BCA 7–YR STRATEGIC ASSET CLASS FORECAST METHODOLOGY — WHITEPAPER

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Introduction

BCA aims to deliver unconditional investment advice that maximizes long-term, net-of-fee returns for clients, taking into account each client's particular goals and tolerance for risk. We aim to construct optimal portfolios that maximize return while minimizing risk and achieve this by combining a broad set of asset and sub-asset classes. Research has consistently determined that combining asset classes rather than individual securities is the best way to maximize returns across every level of risk.

Therefore, the first step in our methodology is to identify a broad set of diversified asset and sub-asset classes to serve as the building blocks for portfolio construction (see table below)

Asset Class	Description
Cash/Cash Equivalent	Cash or 3-Mos Treasury Bills
Public Equities (Stocks)	
US Large Cap	US companies with market capitalization > $10 Billion
US Small Cap	US companies with market capitalization < $2 Billion
International Developed	Intl. companies based in developed markets (mainly large cap)
Emerging Markets	Intl. companies based in developing markets (mainly large cap)
Fixed Income	
Govt. Bonds (Dev. Markets)	Treasury and agency bonds (US + Intl.)
Municipal Bonds	Bonds issued by municipalities (US)
Corporate Bonds	Bonds issued by corporations (US + Intl.)
Emerging Markets Bonds	Bonds issued by EM Gov'ts. or corporations (can be issued in local currency or USD)
Alternatives	
Long/Short Hedge Funds	Hedging market risk by betting on certain stocks (long) while betting against others (short)
Opportunistic Credit Funds	Distressed and relative value credit
Global Macro	Directional bets on interest rates, currencies, and equities
Non-Traditional	Assets completely uncorrelated to equities and bonds
Private Investments	Equity and debt investments in private companies
Private Real Estate	Investments in income-producing real estate properties

In evaluating these asset classes, we consider the following:

- Each asset class's historical behavior in difference economic scenarios as evidence by historical return and volatility statistics
- Each asset class's correlation with other asset classes (i.e. – did asset class A move in the same direction as asset class B)
- <u>Most importantly</u> – we forecast expected future returns and risk for each of these asset classes as expected macroeconomic conditions may differ significantly from past periods.

The remainder of this whitepaper describes the methodology used in forecasting asset class returns over a seven-year time frame ("BCA Strategic Outlook"). We believe a seven-year outlook is appropriate as it historically has captured on average a full business cycle. Our approach for forecasting returns consists of a building block approach – i.e. – decomposing the sources of return into various building blocks. For most of the asset classes, the primary building blocks are a) current cash flow yields, b) expected cash flow growth and c) expected valuation vs. current valuation. We believe this building block framework offers the following advantages:

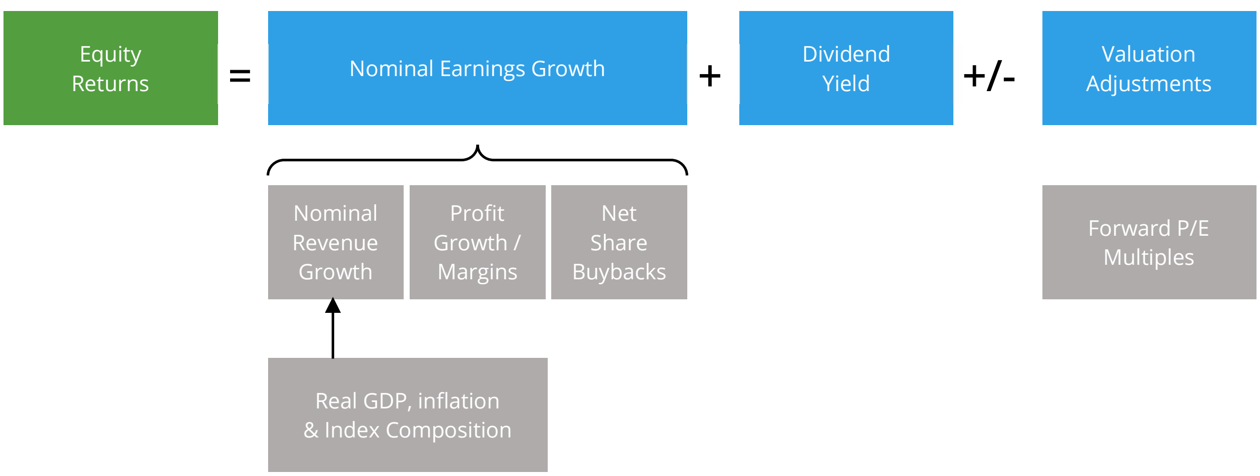
- We can independently assess how certain variables such as macroeconomic growth can affect different asset classes such as equities, fixed income, real estate, and private investments (private equity and private credit)
- Additionally, we can independently reflect on expected vs. current valuations by looking at historical changes in valuation associated with each asset class

Ultimately, forecasting expected returns as well as expected volatility across asset classes is the key determinant in assessing the attractiveness of various asset classes. We update our return forecasts quarterly, and potentially more frequently during periods of economic or market volatility, to reflect any changes in macroeconomic or geopolitical considerations which may influence our views.

Asset Class Forecast Methodology

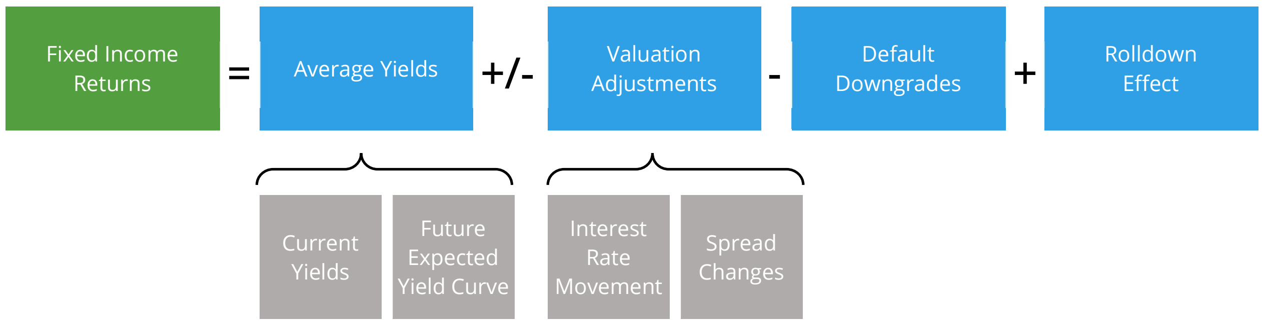
In forecasting asset class performance over the seven-year period, we utilize a building-block approach to developing the returns forecast. These approaches are depicted below.

Building Blocks for Equities



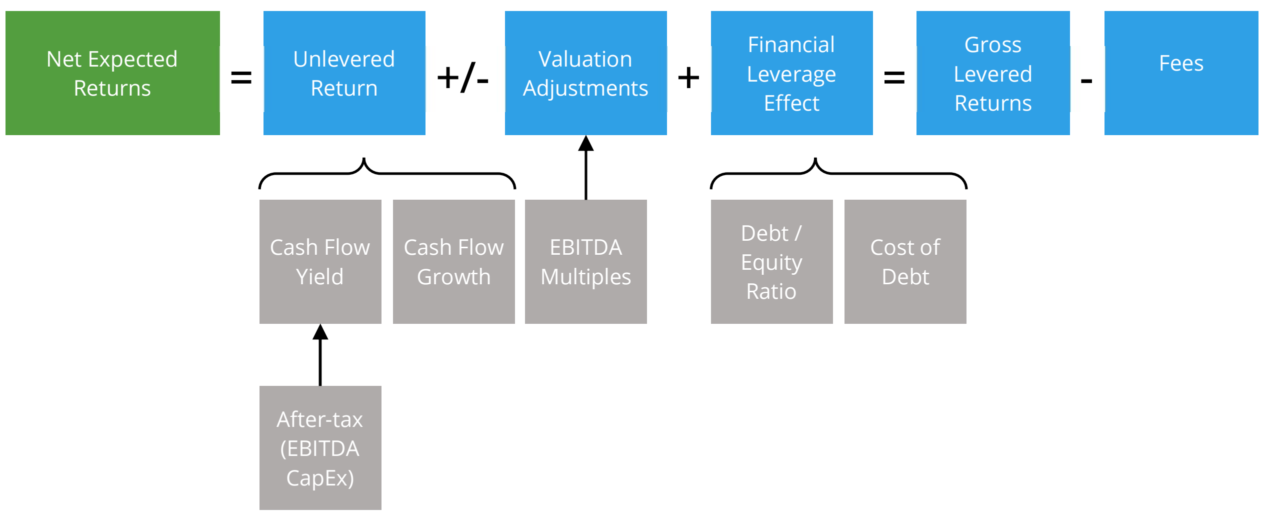
Key assumptions include real GDP, inflation, index composition and historical linkage of public companies' revenues to GDP, and profit margin potential based on business cycle analysis. Additionally, we examine historical revenue and earnings growth rates, analyzing macro characteristics taking place during that time period. Our approach does not explicitly factor in changes in currency exchange rates.

Building Blocks for Fixed Income



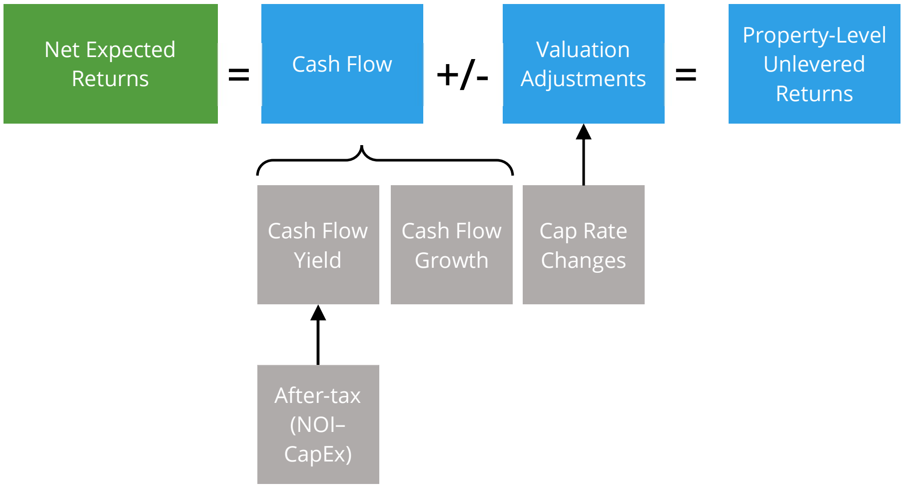
Our forecast first looks at average yields taking into account both current yields and expected future yields based on future yield curves. We then apply valuation adjustments based on a) interest rate movement risk, b) valuation adjustments from movement in spreads. Finally, we then forecast default / downgrades and take into the account the returns from roll-down and reinvestment. Again, we do not explicitly factor in changes in currency rates.

Building Blocks for Private Equity



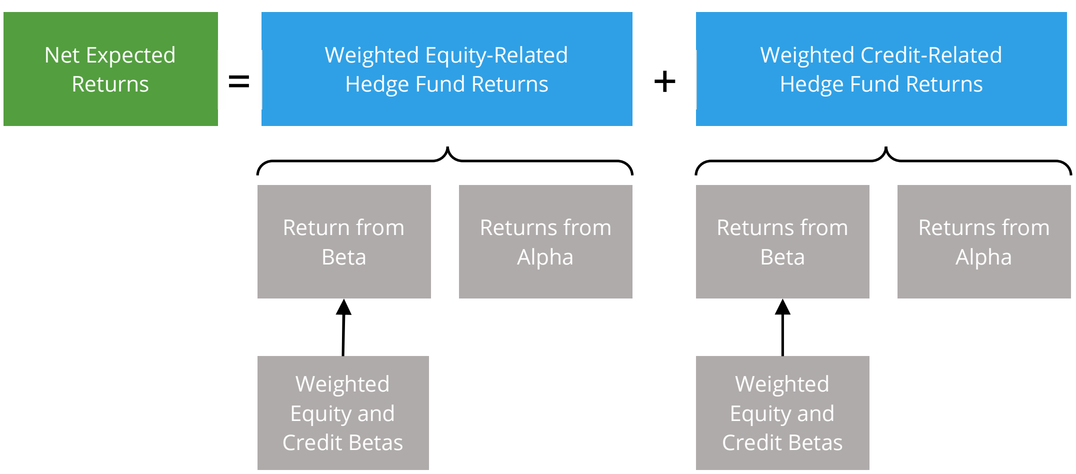
Our forecast first considers sources of unlevered returns such as after-tax underlying cash flow (EBITDA-capex) yield and cash flow growth. Additionally, we consider valuation adjustments to account for potential changes in valuation multiples over the forecast period. We then account for financial leverage utilized by private equity firms to derive levered returns. Finally, we subtract estimated fees to derive net nominal expected returns.

Building Blocks for Private Real Estate



Our forecast first considers sources of cash flow returns such as after-tax underlying cash flow (net operating income - capex) yield and cash flow growth. Our initial valuation assumptions are based on current blended capitalization rates across property types nationally. Additionally, we consider valuation adjustments in the form of cap-rate changes over the forecast period. Our forecasted returns are at the property-level and are calculated on an unlevered basis.

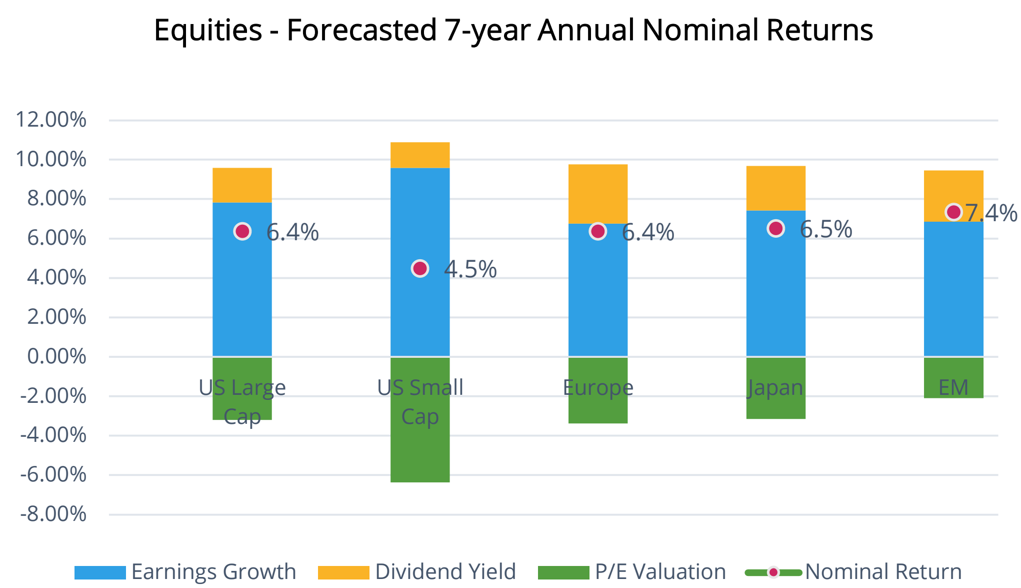
Building Blocks for Hedge Fund Returns

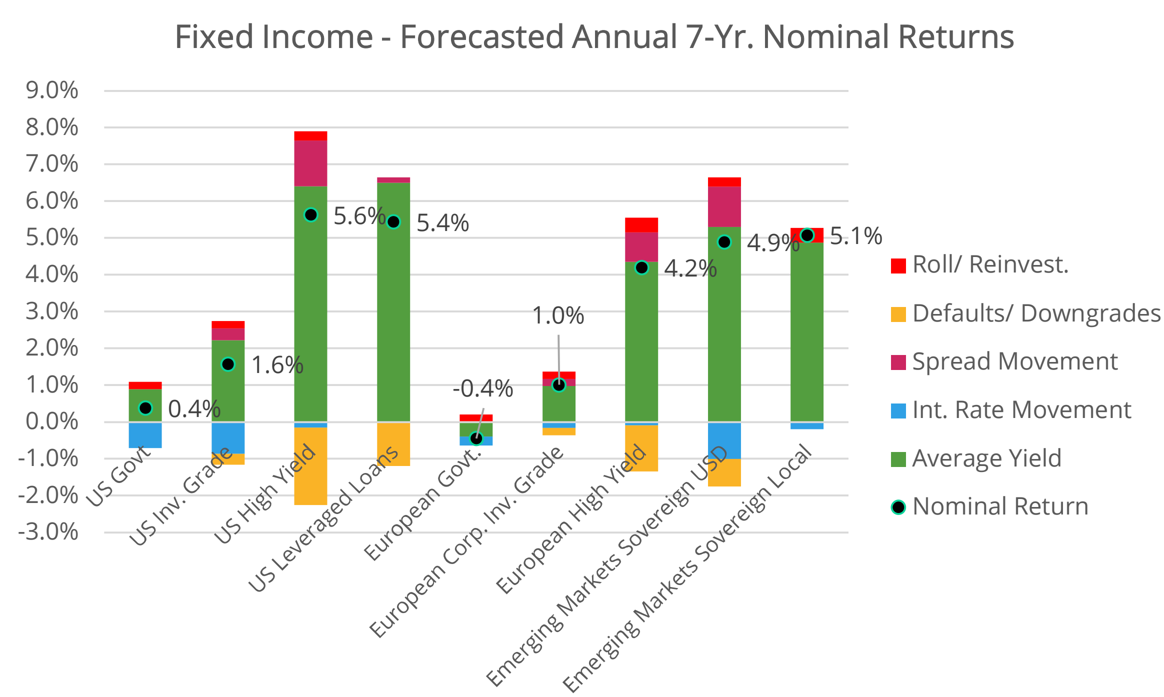


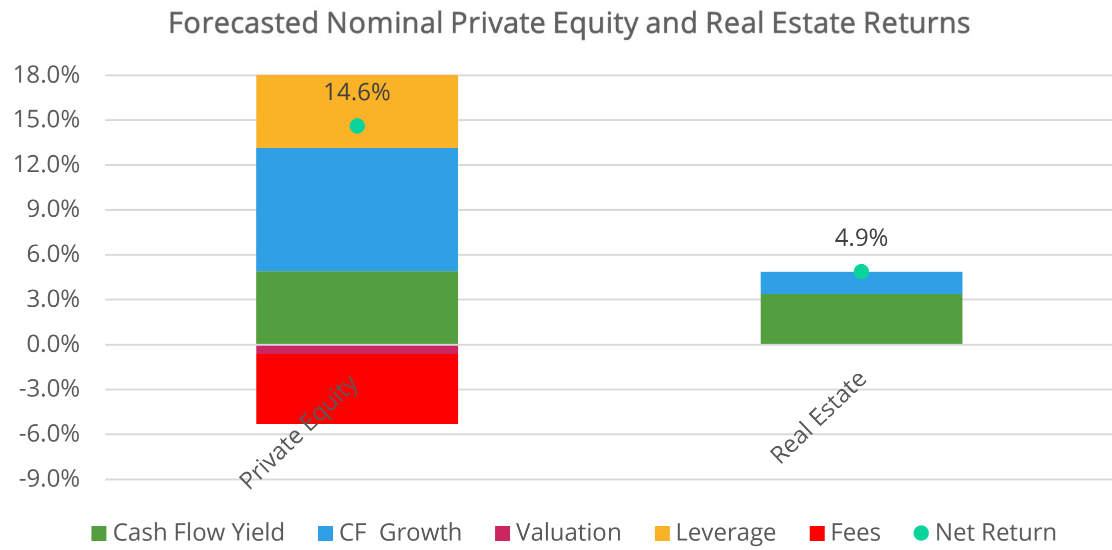
In forecasting hedge fund returns, we first decompose the industry into equity-related and credit related hedge fund strategies. We then attempt to quantify the systemic beta-related returns for both the equity and credit-related hedge funds. Finally, we estimate manager alpha for both equity and credit-related strategies to derive total return estimates.

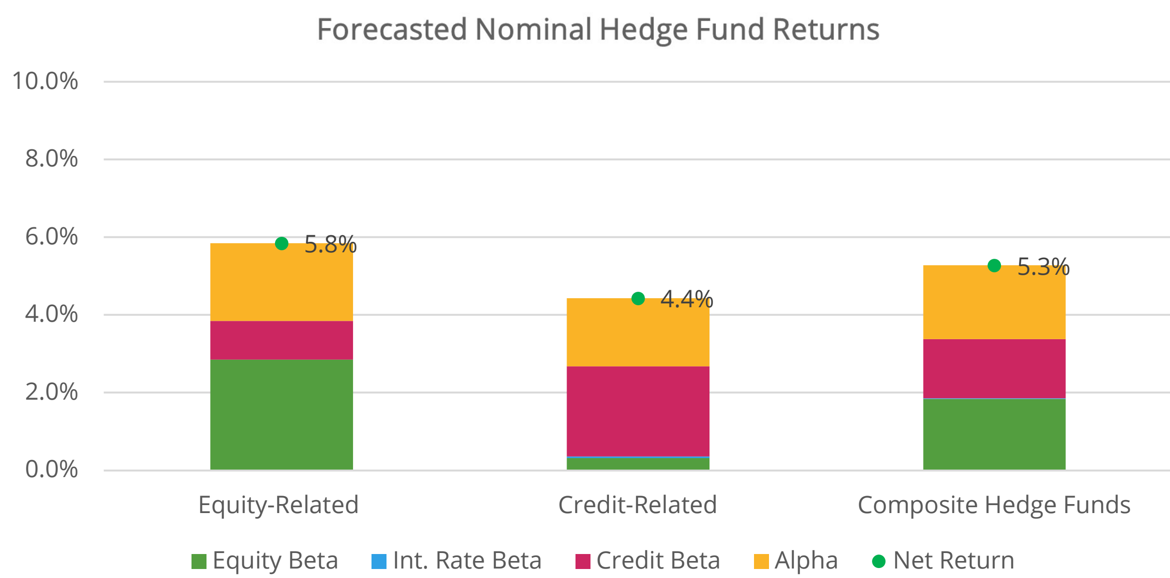
Asset Class Forecast – Sources of Return

Included below are our 7-year asset class forecasts across equities, fixed income and alternatives. We attempt to break out the sources of return across the various asset classes. As seen below, we forecast that the majority of equity returns will be driven by strong earnings growth (given current depressed earnings due to Covid-19 shutdowns). However, this earnings growth will be offset by valuation multiple normalization.

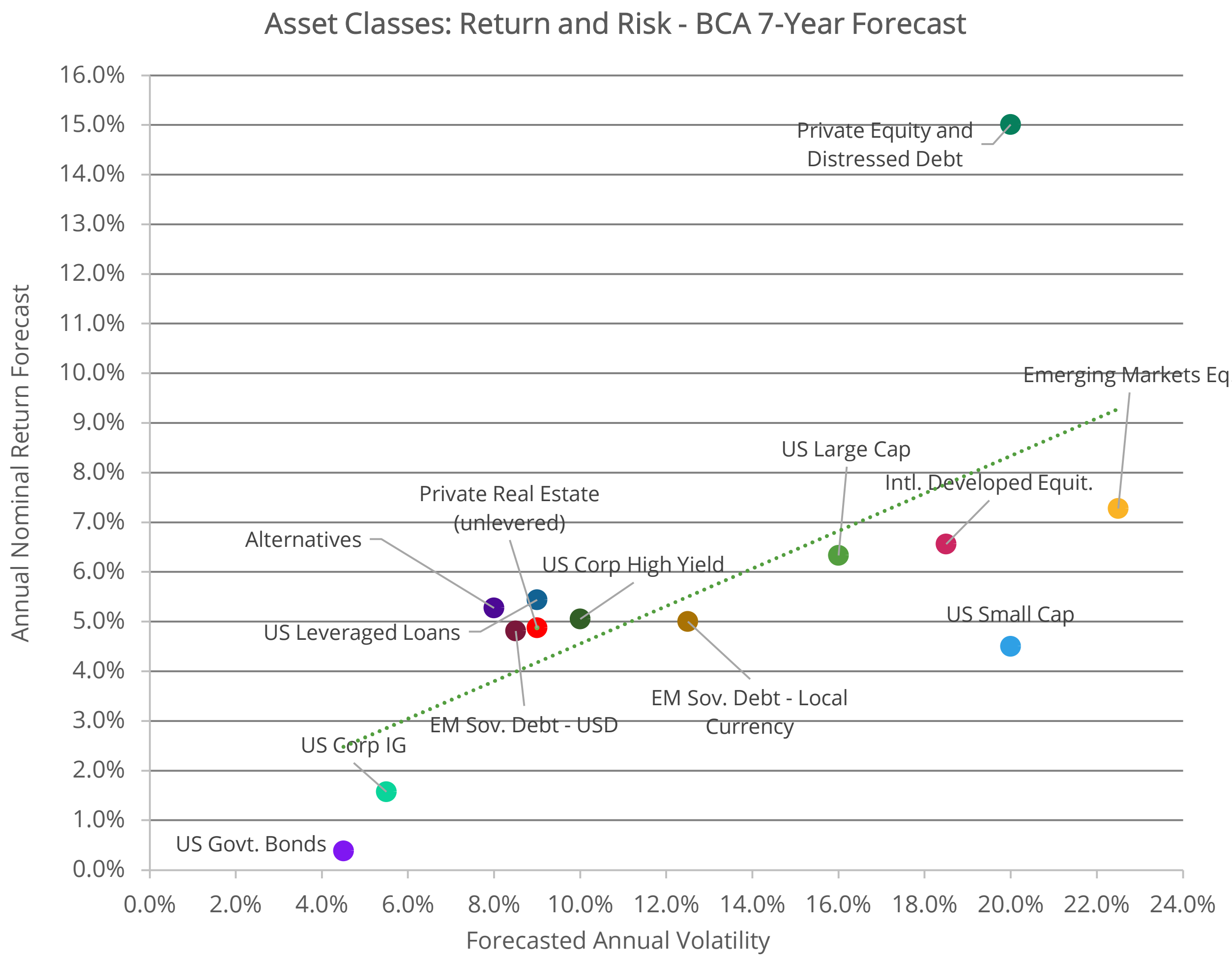





Forecasted Nominal Private Equity and Real Estate Returns
18.0%
15.0%
12.0%
9.0%
6.0%
3.0%
0.0%
-3.0%
-6.0%
-9.0%
14.6%
4.9%
Private Equity
Real Estate
Cash Flow Yield
CF Growth
Valuation
Leverage
Fees
Net Return


Forecasted Nominal Hedge Fund Returns
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
5.8%
4.4%
5.3%
Equity-Related
Credit-Related
Composite Hedge Funds
Equity Beta
Int. Rate Beta
Credit Beta
Alpha
Net Return

Appendix A: Asset Classes – Expected Returns and Volatility (BCA Strategic Outlook - Next Seven Years)



Appendix B: Asset and Sub-Asset Classes – Historical Returns and Volatility

Historical Returns and Volatility Across Asset Classes								
	Annual Returns Across				Annual Volatility Across			
	2013-2019	2006-2012	1999-2005	2000-2019	2013-2019	2006-2012	1999-2005	2000-2019
Equities								
US Large Cap (S&P 500)	13.9%	3.9%	1.8%	6.2%	11.0%	17.0%	15.1%	14.6%
Small Cap (Russell 2000)	10.8%	4.5%	8.3%	7.8%	15.5%	22.1%	20.5%	19.3%
Int'l. Developed (MSCI EAFE)	6.5%	2.6%	5.0%	3.6%	11.9%	21.1%	15.1%	16.5%
Euro (Stoxx 600)	6.2%	3.8%	3.9%	4.3%	12.7%	23.2%	16.6%	18.4%
Japan (Topix)	9.0%	-2.9%	6.7%	1.4%	12.1%	16.2%	19.9%	15.9%
Emerging Markets (MSCI EM)	2.5%	8.7%	15.5%	6.6%	14.7%	27.2%	21.8%	21.7%
World Stocks (MSCI All Country)	10.0%	3.9%	3.8%	4.9%	11.0%	19.4%	14.8%	15.4%
Fixed Income								
US Govt. Bonds	2.1%	5.6%	5.3%	4.7%	5.1%	2.8%	3.4%	4.3.%
US Corporate IG	4.1%	6.9%	6.1%	6.1%	4.1%	6.6%	4.9%	5.3%
US High Yield	5.6%	9.3%	5.7%	7.1%	5.0%	12.4%	8.1%	9.2%
US Leveraged Loans	4.1%	5.3%	5.0%	4.8%	2.7%	9.8%	2.7%	6.1%
EM $USD Bonds	4.1%	9.5%	N/A	8.5%	6.3%	9.7%	9.8%	8.6%
EM Local Curr. Bonds	-0.9%	9.2%	14.3%	N/A	10.8%	14.6%	N/A	N/A
Barclays AGG Index	2.7%	5.9%	5.7%	5.0%	3.0%	3.3%	3.8%	3.4%
FTSE World Gov't. Bond	0.7%	6.2%	4.5%	4.2%	5.2%	7.1%	7.1%	6.6%
Alternatives								
HFRI Weighted-fund Composite	4.1%	4.3%	10.6%	5.2%	4.5%	9.1%	8.3%	6.9%
Private Equity (US)*	14.8%	10.6%	13.2%	11.6%	4.0%	11.0%	13.7%	10.4%
Real Estate – Private (NCREIF)*	9.2%	6.0%	11.5%	8.8%	1.3%	7.4%	2.2%	4.6%

***** Volatility statistics based on annualized returns off quarterly data rather than monthly for other asset classes.

Appendix C: Historical Correlation Matrix Across Sub-Asset Classes

Correlation Matrix														
Asset Class	US Large Cap	US Small Cap	Global Stocks	Intl. Dev. Stocks	EM Stocks	US Govt. Bonds	US Corp Bonds	US High Yield Bonds	US Leveraged Loans	EM USD Bonds	EM Local Currency Bonds	Private Equity	Private Real Estate	Alternatives
US Large Cap	1.00	0.88	0.96	0.86	0.76	-0.33	0.21	0.65	0.48	0.49	0.57	0.80	0.34	0.78
US Small Cap	0.88	1.00	0.86	0.78	0.73	-0.37	0.15	0.66	0.50	0.44	0.50	0.82	0.34	0.82
Global Stocks	0.96	0.86	1.00	0.96	0.90	-0.25	0.42	0.77	0.58	0.65	0.70	0.80	0.38	0.90
Intl. Dev. Stocks	0.86	0.78	0.96	1.00	0.86	-0.26	0.33	0.68	0.52	0.59	0.73	0.80	0.27	0.84
EM Stocks	0.76	0.73	0.90	0.86	1.00	-0.23	0.34	0.71	0.51	0.64	0.81	0.70	0.30	0.86
US Govt. Bonds	-0.33	-0.37	-0.25	-0.26	-0.23	1.00	0.60	-0.19	-0.36	0.25	0.08	-0.20	-0.35	-0.26
US Corp Bonds	0.21	0.15	0.42	0.33	0.34	0.60	1.00	0.54	0.33	0.69	0.56	-0.05	-0.08	0.33
US High Yield Bonds	0.65	0.66	0.77	0.68	0.71	-0.19	0.54	1.00	0.78	0.67	0.62	0.65	0.46	0.70
US Leveraged Loans	0.48	0.50	0.58	0.52	0.51	-0.36	0.33	0.78	1.00	0.41	0.37	0.70	0.66	0.58
EM USD Bonds	049	0.44	0.65	0.59	0.64	0.25	0.69	0.67	0.41	1.00	0.82	0.47	0.25	0.57
EM Local Curr. Bonds	0.57	0.50	0.70	0.73	0.81	0.08	0.56	0.62	0.37	0.82	1.00	0.43	0.16	0.60
Private Equity	0.80	0.82	0.80	0.80	0.70	-0.20	-0.05	0.65	0.70	0.47	0.43	1.00	0.53	0.78
Private Real Estate	0.34	0.34	0.38	0.27	0.30	-0.35	-0.08	0.46	0.66	0.25	0.16	0.53	1.00	0.35
Alternatives	0.78	0.82	0.90	0.84	0.86	-0.26	0.33	0.70	0.58	0.57	0.60	0.78	0.35	1.00