



Real Assets Recommendation

I-3

**Prepared for:
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Definition of Real Assets

“Real Assets”

- Shares similarities with private equity and real estate investments
- Hard assets expected to provide valuation protection during inflationary periods
- Fund has Inflation-linked Bonds (TIPs), Real Estate, Private Equity in UCRP and GEP
- Recommendation for allocation in UCRP and GEP:
 - Natural Resources
 - Oil & Gas
 - Timber
 - Infrastructure
 - Farmland
 - Commodities



Benefits of Investing in Real Assets

Real assets provide the following benefits:

- Serve as inflation hedge – appreciates in value with inflation
- For diversification - counter cyclical to other asset classes – low correlation to stocks and bonds
- Act as portfolio insurance – provides positive returns with less volatility when stocks and bonds are declining
- Provide higher risk-adjusted returns – private investments provide opportunities in inefficient and illiquid markets
- High income component – timber, infrastructure, farmland (40%-60%)



Risks of Investing in Real Assets

Risk factors of investing in real assets:

- Illiquidity – oil/gas, timber, infrastructure, and farmland may have lock-up periods of 10 to 15 years.
- Manager specific – manager selection for the asset type is key in achieving top quartile performance (same as private equity)
- High volatility – public investments (commodity futures) can be volatile
- Macroeconomic cycles – can be highly cyclical in nature, especially commodities.
 - China’s economic slowdown or the dollar gaining strength could impact returns.



Real Assets - Investment Vehicles (continued)

Vehicles for Real Assets Exposure:

- Oil and Gas:

- a) Public Energy Funds
- b) Exchange Traded Funds (ETFs)
- c) **Private Energy Partnerships**

- Infrastructure:

- a) Direct Purchase
- b) Public Equities
- c) **Private Partnerships**

- Timber:

- a) Direct Purchase – Separate a/c
- b) Public Equities
- c) **Private Timber Partnerships**

- Farmland:

- a) Direct Purchase- Separate a/c
- b) Public Equities
- c) **Private Partnerships**



Real Assets - Investment Vehicles (continued)

Vehicles for Real Assets Exposure:

– Commodities

- a) Direct Physical Investment
- b) Portfolio of Commodity-Related Stocks
- c) **Commodity Futures – Enhanced Index**
- d) **Private Partnerships**



Natural Resources – Oil & Gas

Four segments:

- **Upstream investments**
 - 1) Exploration – direct ownership of reserves
 - 2) Production – highly price sensitive, inflation linked

- **Midstream investments**
 - 3) Transportation/Marketing – pipelines
 - sensitive to economic conditions
 - positive correlation to stocks/bonds

- **Downstream investments**
 - 4) Refining/Processing = distribution



Natural Resources – Oil & Gas (continued)

Stages of Acquisition Process:

- **Exploratory Drilling**
 - Most Risky
 - No guarantee of marketable reserves/quantity
 - Not institutional investor focus
 - Expected Return is 25%+

- **Development Drilling**
 - Drilling additional wells for already proven areas
 - 60% - 80% success ratios
 - Expected Return is 20% to 25%



Natural Resources – Oil & Gas (continued)

Stages of Acquisition Process:

- **Purchasing Proven Developed Producing (PDP) Reserves**
 - Acquiring assets already producing
 - Value creation:
 - Lengthening production lives
 - Increasing production levels
 - Reducing operating costs
 - Major risk – price of oil and gas
 - Minor risk – dry-hole risk
 - Expected Return is 10% to 25%+

- **Oilfield Services**
 - Private companies supplying drills/equipment/services
 - Major risk – if overcapacity – projects may be stopped
 - Expected Return is 20% to 25%



Natural Resources – Timber

- **Timber Market:**
 - \$115 Billion Global
 - \$80 Billion in the US
 - \$35 Billion Institutional Investments

- **Expected Return – 10% to 12%**

- **NCREIF Timber Index Returns - \$13.0 Billion market cap**
 - Returns – 1, 3, 5, 10-year 11.90%, 15.18%, 11.37%, 8.43%



Natural Resources – Timber

- **Timber's Sources of Return (continued):**
 - **Biological Growth**
 - 65% to 75% of total return
 - Active Management – more rapid growth (18% of return)
 - **Price Change**
 - 25% to 30% of total return
 - Historical price increase of 5.43% nominal or 2.17% real
 - Drivers of price increase: population growth, economic activity, and tree growth – more volume; more valuable
 - **Higher and Better Land Use Sales**
 - 2% to 5% of total return
 - Real estate development



Infrastructure

Infrastructure – Public assets sold to private entities

- **Expected Returns –**
 - Mature Assets – 10% to 14%
 - Early Stage Assets – 18%+

- **Types of Infrastructure Services:**
 - **Transportation** – Toll roads, bridges, tunnels, airports, railroads
 - **Regulated Assets** – Power generation, distribution plans, sewer & water systems
 - **Communication Assets** – Broadcast/communication towers, cables, satellites
 - **Social Assets** – Schools, hospitals, correctional facilities



Infrastructure (continued)

Infrastructure Investing –

- Long-term in nature – may have 10-year lockout
- Have natural inflation hedge embedded in cash flows
- Drivers of increased infrastructure privatization:
 - Growing demographics
 - Years of deferred maintenance
 - Governments' need to fund new development and repair existing assets



Farmland

Farmland Investing

- **Expected return – 8% to 12%**
- **NCREIF Farmland Index - \$1.2 billion market cap**
 - Returns – 1, 3, 5, 10- year 20.61%, 24.85%, 17.93%, 24.85%
 - has solid income component
- **Row Crops : Commodity** - corn, cotton, soybeans
 - Vegetable** – potatoes, lettuce
 - Farmers rotate from one crop to another based on market supply/demand
 - Value of properties derived from land value and productive capabilities
 - Properties are eligible for federal farm subsidies



Farmland (continued)

- **Permanent Crops** – 3 categories
 - a) Citrus – oranges, grapefruit
 - b) Fruit – apples, cranberries, grapes
 - c) Nuts – almonds, walnuts, pistachios
- Properties limited to production of the same crop for several years
- Value of properties analyzed on a crop by crop basis
- Have higher operational risk, also higher return expectations
- Properties are excluded from federal farm subsidies



Commodities

Benefits of Commodity Allocation:

- Low correlations with other asset classes: stocks, bonds, and real estate
- Provides positive returns when stocks and bonds had negative returns
 - Acted as a form of portfolio insurance and provided positive returns when needed the most during “hostile markets”

▪ Commodity Futures

- Futures Contract: an obligation to buy/sell a specific commodity at a fixed price, location, and date in the future
- Collateralized – US Treasury Bills (Normally 90-Day T Bills)
- Sources of Return:
 - Change in **spot (current) price** of commodity
 - **Collateral yield** – interest earned on Treasury Bills
 - **Roll yield** – difference between current price and price of a futures contract



Commodity Futures

Methods to Gain Exposure to Commodity Futures:

- **Pure Passive Strategy:**
 - Separate or commingled fund structures
 - No control over roll yield returns
 - No exposure to commodity classes with no futures markets
- **Enhanced Index Strategy**
 - Separate or commingled fund structures
 - Has flexibility - manager rolls futures when appropriate
 - Can enhance or extend collateral



Commodity Futures - continued

Methods to Gain Exposure to Commodity Futures: (continued)

- **Active Strategy**
 - Separate or commingled fund structures
 - Manager takes long/short positions in different futures market
 - Has flexibility – manager rolls futures when appropriate
 - Ability to enhance or extend collateral
 - Greater diversification – access to non-represented or new exposures



Investment Guidelines

- **Allocation: 2% UCRP and 5% GEP**
- **Strategy Allocations:**

	<u>Allocation</u>	<u>Range</u>
Natural Resources-		
• Oil & Gas	25%	15% - 35%
• Timber	20%	10% - 30%
Infrastructure	25%	15% - 35%
Farmland	20%	10% - 30%
Commodities	<u>10%</u>	0% - 20%
Total	100%	



Investment Guidelines

Guidelines – Similar to Real Estate Guidelines

Benchmarks:

- Natural Resources:
 - Oil & Gas IRR Based
 - Timber NCREIF Timber Index
- Infrastructure IRR Based
- Farmland NCREIF Farmland Index
- Commodities– SP-GSCI

Vehicles: a) Private Partnerships

b) Commodity Futures Only – Enhanced Index



Investment Guidelines

Risk Mitigation – Private Partnerships:

- Geographic US - 40% Maximum for one NCREIF Region
International – 25% Maximum
- Fund 20% Maximum
- Manager 50% Maximum
- UC Allocation 20% Maximum of Manager's AUM
- Co-investment Alignment of Interest with 1% Minimum
- Leverage 75% Maximum

Risk Mitigation – Public:

- Manager 50% Maximum
- UC Allocation 25% Maximum of Manager's AUM