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NATIONAL INSTITUTE ON
Retirement Security
Reliable Research. Sensible Solutions.

FACTOR FIRST:
A risk-based approach to harnessing alternative sources of income

07 28 2020

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Presenters
Nathan Shetty| Head of Multi-Asset
Nuveen

Agenda

- Logistics & Introductions
- Nuveen Insight
- Questions

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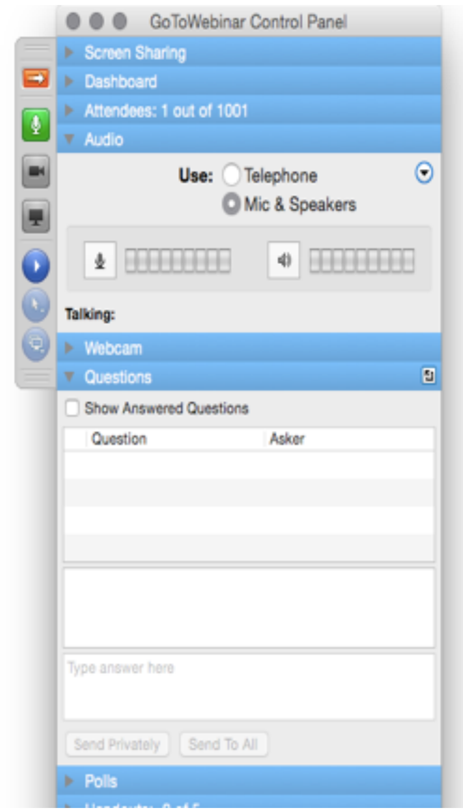
Logistics

- Attendees in listen only mode.
- Questions welcome. Type question using "Question" function on control panel, and we will respond.
- Audio, technical issues during webinar, call GoToWebinar at 1-800-263-6317.
- Webinar replay and slides will be posted at www.nirsonline.org/events.



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Speakers

Dan Doonan

NIRS
Executive Director

Dan leads strategic planning, retirement research and education initiatives for the National Institute on Retirement Security. He has more than 20 years of experience working on retirement issues from different vantage points including an analyst, consultant, trainer and a plan trustee. In these various roles, the consistent theme has been his belief that Americans have a shared interest in creating and maintaining a resilient retirement infrastructure that provides adequate financial support in an efficient manner.

He comes to NIRS after serving at the National Education Association. Dan began his career at the Department of Labor as a mathematical statistician. He then spent seven years performing actuarial analysis with Buck Consultants in their retirement practice. His experience also includes positions as a research director and labor economist.

He holds a B.S. in Mathematics from Elizabethtown College and is a member of the National Academy of Social Insurance.

Nathan Shetty

Nuveen
Head of Multi-Asset

Nathan oversees Nuveen's multi-asset portfolio management team. In addition to managing multi-asset mandates and model portfolios, the team collaborates with the broader investment platform in developing capital markets views, asset allocation advice, and thought leadership for Nuveen's clients.

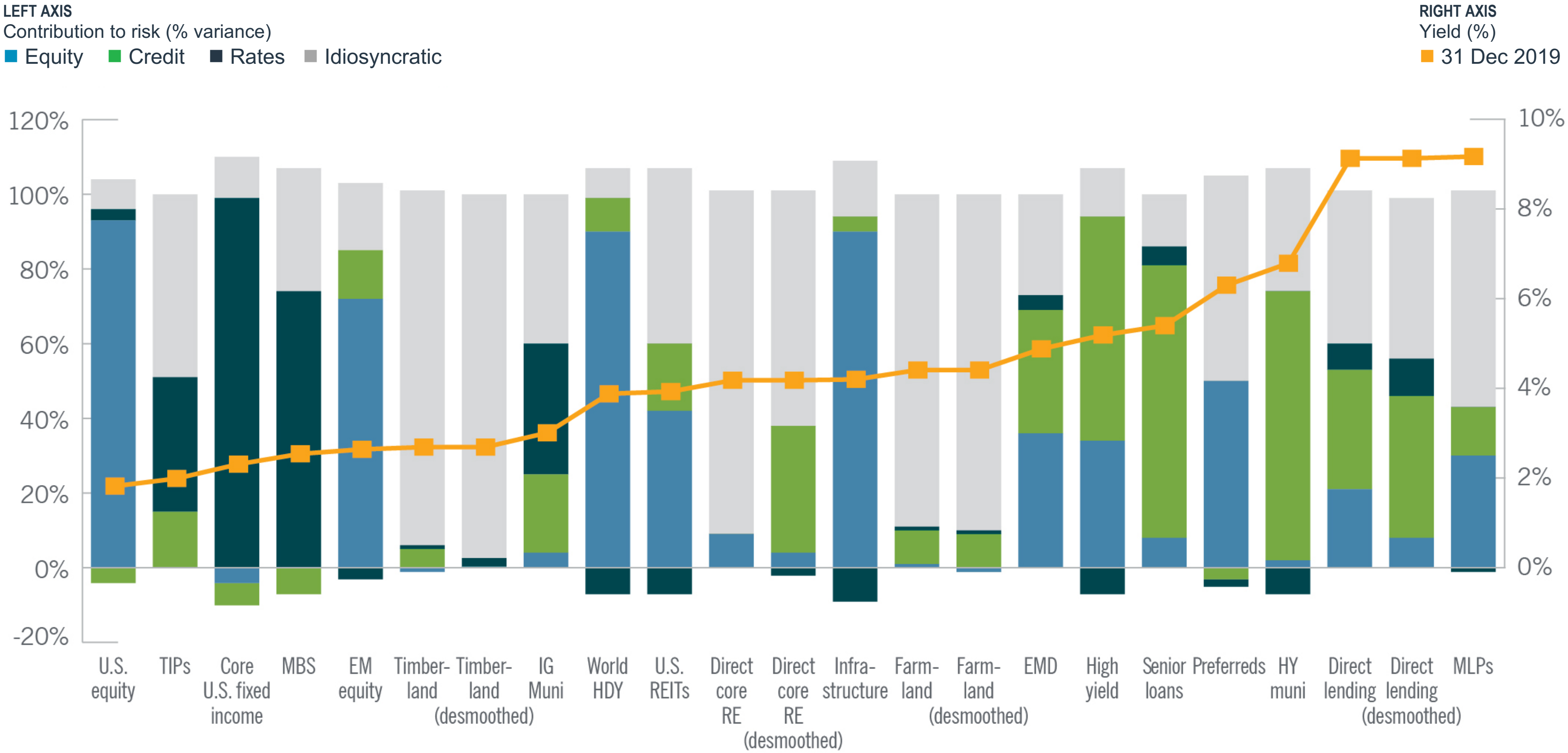
Nathan joined the firm from UBS, where he was global co-head of portfolio management for investment solutions, and responsible for the global oversight and performance ownership of $110 billion in multi-asset portfolios. Mandates included absolute return, growth and risk-managed solutions. His extensive responsibilities included direct portfolio management, multi-asset investment committee chair, senior management, and client engagement. Prior to that, Nathan worked at Mesirow Financial in Chicago and Pareto Partners in New York. He entered the investment industry in 2001.

Nathan graduated with an M.B.A. from the University of Chicago and a Master of Science in Statistics from Texas A&M. He holds the CFA designation and FRM certification from the Global Association of Risk Professionals.

Know what risks drive returns

Decomposing risks across asset classes

Contribution to risk (% variance) versus yield (%)



Source: Bloomberg, LLC. Quarterly data from 31 Dec 2004 to 31 Dec 2019. Respective indexes: S&P 500 Total Return, U.S. TIPS, U.S. Aggregate, U.S. MBS, MSCI Daily TR Net Emerging, NCREIF Timberland Index, NCREIF Timberland Index, Main, MSCI World Hi Dv Yld Net, MSCI US REIT, NCREIF Property Index, NCREIF Property Index, S&P Global Infras TR, NCREIF Farmland Index, S&P Global Infras TR, JPMorgan Monthly EMBIs, US Corporate High Yield, SPLSTAUSAll Loans, S&P Preferred Stock TR, High Yld, CDLI - Total Return, CDLI - Total Return, ALERIAN MLP TR.

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Benefits of taking a factor based approach

1. Helps avoid a concentration of risk

2. Direct link between the source of risk and compensation or income generated in this case for bearing that risk

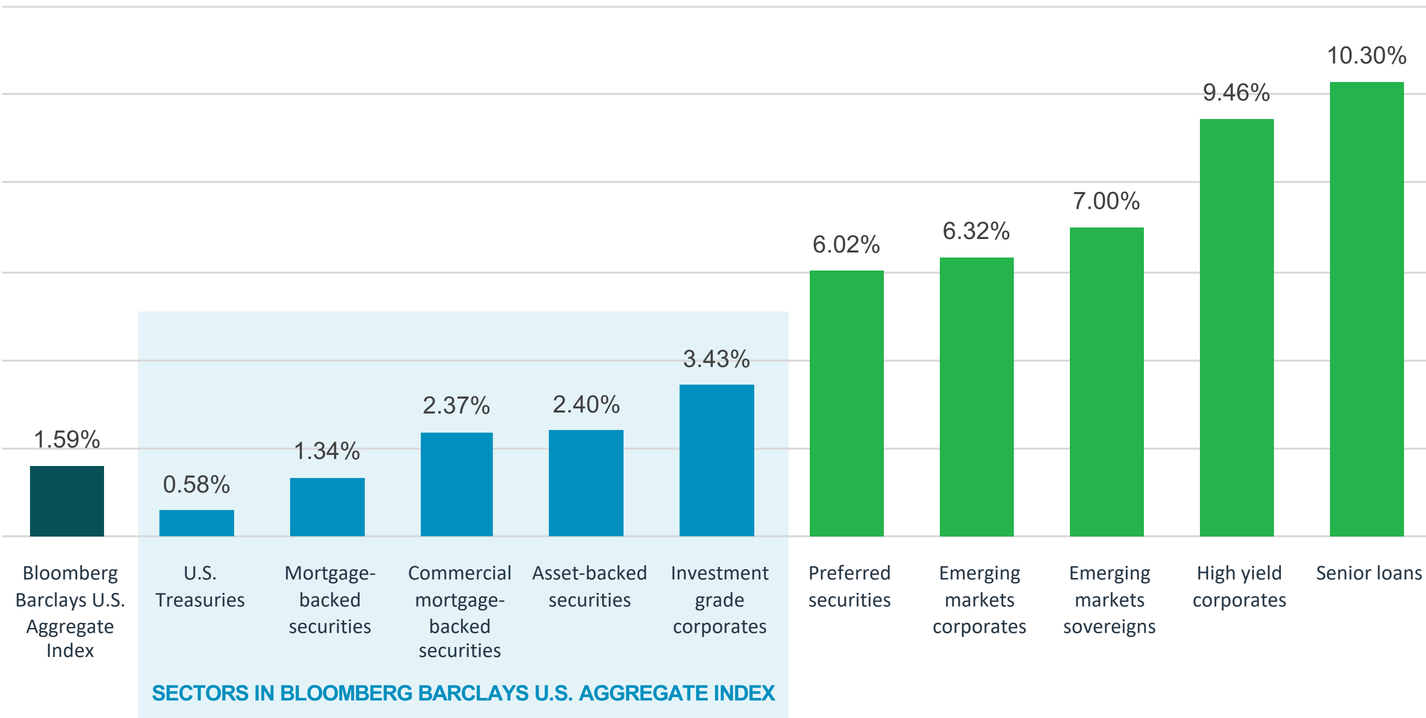
3. Provides a common lens to evaluate a broader cross section of assets for inclusion in the portfolio

4. Considering idiosyncratic risks taps into the edge alternative asset classes can offer

Asset class considerations: Fixed income

Traditional income sources are lacking

1Q20 yield-to-worst by fixed income sector



Fixed income

- Non-traditional sectors present attractive yields.
- Generating enough income to meet near-term liabilities, plus fixed income can immunize the front-end of the plan's liabilities and extend the investor's time horizon.
- Allows for more illiquidity risk in other portions of the portfolio.

Source: Bloomberg LLC.; Credit Suisse; JPMorgan. As of 31 Mar 2020. Representative indexes: **U.S. Treasuries:** Bloomberg Barclays U.S. Treasury Index; **MBS:** Bloomberg Barclays U.S. Mortgage-Backed Securities Index; **CMBS:** Bloomberg Barclays Commercial Mortgage-Backed Securities Index; **ABS:** Bloomberg Barclays Asset-Backed Securities Index; **Investment grade corporates:** Bloomberg Barclays U.S. Corporate Investment Grade Index; **Emerging market corporates:** JPMorgan CEMBI Diversified Index; ICE BofA U.S. All Capital Securities Index; **Senior loans:** Credit Suisse Leveraged Loan Index; **High yield corporates:** Bloomberg Barclays U.S. Corporate High Yield 2 Issuer Capped Index; **Emerging market sovereigns:** JPMorgan EMBI Global Diversified Index. Past performance is no guarantee of future results. It is not possible to invest directly in an index.

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Asset class considerations: Private credit

Considerations for risk factor-based investing

Risk measures vary by asset class

	RISK FACTOR			
ASSET CLASS	Equity	Rate duration	Credit spread	Idiosyncratic
Broad bond market	Lower	Higher	Lower	Lower
Public high yield corporate	Medium	Medium	Higher	Medium
Public loans	Lower	Lower	Higher	Medium
Emerging markets public bonds	Medium	Lower	Medium	Medium
Preferred securities	Higher	Lower	Lower	Medium
Senior private credit	Lower	Lower	Higher	Higher

Private credit

- U.S. senior middle market loans have typically yielded between 6%-8% since 2010, offering an effective alternative source of yield
- Illiquidity premium between middle market loans and broadly syndicated loans has averaged 1.8% since the financial crisis.
- High levels of customization available and negotiated loan origination inherently allow investors to access idiosyncratic risk and alpha generation potential.

Data source: Nuveen

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Asset class considerations: Real assets

Idiosyncratic return drivers in real assets

	Farmland	Infrastructure	Timberland
Financial	• Commodity price, yield and input costs • Interest rates • Cap rates • Leverage	• Price, volume and operating costs • Interest rates • Discount rates/multiples • Leverage	• Commodity price, yield and input costs • Interest rates • Discount rates • Leverage
Geography	• Developed vs. emerging markets • Southern Hemisphere vs. Northern Hemisphere (production windows and logistical benefits; distance to market)	• Developed vs. emerging markets	• Developed vs. emerging markets • Southern Hemisphere vs. Northern Hemisphere (tree growth and logistical benefits; distance to market)
Operating strategy	• Lease (cash/share) vs. operated (contract/custom/direct farming)	• Long-term, contracted with offtake, in many cases • Volume/GDP-based vs. availability-based • PPA vs. merchant	• Mostly operated, in certain cases, with wood supply agreements
Other	• Development: greenfield vs. brownfield • Crop type: row vs. permanent crops; optionality to rotate/redevelop • Water: dryland vs. irrigated (surface water vs. groundwater) • Technology (availability, suitability and uptake among operators)	• Development: greenfield vs. brownfield • Sector: social, digital, power, midstream, etc. • Core, core-plus, value-add	• Development: greenfield vs. brownfield • Tree species: softwood, hardwood, fine hardwood • End-market: fiber, solid wood, biomass, etc. • Carbon sequestration and storage

Source: Nuveen.

Real assets

- Real assets have proven to be exceptional stores of value and defensive income generators because they provide products or services that are essential to the global economy.
- The risk factors that drive the value of these assets, which are highly idiosyncratic, and other factors that vary from asset to asset
- Investors can use various operating strategies to dial up or down the risk factors affecting the security of real assets' cash flows.

Asset class considerations: Real estate

Current risk assessments across real estate markets

- Favorable
- Neutral
- Unfavorable

	Market	Sector	Investment style
Europe	Austria	Office	Prime
	France	Retail	Secondary
	Germany	Logistics	Development
	Italy	Housing	Existing value-add
	Netherlands		Future value-add
	Spain		Debt
	United Kingdom		
Asia Pacific	Australia	Office	Prime
	China	Retail	Secondary
	Hong Kong	Logistics	Development
	Japan	Housing	Debt
	New Zealand		
	Singapore		
	South Korea		
United States	NA	Office	Prime
		Retail	Secondary
		Industrial	Development
		Housing	Value-add
			Debt

Source: Nuveen.

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Real estate

- benefits are largely the result of the quality and security of the income stream.
- Megatrends drive risk factor considerations on local markets and sectors.
- Failure to understand how these trends and risk factors are playing out in local markets can result in overconcentration of certain risk factors.

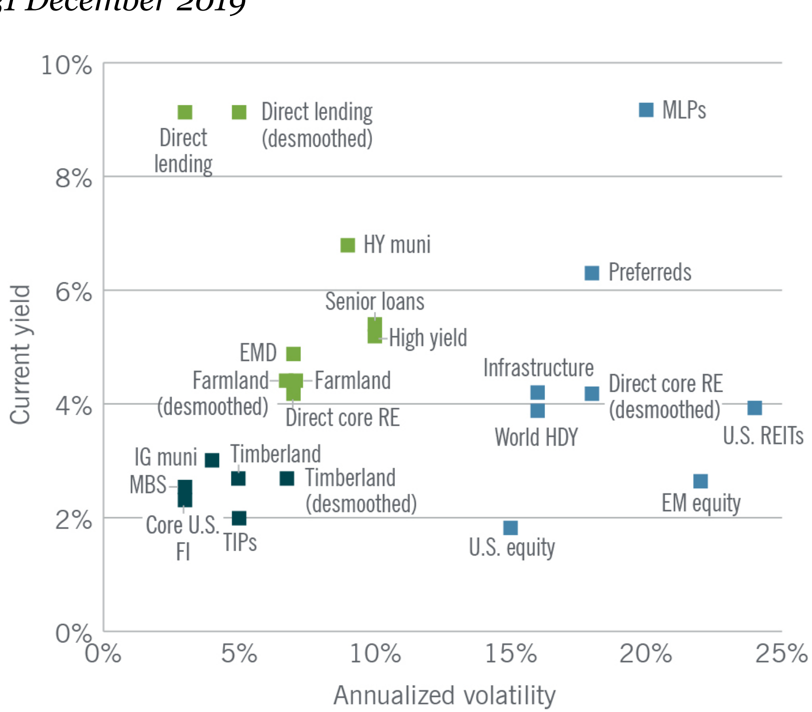
Broadening income diversification is critical

Take a more nimble approach to pursuing enhanced yield: To achieve the income and returns needed in a low-yield environment, investors need to be dynamic and flexible in pursuing opportunities among alternatives.

Asset class yields and volatility

■ Equity cluster ■ Credit cluster ■ Rates cluster

31 December 2019



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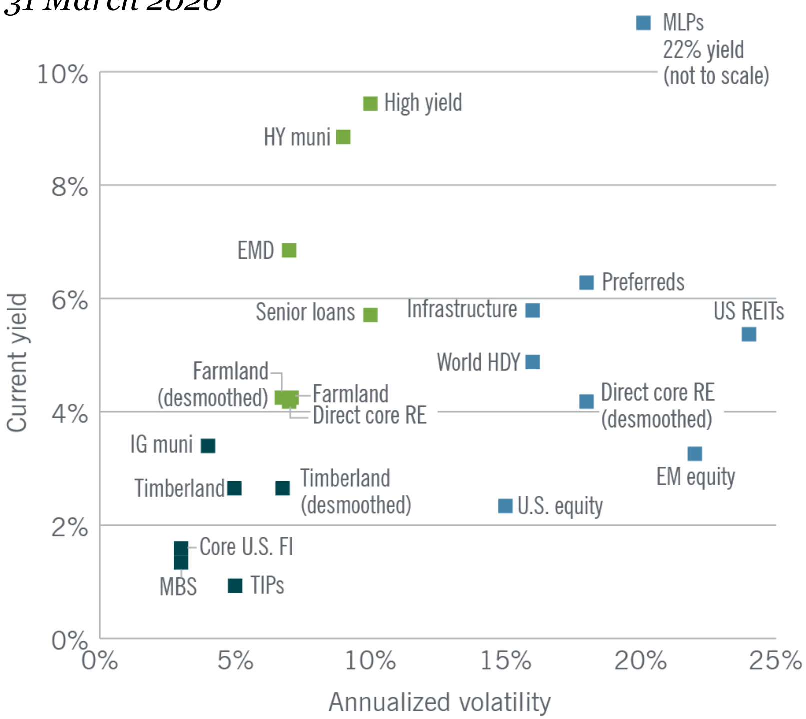


Source: Bloomberg, LLC. Quarterly data from 31 Dec 2004 to 31 Dec 2019. Respective indexes: S&P 500 Total Return, U.S. TIPS, U.S. Aggregate, U.S. MBS, MSCI Daily TR Net Emerging, NCREIF Timberland Index, NCREIF Timberland Index, Main, MSCI World Hi Dv Yld Net, MSCI US REIT, NCREIF Property Index, NCREIF Property Index, S&P Global Infras TR, NCREIF Farmland Index, S&P Global Infras TR, JPMorgan Monthly EMBIs, US Corporate High Yield, SPLSTAUSAll Loans, S&P Preferred Stock TR, High Yld, CDLI - Total Return, CDLI - Total Return, ALERIAN MLP TR.

Take a 3D view of liquidity

Properly analyzing liquidity risk and liquidity premium

Illiquidity isn't binary

It is easy to see why investors may view publicly traded assets classes as being "liquidity on" and private alternatives as being "liquidity off." But the reality is much more nuanced.

Illiquidity premia vary over time

The compensation that investors receive for having their capital locked up in a specific asset class is not static. The illiquidity premium ebbs and flows.

Illiquidity premia vary within alternatives

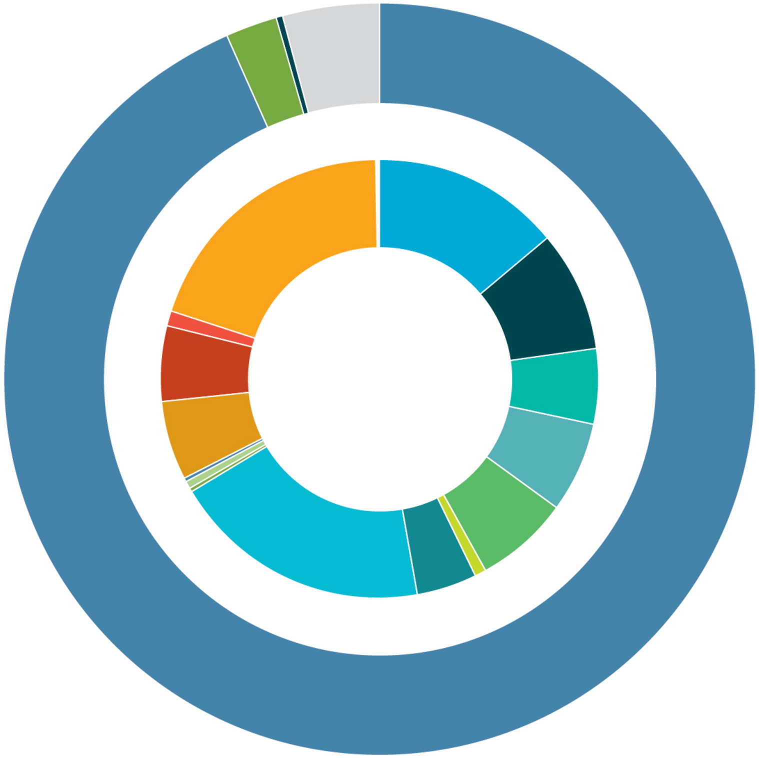
There are significant differences within these asset classes depending on the submarket or investment vehicle that drive variances in the illiquidity premium.

Focusing on asset allocation can lead to an imbalance of risk

Unless investors decompose the risk contributors, they could end up with significantly more exposure to equity, credit or rate risk.

Asset allocation represents the average allocations of endowments in 2019

RISK FACTOR CONTRIBUTION (%) OUTER RING	
Equity risk	93.57
Credit risk	2.00
Rates risk	0.45
Idiosyncratic risk	3.98



ASSET ALLOCATION (%) INNER RING	
U.S. equity	14.1
EAFE equity	8.9
EM equity	5.6
Global equity	6.6
U.S. bonds	6.9
Ex-U.S. bond	0.9
Cash	4.3
Hedge fund	19.1
TIPs	0.5
REITs	0.5
MLP	0.2
Commodities	5.9
Private real estate	5.4
Private debt	1.2
Private equity	19.9

Source: 2019 NACUBO TIAA Study of Endowments. Quarterly data from 31 Dec 2004 to 31 Dec 2019. Asset classes represented by the following indexes: S&P 500, MSCI EAFE, MSCI EM, MSCI ACWI, US AGG, Global Agg ex-US, Treasury Bill, HFRI FoF Diver, Barclays TIP, FTSE EPRA NAREIT Developed, Alerian MPL, Bloomberg Commodities, NCRIEF Property Index, Cliffwater Direct Lending Index, Cambridge Private Equity.

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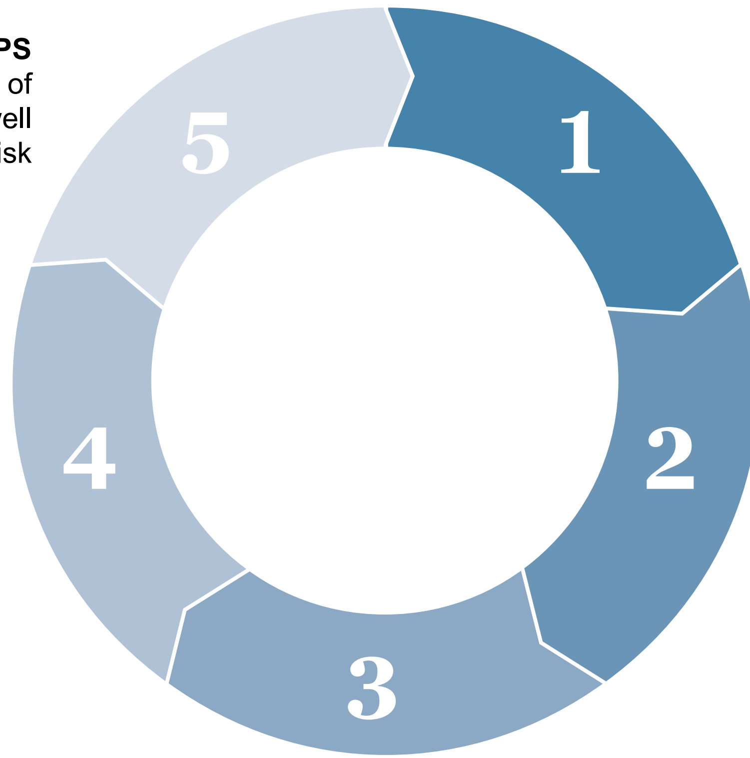
Flipping the model: Start with risk factor allocation

Our recommended risk-first approach to multi-asset portfolio construction



DECOMPOSE RISK FACTORS
Determine how systemic risk factors (credit, rate and equity) and idiosyncratic risk factors contribute to the performance of each asset class

ANALYZE RISK COMPENSATION
Assess how the market is compensating investors for owning each of the risk factors across asset classes

SELECT RISKS
Determine which risks need to be owned, and in which proportion, to achieve the investor's objectives and constraints

DEPLOY CAPITAL
Determine which asset classes and vehicles provide the most efficient way to own the desired exposures

REASSESS RISK RELATIONSHIPS
Continually assess the covariance of risk factors and asset classes, as well as the market compensation for risk

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Highlights

- Alternatives have tremendous untapped potential to help address the cash flow challenges facing institutional investors. Accessing that potential, however, requires viewing portfolio construction through a risk factor-based lens.
- We examine four asset classes that we believe present attractive income-generating potential and discuss the primary risks that drive returns in each: non-traditional sectors of fixed income, private credit, real assets and real estate.
- Based on extensive research into multi-asset portfolio construction, we provide recommendations for how institutions can optimize their ability to harness the income potential of alternatives by using a risk factor-based approach to portfolio construction.

Contents

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Learn more:

- Access the paper and take a deeper dive into how the corona virus has impacted each asset class at www.nuveen.com/alternativeincome
- Contact Kitty Martin: Kitty.Martin@nuveen.com

  773.259.2042

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Disclosures

Endnotes

Sources

All market and economic data from Bloomberg, FactSet and Morningstar. The views and opinions expressed are for informational and educational purposes only as of the date of production/writing and may change without notice at any time based on numerous factors, such as market or other conditions, legal and regulatory developments, additional risks and uncertainties and may not come to pass. This material may contain "forward-looking" information that is not purely historical in nature. Such information may include, among other things, projections, forecasts, estimates of market returns, and proposed or expected portfolio composition. Any changes to assumptions that may have been made in preparing this material could have a material impact on the information presented herein by way of example. **Past performance is no guarantee of future results.** Investing involves risk; principal loss is possible. All information has been obtained from sources believed to be reliable, but its accuracy is not guaranteed. There is no representation or warranty as to the current accuracy, reliability or completeness of, or liability for, decisions based on such information, and it should not be relied on as such.

A word on risk

All investments carry a certain degree of risk, and there is no assurance that an investment will provide positive performance over any period of time. Equity investing involves risk. Investments are also subject to political, currency and regulatory risks. These risks may be magnified in emerging markets. Diversification is a technique to help reduce risk. There is no guarantee that diversification will protect against a loss of income. Investing in municipal bonds involves risks such as interest rate risk, credit risk and market risk, including the possible loss of principal. The value of the portfolio will fluctuate based on the value of the underlying securities. There are special risks associated with investments in high yield bonds, hedging activities and the potential use of leverage. In portfolios that include lower-rated municipal bonds, commonly referred to as "high yield" or "junk" bonds, which are considered to be speculative, the credit and investment risk is heightened for the portfolio. Credit ratings are subject to change. AAA, AA, A, and BBB are investment grade ratings; BB, B, CCC/CC/C and D are below-investment grade ratings. As an asset class, real assets are less developed, more illiquid, and less transparent compared to traditional asset classes. Investments will be subject to risks generally associated with the ownership of real estate-related assets and foreign investing, including changes in economic conditions, currency values, environmental risks, the cost of and ability to obtain insurance, and risks related to leasing of properties. Socially Responsible Investments are subject to Social Criteria Risk, namely the risk that because social criteria exclude securities of certain issuers for nonfinancial reasons, investors may forgo some market opportunities available to those that don't use these criteria. Investors should be aware that alternative investments including private equity and private debt are speculative, subject to substantial risks including the risks associated with limited liquidity, the use of leverage, short sales and concentrated investments and may involve complex tax structures and investment strategies. Alternative investments may be illiquid, there may be no liquid secondary market or ready purchasers for such securities, they may not be required to provide periodic pricing or valuation information to investors, there may be delays in distributing tax information to investors, they are not subject to the same regulatory requirements as other types of pooled investment vehicles, and they may be subject to high fees and expenses, which will reduce profits. Alternative investments are not suitable for all investors and should not constitute an entire investment program. Investors may lose all or substantially all of the capital invested. The historical returns achieved by alternative asset vehicles is not a prediction of future performance or a guarantee of future results, and there can be no assurance that comparable returns will be achieved by any strategy.

Nuveen provides investment advisory services through its investment specialists.

Learn how the coronavirus has affected alternatives

For a deeper dive into the impact and opportunity in each asset class, please view an expanded version of this paper on our website. It includes expanded commentary about the implications of the global pandemic on alternative investments in an income portfolio.

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