PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

NOVEMBER 2019
2020 Capital Market Assumptions
Webinar

Verus

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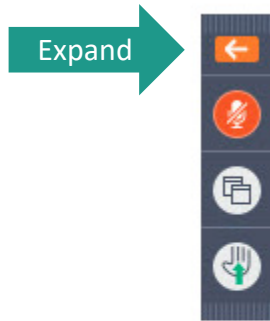
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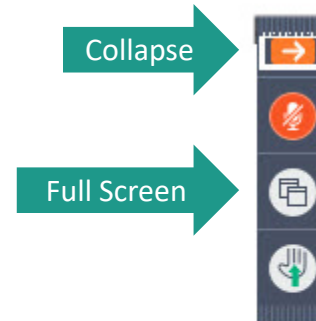
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2020 Capital Market Assumptions webinar

IMPORTANT INFORMATION

Dial in:	1 (866) 901-6455 U.S. & Canada
Access code:	921-303-955
Playback info:	Will be available on the website after the call www.verusinvestments.com
Audio options:	You may choose to listen through the webcast on your computer *or* dial in.
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Consulting | Outsourced CIO (OCIO) | Risk Advisory | Private Markets

Key takeaways

— Return expectations fell broadly across most asset classes as bond yields moved lower, equities recovered from their 2018 end-of-year drawdown, and valuations became richer.

— Low inflation and low interest rates continue to suggest more muted asset class performance relative to the historical average.

— It is important to note the different nature of shorter and longer-term expectations.

Verus Capital Market Assumptions

High-Level Methodology

— How does Verus forecast asset class and portfolio behavior?

2020 Capital Market Assumptions

— What do our forecasts look like for the next 10 years?

— How do these forecasts compare to last year?

— How do they compare to history?

Investor Takeaways

— What do capital market assumptions mean for building portfolios?

Building block methodology

Output: the sum of the building blocks equals expected return

Income + **Inflation** + **Real Growth**

EXPECTED RETURN BUILDING BLOCKS
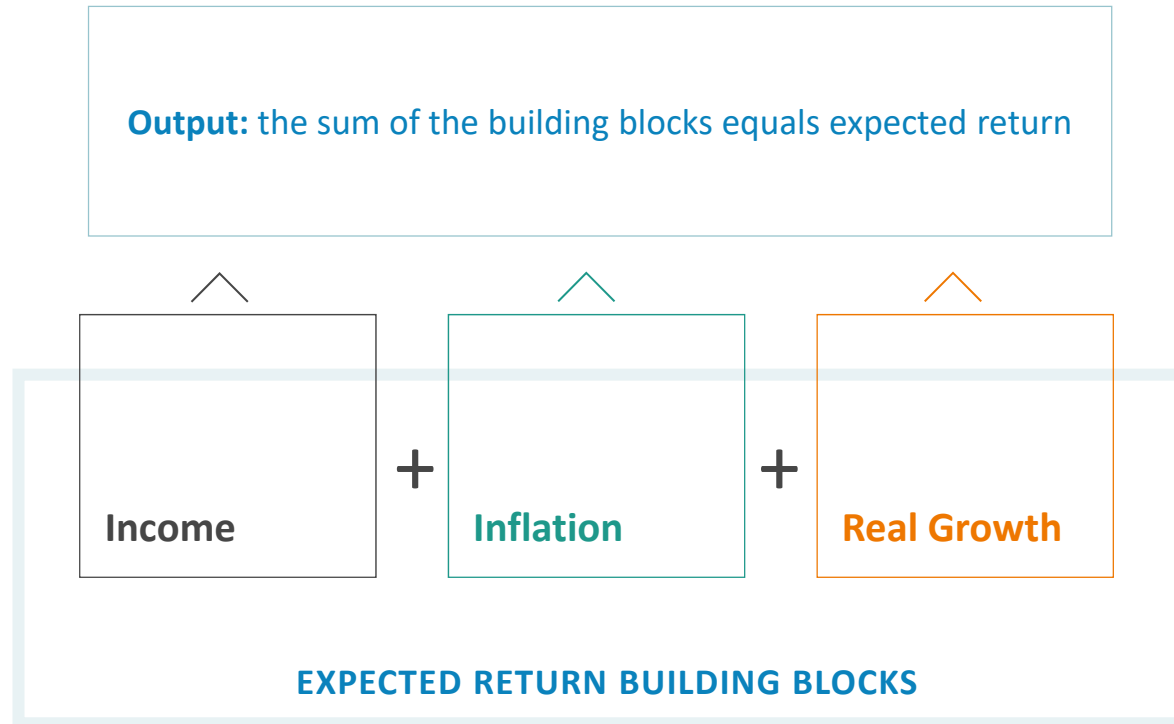
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Build-up/spread

Output: the sum of the building blocks equals expected return

Income
Inflation
Real Growth

+

Premium

EXPECTED RETURN BUILDING INPUTS
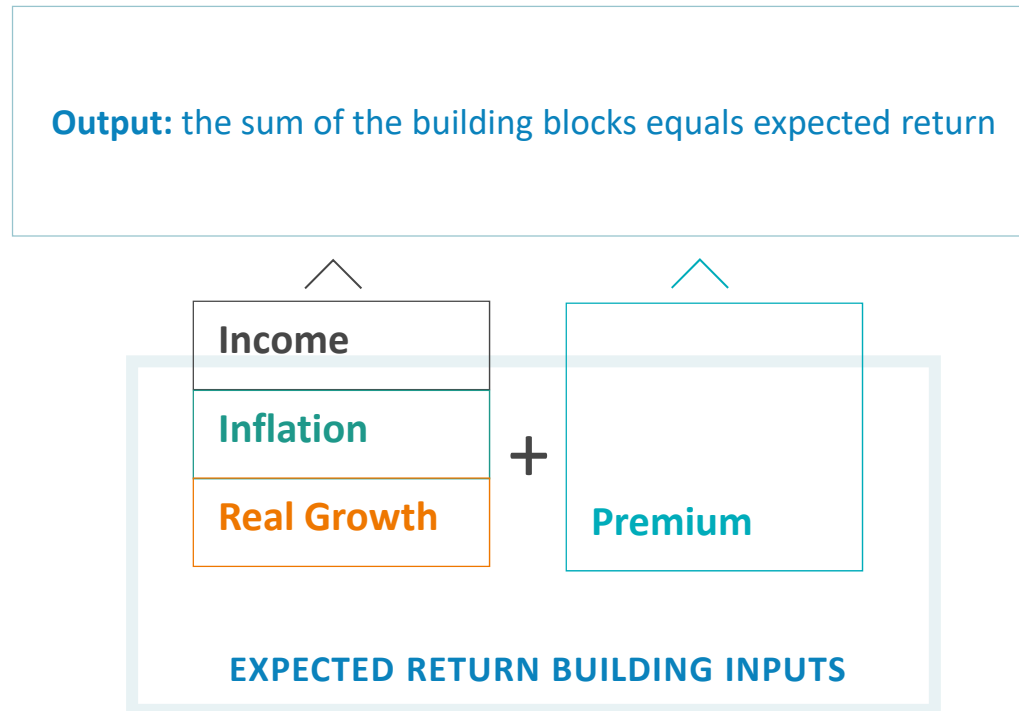
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Expected return methodology

BUILDING BLOCK METHODOLOGY

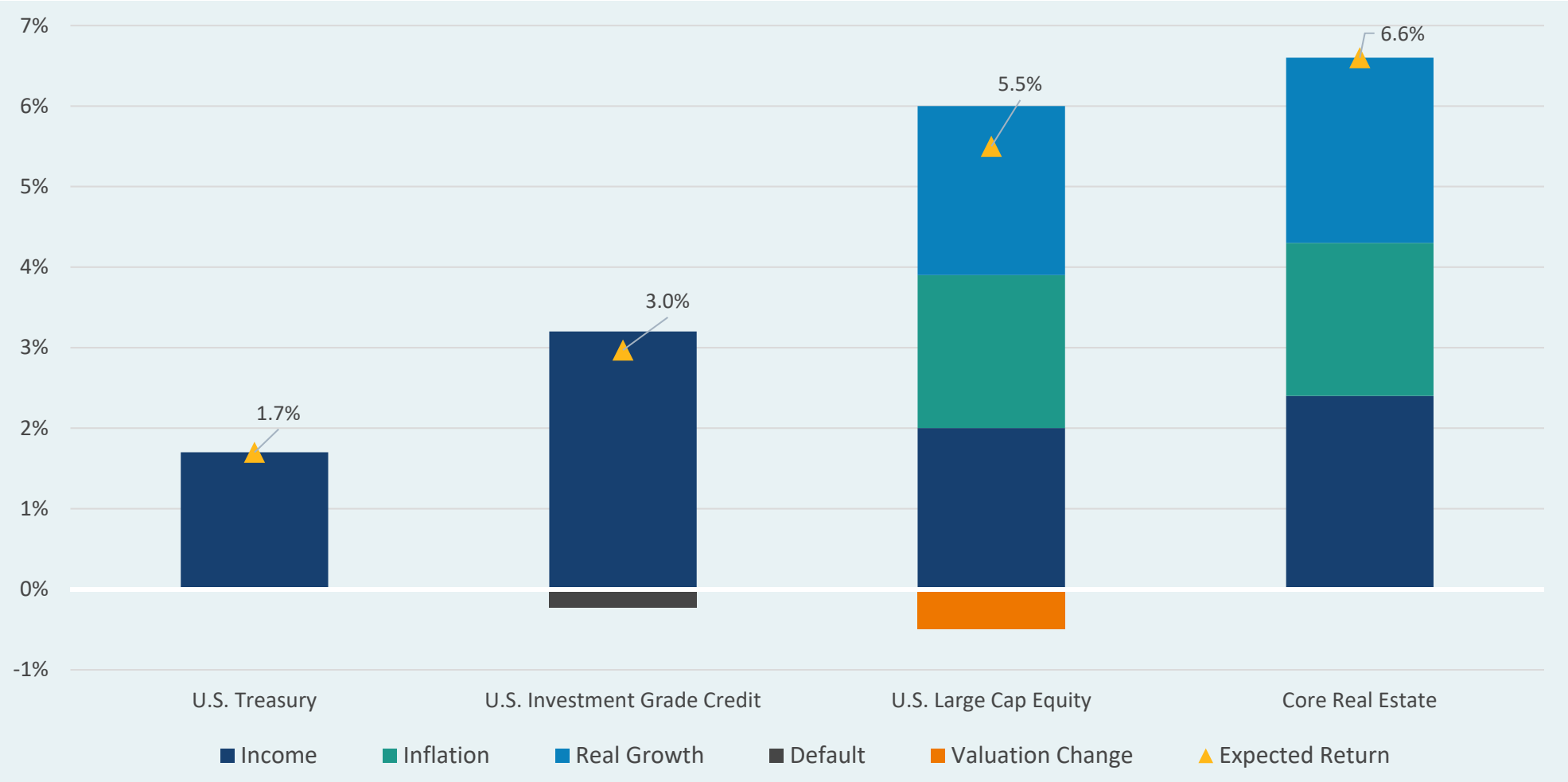|	
Cash	Real yield estimate + inflation forecast
Bonds	Nominal bonds: current yield; Real bonds: real yield + inflation forecast
Credit	Current option-adjusted spread + U.S. 10-year Treasury – effective default rate
International Credit	Current option-adjusted spread + foreign 10-year Treasury – effective default rate
Equity	Current yield + real earnings growth (historical average) + inflation on earnings (inflation forecast) + expected P/E change
Commodities	Collateral return (cash) + spot return (inflation forecast) + roll return (assumed to be zero)
Core Real Estate	Cap rate + real income growth – capex + inflation forecast
Infrastructure	Current yield + real income growth + inflation on earnings (inflation forecast)

BUILD-UP/SPREAD METHODOLOGY

Private Equity	U.S. large cap domestic equity forecast * 1.85 beta adjustment
Private Credit	Bank loan forecast + 1.75% private credit premium

Expected return methodology
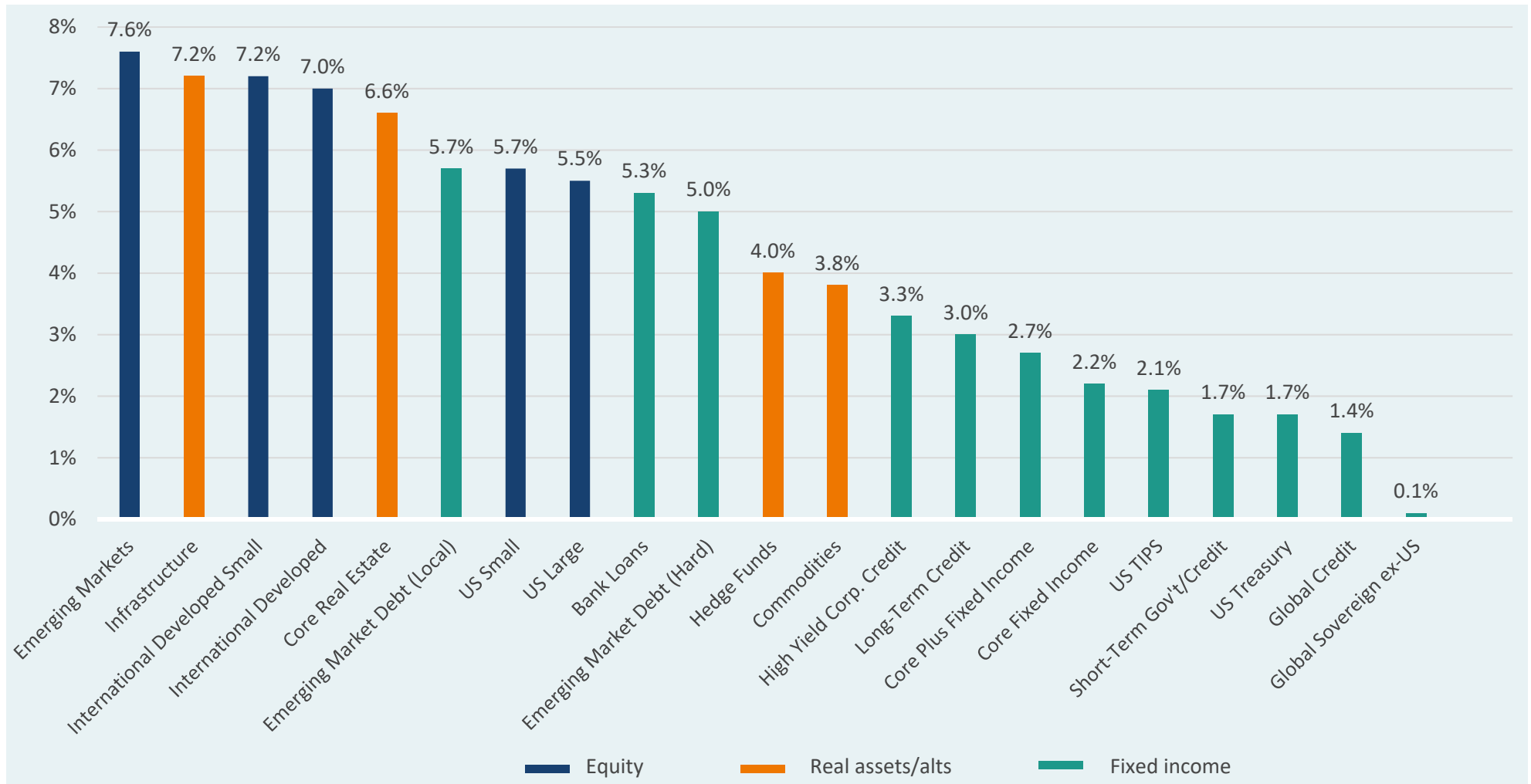

Source: Verus

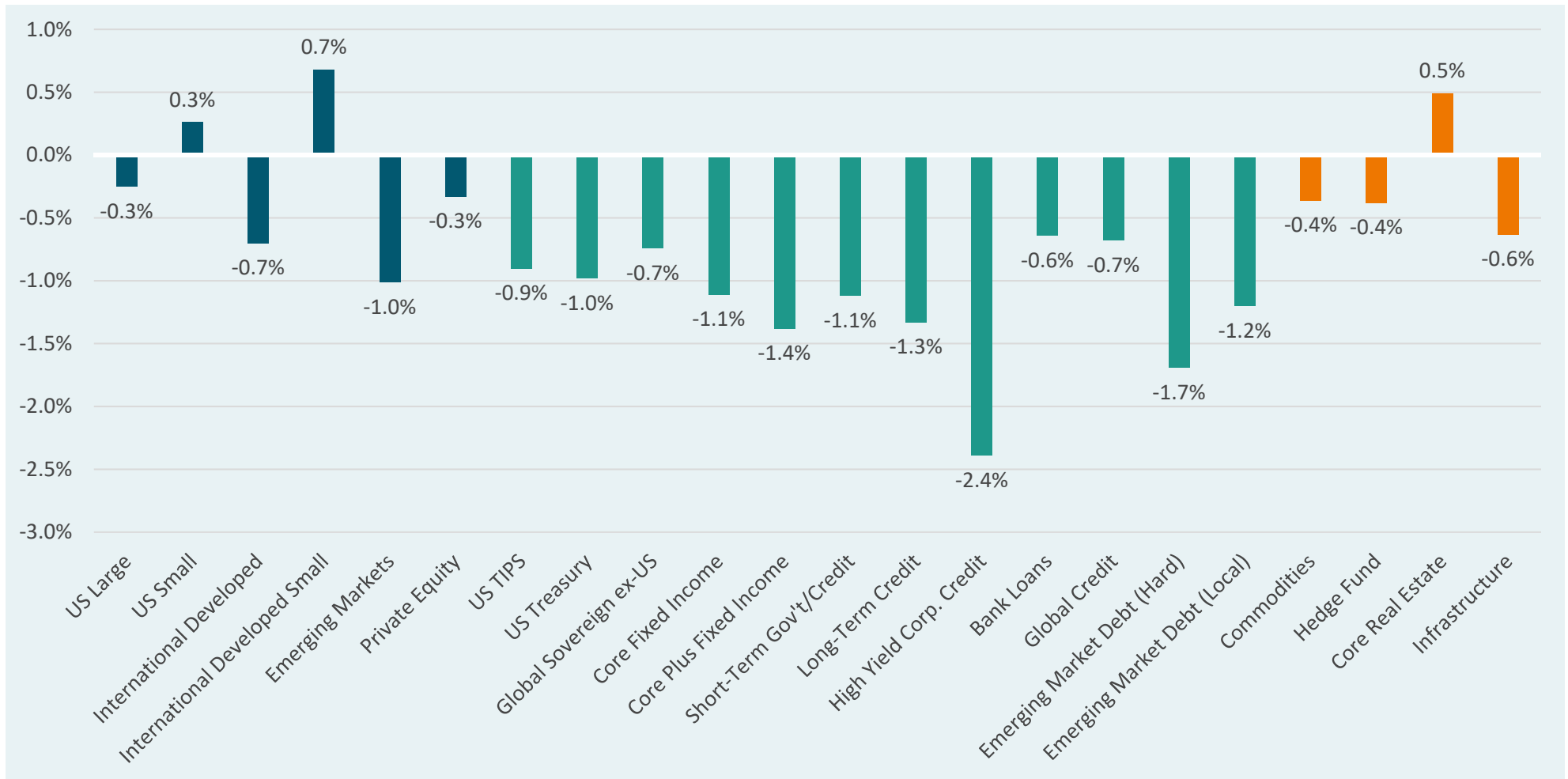# Core real estate

Trailing 10-year return decomposition

Legend:
- 10 Year NCREIF Property Income Return
- 10 Year NCREIF Property Capital Return
- 10 Year NCREIF Property Total Return
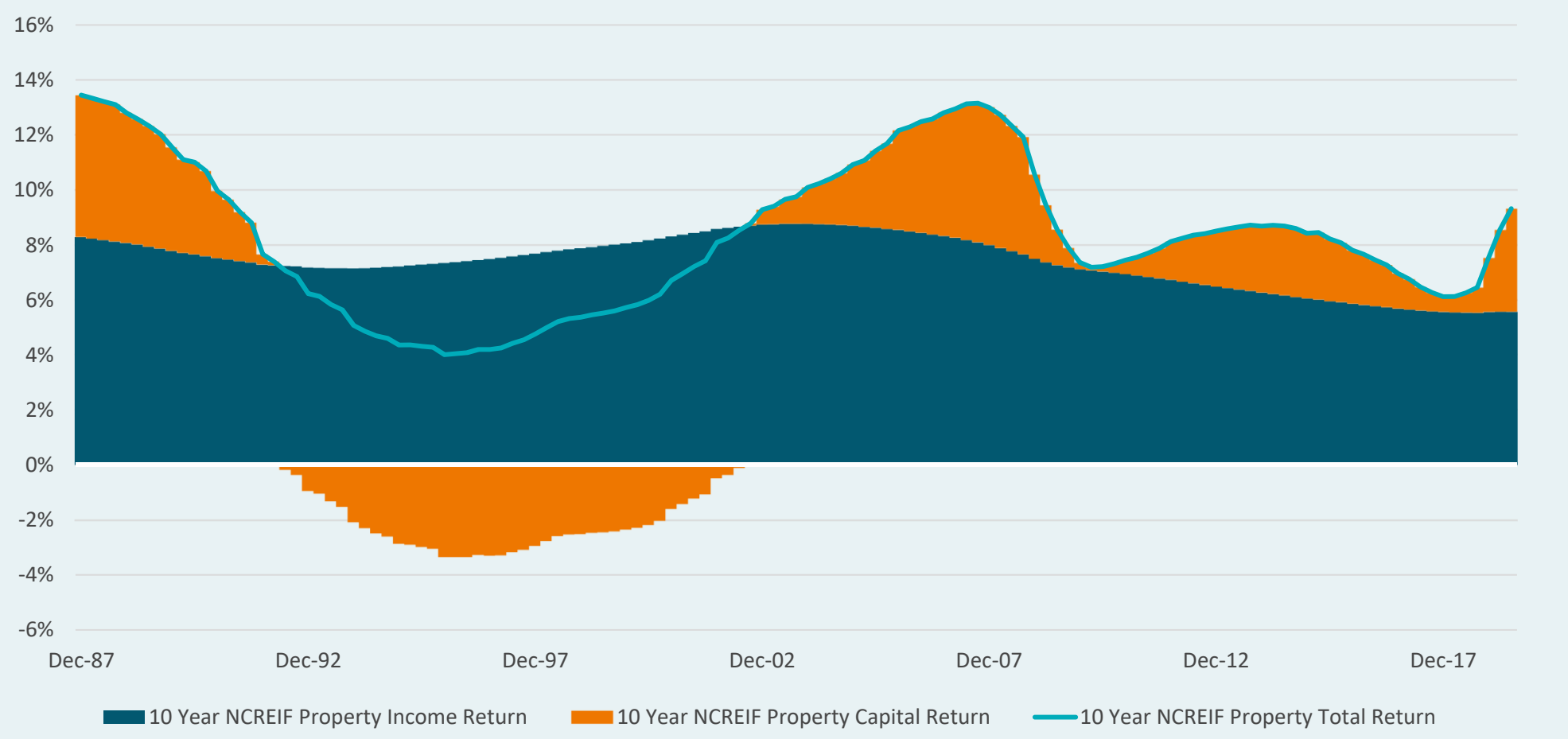
Source: NCREIF, as of 6/30/19

10-year expected returns

Emerging Markets	7.6%
Infrastructure	7.2%
International Developed Small	7.2%
International Developed	7.0%
Core Real Estate	6.6%
Emerging Market Debt (Local)	5.7%
US Small	5.7%
US Large	5.5%
Bank Loans	5.3%
Emerging Market Debt (Hard)	5.0%
Hedge Funds	4.0%
Commodities	3.8%
High Yield Corp. Credit	3.3%
Long-Term Credit	3.0%
Core Plus Fixed Income	2.7%
Core Fixed Income	2.2%
US TIPS	2.1%
Short-Term Gov't/Credit	1.7%
US Treasury	1.7%
Global Credit	1.4%
Global Sovereign ex-US	0.1%

Legend: ■ Equity   ■ Real assets/alts   ■ Fixed income

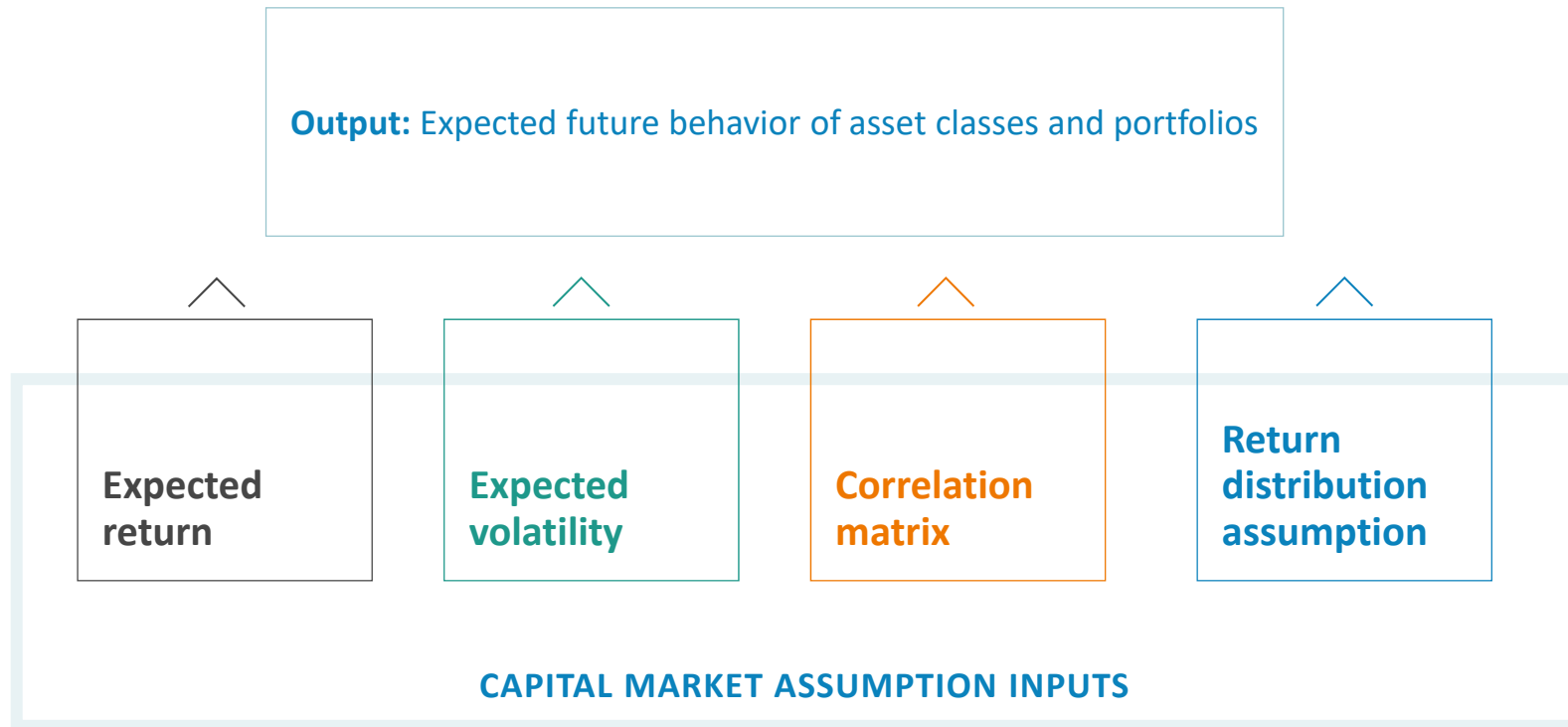*Source: Verus*

2020 vs. 2019 return forecast

Note: the year-over-year change is based on the 2020 methodology
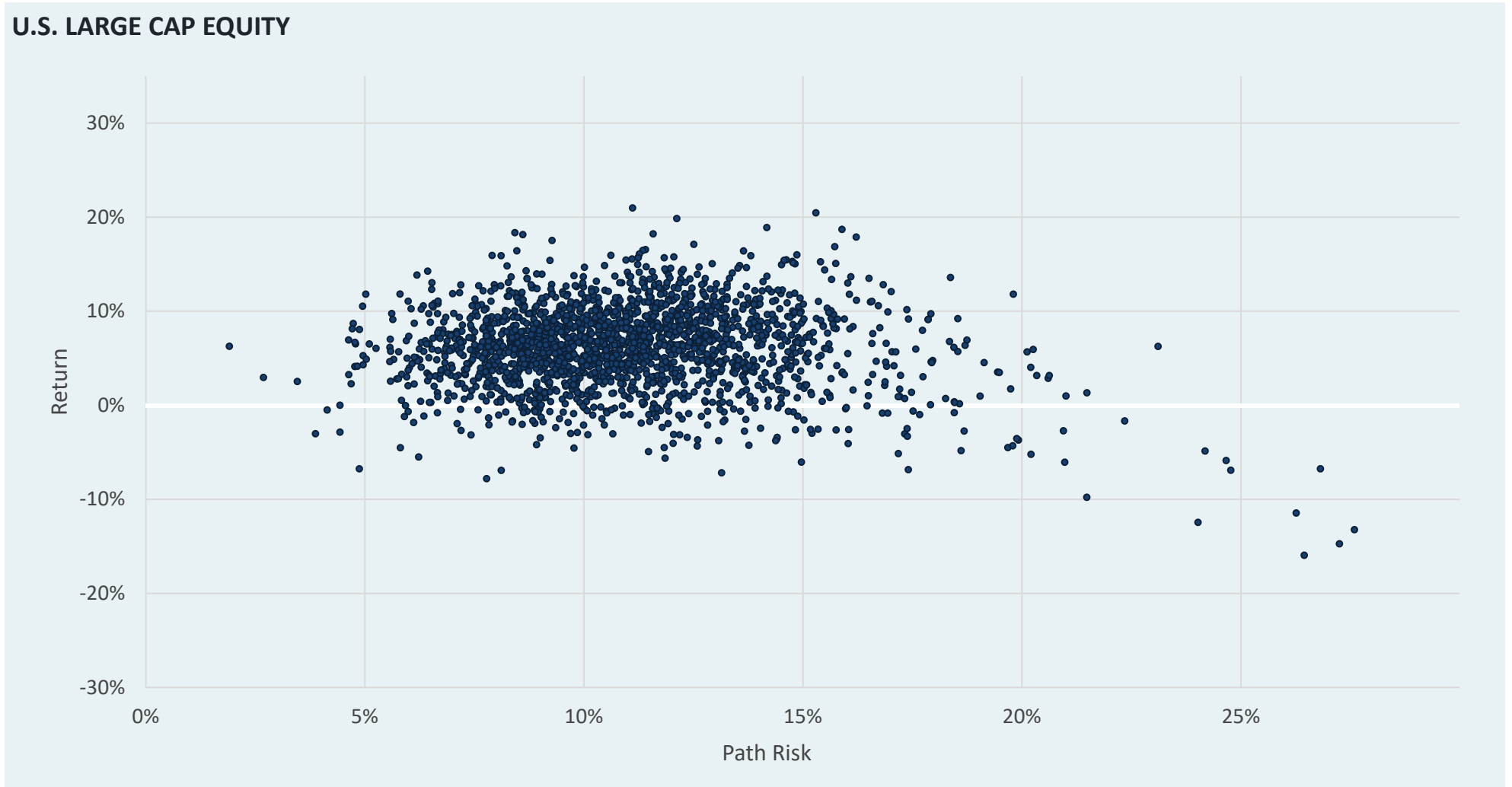
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Required forecasting inputs

Output: Expected future behavior of asset classes and portfolios

Expected return

Expected volatility

Correlation matrix

Return distribution assumption

CAPITAL MARKET ASSUMPTION INPUTS

What is in a forecast?

Expected return: 5.5%, standard deviation: 15.4%

Median
(expected "average"
outcome)

Tail characteristics
(How often do extreme
events occur?)

-15%   -10%   -5%   0%   5%   10%   15%   20%   25%

Volatility
(how variable is the expected outcome?)
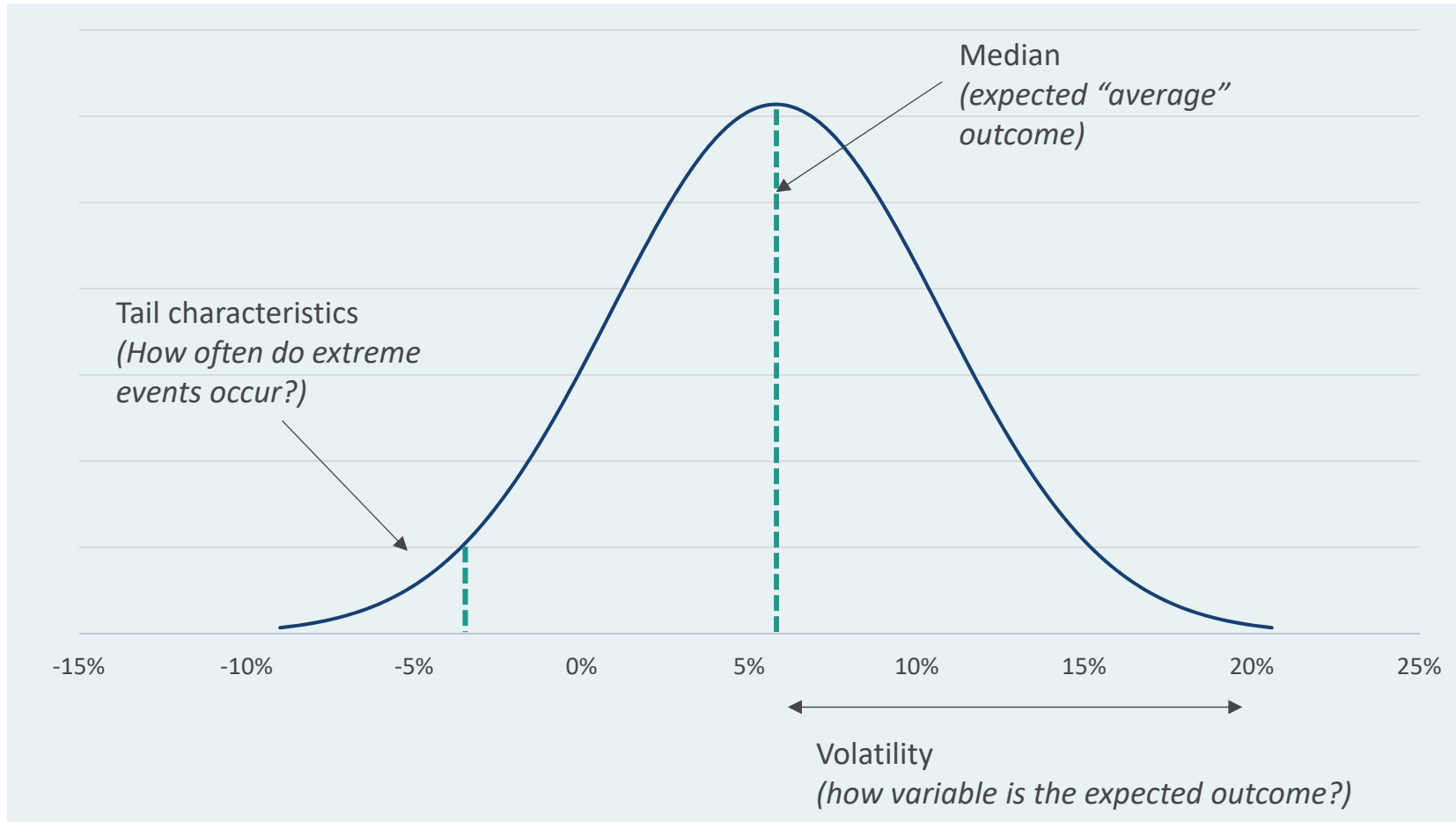
A return forecast is simply the "average" expected return

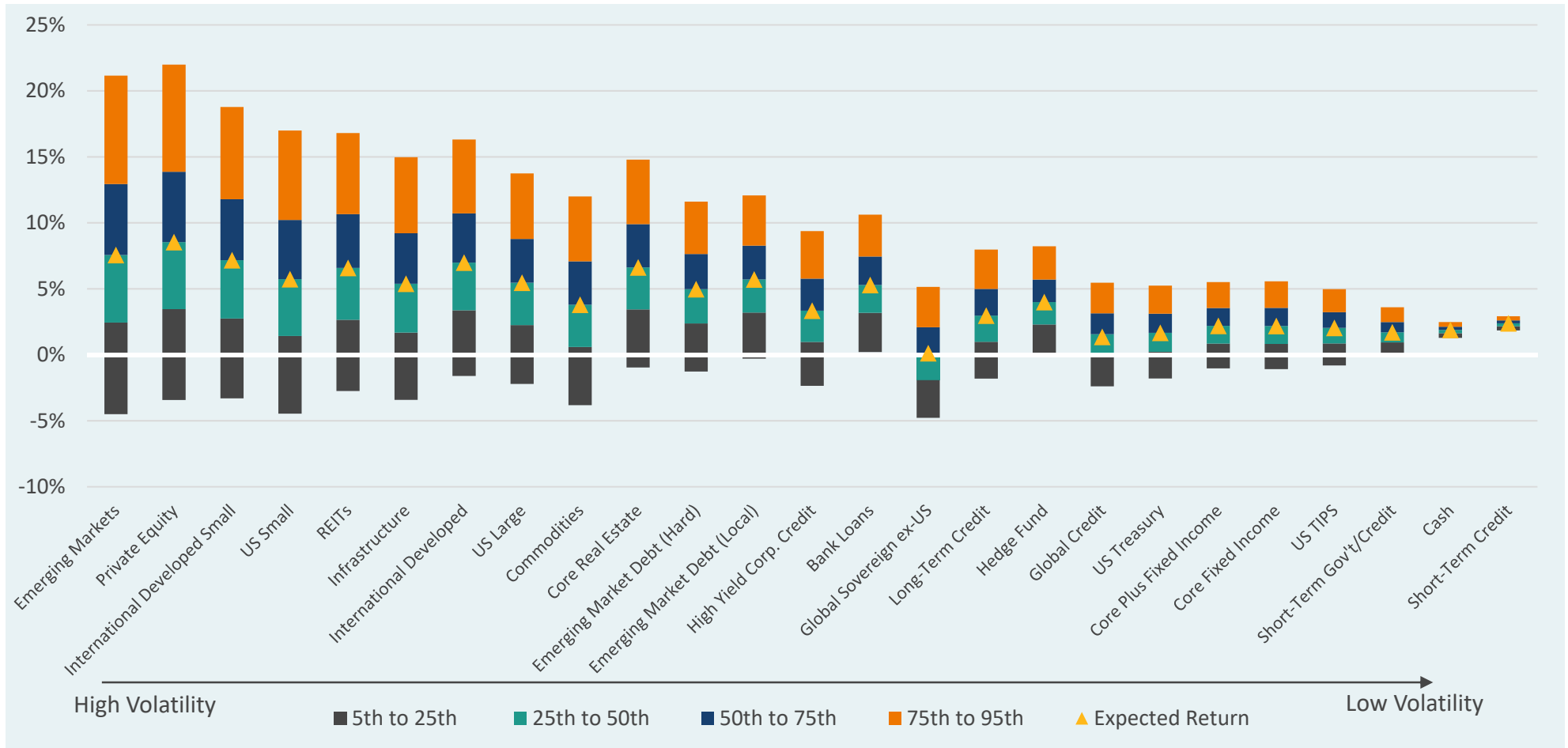A volatility forecast tells us how different the return might actually be

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Range of likely 10-year outcomes

U.S. LARGE CAP EQUITY

Return vs Path Risk scatter plot

Source: Verus

Verus

Range of likely 10-year outcomes

10-YEAR RETURN 90% CONFIDENCE INTERVAL

Source: Verus

Verus

Equity

Verus

Equity return forecasts

Chart: Stacked bar chart showing equity return forecasts by category.

Y-axis: -2% to 8%

Categories (X-axis): U.S. Large, U.S. Small, Intl Developed Large, Intl Developed Small, Emerging Markets

Expected Return markers:
- U.S. Large: 5.5%
- U.S. Small: 5.7%
- Intl Developed Large: 7.0%
- Intl Developed Small: 7.2%
- Emerging Markets: 7.6%

Legend: Dividend Yield, Inflation, Real Earnings Growth, Valuation Change, Expected Return
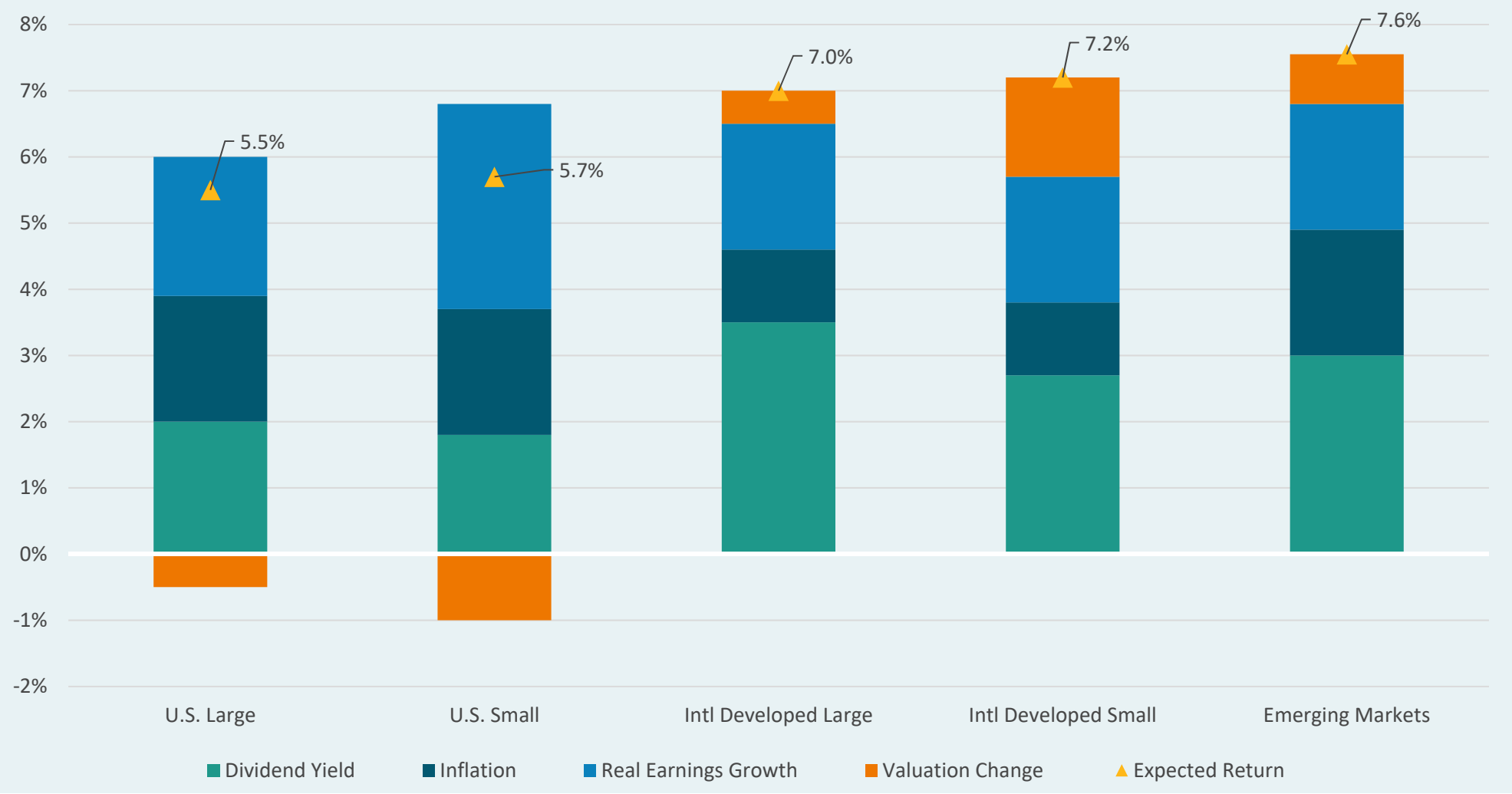
Source: Verus

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Private equity

Output: the sum of the building blocks equals expected return

Public equity forecast	+	Leverage
		Concentrated factor exposure
		Skill

EXPECTED RETURN BUILDING BLOCKS
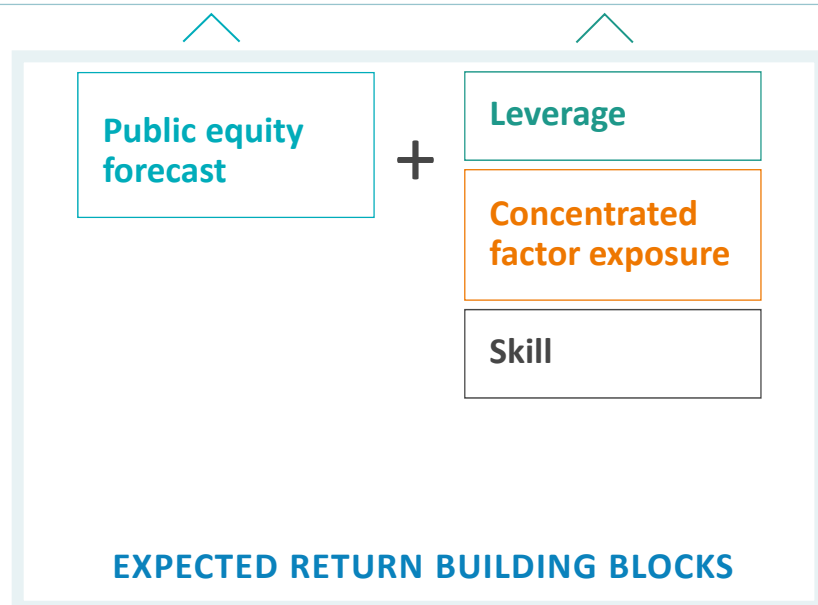
IMPLEMENTATION FORECASTS

	10-Year Forecast
Private Equity Universe Forecast	+8.5%
Private Equity FoF Forecast	+7.5%
Private Equity Direct Forecast	+9.5%

For illustrative purposes only

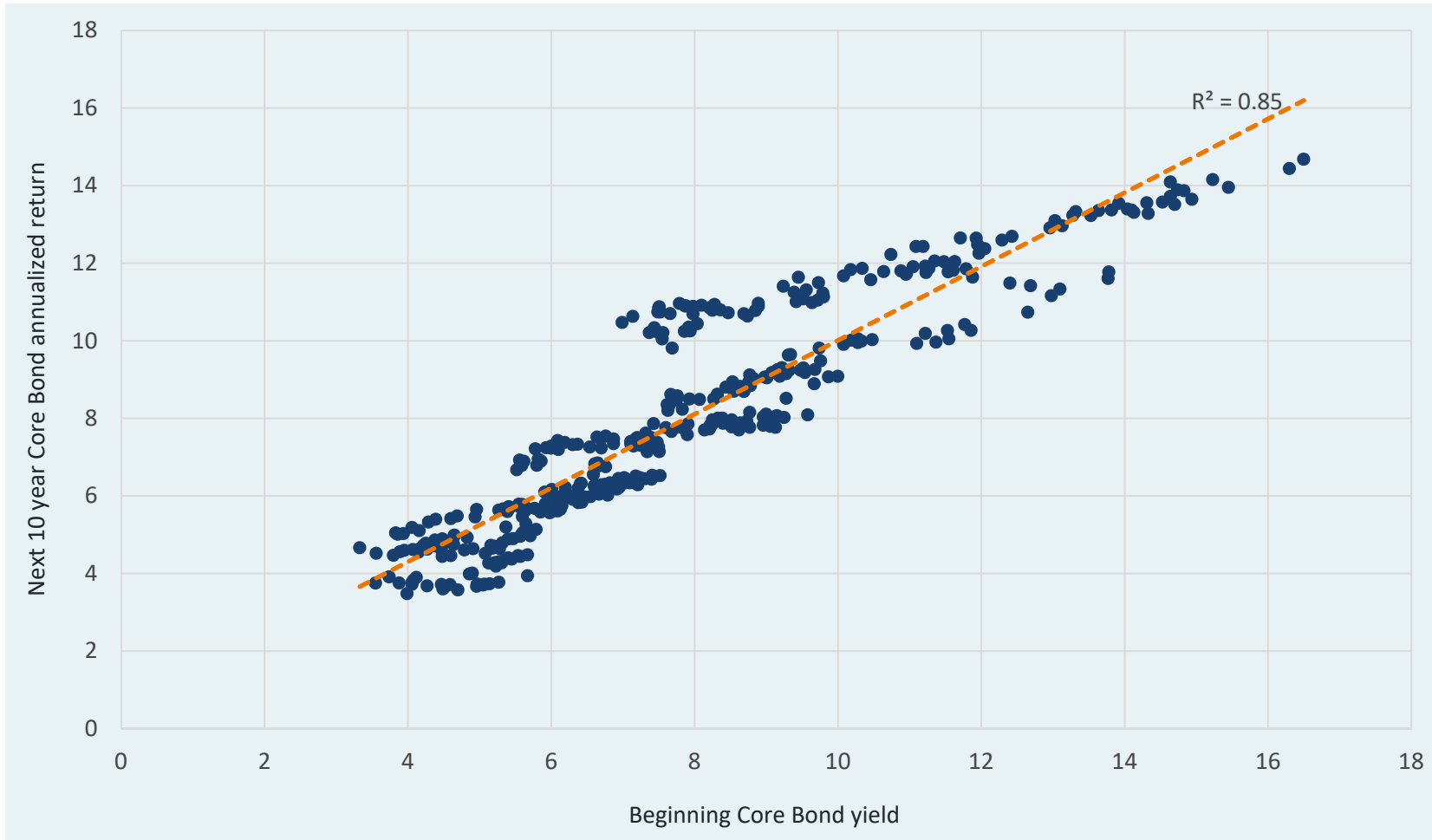# Fixed income

Fixed income return forecasts
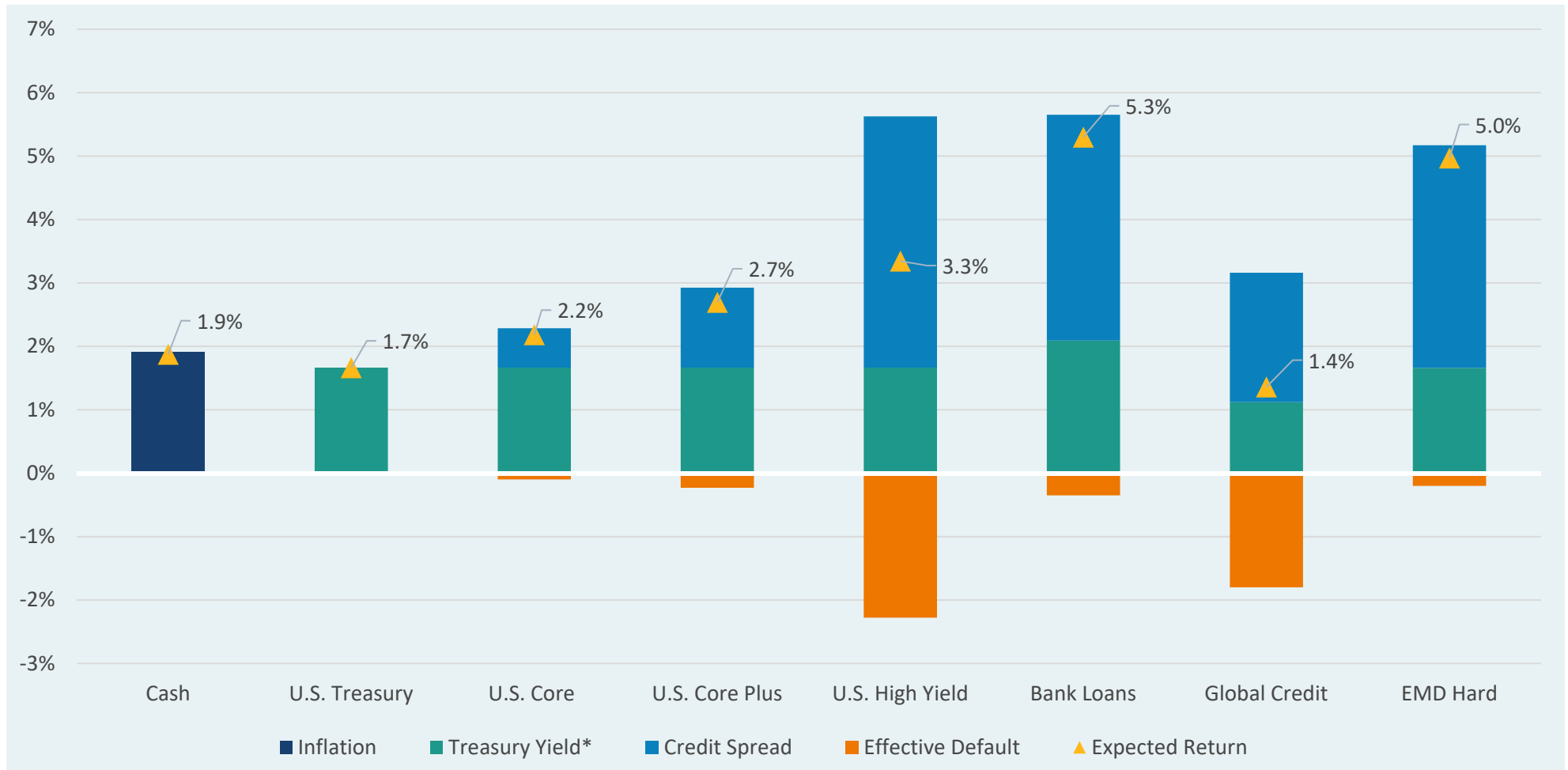
Source: Verus

*Bank loans uses 3-month USD Libor instead of the Treasury yield
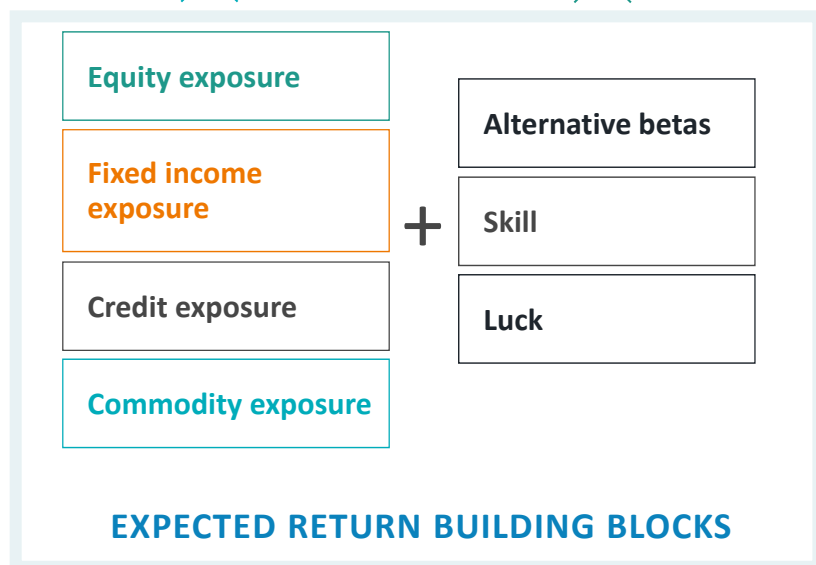
Fixed income

CORE FIXED INCOME

Bond yields have been a very accurate predictor of future returns

R² = 0.85

Source: BBgBarc US Aggregate Index, Verus – performance since 1976

Hedge funds

Verus

Hedge funds

Output: the sum of the building blocks equals expected return

EXPECTED RETURN BUILDING BLOCKS

- Equity exposure
- Fixed income exposure
- Credit exposure
- Commodity exposure

+

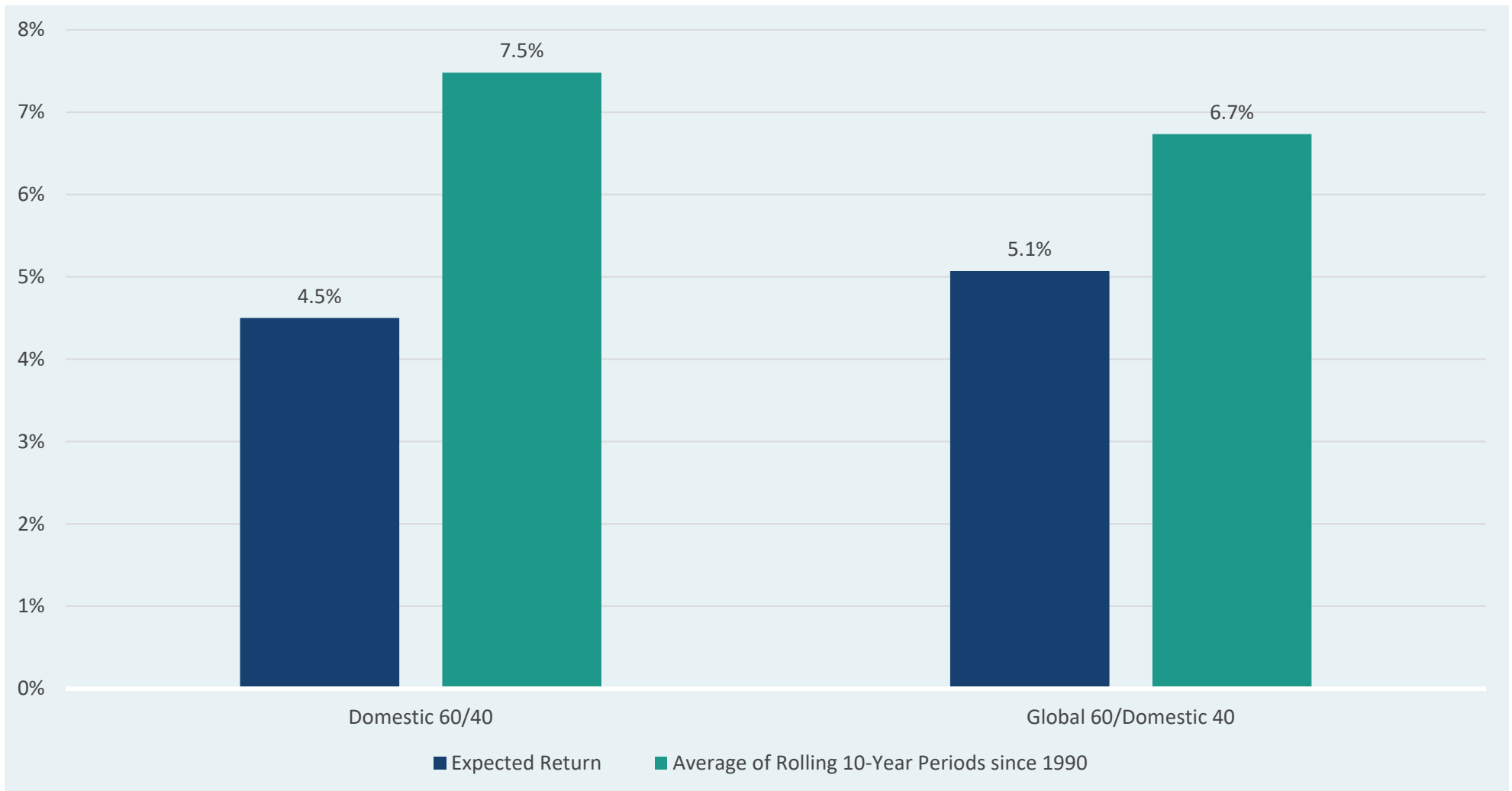- Alternative betas
- Skill
- Luck

	10-Year Forecast
Hedge Fund Forecast	+4.0%
Hedge Fund-of-Fund Forecast	+3.0%

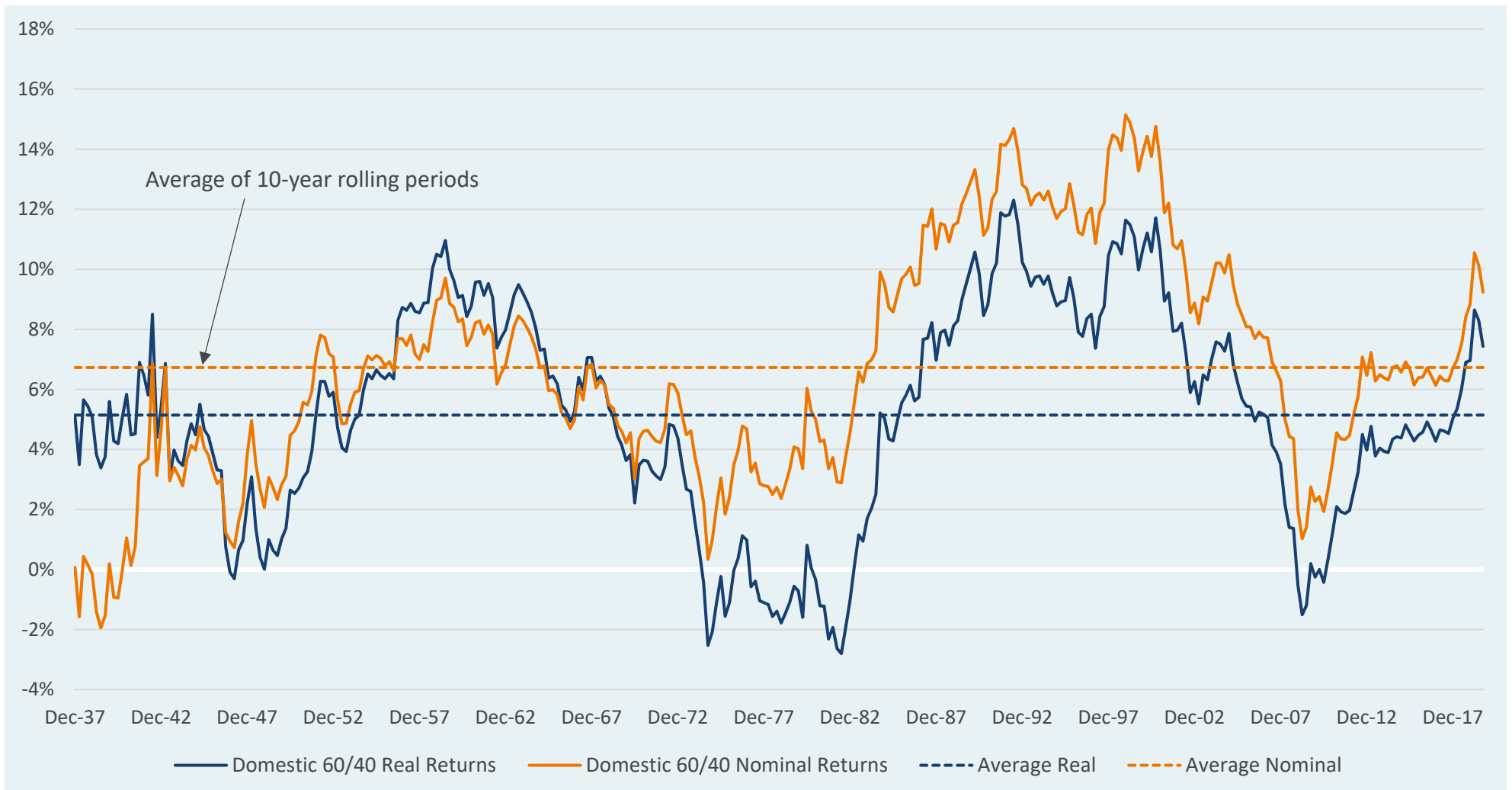*For illustrative purposes only*

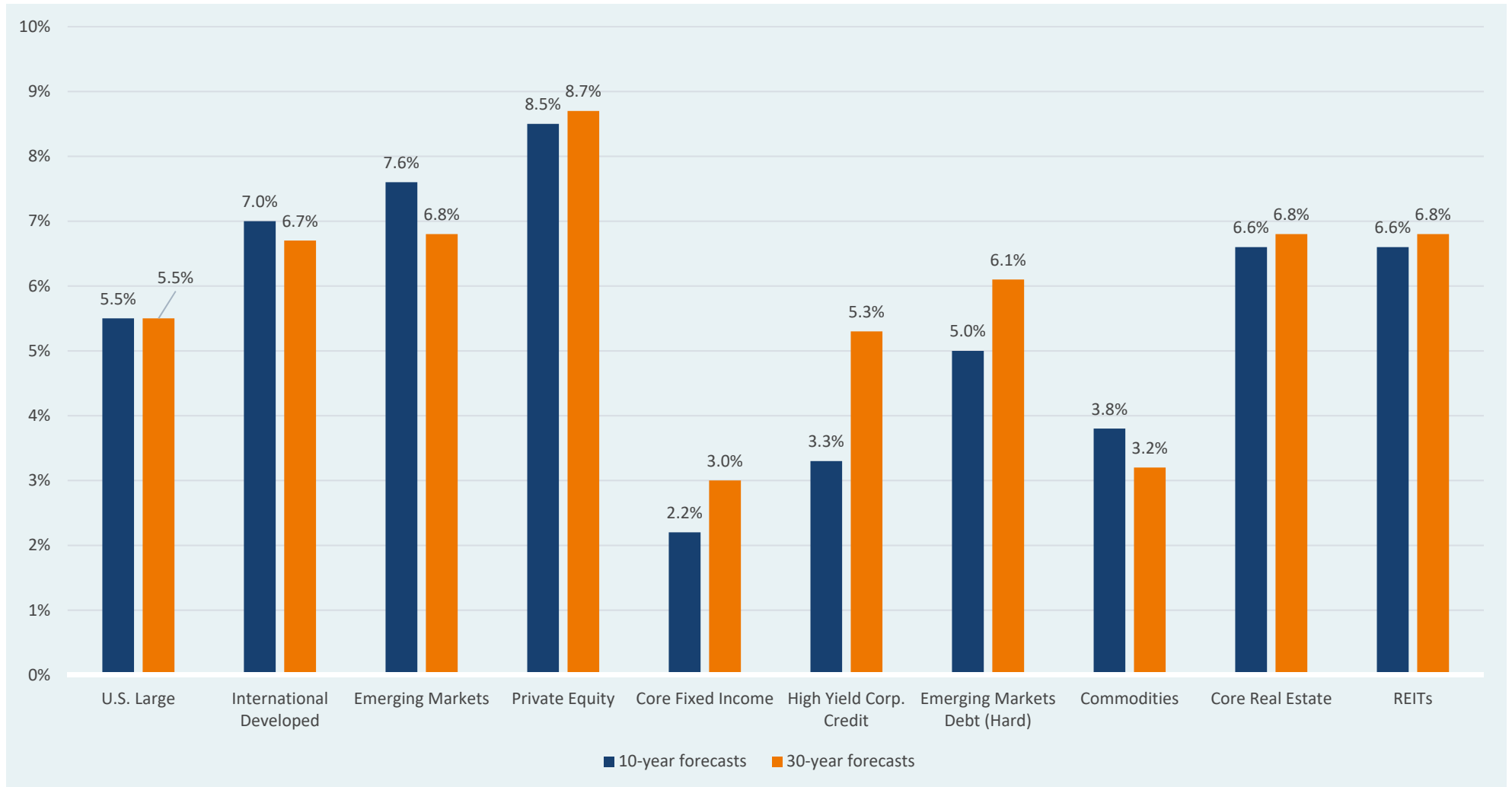# Portfolio expectations

Portfolio expected returns

Source: Verus, Morningstar, as of 9/30/19, indices used include the S&P 500 Index, MSCI ACWI Index, and BBgBarc U.S. Aggregate Index

10-year rolling returns

Average of 10-year rolling periods

Source: IA SBBI, as of 9/30/19

— Domestic 60/40 Real Returns   — Domestic 60/40 Nominal Returns   ---- Average Real   ---- Average Nominal

Verus

10-year vs. 30-year forecasts

Source: Verus

Longer vs. shorter-term expectations

10-year forecasts should typically not be used for shorter-term positioning

Longer-term return drivers

— Level of inflation

— Level of interest rates
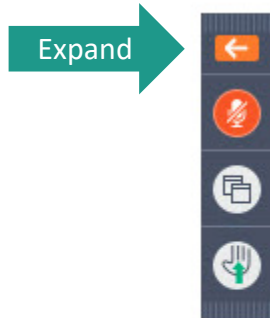
— Level of growth

— Level of asset prices

Shorter-term return drivers

— Changes in inflation level & expectations

— Changes in interest rate level & expectations

— Changes in growth level & expectations

— Changes in asset prices

Shorter-term investment strategy should be focused on identifying *changes* in the environment

An investor's longer-term & shorter-term expectations will often be different

Q&A

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Use the orange arrow to expand the control panel

Ask questions here   Questions

Thank you