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LOEWS HOLLYWOOD HOTEL
HOLLYWOOD, CA | NOV. 9-12, 2021

Why Infrastructure Debt & Equity Investing Makes Sense for Public Pensions

Speakers: **Nick Moller, J.P. Morgan Asset Management**
Paul David, Allianz Global Investors

Moderator: **Eileen Neill, Verus Investments**



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Core/Core+ Infrastructure is Essential

Distribution/ Regulated Assets

Monopolistic Regulatory
Frameworks



Contracted Power Assets

Long-Term Contracts



GDP-Sensitive Assets

Significant Demand History



For illustrative purposes only. Diversification does not guarantee investment returns and does not eliminate the risk of loss.

ALTs by

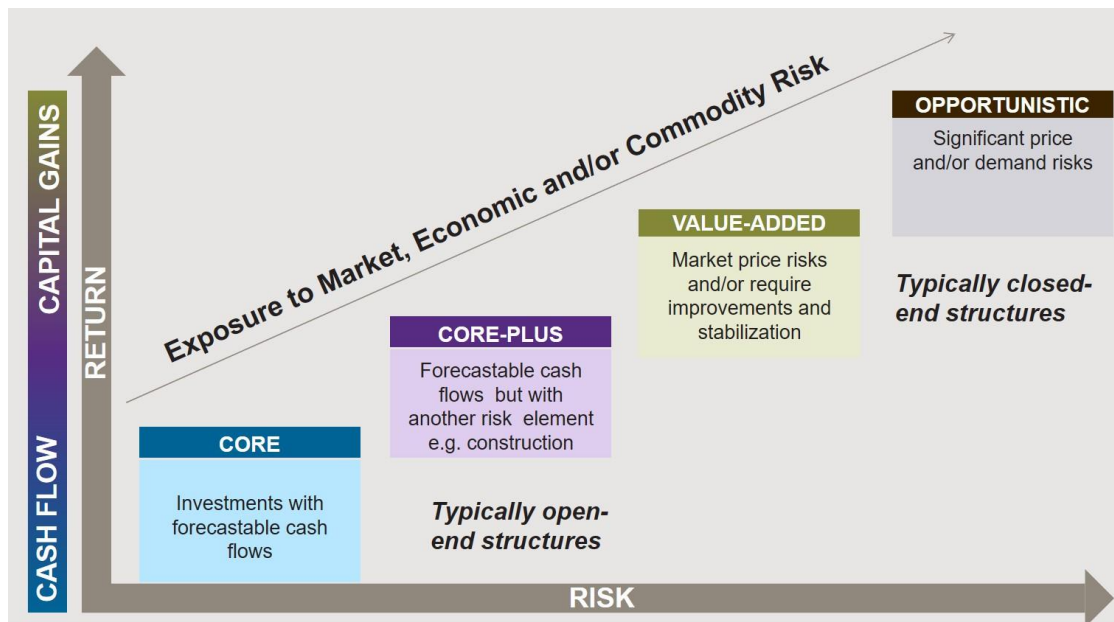
J.P.Morgan
Asset Management



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Wide Spectrum of Infrastructure Strategies



Source: J.P. Morgan Asset Management

ALTs by

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Asset Management



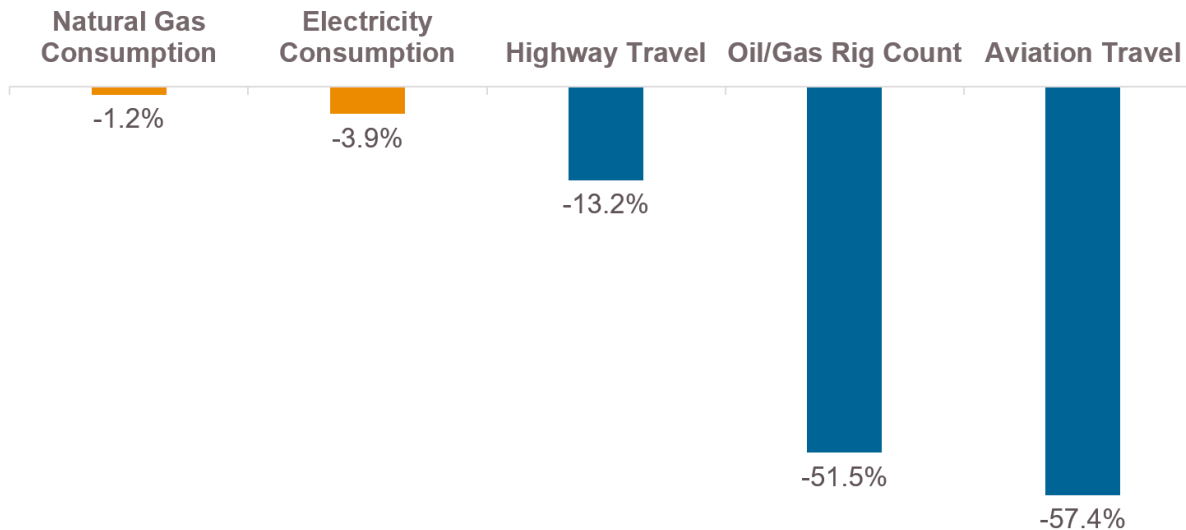
COVID-19 — Core Infrastructure Remained Essential

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COVID-19 — Core Infrastructure Remained Essential

Usage - 2019 vs. 2020 (U.S.)



Source: EIA, St Louis Fed, Bureau of Transportation Statistics, As at December 31, 2020 unless otherwise noted. Represents monthly average for price data.*Port of Los Angeles data,



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Infrastructure Equity — D.I.Y

D Diversification

Downside protection
potential and lower volatility

I Inflation Protection

Inflation is a pass-through under many
contractual and regulatory structures

Y Cash Yield

Strong cash flow generation



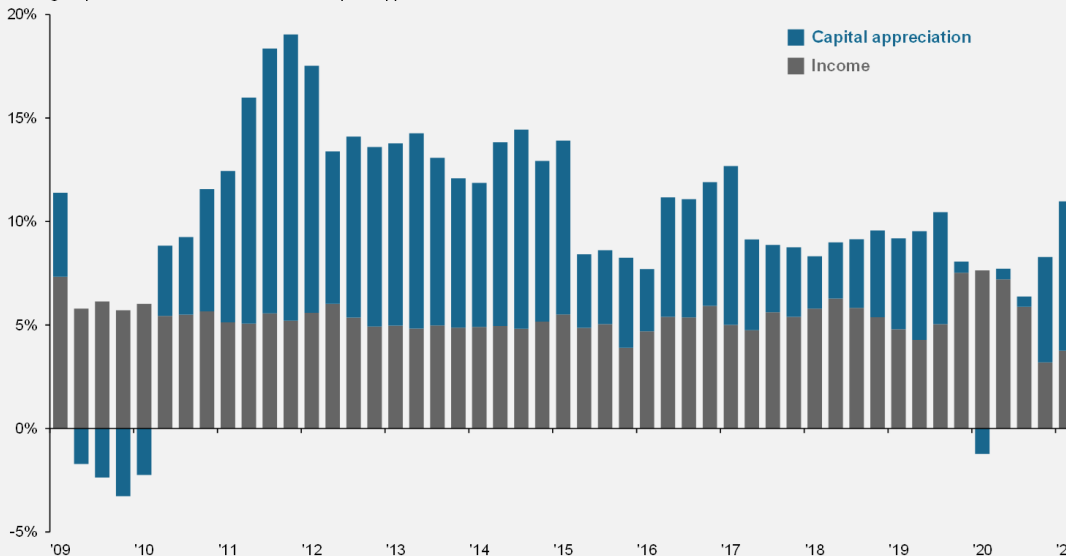
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Infrastructure Equity — *Stable Returns Supported By Income*

Global core infrastructure returns

Rolling 4-quarter returns from income and capital appreciation



Source: MSCI, J.P. Morgan Asset Management.

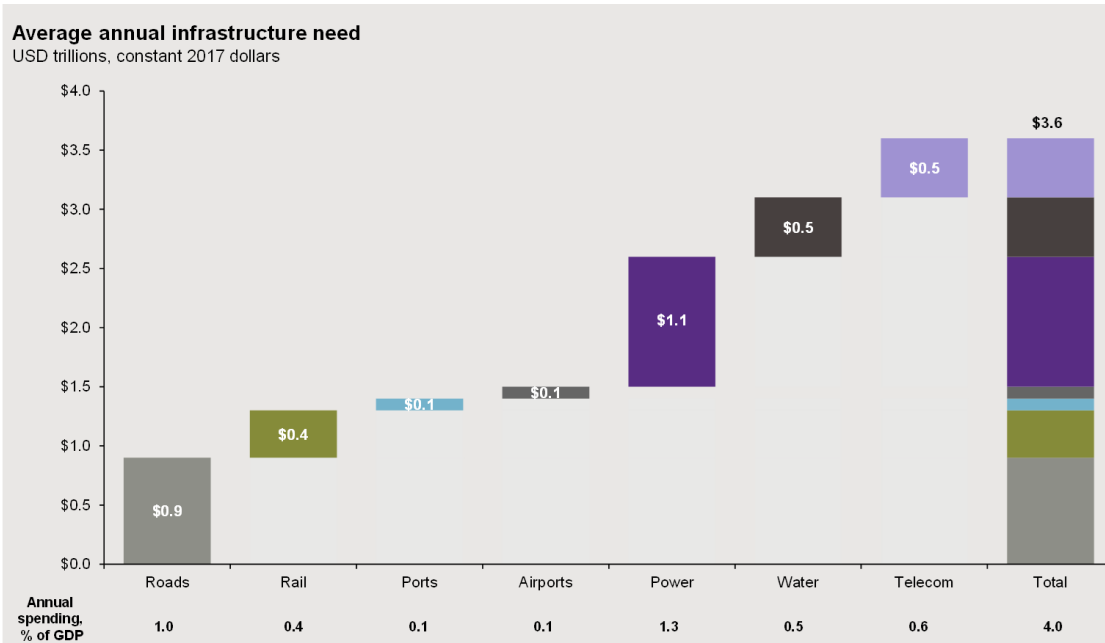
Infrastructure returns represented by the "low risk" category of the MSCI Global Quarterly Infrastructure Asset Index. Data show rolling one-year returns from income and capital appreciation. The chart shows the full index history, beginning in the first quarter of 2009, and ending in 1Q21.



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Substantial Ongoing Need For Infrastructure Investment



Source: McKinsey Global Institute, J.P. Morgan Asset Management.
Data is based on availability as of August 31, 2021.



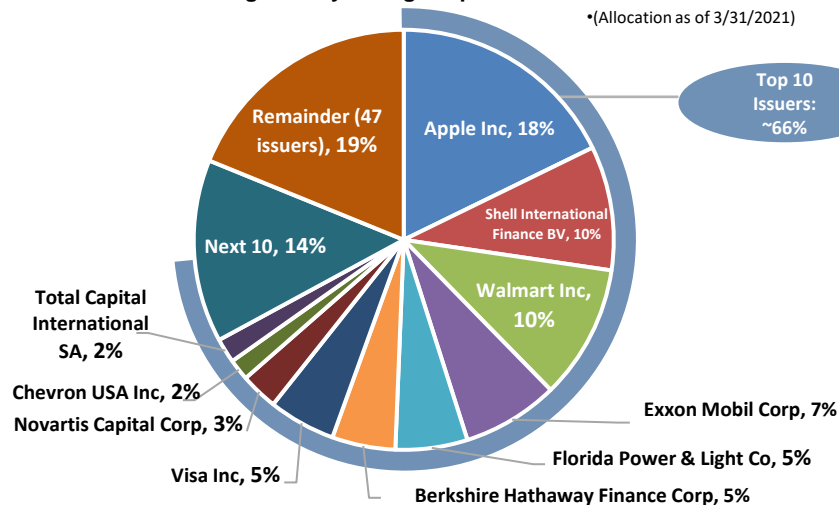
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The Growing Need for High Quality Long Duration Fixed Income Assets

- The universe of high-quality, long duration corporate bonds is highly concentrated and the broader long duration market has experienced a decline in quality over the past decade:
 - Long-duration bond managers typically own the same underlying securities
 - Concentration in high-quality issuance requires investments in securities outside the liability benchmark
 - Declining credit quality exacerbates the potential “downgrade headwind” versus liability values

Bloomberg Barclays Long Corporate AA Index

*(Allocation as of 3/31/2021)



Infrastructure debt can complement long duration corporate bonds

Source: AllianzGI, Bloomberg.

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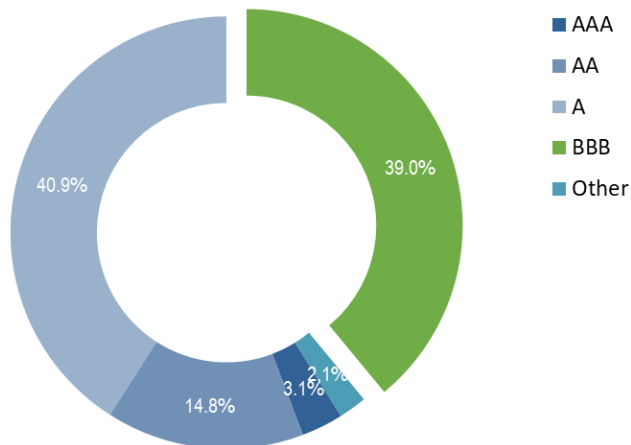
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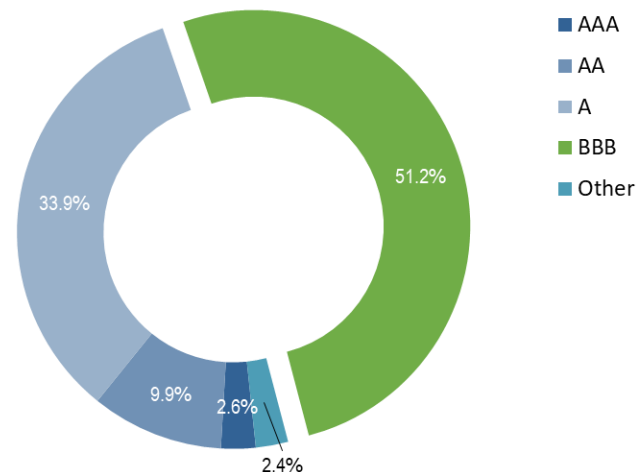
Long Duration Credit Quality has Declined

Bloomberg Barclays Long Credit Index

Allocation as of 12/31/2010



Allocation as of 3/31/2021



Source: AllianzGI, Bloomberg. The Bloomberg Barclays Long Credit index is designed to measure the performance of U.S. AA corporate bonds that have a maturity of greater than or equal to 10 years.



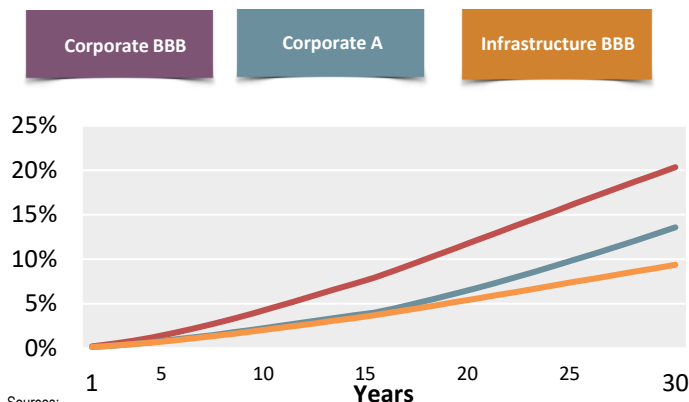
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Why are institutional investors investing in Infrastructure Debt?



Cumulative default rates for corporates and infrastructure investments **



Sources:

* Experience of AllianzGI on investments from 2013-2020

** AllianzGI White paper April 2018: Infrastructure Debt – A potential Portfolio Optimizer in a rising rate environment

*** Moody's Infrastructure Default and Recovery Rates, 1983-2016

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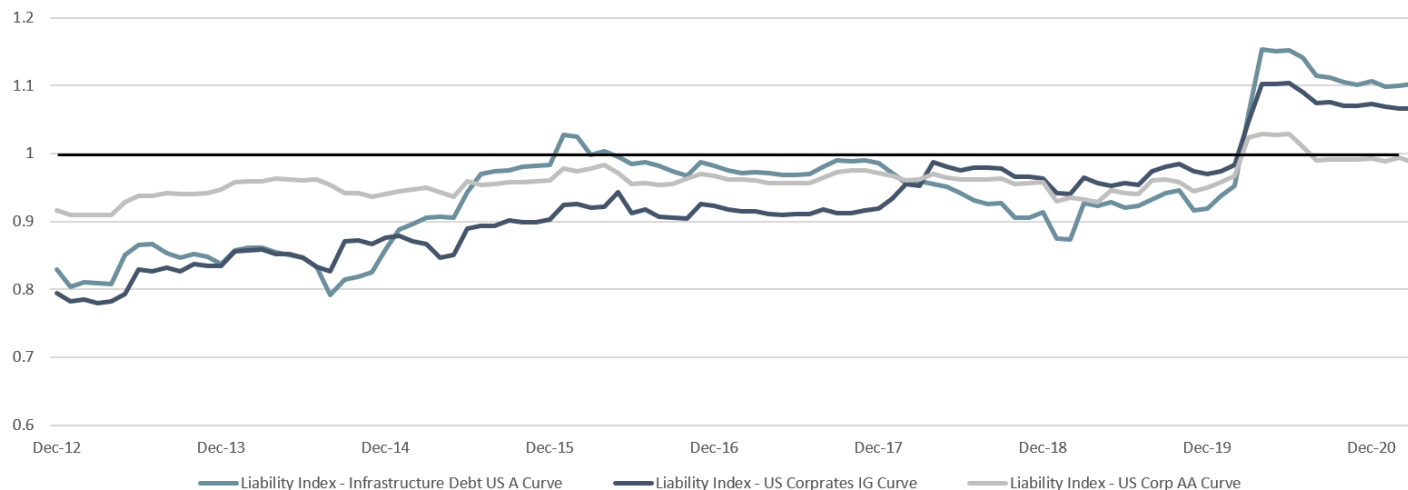


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Why are institutional investors investing in Infrastructure Debt?

Rolling 3-Year Betas to Liability Index valued at the FTSE discount curve



The liability index valued under the Utility A curve (proxy for Infrastructure Debt) has consistent correlation and beta to the FTSE liability Index

Source: AllianzGI, Bloomberg, ICE BofA Merrill Lynch. Past performance is not indicative of future results. See additional disclosure at the end of this document.



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Infrastructure debt exhibited high correlation to corporate bonds with greater expected return Projected analysis – AllianzGI Capital Market Assumptions

Asset Class	Return p.a.	Volatility p.a.	Correlation with Infrastructure Debt
U.S. Treasuries 10+ years	2.3%	9.3%	0.83
U.S. corporate bonds 10+ years	2.3%	10.3%	0.89
Infrastructure Debt US	4.2%	7.8%	–



Infrastructure bonds offer attractive return potential with high correlation to corporate bonds

Source: AllianzGI. Projected data is as of 3/31/21 through 3/31/31. Analysis based on 10,000 forward-looking scenarios for the underlying asset classes based on risklab's Capital Markets Model. Forward looking assumptions based on AllianzGI capital market assumptions. The table presented here is not intended to be predictions of future performance, but rather estimates based on historical returns. There are material limitations to using projection models. See additional Projected Returns disclosure at the end of this presentation for a full description of these limitations. These results are based on simulated or hypothetical performance results that have certain inherent limitations. Unlike the results shown 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-compensation for the impact, if any, of certain market factors, such as lack of liquidity. No representation is being made that any account will or is likely to achieve profits or losses to those being shown. If presented, projected performance results are presented gross of fees, do not reflect the deduction of investment advisory fees, do not represent the results of actual trading, and might not reflect the impact that material economic and market factors would have on the decision making if AllianzGI US was actually managing a client's money. IMPORTANT: The projections or other information generated by risklab's Capital Markets model regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results and are not guarantees of future results.



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APPENDIX



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What differentiates “core” from “core-plus” infrastructure compared to corporate debt? Key characteristics of infrastructure debt vs corporate debt

	Core infra debt	Core-plus infra debt	Corporate debt
Essentiality/ barriers to entry	<ul style="list-style-type: none"> ▪ Highly essential ▪ No viable competition ▪ Typically monopolistic 	<ul style="list-style-type: none"> ▪ Essential ▪ Some scope for competition over medium/long term ▪ Typically oligopolistic 	<ul style="list-style-type: none"> ▪ Non-essential ▪ Generally subject to competition
Cashflows	Stable and predictable over long term	Stable and predictable over medium term	Mixture of certain and unpredictable over medium term
Covenants	Very strict covenants	Strict covenants	Light or no covenants
Examples of industries	<ul style="list-style-type: none"> ▪ Electricity distribution ▪ Solar and wind farms ▪ Toll roads/rail networks ▪ Midstream energy projects 	<ul style="list-style-type: none"> ▪ Energy services ▪ Nursing homes ▪ Telecoms infrastructure ▪ Transport logistics 	<ul style="list-style-type: none"> ▪ Manufacturing ▪ Retail ▪ Technology ▪ Hospitality



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Investing in infrastructure assets or debt associated with infrastructure involve a variety of risks, not all of which can be foreseen or quantified, and which include, among others: the burdens of ownership of infrastructure; local, national and international economic conditions; the supply and demand for services from and access to infrastructure; the financial condition of users and suppliers of infrastructure assets; risks related to construction, regulatory requirements, labor actions, health and safety matters, government contracts, operating and technical needs, capital expenditures, demand and user conflicts, bypass attempts, strategic assets, changes in interest rates and the availability of funds which may render the purchase, sale or refinancing of infrastructure assets difficult or impracticable; changes in environmental laws and regulations, investments in other funds, troubled infrastructure assets and planning laws and other governmental rules; changes in energy prices; negative developments in the economy that may depress travel activity; force majeure acts, terrorist events, under-insured or uninsurable losses; and other factors.

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A blue street sign with white text that reads 'Hollywood Blvd' and '5700 W' below it. The sign is tilted and set against a background of palm trees and a clear sky.

Hollywood Blvd
5700 W



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Projected Returns Disclosure

Forward looking assumptions based on AllianzGI capital market assumptions. The table presented here is not intended to be predictions of future performance, but rather estimates based on historical returns. There are material limitations to using projection models. These results are based on simulated or hypothetical performance results that have certain inherent limitations. Unlike the results shown 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-compensation for the impact, if any, of certain market factors, such as lack of liquidity. No representation is being made that any account will or is likely to achieve profits or losses to those being shown. If presented, projected performance results are presented gross of fees, do not reflect the deduction of investment advisory fees, do not represent the results of actual trading, and might not reflect the impact that material economic and market factors would have on the decision making if AllianzGI US was actually managing a client's money. Projected results are not necessarily indicative of future performance and performance may be volatile. Actual returns may be higher or lower.

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Material Assumptions

The investment results shown in the various forward looking were developed with Monte Carlo modeling using the following material assumptions and client inputs. The underlying long-term expected annual return assumptions for the asset classes indicated in the charts are not historical returns. Rather, these are based on our best estimates for future long-term periods. Our annual return assumptions take into consideration the impact of reinvested dividends and capital gains. We use these expected returns along with assumptions regarding the volatility and characteristics for each asset class and the intra-asset class correlations to generate a set of simulated, random monthly returns for each asset class over the specified period of time. These monthly returns are then used to generate 10,000 simulated market scenarios. These scenarios represent a spectrum of possible performance for the asset classes being modeled. The success rates are calculated based on these scenarios. The models are calculated using various global indices before alpha and fees. Other asset classes not considered or modeled may have characteristics similar or superior to those being analyzed.

Limitations of the model. Material limitations of the investment model include:

- Extreme market movements may occur more frequently than represented in our model.
- Some asset classes have relatively limited histories. While future results for all asset classes in the model may materially differ from those assumed in our calculations, the future results for asset classes with limited histories may diverge to a greater extent than the future results of asset classes with longer track records.
- Market crises can cause asset classes to perform similarly over time, reducing the accuracy of the projected portfolio volatility and returns. The model is based on the long-term behavior of the asset classes and therefore is less reliable for short-term periods.
- Inflation is assumed to average 2.00% over a 10-year period; inflation levels are reflected in our calculations and vary in each scenario.
- The model does not attempt to replicate management of any specific investment vehicle. It only utilizes existing glidepaths as a guide.

These results are not predictions, but they should be viewed as reasonable estimates.