different metrics to size their investment, such as a "Notional Amount". The Notional Amount is one-third of the Protection Size. Clients that use those metrics generally should multiply the returns in this presentation by three. Additional information on this calculation is available on request.

Most clients establish risk budgets at the onset of their relationship and can adjust those risk budgets based on preference and performance thereafter. For a given Protection Size, Universa sets a targeted amount of capital spend over a specified time period to where the client is comfortable with all its contributed capital being depleted in non-volatile periods (typically targeting one year, depending upon inputs such as initial funding). Universa is focused on limiting that capital spend while maintaining the Protection Size. That capital is used to fund ongoing investments in providing protection (premium), Universa's fees, and other ongoing fund expenses. Clients are only required to invest (and maintain) enough capital in the fund as required by Universa's brokers and FCMs and a buffer for fees, expenses, and market fluctuations. Most clients choose to fund a higher amount to minimize the number of additional cash contributions needed to maintain the minimum capital requirement. In normal environments, an account's capital will be fully depleted more quickly to the extent that the client funds a lower percentage of its Protection Size.

Calculation for the Performance of Various Risk Mitigated Portfolios (pg 14). For the period from March 2008 through the present, the portfolio returns were calculated by assuming a capital allocation to each risk mitigation strategy as indicated by the respective percentage in the chart with the remaining capital allocated to the S&P 500 Total Return Index ("S&P"). The portfolios were rebalanced at the end of each year, and the resulting annual compounded performance figures were then tracked. All returns are based on the latest available month-end closing prices for the asset indicated.

Calculation for the Performance of BSPP + S&P (pg 14). For the period from March 2008 through the present, the results for BSPP + S&P portfolios are shown. The portfolio returns were calculated by assuming a capital allocation to the S&P and a capital allocation to the BSPP as indicated. The charts incorporate an assumed full capital loss for the BSPP at a rate of -1.67% of the Protection Size per annum (net of all fees) for each month from March 2008 through August 2008. Universa ran a BSPP separately-managed account from March 2008 through August 2008 but the account was neither administered nor audited. Therefore, the calculation conservatively assumes a 100% loss of capital over that entire time period. A leverage cost of 2.5% is assumed if capital is negative. The portfolios were rebalanced at the end of each year (unless otherwise indicated), and the resulting annual compounded performance figures were then tracked.

Disclosures Regarding Calculation Method for BSPP Returns (pg 14). The returns for the period from April 2014 through the present reflect actual net returns of selected investors in representative BSPP funds that were charged an equivalent of 0.50% management fee on Protection Size and 20% performance-based allocation. The returns are also net of their actual fund-related expenses.

To calculate the BSPP returns for September 2008 through March 2014, Universa applied its current BSPP strategy's multi-factor approach to identify the positions it would have taken. To make those hypothetical adjustments, Universa first applied its current risk budgeting approach, which is a systematic quantitative process that determines the amount of premium to be used to build the portfolio. The primary effect of these adjustments was to change the specific strike prices and expiration dates of the actual derivatives in the BSPP portfolios but not the underlying assets during the relevant time periods, as well as the weightings of those positions. Next, Universa applied its current systematic profit taking methodology to determine when profit taking would have been triggered. Universa's current profit taking decisions are highly systematic, encompassing hard coded parameters using metrics such as moves in the market and implied volatility.

The adjusted performance for the September 2008 through March 2014 period above further reflects the deduction of an annual 0.50% management fee, 20% performance-based incentive allocation, and an estimated 0.05% of annual fundrelated expenses of an actual BSPP fund (based on a \$300M Protection Size portfolio). The performance results do not reflect any reinvestment of interest, dividends or other earnings.

#### IMPORTANT DISCLOSURES AND OTHER INFORMATION (CONT'D)

The actual annual performance on the Protection Size for the period of September 2008 through March 2014 are as follows: Sep to Dec 2008 = +41.3%, 2009 = -3.8%, 2010 = -5.0%, 2011 = -0.6%, 2012 = -2.3%, 2013 = -1.7% and Jan to Mar 2014 = -0.5%. To calculate the percentage returns for 2008 to 2011, the representative BSPP portfolio's Protection Size as of a given date has been adjusted to reflect that any increase in a Protection Size occurred in equal amounts over a specified period (typically 60 trading days after the actual increase), and assumes that any decrease occurred over a different specified period (typically it assumes that no change occurred until the first month end that occurs at least 90 days after the actual decrease, unless there was a full portfolio liquidation, in which case Universa accelerated this reduction as appropriate).

Because no single BSPP fund was representative of the performance of the current strategy for the entire time period shown, a different BSPP fund was used in each of the following periods: September 2008-August 2011, September 2011-March 2014, April 2014-April 2015, May 2015-February 2017, March 2017-March 2020, and April 2020-present. Universa ran a BSPP separately-managed account from March 2008 through August 2008 but the account was neither administered nor audited.

Actual Performance Results for Individual BSPP Funds Differ (pg 14). The hypothetical and actual BSPP performance results shown differ from the actual performance results for other BSPP clients during those periods. Clients may specify parameters for the BSPP strategy related to systematic risk-budgeting and profit-taking, which can also result in performance differences. Further, it can take several months for Universa to fully deploy the BSPP strategy for new BSPP funds (especially those with significant Protection Sizes), and thus the performance during the periods before full deployment of the strategy does not reflect a BSPP strategy's performance when fully invested. In addition, any client can at any time request one or more of an adjustment to a Protection Size, purchase or sale of individual positions in a BSPP portfolio, liquidation of an entire portfolio, or withdrawal of excess margin, and some clients have restricted lists that limit the securities in which Universa can invest on their behalf. These decisions by individual clients lead to significant differences in performance among client accounts and thus it is difficult to select any BSPP fund during those periods that accurately reflects the performance of the BSPP strategy (without the effect of individual client decision-making). Universa believes, however, that the performance shown is a fair representation of an actual BSPP client's performance during the period shown. Monthly performance information of other client accounts is available on request from Universa.

CFTC-Required Disclosure re Hypothetical Performance (pg 14). These results are based on simulated or hypothetical performance results that have certain inherent limitations. Unlike the results in an actual performance record, these results do not represent actual trading. Also, because these trades have not actually been executed, these results may have under- or over-compensated for the impact, if any, of certain market factors, such as lack of liquidity. Simulated or hypothetical trading programs in general are also subject to the fact that they are designed with the benefit of hindsight. No representation is being made that any account or fund will or is likely to achieve profits or losses similar to those being shown.

**Comparisons to Other Risk Mitigation Strategies and S&P (pg 14).** Universa compares the returns of a portfolio combining the S&P with the BSPP to the returns of the S&P paired with other risk mitigation strategies solely for illustrative purposes; the investments in the BSPP strategy are entirely different from the investments in those other strategies. In addition, Universa's BSPP clients are likely to compare the performance of a stand-alone investment in publicly-traded equities (for which the S&P is a proxy) with a paired investment in the S&P and the BSPP, so Universa includes the performance of the S&P as well in this presentation. The S&P is an unmanaged, capitalization-weighted index of the common stocks of 500 large U.S. companies designed to measure the performance of the broad U.S. economy. In contrast, the BSPP strategy invests in options, futures (including options thereon) and other instruments as well as short sales, and includes a component designed to profit during months in which the S&P experiences significant declines. The S&P performance reflects the reinvestment of interest, dividends and other earnings.

No Duty to Update. Neither Universa nor any of its affiliates assumes any duty to update or correct any information in this document for subsequent changes of any kind.

Jano ne.



May 10, 2022

To:	Board of Retirement Marin County Employees' Retirement Association (MCERA)
From:	Jeff Wickman A Retirement Administrator
Subject:	Considerations for Invoking the Provisions of Assembly Bill 361 in order to Conduct Board and Standing Committee Meetings Virtually

#### Background

On October 13, 2021, the Board of Retirement adopted Resolution No. 2021/22-01 Authorizing Teleconferencing for Board and Standing Committee Meetings Pursuant to Government Code §54953(e) of the Brown Act ("Section 54953(e)"), through November 12, 2021. The Resolution was adopted in recognition that the conditions for invoking the provisions in Assembly Bill (AB) 361, permitting the Board to conduct remote access meetings, were similar to the way it had been meeting during the COVID-19 pandemic. Since this time the Board has taken the following subsequent actions:

- November 3, 2021, the Board considered the circumstances of the emergency and made findings to support invoking the provisions through December 3, 2021.
- December 2, 2021 the Board considered the circumstances of the emergency and made findings to support invoking the provisions through January 1, 2022.
- December 15, 2021, the Board considered the circumstances of the emergency and made findings to support invoking the provisions through January 14, 2022.
- January 12, 2022, the Board considered the circumstances of the emergency and made findings to support invoking the provisions through February 11, 2022.
- February 9, 2022, the Board considered the circumstances of the emergency and made findings to support invoking the provisions through March 11, 2022.
- March 2, 2022, the Board considered the circumstances of the emergency and made findings to support invoking the provisions through April 1, 2022.
- March 16, 2022, the Board considered the circumstances of the emergency and made findings to support invoking the provisions through April 15, 2022.
- April 13, 2022, the Board considered the circumstances of the emergency and made findings to support invoking the provisions through May 13, 2022.
- May 4, 2022, the Board considered the circumstances of the emergency and made findings to support invoking the provisions through June 3, 2022.

The precondition to the Board reinvoking Section 54953(e) and conducting its meetings via Zoom and YouTube for an additional thirty (30) days, if certain conditions exists, has been the State of Emergency that the Governor Newsom declared in March 2020. The state of emergency is still in place.

#### Recommendation

Because the state of emergency is still in place, the Board can, consistent with its prior practice, making the finding(s) necessary to continue to conduct meetings via Zoom and YouTube under Section 54953(e), for the next thirty (30) days, because the following conditions exist: 1) a State of Emergency under Government Code section 8625 remains in effect; and 2) (i) State or local officials have put in place social distancing measures to protect health, or, (ii) the local agency board determines that meeting in person would present imminent risks to the health and safety of attendees. The provisions would extend through June 16, 2022 covering the June 8 Board and June 15 Investment Committee meetings.



Marin County Employees' Retirement Association

# ABOUT MCERA

An Overview of Participating Employers and Members, and the Role of MCERA Staff in Benefits Administration

Board of Retirement Strategic Workshop May 17, 2022

Michelle Hardesty, Assistant Retirement Administrator Sydney Fowler-Pata, Department Analyst

# AGENDA

- Participating Employers
- Our Members
- Retirement Benefits
- How We Serve Our Customers

# PARTICIPATING EMPLOYERS

- County of Marin
- City of San Rafael
- Marin Superior Court
- Novato Fire Protection District
- Southern Marin Fire Protection District
- Marin/Sonoma Mosquito & Vector Control
- Tamalpais Community Services District
- Marin City Community Services District
- LAFCO



# OUR MEMBERS

## **MEMBERSHIP CATEGORIES – ALL MEMBERS**



OUR MEMBERS

#### **COUNTY & DISTRICTS**





#### **NOVATO FIRE**



# OUR MEMBERS

## A WIDE VARIETY OF ROLES AND SERVICES
- Determined by each employer
- New tiers have replaced older tiers over time
- Now 45 tiers, each with a unique combination of
  - Benefit formula
  - Highest average compensation period
  - Maximum cost of living adjustment
  - Minimum retirement age

#### **RETIREMENT TIERS BY EMPLOYER**

			COUNTY OF M	IARIN			
Membership Type	Tier	Minimum Age to Retire	Formula	Gov't Code Section	Membership Date	Maximum COLA	HAC Period
Safety Classic	Tier 1A	50	3% at 55	31664.2	7/1/50-6/30/80	4%	1 year
Safety Classic	Tier 1B	50	3% at 50	31664.1	7/1/50-6/30/80	4%	1 year
Safety Classic	Tier 2A*	50	3% at 55	31664.2	7/1/80-12/31/12	2%	3 years
Safety Classic	Tier 2B**	50	3% at 50	31664.1	7/1/80-12/31/12	2%	3 years
Safety PEPRA	Tier 3	50	2.7% at 57	7522.25(d)	1/1/13-present	2%	3 years
General Classic	Tier 1	50	2% at 55½	31676.14	1/1/57-6/30/80	4%	1 year
General Classic	Tier 2***	50	2% at 61¼	31676.1	7/1/80-6/1/02	2%	3 years
General Classic	Tier 3***	50	2% at 55	31676.16	7/1/80-6/30/08	2%	3 years
General Classic	Tier 3A	55	2% at 55	31676.16	7/1/08-12/31/11	2%	3 years
General Classic	Tier 4	55	2% at 61¼	31676.1	1/1/12-12/31/12	2%	3 years
General PEPRA	Tier 5	52	2% at 62	7522.20	1/1/13-present	2%	3 years

\* Tier 2A applies only to Probation safety, Sheriff's Captains, Undersheriff, and Sheriff/Coroner classifications.

\*\* The benefit formula for deferred County of Marin safety Tier 2B members with termination dates on or before July 6, 2002 is 2% at 50. The 3% at 55 benefit formula applies to deferred members with termination dates from July 7, 2002 through December 31, 2004. All other safety Tier 2B provisions are the same.

\*\*\* When the County created general Tier 3, general members were given an option to "opt out" of Tier 3 and remain in Tier 2. If members did not complete and return the election form in 2002, all service credit was automatically transferred to Tier 3.

#### **RETIREMENT TIERS BY EMPLOYER**

			CITY OF SAN	RAFAEL			
Momborship Tupo	Tior	Minimum	Formula	Gov't Code	Membership	Maximum	HAC
wembership type	Tier	Age to Retire	Formula	Section	Date	COLA	Period
Safety Classic	Tier 1	50	3% at 55	31664.2	Prior to 7/1/11	3%	1 year
Safety Classic	Tier 2	50	3% at 55	31664.2	7/1/11-12/31/12	2%	3 years
Safety PEPRA	Tier 3	50	2.7% at 57	7522.25(d)	1/1/13-present	2%	3 years
General Classic	Tier 1	50	2.7% at 55	31676.19	Prior to 7/1/11	3%	1 year
General Classic	Tier 2	55	2% at 55	31676.16	7/1/11-12/31/12	2%	3 years
General PEPRA	Tier 3	52	2% at 62	7522.20	1/1/13-present	2%	3 years

#### **RETIREMENT TIERS BY EMPLOYER**

			LAFCO	)			
	Minimum Age	Formula	Gov't Code	Membership	Maximum	HAC	
Membership Type	nei	to Retire	Section	Date	COLA	Period	
General Classic	Tier 2	50	2% at 58½	31676.11	Prior to 7/1/03	4%	1 year
General Classic	Tier 3	50	2% at 55	31676.16	7/1/03-12/31/12	2%	3 years
General PEPRA	Tier 4	52	2% at 62	7522.20	1/1/13-present	2%	3 years

Membership Type	Tier	Minimum Age to Retire	Formula	Gov't Code Section	Membership Date	Maximum COLA	HAC Period
General Classic	Tier 1	50	2% at 58½	31676.11	Prior to 1/1/13	4%	1 year
General PEPRA	Tier 2	52	2% at 62	7522.20	1/1/13-present	4%	3 years

#### **RETIREMENT TIERS BY EMPLOYER**

		М	ARIN SUPERIO	OR COURT			
Membershin Type	Momborshin Tuno Tior	ier Minimum Age to Retire	Formula	Gov't Code	Membershin Date	Maximum	HAC
membership type	i i e i		ronnaia	Section	Membership Bate	COLA	Period
General Classic	Tier 1	50	2% at 55½	31676.14	7/1/50-6/30/80	4%	1 year
General Classic	Tier 2*	50	2% at 61¼	31676.1	7/1/80-12/31/08	2%	3 years
General Classic	Tier 3*	50	2% at 55	31676.16	7/1/80-12/31/08	2%	3 years
General Classic	Tier 4	55	2% at 55	31676.16	1/1/09-12/31/12	2%	3 years
General PEPRA	Tier 5	52	2% at 62	7522.20	1/1/13-present	2%	3 years
* When the Courts created general Tier 3, members were given an option to "opt out" of Tier 3 and remain in Tier 2. If							

you did <u>not</u> complete and return the election form in 2002, all of your service credit was automatically transferred to Tier 3.

#### MARIN/SONOMA MOSQUITO & VECTOR CONTROL DISTRICT

Membership Type	Tier	Minimum Age to Retire	Formula	Gov't Code Section	Membership Date	Maximum COLA	HAC Period
General Classic	Tier 1	50	2% at 55½	31676.14	Prior to 1/1/13	4%	1 year
General PEPRA	Tier 2	52	2% at 62	7522.20	1/1/13-present	4%	3 years

#### **RETIREMENT TIERS BY EMPLOYER**

		NOVATO	O FIRE PROTE	CTION DISTRIC	СТ		
Membership	Tior	Minimum	Formula	Gov't Code	Membership	Maximum	HAC
Туре	nei	Age to Retire	Torritua	Section	Date	COLA	Period
Safety Classic	Tier 1*	50	3% at 50	31664.1	Prior to 1/1/08	4%	1 year
Safety Classic	Tier 2	50	3% at 55	31664.2	1/1/08-12/31/12	4%	1 year
Safety PEPRA	Tier 3	50	2.7% at 57	7522.25(d)	1/1/13-6/30/17	4%	3 years
Safety PEPRA	Tier 3A	50	2.7% at 57	7522.25(d)	7/1/17-present	2%	3 years
General Classic	Tier 1*	50	2% at 55	31676.16	Prior to 1/1/13	4%	1 year
General PEPRA	Tier 2	52	2% at 62	7522.20	1/1/13-5/31/15	4%	3 years
General PEPRA	Tier 2A	52	2% at 62	7522.20	6/1/15-present	2%	3 years
* Deferred Novato Fire Tier 1 members who terminated employment on or before December 31, 2001 have a							
different benefit formula. For these members in safety Tier 1, the 2% at 50 formula applies. For these members in							
general Tier 1, the 2% at 58.5 formula applies. All other provisions for safety and general Tier 1 remain the same.							

#### **RETIREMENT TIERS BY EMPLOYER**

		SOUTHERN M	1ARIN FIRE PI	ROTECTION D	ISTRICT		
Momborship Tupo	Tior	Minimum	Formula	Gov't Code	Membership	Maximum	FAC
Membership Type	nei	Age to Retire	FUIIIIIId	Section	Date	COLA	Period
Safety Classic	Tier 1*	50	3% at 50	31664.1	Prior to 7/1/05	4%	1 year
Safety Classic	Tier 2	50	3% at 55	31664.2	7/1/05-6/30/14	4%	1 year
Safety Classic	Tier 2A	50	3% at 55	31664.2	7/1/14-present	3%	3 years
Safety PEPRA	Tier 3	50	2.7% at 57	7522.25(d)	1/1/13-6/30/14	4%	3 years
Safety PEPRA	Tier 3A	50	2.7% at 57	7522.25(d)	7/1/14-present	3%	3 years
General Classic	Tier 1	50	2.7% at 55	31676.19	Prior to 1/1/13	4%	1 year
General PEPRA	Tier 2	52	2% at 62	7522.20	1/1/13-present	4%	3 years
* The benefit formula for deferred Southern Marin Fire safety Tier 1 members who terminated employment with							
the district on or before June 30, 2001 is 2% at 50. All other safety Tier 1 provisions are the same.							

#### TAMALPAIS COMMUNITY SERVICES DISTRICT

Membership Type	Tier	Minimum Age to Retire	Formula	Gov't Code Section	Membership Date	Maximum COLA	FAC Period
General Classic	Tier 1	50	2% at 58½	31676.11	Prior to 1/1/13	4%	1 year
General PEPRA	Tier 2	52	2% at 62	7522.20	1/1/13-present	4%	3 years

#### **COMPLIANCE WITH GOVERNING LAWS**

- County Employees' Retirement Law
- Internal Revenue Code
- Public Employees' Pension Reform Act
- Family Code
- MCERA Bylaws, policies and resolutions
- Employer-specific governance
- Other laws (HIPAA, cybersecurity)

#### MCERA STAFF ROLES

Each unit within MCERA has general responsibilities, and each staff member has a unique role within the team:

- Benefits Team
- Accounting Team
- Analysts
- Supervisors/Managers
- Assistant Administrator
- Administrator

#### **SERVING MEMBERS**

- Being accessible and available to our members is a priority.
- Ways we assist:
  - Benefit estimates / purchase calculations
  - Annual benefit statements (active) and Form 1099 (retired)
  - Disability retirement
  - Counseling via
    - New employee orientation
    - One on one (in person, phone, virtual)
  - Retirement process
  - Accurate financial accounting
  - Retiree medical benefits administration

#### SERVING EMPLOYERS

- New employee onboarding support
- Contribution rate changes and implementation
- Active payroll support
- Retiree return to work
- Employer audits
- Communicate/administrate retiree medical benefit changes

#### **CUSTOMER SERVICE COMPLEXITIES**

- Tailored to each employer's unique benefits
- Plan complexity requires us to answer not only what the member wants to know, but what they need to know
- Relationship can last more than one lifetime

# OUR MISSION

Our mission is to provide superior customer service to members and beneficiaries of the Marin County Employees' Retirement Association through efficient benefits administration and a commitment to integrity and prudent financial management.

# Benefit Payments by Location

Data Analysis as of 12/31/2021

Sydney Fowler-Pata, Department Analyst Board of Retirement Strategic Workshop 5/17/2022



### LOCATION DISTRIBUTION ACROSS THE USA



### BENEFITS DISTRIBUTION ACROSS THE USA





4 Mcera



### BENEFITS DISTRIBUTION ACROSS CALIFORNIA



### PERCENTAGE OF TOTAL MONTHLY BENEFITS PAID TO BAY AREA RETIREES



6 Mcera

# **KEY STATISTICS**

3,422	Total retirees
\$14,378,504	Total monthly benefits paid by MCERA
2,835	Retirees in CA (83% of total)
\$12,336,662	Monthly benefits paid in CA (86% of total)
1,135	Retirees in Marin (33% of total, 40% of CA)
\$5,103,803	Monthly benefits paid in Marin (35% of total, 41% of CA)
1,963	Retirees in Marin & Sonoma (57% of total, 69% of CA)
\$4,187,341	Monthly benefits paid in Marin & Sonoma (64% of total, 75% of CA)
11	Non-US countries/territories (\$33,700 per month)