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Ten-Year Capital Market Assumptions

On an annual basis, Ellwood's Capital Markets and Asset Allocation Committees update our ten year capital market assumptions. Ellwood utilizes a building block methodology for each asset class taking into consideration unique factors which are expected to be predictive of future returns.

The expectations for each asset class are outlined in this paper. All return projections are nominal and not adjusted for inflation, which Ellwood projects will approximate 2% annually over the next decade.

A sample of our calculation methodology for equity and fixed income is provided to the right.

U.S. LARGE CAP EQUITY CALCULATION METHODOLOGY

Dividend Yield
+/-
Real EPS Growth
+/-
Net Buyback Yield
+/-
Inflation
+/-
Valuation Change
+/-

Sum = 6.8%
10-Year Geometric Return

U.S. INTERMEDIATE INVESTMENT GRADE FIXED INCOME CALCULATION METHODOLOGY

Coupon / Income Return
+/-
Duration Impact
+/-
Credit Losses
+/-
Illiquidity Premium

Sum = 3.5%
10-Year Geometric Return

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DOMESTIC EQUITY

Fundamentals remain strong in the domestic equity markets but valuations are elevated relative to history on both a trailing and forward looking basis. Using a building block methodology based on expected earnings growth, dividend yields, share buybacks, inflation and valuation changes, Ellwood expects returns of 6.8% for large cap U.S. equities over the next 10 years. Slightly more favorable valuations combined with long-term historical trends result in an expected 0.5% premium for small/mid cap U.S. equities with a 10 year expected return of 7.3%. These returns are approximately 0.4% lower than our 2017 10 year projections, largely driven by outsized returns realized in 2017 combined with an increase in valuations.

	Expected 10-Year Return	Expected Volatility
U.S. Large Cap	6.8%	16.3%
U.S. Small/Mid Cap	7.3%	19.1%

NON-U.S. EQUITY

Ellwood continues to believe that non-U.S. developed and emerging markets are at a modestly earlier stage in their economic cycles. Valuations also remain more attractive relative to both long-term averages and historic relationships with U.S. valuations. Based on the same building block methodology used for U.S. equities, we estimate a developed non-U.S. large cap equity return of 7.0%. Non-U.S. small/mid cap returns are expected to generate a 0.5% premium to large caps resulting in an expected return of 7.5%.

Expected growth remains solid in emerging markets and valuations remain in-line with long term averages. Ellwood estimates an expected 10 year return for emerging market equities of 7.9%.

	Expected 10-Year Return	Expected Volatility
Non U.S. Developed Large Cap	7.0%	18.0%
Non U.S. Developed Small/ Mid-Cap	7.5%	20.1%
Emerging Markets	7.9%	25.2%

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PRIVATE EQUITY

Based on historical relationships between public and private equity markets combined with expectations for illiquidity premiums of roughly 3%, Ellwood expects private equity to generate a return of 10% over the next ten years.

	Expected 10-Year Return	Expected Volatility
Private Equity	10.0%	21.9%

REAL ESTATE

Core real estate, which is income focused and generally consists of longer-term buy & hold strategies, is projected to generate a 10-year return of 5.8%. Ellwood's return expectation is based on a combination of current yields, expected net operating income growth, capitalization rate duration and modest leverage assumptions.

Value added/opportunistic real estate includes improvement, re-purposing and development of properties. Based on historic relationships and a forward looking market assessment, Ellwood expects a 10-year return of value added/ opportunistic real estate of 9.0%. This projection is based on the combination of a 5.0% core market capitalization rate and a 4% premium related to price appreciation.

	Expected 10-Year Return	Expected Volatility
Private Real Estate (Core)	5.8%	9.5%
Private Real Estate (Value Add/Opportunistic)	9.0%	20.9%

PRIVATE CREDIT & BANK LOANS

Based on the current yield and credit spread environment Ellwood projects an estimated 10 year return for private credit of 6.2%. The return estimate is based on a combination of risk-free U.S. Treasury Bill yields, anticipated changes in private credit spreads and the expected price impact of a modest increase in default rates.

Leveraged loans/bank loans, which are generally floating rate obligations with minimal interest rate risk, have a return profile which is largely dependent on credit spreads and default rates. Based on current U.S. Treasury Bill yields, credit spreads and anticipated price returns, Ellwood expects Leveraged Loans to generate 5.3% returns over the coming decade.

	Expected 10-Year Return	Expected Volatility
Private Credit	6.2%	10.0%
Leveraged Loans	5.3%	5.6%

REAL ASSETS

Diversified liquid real assets which include commodities, natural resource equities, treasury inflation protected securities and other inflation sensitive assets are expected to generate 4.9% returns over the next 10 years. Ellwood calculates this assumption using historical relationships of inflation sensitive asset classes combined with our exceptions for inflation and GDP growth over the next decade.

Private real assets are expected to generate returns in-line with private equity (public equity market expectations + a 3% premium)

Master limited partnerships, which largely consist of energy pipelines and infrastructure, are expected to generate a 6.3% return over the next 10 years. Ellwood's assumptions are based on current yields and expectations for minimal valuation changes in the coming years.

	Expected 10-Year Return	Expected Volatility
Real Assets (Liquid)	4.9%	13.0%
Master Limited Partnerships	6.3%	16.3%

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HEDGE FUNDS

Based on historical relationships to traditional capital markets (including beta, expected alpha and projected risk-free rates) Ellwood expects directional long/short hedge funds to generate 5.9% returns over the next 10 years. Low volatility hedge funds which include multi strategy, event driven and global macro funds are expected to generate 4.9% returns over the next decade.

	Expected 10-Year Return	Expected Volatility
Directional Hedge Funds	5.9%	9.8%
Low Volatility Hedge Funds	4.9%	6.0%

FIXED INCOME

Based on the Federal Reserve's projected path of interest rate increases over the coming years, the current yield in various segments of the fixed income market combined with the expected path of credit spreads, Ellwood projects intermediate-term U.S. investment grade bonds will return 3.5% over the next 10 years. This is a 1% increase over our 2017 expectation.

High yield bonds should continue to generate a premium over investment grade bonds despite the expectation of a modest widening in historically tight credit spreads. We expect high yield fixed income to return 5.4% over the next 10 years. This projection includes 100bps+ of credit spread widening along with low-to-mid-single digit annual credit losses.

Opportunistic fixed income includes unconstrained fixed income strategies as well as global fixed income. Given the ability of these strategies to actively manage interest rate risk and take advantage of yield opportunities outside of the U.S., Ellwood projects that these strategies will generate a 1.0% premium relative to intermediate term investment grade fixed income, resulting in a 10 year return of 4.5%.

	Expected 10-Year Return	Expected Volatility
U.S. Intermediate Investment Grade Fixed Income	3.5%	4.0%
U.S. Long Duration Fixed Income	2.9%	8.0%
U.S. High Yield Fixed Income	5.4%	8.0%
Opportunistic Fixed Income	4.5%	5.0%

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10-YEAR CAPITAL MARKET ASSUMPTIONS

	Asset Class	Ellwood 10-Year Expected Return	Ellwood Expected Volatility	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	U.S. Large Cap Equity	6.80%	16.30%	1.00																	
2	U.S. Small/Mid Cap Equity	7.30%	19.10%	0.89	1.00																
3	Non-U.S. Developed Large Cap Equity	7.00%	18.00%	0.86	0.80	1.00															
4	Non-U.S. Developed SMID Cap Equity	7.50%	20.10%	0.81	0.81	0.95	1.00														
5	Emerging Markets Equity	7.90%	25.20%	0.77	0.76	0.82	0.88	1.00													
6	Private Equity	10.00%	21.90%	0.76	0.70	0.70	0.65	0.57	1.00												
7	Real Estate - Value Add/ Opportunistic	9.00%	20.90%	0.15	0.11	0.27	0.21	0.12	0.16	1.00											
8	Master Limited Partnerships	6.30%	16.30%	0.40	0.42	0.42	0.45	0.43	0.36	0.18	1.00										
9	Real Estate – Core	5.80%	9.50%	0.15	0.11	0.27	0.21	0.12	0.16	0.80	0.18	1.00									
10	Leveraged Loans	5.30%	5.60%	0.44	0.48	0.48	0.55	0.45	0.39	0.14	0.47	0.20	1.00								
11	Real Assets (Liquid)	4.90%	13.00%	0.56	0.54	0.68	0.73	0.71	0.39	0.17	0.47	0.17	0.41	1.00							
12	Directional Hedge Funds	5.90%	9.80%	0.80	0.86	0.81	0.85	0.82	0.61	0.13	0.42	0.13	0.71	0.64	1.00						
13	Low Volatility Hedge Funds	4.90%	6.00%	0.55	0.60	0.64	0.73	0.64	0.41	0.16	0.49	0.16	0.74	0.58	0.71	1.00					
14	Private Credit	6.20%	10.00%	0.44	0.48	0.48	0.55	0.45	0.39	0.14	0.47	0.14	0.90	0.41	0.51	0.74	1.00				
15	High Yield Bonds	5.40%	8.00%	0.64	0.66	0.67	0.73	0.67	0.49	0.17	0.55	0.17	0.75	0.53	0.62	0.75	0.76	1.00			
16	Opportunistic/ Global Fixed Income	4.50%	5.00%	0.18	0.14	0.38	0.40	0.29	-0.01	0.22	0.17	0.22	0.15	0.48	0.18	0.15	0.07	0.25	1.00		
17	U.S. Intermediate Fixed Income	3.50%	4.00%	-0.09	-0.10	-0.01	0.02	-0.01	-0.34	0.06	0.02	0.06	0.10	0.13	-0.06	0.10	-0.03	0.18	0.55	1.00	
18	U.S. Long-Term Fixed Income	2.90%	8.00%	-0.23	-0.21	-0.17	-0.14	-0.16	-0.44	-0.02	-0.16	-0.02	-0.08	-0.04	-0.22	-0.08	-0.21	-0.01	0.41	0.90	1.00

Source: Windham. Correlations are from December 31, 1997-December 31, 2017.

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Equity investments are more volatile than bonds and subject to greater risks. Small- and mid-cap stocks involve greater risk than large-cap stocks.

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Generally when interest rates rise, bond prices fall.

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Index proxies used in the correlation table on page 6: 1 is represented by Russell 1000; 2 is represented by the Russell 2500; 3 is represented by MSCI EAFE Index; 4 is represented by MSCI EAFE Small Cap Index through 2001 and prior to 2001 S&P Global ex U.S. Small Cap Index; 5 is represented by MSCI Emerging Markets Index; 6 is represented by Cambridge Associates U.S. Private Equity Index; 7 is represented by NCREIF NPI Returns - National Real Estate – Value Index; 8 is represented by Alerian Energy MLP TR; 9 is represented by NCREIF NPI Returns – National Real Estate – Value; 10 are represented by S&P/LSTA U.S. Leveraged Loan Index; 11 are represented by Barclays TIPs, S&P Natural Resources, Bloomberg Commodity Indexes; 12 is represented by HFRI Equity Hedge Index; 13 are represented by HFRI RV: Multi Strategy; 14 is represented by S&P/LSTA U.S. Leveraged Loan Index; 15 are represented by ML High-Yield Master Index; 16 is represented by Barclays Global Aggregate ex. U.S. Index; 17 is represented by Barclays U.S. Aggregate Bond Index; and 18 is represented by the Barclays Government Corporate Long Index.

Data sources: Russell; MSCI; S&P Dow Jones Indices LLC, a division of S&P Global; Cambridge Associates; NCRIEF: National Council of Real Estate Investment Fiduciaries; Alerian; LCD, an offering of S&P Global Market Intelligence; Bloomberg Finance, L.P., Hedge Fund Research, Inc.

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