2021 INVESTMENT OUTLOOK

SAN BERNARDINO EMPLOYEES' RETIREMENT SYSTEM

San Bernardino County Employees' Retirement Association

March 9, 2021

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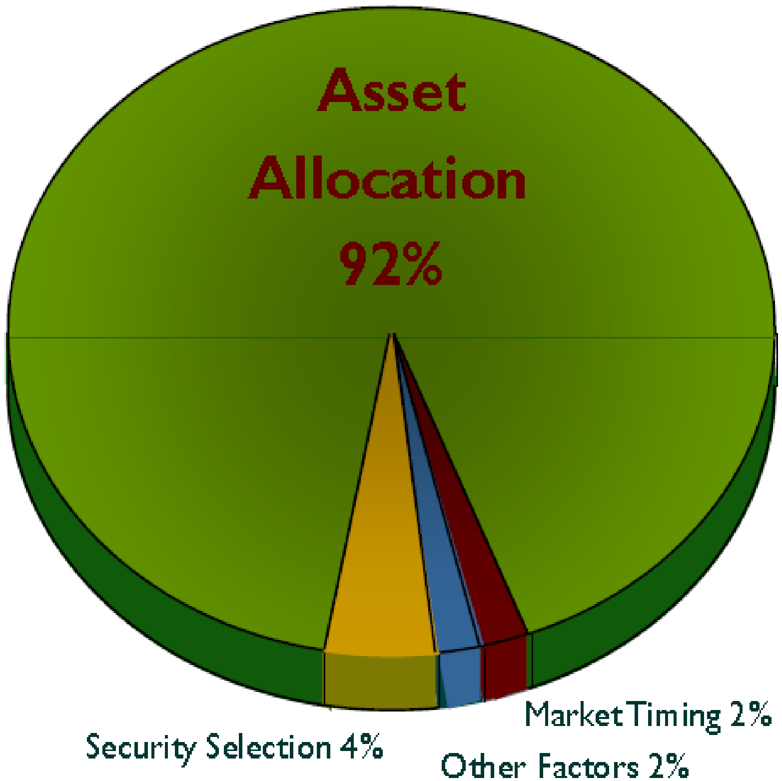
ASSET ALLOCATION: THE KEY INVESTMENT DECISION

Determinants of Portfolio Performance



Source: Determinants of Portfolio Performance II: An Update, Brinson, et al, Financial Analysts Journal, May/June 1991, pp 40-48.

ASSET LIABILITY FRAMEWORK

Identify Key Issues

- Investment-related themes
- Demographic trends/changes
- Regulatory environment

Projection of Assets & Liabilities

- Funded ratio
- Contribution requirements

Multi-Faceted Risk Assessment

- Mean-variance return analysis
- Economic scenario analysis
- Liquidity stress test
- Deterministic modeling
- Stochastic modeling

Asset Allocation Recommendation

- Better risk-adjusted returns
- Better performance in specific economic environments

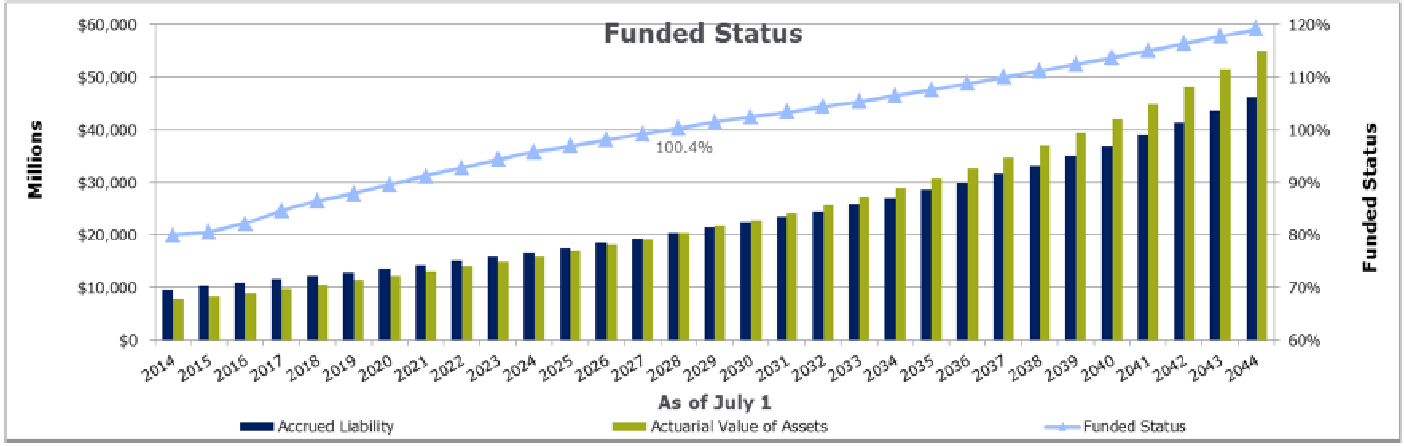
ASSET LIABILITY MODELING PROCESS

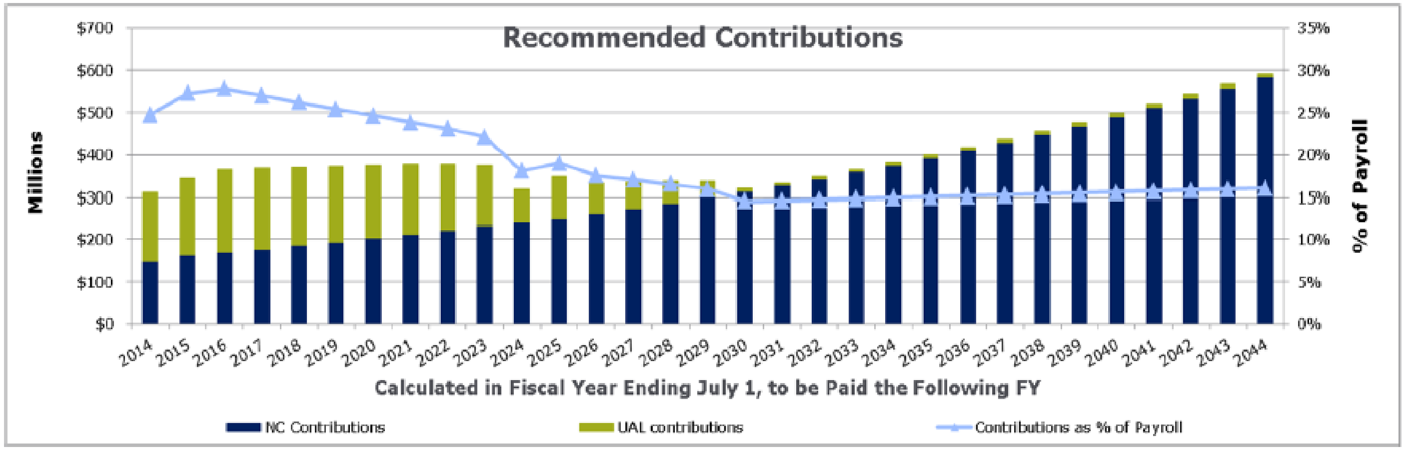
- **The goals of the study are to:**
  - Review the current and projected financial status of the Plan
    - Project Pension and benefit payments
    - Project asset growth and contribution levels
  - Assess the appropriateness of the current asset allocation relative to the expected progress of liabilities and cash flows
  - Evaluate alternative asset mixes in light of liabilities and cash flows
  - Use multiple models to develop comprehensive understanding of plan dynamics
    - Risk and return of asset allocation
    - Relationship between assets and liabilities

- **SBCERA investment objectives (from the Investment Policy Statement):**
  - The overall objective of SBCERA is to provide participants with retirement, disability, death and survivor benefits as provided for under the County Employees' Retirement Law of 1937. This will be accomplished through employer/employee contributions, and an investment plan designed to maintain adequate funding of the plan's liabilities over time.
  - SBCERA's Investment Policy is designed to produce a total portfolio long-term real return that adequately funds its liabilities, meets expenses and minimizes the cost of funding the Plan. Consequently, prudent risk-taking is warranted within the context of overall portfolio diversification to meet this goal. Due emphasis will also be placed on the preservation of capital necessary to meet Plan liabilities.
  - It is recognized that a strategic long-run asset allocation plan implemented in a consistent and disciplined manner will be the major determinant of the Plan's investment performance. Asset allocation modeling identifies asset classes the Plan will utilize, and the target percentage that each class represents of the total fund.
  - Minimize risk of loss.
  - Meet or exceed the assumed actuarial rate of return over the long-term.

PREVIOUS ALM EXAMPLE

30 Year Projections





- **Contributions as a percentage of payroll begin to slowly decrease over the projection period as funded status improves**
  - A large loss from 2003 becomes fully amortized in 2024, creating a temporary drop in the overall contribution rate
- **Net Cash Flow declines to negative as benefit payments are projected to increase faster than contributions**

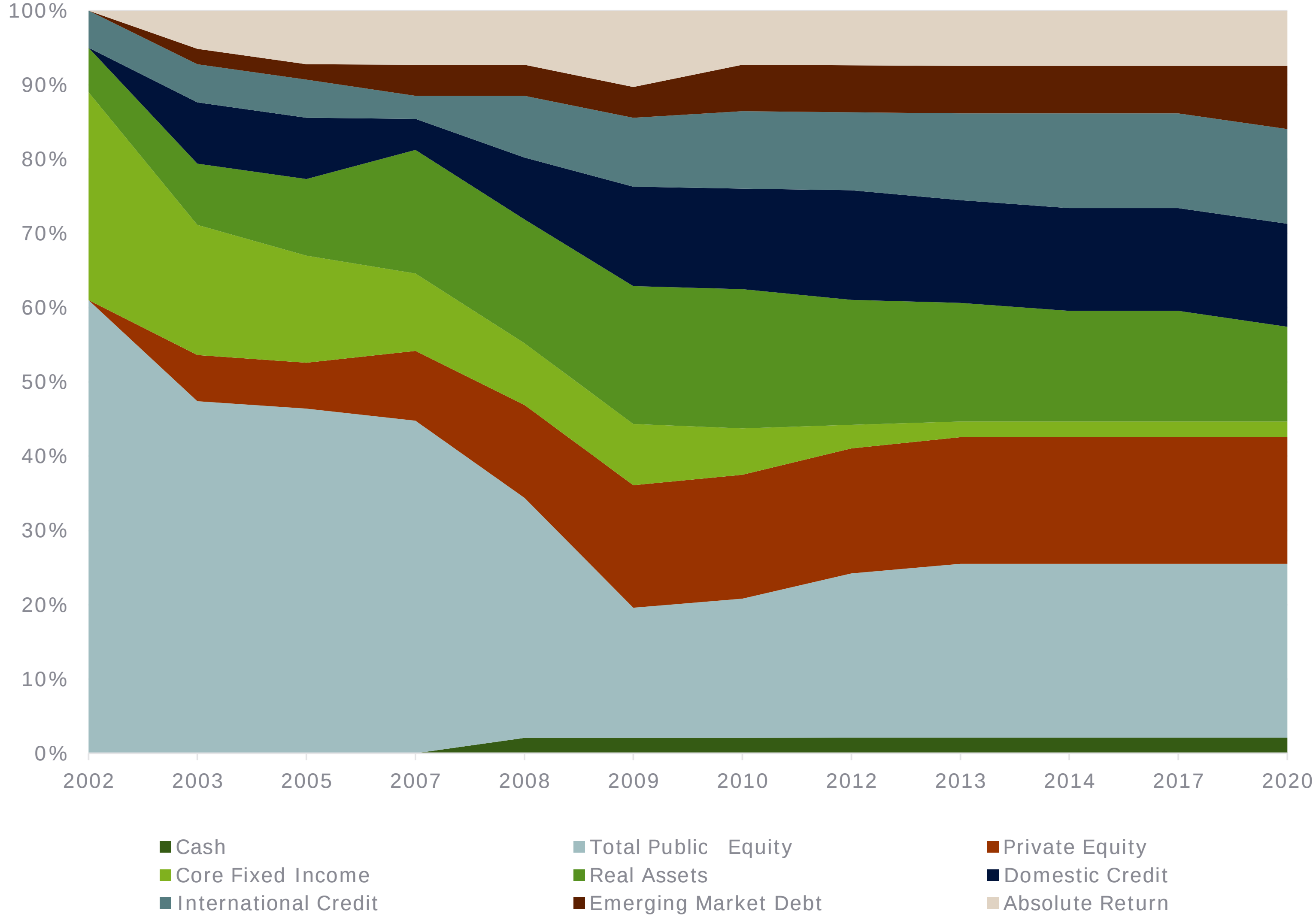
SBCERA ASSET/LIABILITY MODEL TIMELINE

Date	Milestone
March 9, 2021 – Investment Committee	2021 Capital Markets Assumptions Overview
April 13, 2021 – Investment Committee	Review Potential Changes to Asset Allocation Targets
May 18, 2021 – Investment Committee	Present 2021 Asset Liability Modeling Study
June 3, 2021 – Board Meeting	Approve Investment Policy Asset Allocation Targets, Ranges, Benchmarks

ASSET ALLOCATION RANGES & BENCHMARKS

Asset Class	Target	Range	Benchmark
Domestic Equities			**Russell 3000 Index**
Passive Large Cap	8.00%	0% – 11%	
Passive Small Cap	2.00%	-3% – 7%	
Volatility	3.00%	0% – 8%	
Subtotal	**13.00%**	**8% – 18%**	
International Equities			**MSCI ACWI ex USA Index**
Developed Market	6.00%	1% – 11%	
Volatility	3.00%	0% – 8%	
Emerging Market Equity	6.00%	1% – 11%	
Subtotal	**15.00%**	**10% – 20%**	
US Fixed Income			**Bloomberg Barclays US Aggregate Bond Index**
Core	2.00%	-3% – 7%	
High Yield/Credit Strategies	13.00%	8% – 18%	
Subtotal	**15.00%**	**10% – 20%**	
Global Fixed Income			**Bloomberg Barclays Global ex US Aggregate Bond Index**
International Core	1.00%	-4% – 6%	
International Credit	11.00%	6% – 16%	
Emerging Market Debt	8.00%	1% – 12%	
Subtotal	**20.00%**	**13% – 23%**	
Real Estate			**NCREIF Property Index**
Core	3.50%	0% – 5%	
Non-Core	3.50%	0% – 5%	
Subtotal	**7.00%**	**0% – 14%**	
Real Assets			**67% Bloomberg Commodities Index 33% BBG US TIPS Index**
Timber	2.00%	0% – 7%	
Commodities	2.00%	-1% – 7%	
Infrastructure	1.00%	0% – 6%	
Subtotal	**5.00%**	**0% – 10%**	
Private Equity	**16.00%**	**6% – 21%**	**Russell 3000 Index**
Absolute Return	**7.00%**	**0% – 12%**	**Bloomberg Barclays US Aggregate Bond Index**
Cash	**2.00%**	**0% – 10%**	**91 Day T-Bill Index**

ASSET ALLOCATION HISTORY



CAPITAL MARKET EXPECTATIONS

ASSUMPTION DEVELOPMENT

Assumptions are published for over 70 asset classes

NEPC publishes 10- and 30-year return forecasts

Based on data as of 12/31/20

Assumptions are developed with NEPC valuations models and rely on a building block approach

The 10-year return outlook is intended to support strategic asset allocation analysis

20-year return assumptions are used for actuarial inputs and long-term planning

Asset Allocation Process
Finalize list of new asset classes
Calculate asset class volatility and correlation assumptions
Set model terminal values, growth and inflation inputs
Models updated at quarter-end
Review model outputs and produce return assumptions
Assumptions released on the 15th calendar day after quarter-end

BUILDING BLOCKS METHODOLOGY

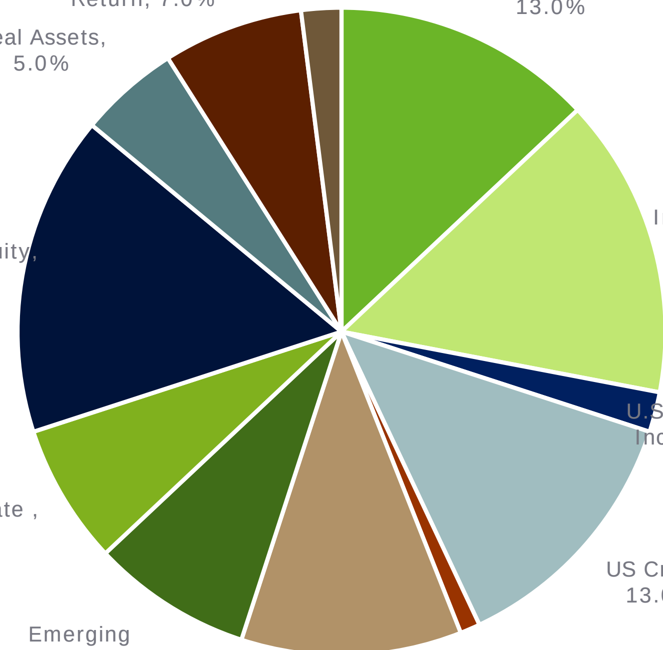
Asset models reflect current and forecasted market data to inform expected returns

Systematic inputs are paired with a long-term trend rate path for terminal values

Model inputs are aggregated to capture key return drivers for each asset class

Building block inputs will differ for equity, fixed income, and real assets

TARGET MIX – USING 2021 ASSUMPTIONS



	10 Year		30 Year	
	2020	2021	2020	2021
Expected Return	7.2%	6.7%	8.2%	7.7%
Expected Volatility	11.6%	11.9%	11.6%	11.9%
Sharpe Ratio	0.46	0.50	0.50	0.51
Sortino Ratio	0.78	0.70	0.92	0.82

Probabilities using 2021 Assumptions	
Probability of 1-Year Return Under 0.00%	31.8%
Probability of 10 Year Return Under 0.00%	6.8%
Probability of 10 Year Return Under 7.25%	54.9%
Probability of 30-Year Return Under 7.25%	43.5%

Volatility calculated using accounting volatility

TARGET MIX USING 2021 ASSUMPTIONS

	Policy Target	Average Public Fund > $1B	Global 70/30
Total Cash	**2%**	**2.3%**	**0%**
Large Cap Equities	11%	22.5%	0%
Small/Mid Cap Equities	2%	4.6%	0%
Int'l Equities (Unhedged)	9%	14.5%	0%
Emerging Int'l Equities	6%	6.3%	0%
Global Equity	0%	0%	70%
Private Equity	16%	13%	0%
Total Equity	**44%**	**60.9%**	**70%**
Core Bonds	2%	20%	23%
High Yield Bonds	0%	3%	0%
Emerging Market Debt	8%	0%	0%
Non-US Bonds (Unhedged)	1%	0%	0%
Private Debt	24%	0%	0%
Total Fixed Income	**35%**	**23%**	**23%**
Core Real Estate	3.5%	7%	7%
Non-Core Real Estate	3.5%	0%	0%
Private Real Assets - Energy/Metals	5%	0%	0%
Total Real Assets	**12%**	**7%**	**7%**
GAA	**0%**	**3.3%**	**0%**
Absolute Return	**7%**	**3.4%**	**0%**

Expected Return 10 yrs	6.70%	5.50%	5.25%
Expected Return 30 yrs	7.67%	6.52%	6.22%
Standard Dev	11.86%	11.59%	13.20%
Sharpe Ratio (10 years)	0.50	0.41	0.34
Sharpe Ratio (30 years)	0.51	0.41	0.33
Probability of 1-Year Return Under 0%	31.8%	33.7%	34.5%
Probability of 10-Year Return Under 0%	6.8%	9.2%	10.4%
Probability of 10-Year Return Under 7.25%	54.9%	66.3%	68.4%
Probability of 30-Year Return Under 7.25%	43.5%	62.0%	66.6%

Standard deviation is calculated using accounting volatility.
Capital markets expectations are as of December 31, 2020

CORE GEOMETRIC RETURN ASSUMPTIONS

	Asset Class	10-Year Return	30-Year Return	Volatility	Year-over-Year Change: 10-Year Return	Year-over-Year Change: 30-Year Return	Year-over-Year Change: Volatility
	Cash	0.80%	1.90%	0.60%	-1.00%	-0.50%	-0.40%
	US Inflation	2.00%	2.20%	-	-0.003	-0.003	-
Equity	US Large-Cap Equity	5.40%	6.30%	16.60%	0.40%	-0.40%	0.10%
Equity	Non-US Developed Equity	5.90%	6.50%	19.70%	-0.10%	-0.50%	-0.80%
Equity	Emerging Market Equity	7.50%	8.40%	28.70%	-1.50%	-0.80%	0.70%
Equity	*Global Equity**	*6.20%*	*7.00%*	*18.10%*	*0.00%*	*-0.50%*	*0.31%*
Equity	*Private Equity**	*9.30%*	*10.10%*	*24.80%*	*-0.10%*	*-0.60%*	*0.22%*
Fixed Income	US Treasury Bond	0.90%	2.00%	5.30%	-1.00%	-0.70%	-0.20%
Fixed Income	*US Aggregate Bond**	*1.40%*	*2.70%*	*5.70%*	*-1.10%*	*-0.70%*	*-0.31%*
Fixed Income	US TIPS	1.00%	2.10%	5.80%	-1.20%	-0.60%	-0.70%
Fixed Income	US High Yield Corporate Bond	2.90%	5.00%	11.50%	-1.20%	-0.60%	-1.00%
Fixed Income	*Private Debt**	*6.10%*	*7.50%*	*11.90%*	*-0.60%*	*-0.30%*	*0.36%*
Real Assets	Commodity Futures	0.90%	3.30%	18.50%	-3.10%	-1.50%	-0.50%
Real Assets	US REIT	5.50%	6.70%	21.40%	0.10%	0.20%	1.40%
Real Assets	Core Real Estate	4.40%	5.60%	15.00%	-0.80%	-0.40%	2.00%
Real Assets	Private Real Assets - Infrastructure	5.40%	6.60%	12.50%	-0.50%	-0.10%	0.50%
	Absolute Return*	4.00%	5.20%	8.70%	-1.00%	-0.70%	0.52%

*Calculated as a blend of other asset classes

KEY MARKET THEMES

NEPC KEY MARKET THEMES

Key Market Themes are factors that influence global markets and remain relevant for an extended period

Themes may be disrupted and incite market volatility

The conclusion of a theme may alter market dynamics and NEPC's long-term market outlook

Our intent is for clients to be aware of these themes and understand their implications for the capital markets

NEPC currently has four Key Market Themes:

Virus Trajectory	Permanent Interventions	Globalization Backlash	China Transitions

ASSESSING THE KEY MARKET THEMES

AS OF 12/31/20

Theme	Dormant	Faded	Neutral	Prevalent	Dominant
Virus Trajectory *No Change in Status*					**Dominant**

- Virus Trajectory continues to be the dominant force driving global economic outcomes
- Market sentiment improved with successful vaccine candidates, though concerns remain around distribution, logistics, and supply of the vaccine
- Uncertainty remains as worsening COVID-19 trends and a potential new strain of the virus may impact the timing of an economic recovery

Theme	Dormant	Faded	Neutral	Prevalent	Dominant
Permanent Interventions *No Change in Status*					**Dominant**

- Permanent Interventions continues to be the dominant force driving global markets upward
- In the US, a fifth coronavirus relief package worth about $900 billion was passed. In Europe, the Central Bank expanded its emergency bond-buying program by €500B and extended the program

Theme	Dormant	Faded	Neutral	Prevalent	Dominant
Globalization Backlash *No Change in Status*				**Prevalent**	

- The importance of the theme may increase in coming years as the lasting impact from the pandemic is seen
- The world will likely be faced with an amplified wealth divide given economic and labor market disruptions, which historically has driven more volatile political outcomes

Theme	Dormant	Faded	Neutral	Prevalent	Dominant
China Transitions *No Change in Status*			**Neutral**		

- US-China tensions escalated as President Trump signed two executive orders that prohibited US investors from owning a select number of corporate securities from China and banned transactions with some Chinese software applications
- President-elect Biden has promised a policy review in 2021 regarding the US policy posture with China

MACRO ASSUMPTIONS

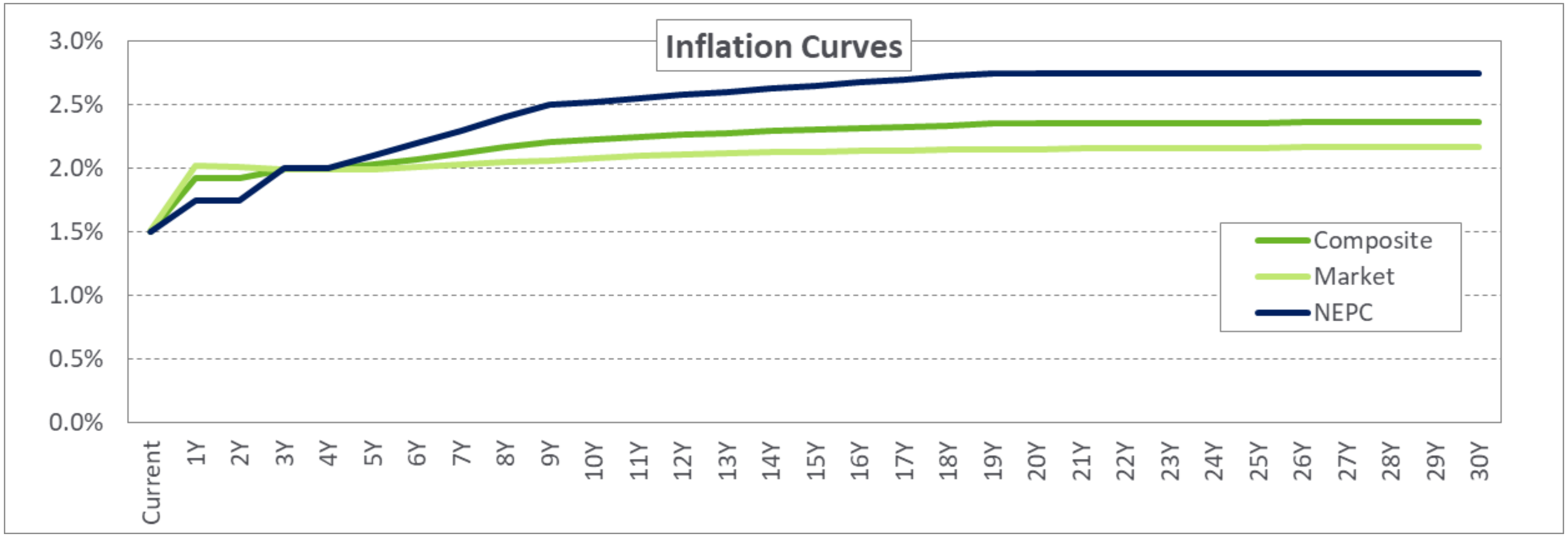
CURRENT ENVIRONMENT – SUMMARY

Subdued market pricing for inflation reflects the competing forces of inflationary and deflationary pressures

This base case is a consolidation of many potential paths: some inflationary, some deflationary

Those divergent paths highlight reasons to take inflation risk into stronger consideration in portfolio construction

NEPC's inflation path reflects higher inflation relative to market pricing, but does not call for "high" inflation in the near- or even medium-term



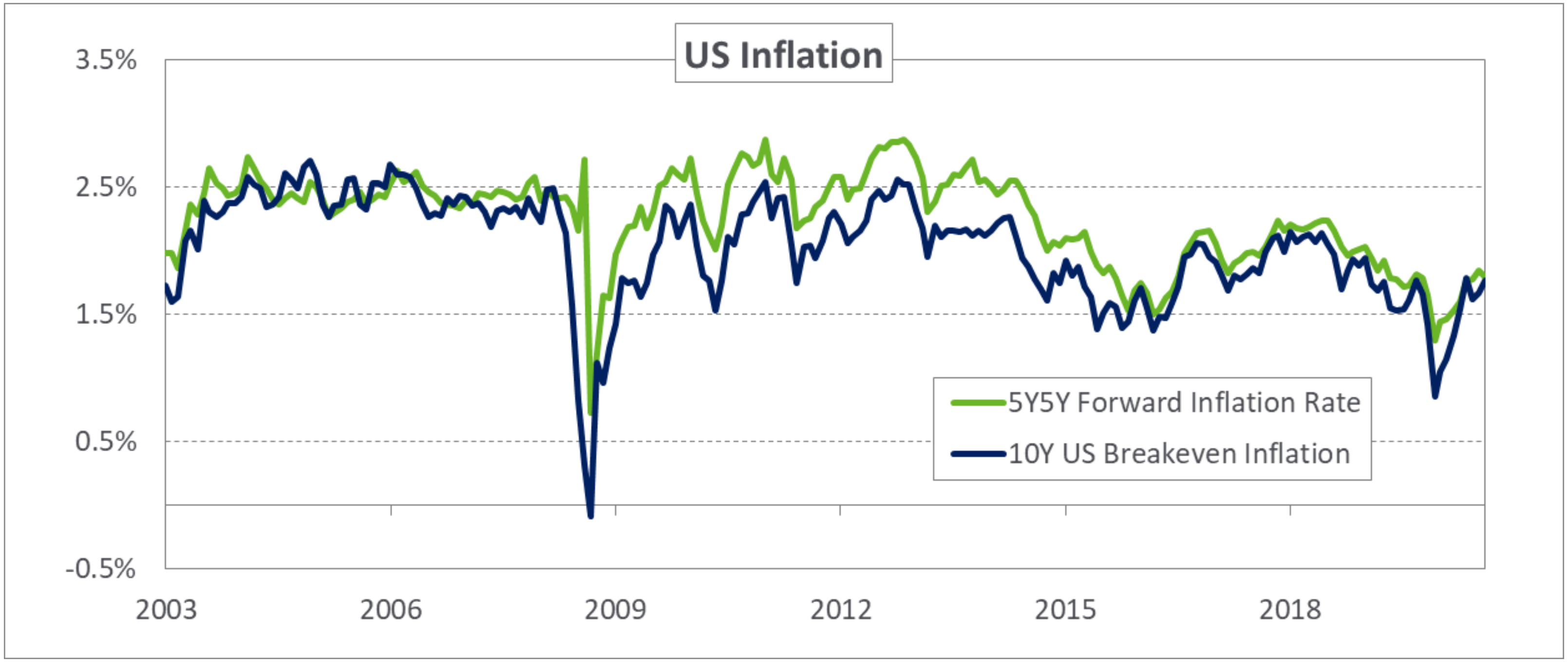
Source: FactSet, NEPC; as of 12/31/2020

THE IMPORTANCE OF INFLATION SURPRISES

While the absolute level of inflation matters from an economic perspective, market expectations relative to realized inflation tend to drive changes in asset prices

Market expectations have anchored to a low inflation environment over the long-term

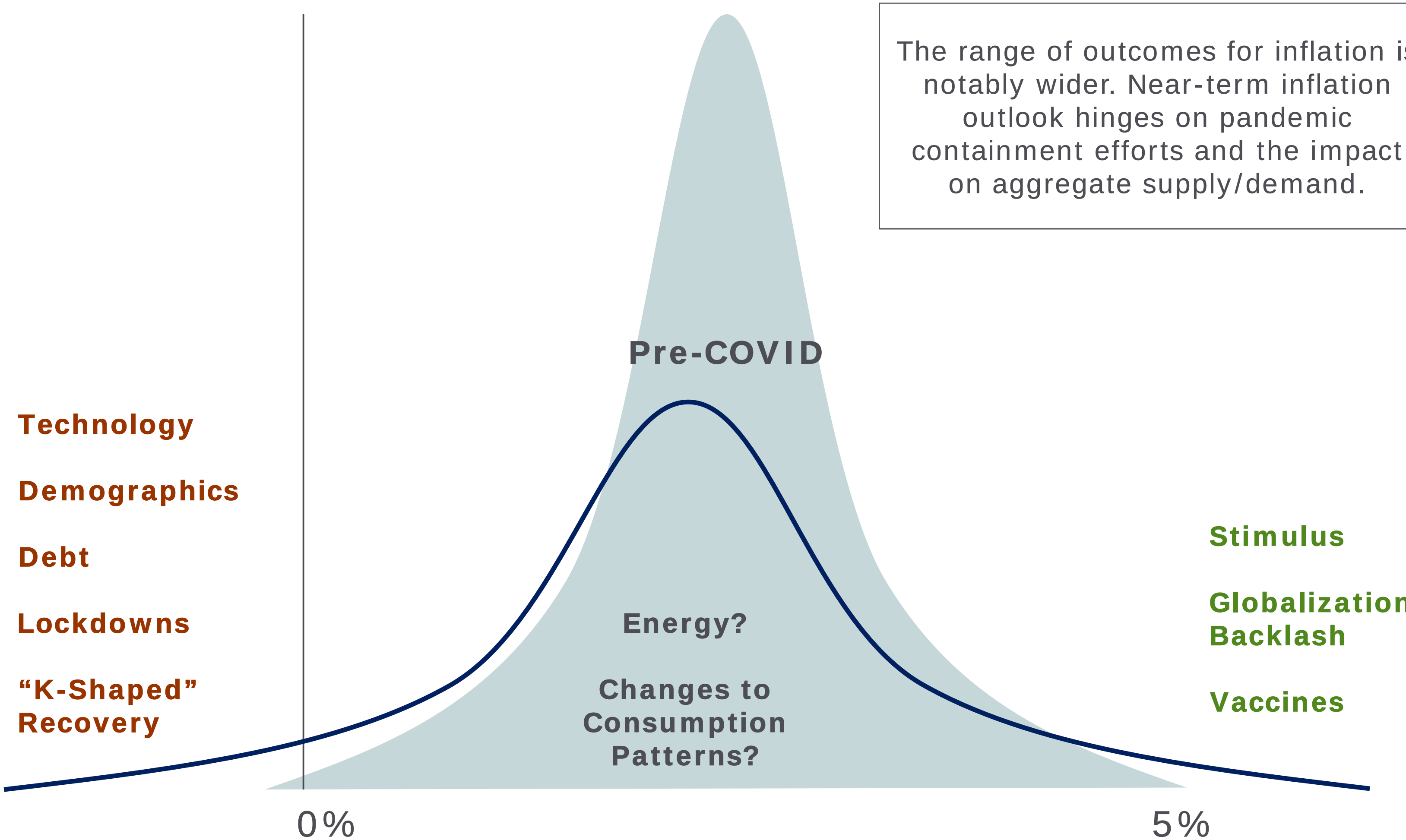
This dynamic makes an inflation surprise a key risk for asset pricing



Source: FactSet; as of 11/30/2020

A WIDE RANGE OF POTENTIAL OUTCOMES

The range of outcomes for inflation is notably wider. Near-term inflation outlook hinges on pandemic containment efforts and the impact on aggregate supply/demand.



INFLATION OVERVIEW

Inflation is an essential building block for developing asset class return assumptions

Inflation assumptions are model-driven and informed by multiple inputs for both the US and global assets

- Includes forecasts from international organizations (e.g. IMF), local consumer and producer price indices, global interest rate curves, and break-even inflation expectations

NEPC's US inflation expectation continues to reflect minimal expected inflation pressures over the long-term

- We anticipate near-term volatility in our inflation assumptions as market-based inflation expectations discount the full range of economic scenarios associated with the pandemic and response

Region	10-Year Inflation Assumption	30-Year Inflation Assumption
United States	2.0%	2.2%

US CASH EXPECTATIONS

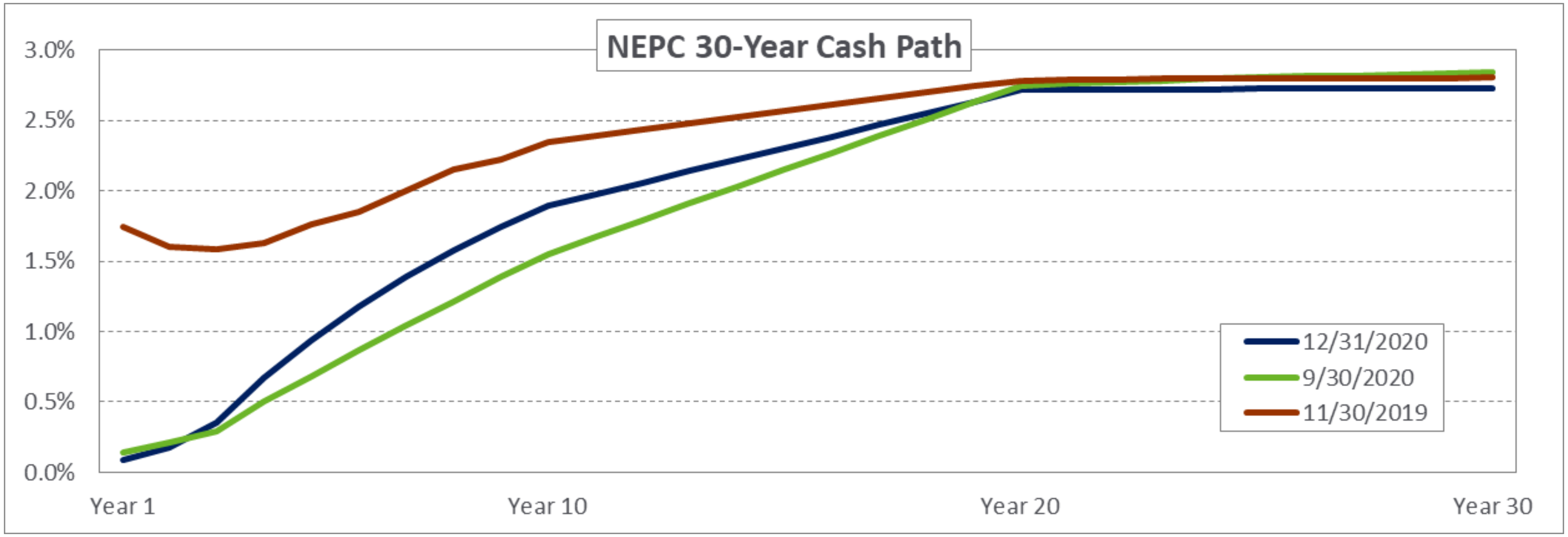
Cash is a foundational input for all asset class returns

The assumption is a direct building block input and is a relative value factor (cash + risk premia) in long-term return projections

Cash assumptions reflect inflation and real interest rates

US nominal rates are near historic lows for NEPC forecasts

Market expectations of suppressed real rates and minimal inflation create a slow trending path for cash to reach NEPC's long-term target



Source: Bloomberg, FactSet, NEPC

GLOBAL INTEREST RATE EXPECTATIONS

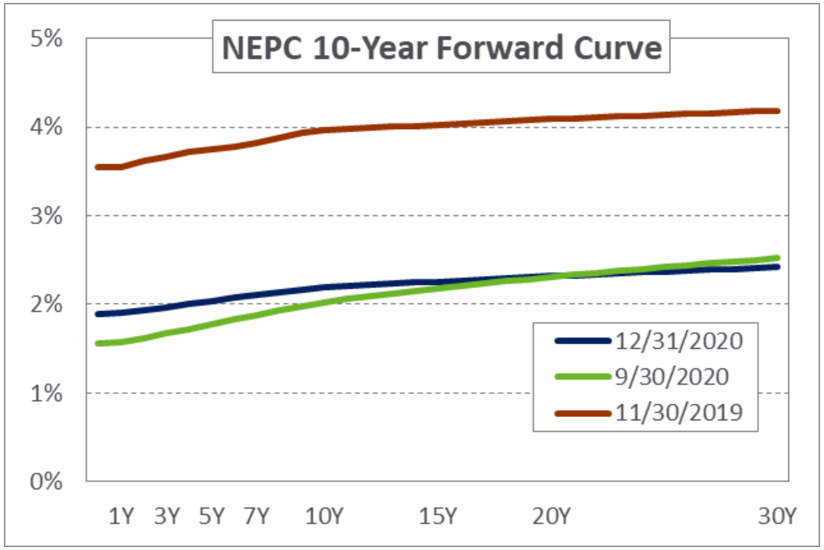
Negative real yields reflect central bank intervention

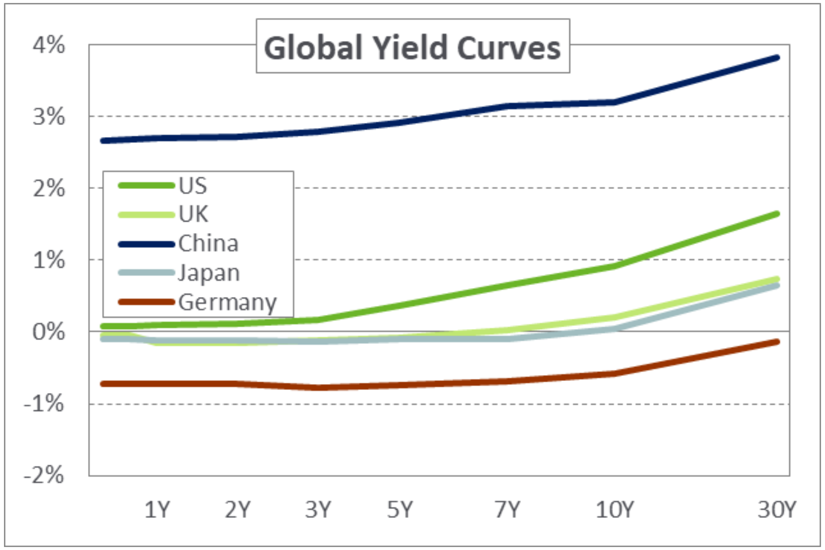
Low real rates depress returns for all assets in the long-term

The Fed's easy policy and low inflation suppress long term yield forecasts

The outlook for Japan and Europe bonds are poor due to negative nominal yields

Emerging market interest rates are higher relative to the developed world





Source: (Top) FactSet, NEPC
Source: (Bottom) FactSet, NEPC

EQUITY ASSUMPTIONS

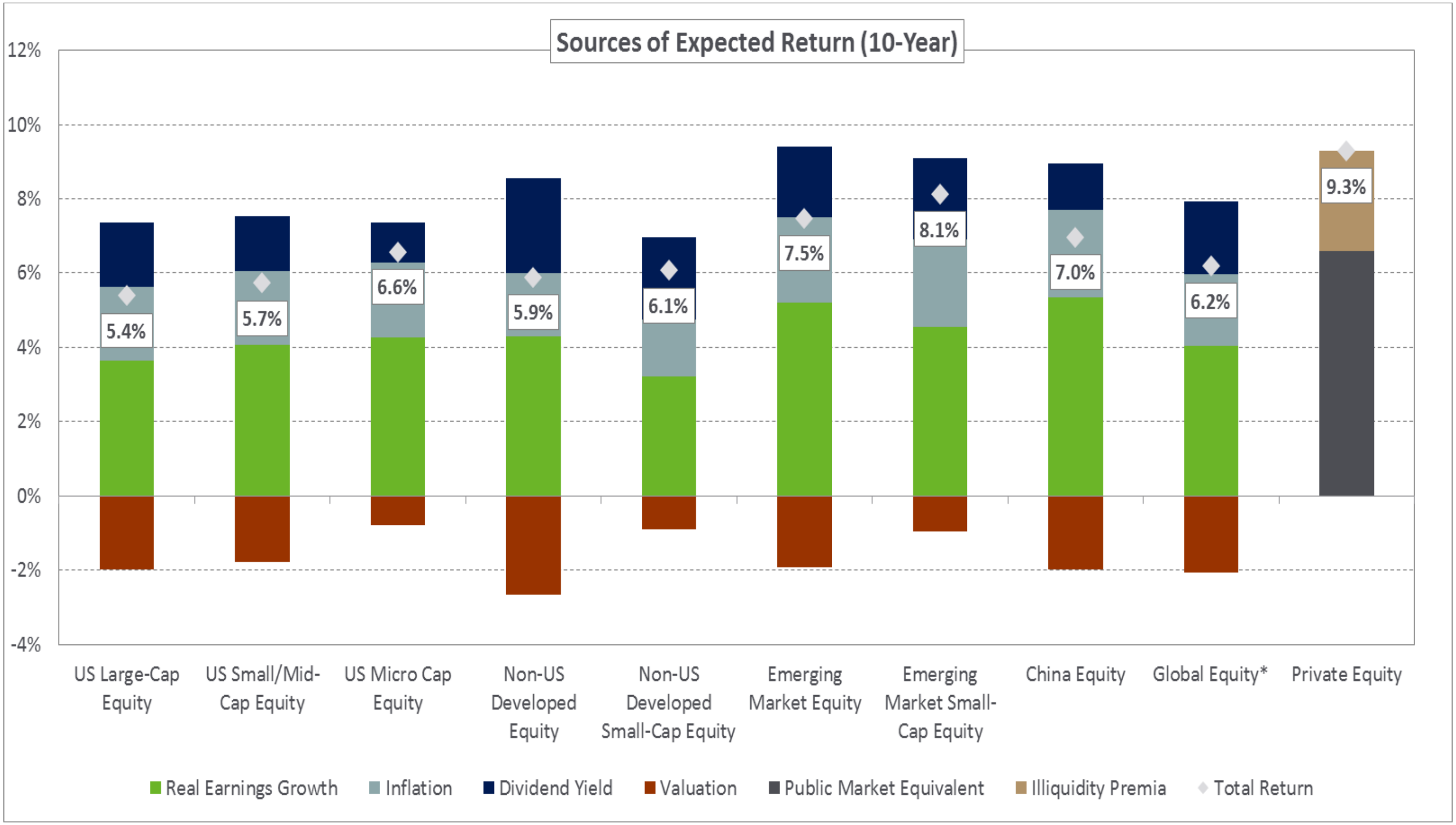
EQUITY: ASSUMPTIONS

Equity Building Blocks	
Illiquidity Premium	The return expected for investments with illiquidity risk
Valuation	Represents P/E multiple contraction or expansion relative to long-term trend
Inflation	Market-specific inflation based on country revenue and region-specific inflation
Real Earnings Growth	Market-specific real growth based on a weighted-average derived from country revenue contribution and GDP growth
Dividend Yield	Income distributed to shareholders adjusted to reflect market trends

Asset Class	10-Year Return	Year-over-Year Change
US Large-Cap Equity	5.4%	+0.4%
US Small/Mid-Cap Equity	5.7%	+0.2%
US Microcap Equity	6.6%	-0.4%
Non-US Developed Equity	5.9%	-0.1%
Non-US Developed Small-Cap Equity	6.1%	-0.3%
Emerging Market Equity	7.5%	-1.5%
Emerging Market Small-Cap Equity	8.1%	-1.1%
China Equity	7.0%	-1.8%
Hedge Fund - Equity	4.0%	-0.8%
*Global Equity**	*6.2%*	-
*Private Equity**	*9.3%*	-0.1%

Source: NEPC
*Calculated as a blend of other asset classes

EQUITY: BUILDING BLOCKS



Source: NEPC
*Calculated as a blend of other classes

FIXED INCOME ASSUMPTIONS

FIXED INCOME ASSUMPTIONS OVERVIEW

Credit return assumptions are lower from the prior quarter with credit spreads continuing to tighten

While return assumptions are low for safe-haven assets, we continue to endorse a dedicated Treasury allocation

We recommend a strategic blend of 50% US Treasuries and 50% TIPS for total return focused investors

Safe-haven instruments may differ by investor

The fixed income profile and duration should reflect risk objectives, liability/commitment structure, and desire for capital efficiency

Return-seeking credit investments look to earn income and exploit shifts in credit spreads and market cycles

We believe a strategic blend of 50% high yield, 25% levered loans, and 25% blended EMD offers an improved beta profile for return-seeking credit relative to US high yield

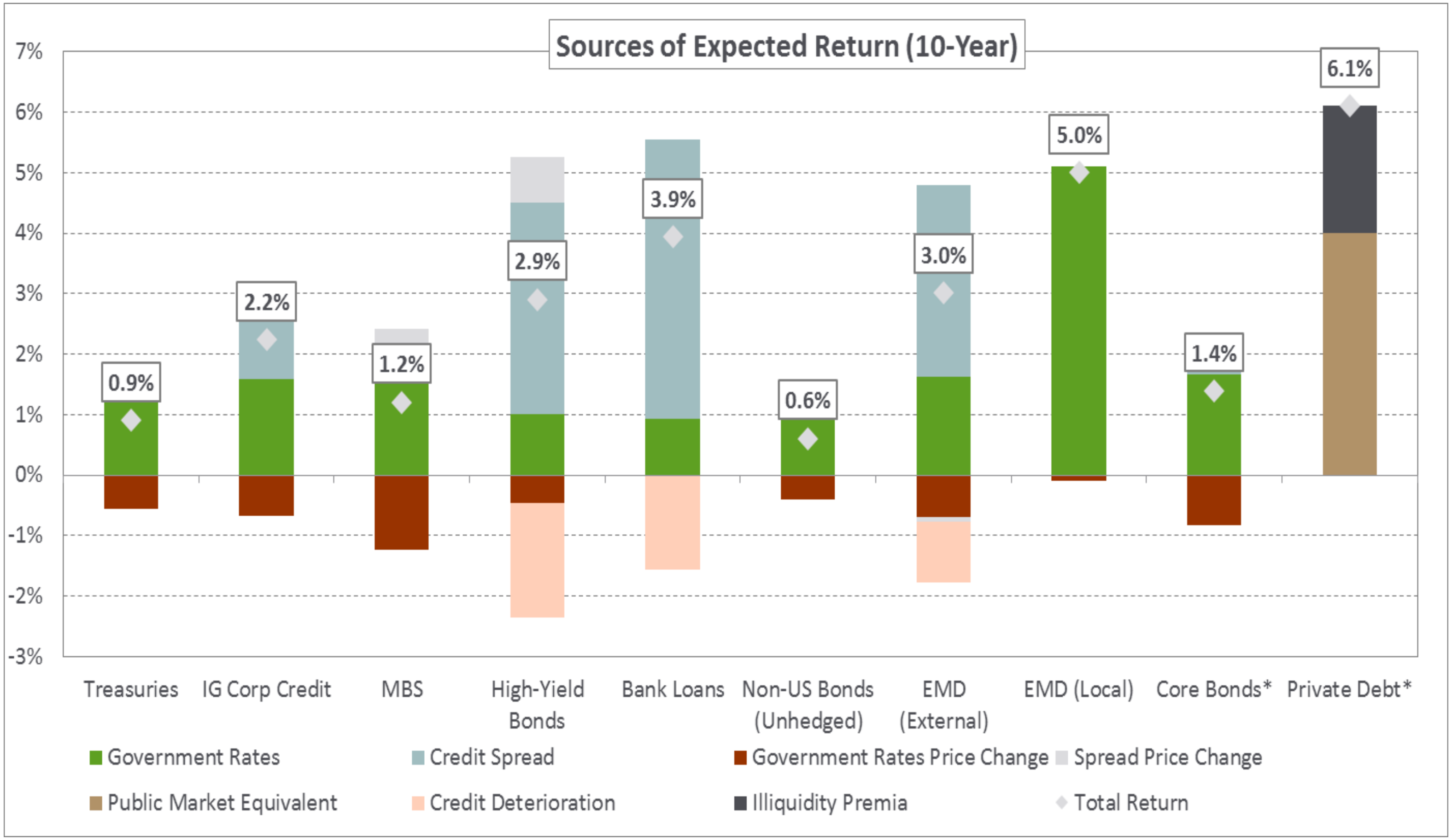
FIXED INCOME: ASSUMPTIONS

Fixed Income Building Blocks	
Illiquidity Premium	The return expected for investments with illiquidity risk
Government Rates Price Change	Valuation change due to shifts in the current yield curve to forecasted rates
Credit Deterioration	The average loss for credit assets due to defaults and recovery rates
Spread Price Change	Valuation change due to shifts in credit spreads over the duration of the investment
Credit Spread	Yield premium provided by securities with credit risk
Government Rates	The yield attributed to sovereign bonds that do not have credit risk

Asset Class	10-Year Return	Year-over-Year Change
US TIPS	1.0%	-1.2%
US Treasury Bond	0.9%	-1.0%
US Corporate Bond	2.2%	-1.2%
US Mortgage-Backed Securities	1.2%	-1.3%
US High Yield Corporate Bond	2.9%	-1.2%
US Leveraged Loan	3.9%	-0.9%
Emerging Market External Debt	3.0%	-1.1%
Emerging Market Local Currency Debt	5.0%	-0.4%
Non-US Government Bond	0.6%	+0.4%
US Municipal Bond (1-10 Year)	1.1%	-0.8%
US High Yield Municipal Bond	2.8%	-0.4%
Hedge Fund - Credit	3.9%	-0.9%
*US Aggregate Bond**	*1.4%*	-1.1%
*Private Debt**	*6.1%*	-0.6%

Source: NEPC
*Calculated as a blend of other asset classes

FIXED INCOME: BUILDING BLOCKS



Source: NEPC
*Calculated as a blend of other classes

REAL ASSET ASSUMPTIONS

REAL ASSET ASSUMPTIONS OVERVIEW

The strategic outlook for real assets reflects a high level of uncertainty due to subdued inflation expectations

Real assets offer a meaningful portfolio diversification benefit, but are exposed to a wide range of potential inflation scenarios

Real assets exhibit different betas to inflation and each asset class is exposed to various economic factors

Diversification and correlation benefits are helpful to a portfolio but must be carefully considered relative to the expected risk premium

Inflation-sensitivity and portfolio objectives influence an investor's strategic allocation to real assets

We encourage investors to remove commodity futures from strategic allocation targets due to persistent negative roll yield

Strategic targets to Gold should be carefully weighed relative to the long-term macroeconomic environment

Gold exposure can be a challenge to investor risk-tolerance given its volatility profile and lack of a consistent risk premium

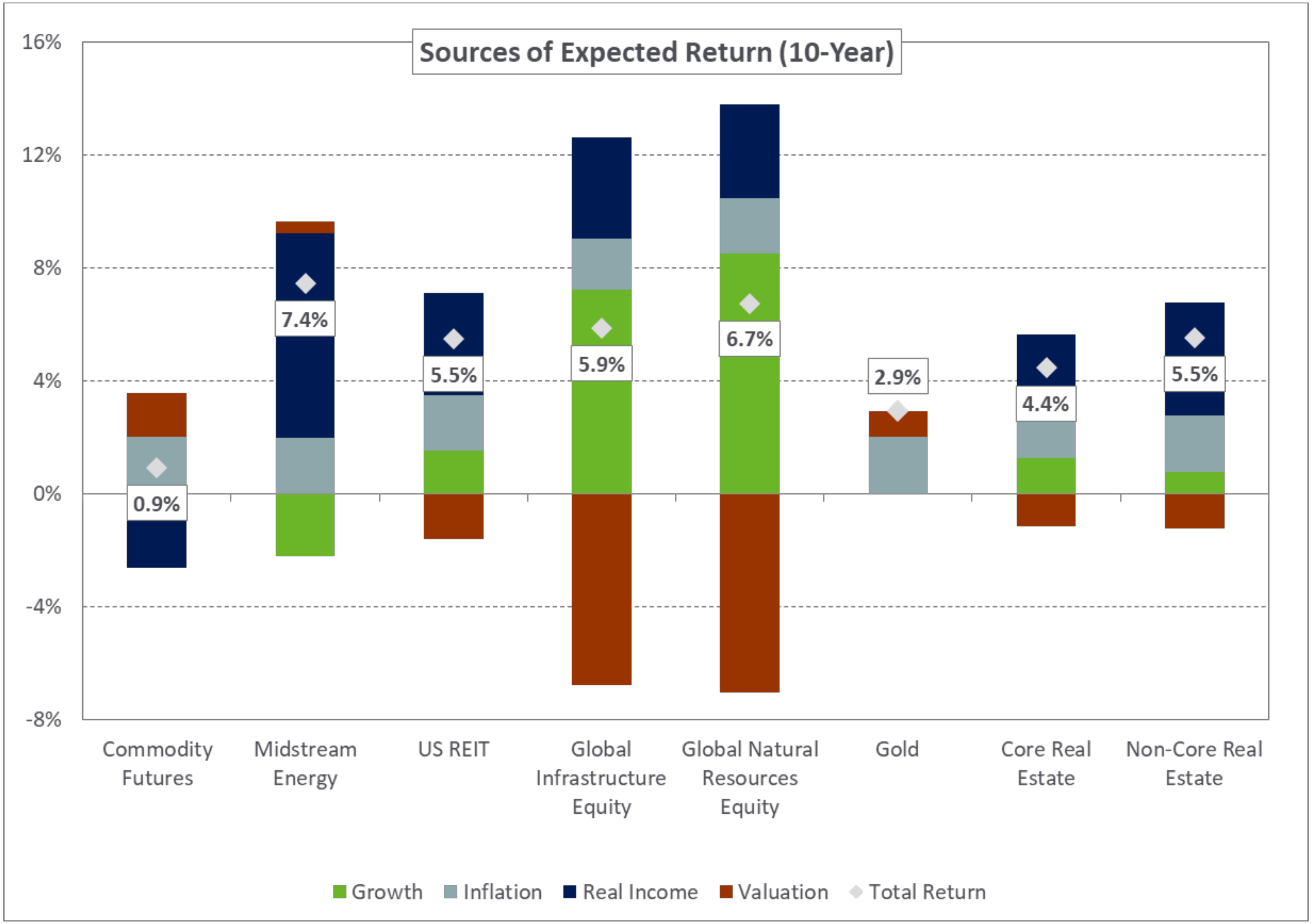
REAL ASSET: ASSUMPTIONS

Real Assets Building Blocks	
Illiquidity Premium	The return expected for investments with illiquidity risk
Valuation	The change in price of the asset moving to a terminal value or real average level
Inflation	Based on the inflation paths as defined by TIPS breakeven and NEPC assumptions
Growth	Market-specific real growth based on a weighted-average derived from country revenue contribution and GDP growth
Real Income	The inflation-adjusted income produced by the underlying tangible or physical asset

Asset Class	10-Year Return	Year-over-Year Change
Commodity Futures	0.9%	-3.1%
Midstream Energy	7.4%	-
US REIT	5.5%	+0.1%
Global Infrastructure Equity	5.9%	+0.6%
Global Natural Resources Equity	6.7%	-0.6%
Gold	2.9%	N/A
Core Real Estate	4.4%	-0.8%
Non-Core Real Estate	5.5%	-0.9%
Private Debt - Real Estate	4.1%	-0.9%
Private Real Assets - Natural Resources	8.0%	-1.1%
Private Real Assets - Infrastructure	5.4%	-0.5%

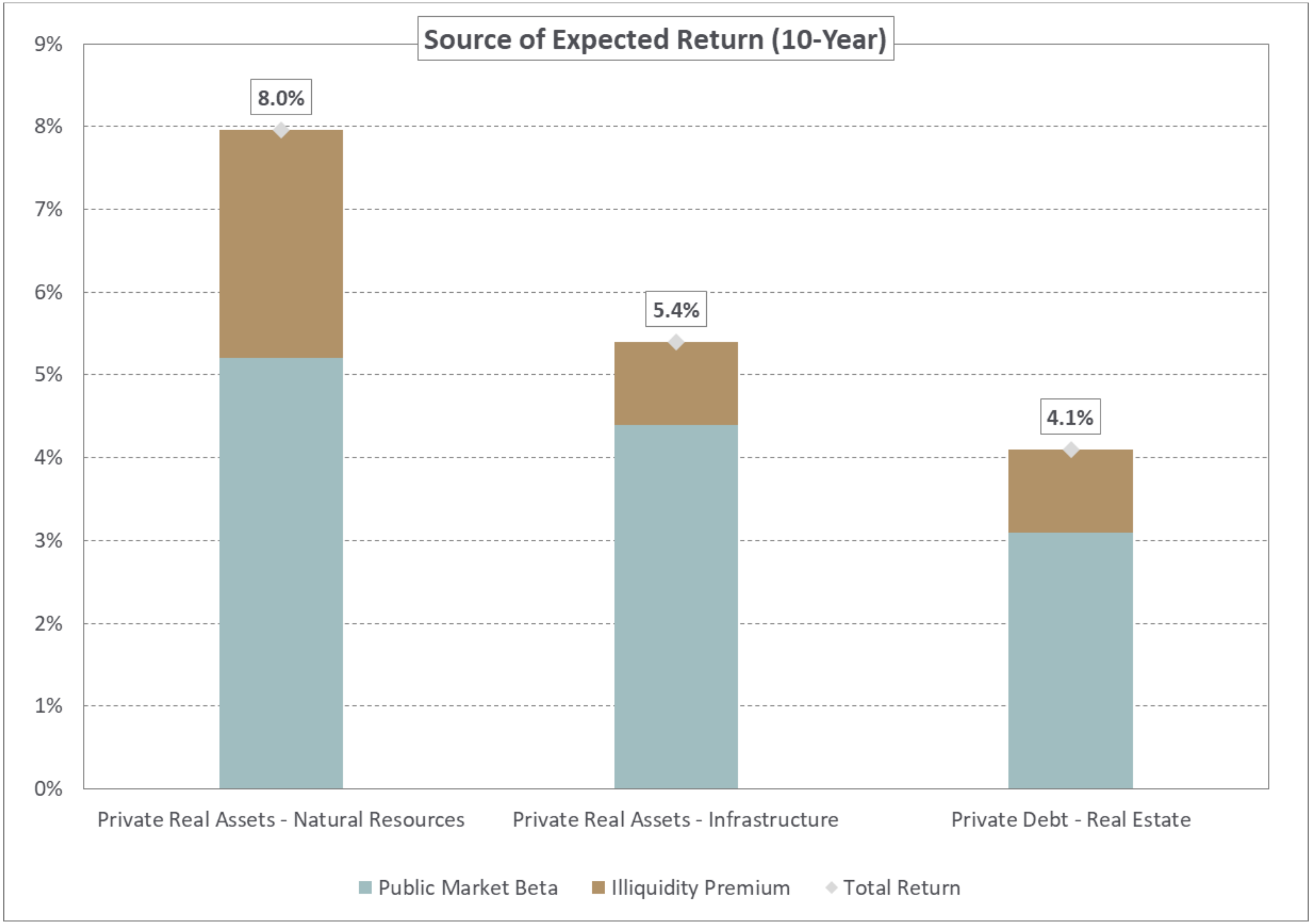
Source: NEPC
*Calculated as a blend of other asset classes

REAL ASSET: BUILDING BLOCKS



Source: NEPC

PRIVATE REAL ASSET BUILDING BLOCKS



Source: NEPC

APPENDIX

VIRUS TRAJECTORY

DEFINING THE THEME
KEY MARKET THEME: *VIRUS TRAJECTORY*

The Virus Trajectory theme reflects the uncertain path of how the pandemic and global economic activity interact

The scope and duration of virus containment efforts severely disrupted the global economy

Successful distribution of COVID-19 vaccines shortens the timeline of the theme

A significant increase in the pace of vaccinations will be needed to aid a rapid recovery for the global economy

The lasting influence of the pandemic is uncertain as the extent of the economic scars have yet to be fully realized

Despite relative improvement in economic data, recent data points highlight lingering disruptions in businesses and the labor market

Plausible economic paths range from a rapid economic recovery, to a K-shaped recovery, to a depression

The Virus Trajectory theme began in 2020 and could conclude in 2021, but broad socio-economic effects will be felt for years

POTENTIAL OUTCOMES AND IMPLICATIONS

KEY MARKET THEME: *VIRUS TRAJECTORY*

	Description	Market Implications
Base Case	Virus containment efforts aimed at slowing the spread of COVID-19 will shape the trajectory of a recovery. Increased monetary and fiscal stimulus offset some of the economic disruption, but economic growth and labor markets are likely to take longer to normalize than historical recessions suggest.	Market volatility remains at elevated levels. Low interest rates are here to stay but there is increased volatility around the path of inflation. Large deflationary pressures remain and are paired with a stimulative fiscal response. Opportunities may be available for investors willing to take on greater strategic equity exposure. Impact of Virus Trajectory looks to recede within 12 months.
Economic Depression	Period of extreme economic disruption characterized by unemployment levels greater than 10% and falling consumer spending levels. Waves of changing containment rules damage consumer confidence, limiting economic activity even during less restrictive times. Massive government fiscal relief measures look to plug holes in GDP but the lack of economic dynamism reduces productivity.	Combined fiscal and monetary policies are MMT-like with outsized volatility in global currency regimes. Relative benefits to the yuan and dollar. Extreme deflationary pressures offer value in nominal local government debt (e.g. US Treasuries). An unprecedented economic disruption across industries and countries. Patience is required as equity markets reprice and the credit default cycle is elevated. Maintaining liquidity is a first order priority, but look to allocate surplus liquidity to distressed investments.
Rapid Vaccine Roll-Out	Combination of dynamic containment and expansive distribution of vaccines lead to a rapid path of economic recovery in 2021. Fiscal policy relief and stimulus fill the economic gap to restore economic normalization.	Strongly positive for all cyclical assets and a potential catalyst for value-oriented equities. Provides path for moderately higher inflation as fiscal policy expansion drives economic growth. Begins a period of post-pandemic economic exuberance with consumer spending growth across all corners of the economy.

PERMANENT INTERVENTIONS

DEFINING THE THEME

KEY MARKET THEME: *PERMANENT INTERVENTIONS*

Global markets are defined by central bank market interventions and permanent fiscal support

The pandemic has supercharged the Permanent Interventions theme with outsized support and fiscal relief

Market sentiment is now a key central bank policy pillar of equal standing to inflation and employment mandates

Low interest rates and a fragile economic environment force central banks to grow balance sheets and liquify the global financial system

Without meaningful inflation pressures, the path of monetary policy does not normalize and an environment of low interest rates persists

We believe permanent fiscal intervention is the baseline

Weak economic growth trends in the developed world underpin political tensions and motivate a significant fiscal debt expansion

Permanent Interventions boosts investor sentiment and enhances our long-term return outlook for risk assets

We believe central banks across the globe will continue to expand balance sheet assets to sustain an environment of excess liquidity

DEFINING THE THEME CONTINUED

KEY MARKET THEME: *PERMANENT INTERVENTIONS*

The removal of central bank measures and fiscal stimulus would reveal the global economy's structural weakness

The dynamics of muted inflation pressures and low economic growth drive a combined monetary and political response

As debt-to-GDP levels rise, the necessity of central bank intervention is reinforced to maintain low interest rates

Nominal economic growth rates must exceed sovereign bond yields to forestall a sovereign debt crisis, as seen in the Eurozone in 2010

We see the Permanent Interventions theme muting the normal fluctuations of the business cycle

This potentially leaves no safety net in an economic downturn should central bank and fiscal interventions be limited or exhausted

The new regime reflects permanent easy monetary policy, surplus liquidity, and fiscal debt growth

Investors have yet to fully discount the combined favorable equity market conditions and heightened long-term macro tail-risks

POTENTIAL OUTCOMES

KEY MARKET THEME: *PERMANENT INTERVENTIONS*

	Description	Long-Term Market Implications
The New Normal	NEPC base case expectation of a permanent regime of easy monetary policy, surplus market liquidity, and fiscal debt growth paired with muted inflation levels	Favorable to equities relative to safe-haven fixed income, with risk assets benefiting from above average corporate profit margins and low interest rates. The normal fluctuations of a business cycle are subdued but macro tail-risks continue to build
Political Dysfunction	Interconnected with NEPC's Globalization Backlash theme, political conflict disrupts the full intervention of fiscal stimulus	Economic growth rates are lower as fiscal stimulus lacks permanence. Developed economies are at a greater risk of a downturn and central bank intervention has limits to improve economic growth. Favorable to long duration fixed income and tactically favorable to risks assets following frequent bouts of market volatility
Back to Normal	Economic trend growth rates and inflation levels normalize along with market and business cycles	Expected period of low investment returns for all assets classes as real interest rates normalize. Requires a repricing of risk premia to incorporate a neutral fiscal policy and the withdrawal of central bank intervention
Inflation	A material increase in inflation would be a severe tail-risk outcome for investors as the market discounts almost no probability of above average inflation levels	Significant repricing of market expectations and risk premia likely generate permanent losses of capital among some segments of equity and fixed income markets. Potential cause and/or effect is a devaluation of developed market currencies and a breakdown of the US dollar's reserve currency status
Japanification	This outcome is largely driven by a demographic crisis, with Europe being the most severely exposed. China is at risk, but racing to increase per-capita GDP levels before the population ages. The US demographic profile is relatively positive compared to other nations	Favorable to long duration fixed income with severe deflationary pressures and low growth rates. Fiscal and monetary intervention is not a cure, but mitigates the full economic damage. Central banks control bond prices across the yield curve, severely distorting the cost of capital and corporate capital structures. The impacted regions experience a "lost decade" of investment returns

GLOBALIZATION BACKLASH

DEFINING THE THEME

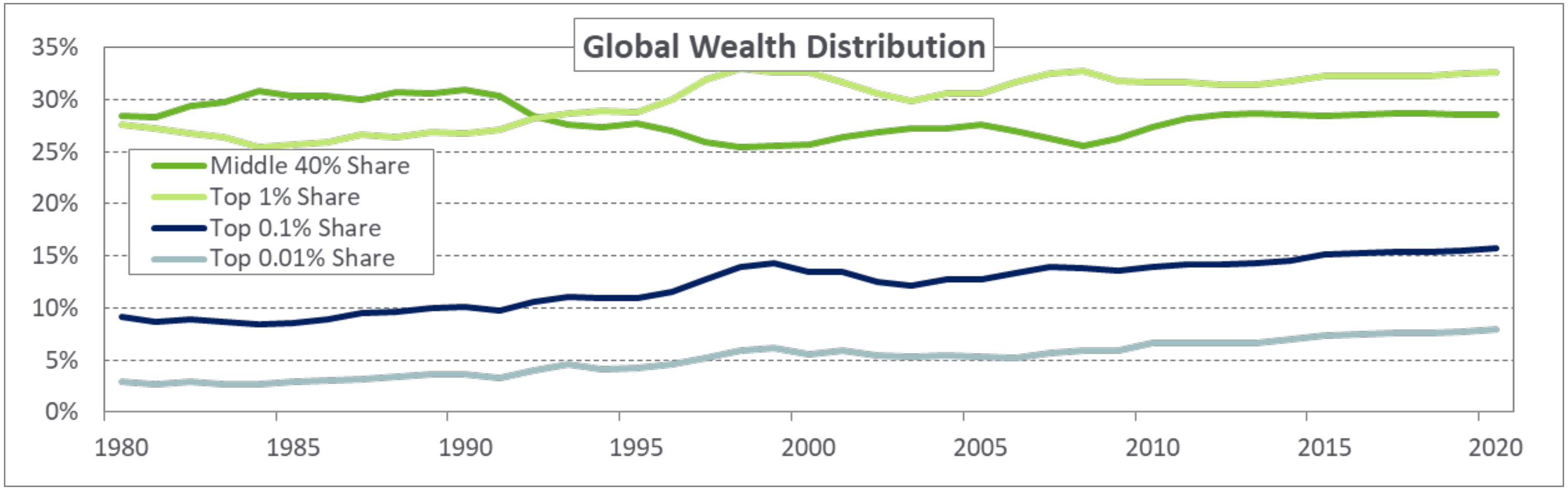
KEY MARKET THEME: *GLOBALIZATION BACKLASH*

Stagnant wage growth and growing wealth inequality are fueling political discontent across the world

Populist movements across the world are shifting away from the political and economic orthodoxy of the last 50 years

The growth of populist movements destabilizes the established political order and materializes as Backlash

Anti-establishment political bias heightens tail-risks in global markets as voting patterns become more volatile with a wider range of outcomes associated with foreign policy, trade policy, and tax rates



Source: World Inequality Lab

POTENTIAL OUTCOMES AND IMPLICATIONS

KEY MARKET THEME: *GLOBALIZATION BACKLASH*

	Description	Long-Term Market Implications
Pushback on Established World Order	NEPC base case expectation of rising nationalism and growing populist trends, which strains multilateral relationships and increases geopolitical risks	Does not favor a specific investment action or asset class but includes more volatility for governments as coalitions shift with narrow paths of consensus. Likely leads to greater volatility for capital markets, particularly in currencies across the developed world
A More Balanced Global Wealth Distribution	Economic adjustments lead to long-term improvements in real income for lower income workers in the developed world and emerging market economies	Positive for equities and credit with some aspect of normalization in inflation and real interest rates. With economic productivity gains, role of monetary policy could decrease in importance
Expanding Protectionism	A severe reversal in globalization with a regression in trade and global economic integration	Greater protectionism negatively harms investor sentiment, business investment, geopolitical relations, and global supply chains. Developed nations, such as the US, with domestically available resources and consumers may have a relative structural advantage. This scenario generates lower global growth and higher volatility
Democracy Crumbles	Breakdowns in the social fabric of society and government. Populist movements become the "revolution" as economic structures and policies are refashioned	Holders of capital suffer under this path as investment markets across equity and fixed income experience severe negative outcomes with gold and alternative currencies being one of the few exposures to offer a positive benefit for a portfolio

CHINA TRANSITIONS

NEPC, LLC

DEFINING THE THEME
KEY MARKET THEME: *CHINA TRANSITIONS*

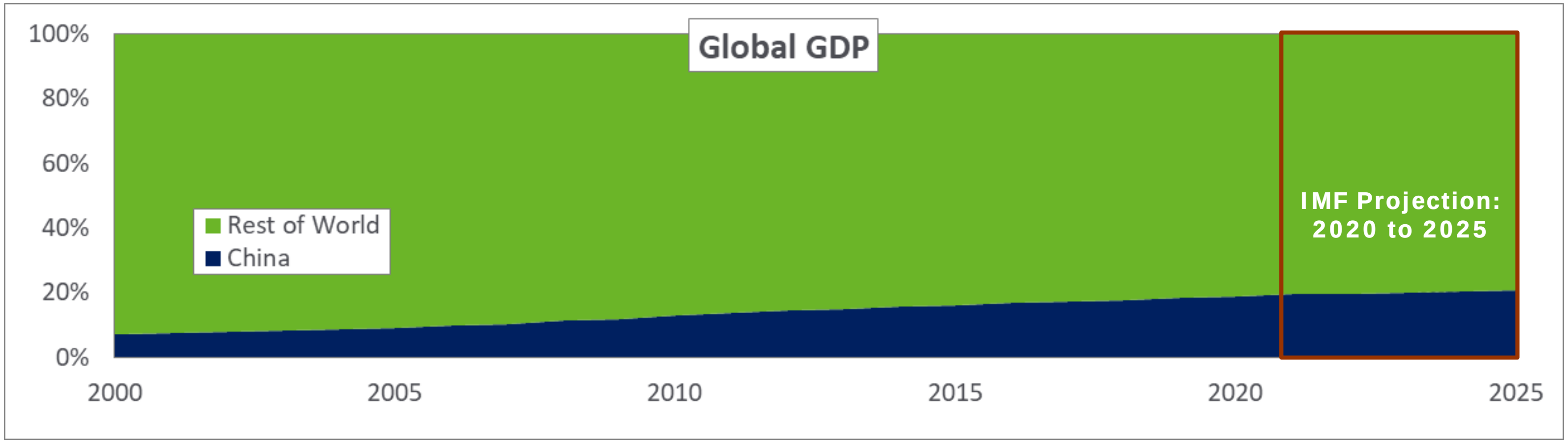
China is undergoing a multi-faceted advancement as the economy transitions to a consumption-oriented model

China's socioeconomic profile is changing with rising income levels, increased urbanization, but also a challenging demographic profile

All the while China's influence on the global stage shifts to reflect its status as an ascending geopolitical power

Disruption of these transitions will be transmitted widely due to China's ever-expanding role in the world economy

China is the global growth engine and is expected to provide 25% of world GDP growth, which is equal to creating a new Canada annually

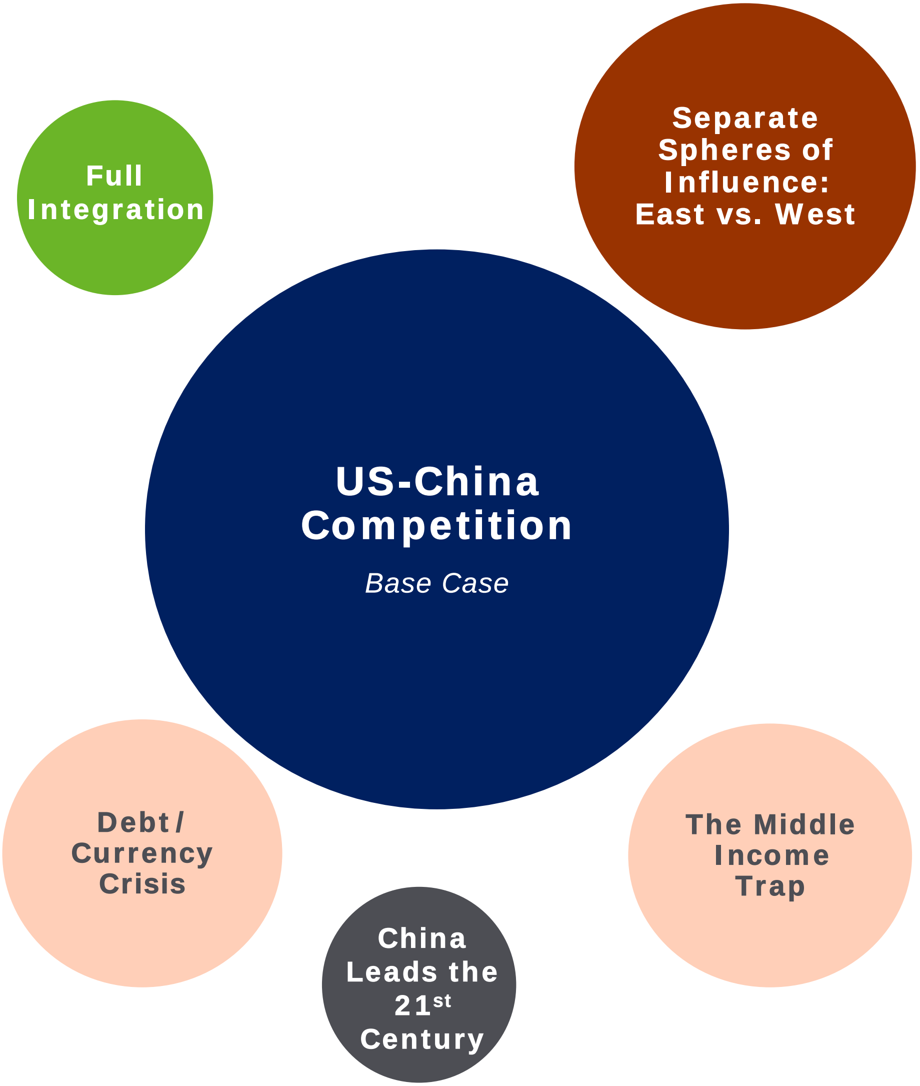


Source: IMF

Exhibit A: Page 50

POTENTIAL OUTCOMES AND IMPLICATIONS

KEY MARKET THEME: *CHINA TRANSITIONS*



Size of bubble denotes expected likelihood of outcome

US-China Competition: Competition not confrontation characterizes the economic and geopolitical relationship for the US and China. China successfully transitions to a consumer-oriented economy with per-capita GDP in line with the developed world. Capital markets continue to liberalize but cycles of volatility reflects the ebb and flow of the competitive US-China relationship

US-China and Separate Spheres of Influence: Two separate economic, geopolitical, and financial systems exist with an ongoing confrontational relationship. This dynamic may impact foreign access to Chinese capital markets, with the potential to directly impact regional blocs aligned with China

The Middle Income Trap: Per-capita income growth stalls as innovation and productivity levels do not improve from current levels. China fails to achieve developed market status, implying an internal shift away from market-friendly reforms or an external force such as US policy pressure curtailing China's growth

Debt and Currency Crisis: Uncontrolled expansion of credit growth to drive short-term economic gain fuels capital misallocation and represents a systematic risk to the financial system and China's currency controls

The 21st Century is Dominated by China: China becomes the dominant global power for this century. China assumes economic leadership and the yuan ascends to become a global reserve currency

Full Integration: Political and economic liberalization within China and complete integration in the established world order and the current geopolitical hierarchy

PRIVATE MARKETS COMPOSITES

Assumed public market beta composites for private market return assumptions are detailed below:

Private Equity:

Private Equity – Buyout: 25% US Large Cap, 75% US Small/Mid Cap
Private Equity – Secondary: 25% US Large Cap, 75% US Small/Mid Cap
Private Equity – Growth: 50% US Small/Mid Cap, 50% US Microcap
Private Equity – Venture: 25% US Small/Mid Cap, 75% US Microcap
Private Equity – Non-US: 70% International Small Cap, 30% Emerging Small Cap
PE Composite: 34% Buyout, 34% Growth, 15 % Non-US, 8.5% Secondary, 8.5% Venture

Private Debt:

Private Debt – Direct Lending: 100% Bank Loans
Private Debt – Distressed: 20% US Small/Mid Cap, 60% US High Yield, 20% Bank Loans
Private Debt – Credit Opportunities: 34% US SMID Cap, 33% US High Yield, 33% Bank Loans
Private Debt Composite: 50% Direct Lending, 25% Credit Opportunities, 25% Distressed

Private Real Assets:

Private Real Assets – Energy: 30% Comm., 35% Midstream, 35% Public Resource Equity
Private Real Assets - Infra/Land: 30% Commodities, 70% Public Infrastructure
Private Real Estate Debt: 50% CMBS, 50% Core Real Estate

INFORMATION DISCLAIMER

Past performance is no guarantee of future results.

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Information on market indices was provided by sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.

All investments carry some level of risk. Diversification and other asset allocation techniques do not ensure profit or protect against losses.

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