Applications of Global Real Assets in a Liability-Driven Investing Framework
A Collaborative Case Study

By Michael Underhill

Editor’s note: This is the first of three companion articles describing how institutional investors are moving beyond traditional equity and fixed income by implementing marketable real-asset strategies into a liability-driven investing program.

Investors are faced with a challenging landscape that includes low gross domestic product growth, high-volatility global equity markets, a weakening dollar, and a low interest-rate environment that has spanned several decades. Purchasing power has been eroded by more than 80 percent in the past 40 years.

Investors also are concerned about inflation, given the ultra-loose monetary policy of recent years. Inflation is the hidden destroyer of future wealth, particularly if you are holding primarily equities and bonds when it bites.

Recently we’ve observed that several of our more far-sighted clients have been increasing their allocations to either commodities or inflation-linked bonds within their portfolios, as a defense against future inflation. However, it could turn out to be a poor defense. While these allocations may help in inflationary environments, inflation shocks can take many forms. A broader set of investment options, including real assets, can help mitigate or provide a benefit in such environments.

Investors may benefit from a diversified portfolio of real assets overseen by an active manager who has the ability to tactically concentrate the allocation among securities that stand to benefit from the right drivers when inflation happens. Active management combined with a long-term strategic roadmap that manages volatility is an integral component in any liability-driven investment (LDI) program.

What Kind of Investors Would Utilize LDI Strategies?

LDI strategies are effective because they factor an investor’s liabilities into determining the appropriate asset allocation. This strategic asset allocation equation can help manage key risk variables in retirement programs while ensuring the programs are on track to meet investment objectives.

Among the variety of programs that exist, many could benefit from an LDI strategy. In general, all investors should consider some form of LDI, but more specifically the following are three types of investors that may find the most benefits from pursuing this type of strategy:

Corporate retirement programs. Numerous corporate pension funds recently have experienced returns from bonds and equities well below the assumed rates of return. Recent market volatility has created anxiety as well. As a result, these retirement programs are struggling to focus on an asset allocation that is appropriate for their funding status.

Sovereign wealth funds. As they prepare for a surge of inflation in emerging markets, sovereign wealth funds are focusing on engineering portfolios that seek higher returns. They are incorporating exposures to global real assets to broaden investment strategy and diversify away from the home-country sovereign risk issues.

Endowments and foundations. Boards of directors are struggling to gain inflation protection for their portfolios, reconfiguring investment policies for maximizing benefits to both current and future beneficiaries.

These types of programs have found global real assets attractive in an LDI framework because they can provide the following:

- Long-term stability and low volatility
- Attractive risk-adjusted returns
- Diversification via low correlation with other asset classes
- A potential inflation hedge
- A higher level of current income

Historically, investors have chosen private partnerships for their real-asset allocations, for their attractive risk-adjusted rates of returns and to gain exposure to a low-volatility asset class. Recently, however, investors have turned to an equity-based exposure to real assets as a valuable component of an institutional real-assets allocation.

Combining direct and equity-based real-asset investments provides additional portfolio diversification and can be useful during rebalancing and tactical allocation decisions, creating further opportunities for alpha generation. Real assets include agribusiness, infrastructure, and timber.

Agribusiness Investment Opportunity

The agribusiness sector includes, but is not limited to, companies involved in the production, processing, transporting, trading, and marketing of soft commodities, as well as those that supply products and services to the agricultural/forestry industry (see figure 1).

The agribusiness sector is demonstrating signs of a long-term, demand-
driven trend similar to what the hard commodities and energy sectors experienced during the past decade. A number of factors are driving demand and constraining supply, leading to investment opportunities. Investing in global agribusiness companies can provide investors with sector diversification to a portfolio of traditional equity investments and exposure to a long-term growth trend supported by strong fundamentals. The following three main drivers will increase demand for soft commodities over time:

**Population growth.** According to the United Nations, the global population is set to grow 40 percent by 2050 to 9 billion, compared to 6.5 billion today (http://www.fao.org/fileadmin/templates/wfs/docs/expert_paper/How_to_Feed_the_World_in_2050.pdf). The world’s farmers need to continue to become more efficient to satisfy the growing demand for food.

**Rising living standards.** Strong economic growth in developing economies is leading to a rapid rise in living standards of many people. As income per capita increases, particularly for people earning very low incomes, an increased proportion of income is spent on nutrition and general wellbeing. More people consume more food, including more protein from animal products. The increase in demand for protein leads to even greater demand for grains.

**Biofuels.** While not as strong a driver as the other factors, the growth in consumption for biofuels such as ethanol also is increasing demand for agricultural products. Governments worldwide are mandating the use of renewable fuels for blending into gasoline and diesel.

Regardless of growth in demand, the following factors have the potential to limit supply:

**Arable land per person.** The planet’s growing population, combined with pressure on agricultural land from competing uses such as urban sprawl, industrial complexes, and forestry, is leading to a decrease in the amount of arable land available per person.

**Slowing productivity gains.** According to the Food and Agriculture Organization of the United Nations (http://www.fao.org/fileadmin/templates/wfs/docs/expert_paper/How_to_Feed_the_World_in_2050.pdf), since the mid-1960s the world has raised cereal production by almost 1 billion tons. Over the next 30 years, the world must repeat this increase to meet demand. Furthermore, globally the rate of growth in yields within the major cereal crops has been declining steadily over the past four decades. The global agricultural challenge is to reverse this decline or risk insufficient cereal crop yields to meet future food needs.

**Water shortages and pollution.** Only 3 percent of the world’s water is fresh and agriculture is a key consumer. Demand pressures on water are rising as population and industrial use grow and compete with agriculture. According to the 2030 Water Resources Group, global demand for water will create a 40-percent global shortfall by 2030 (http://www.mckinsey.com/App_Media/Reports/Water/Charting_Our_Water_Future_Exec%20Summary_001.pdf). Additionally, it is expected that by 2025, 1.8 billion people will live in countries or regions with absolute water scarcity and two-thirds of the world population could be affected by water stress conditions (http://unesdoc.unesco.org/images/0021/002156/215644e.pdf).

**Climate change.** Scientists estimate that a 1-degree Celsius increase in the optimal temperature during the growing season may reduce yields in wheat, corn, and rice by 10 percent. This has serious ramifications for food production. During 2012, drought conditions across the central United States drove corn and soybean yields to their lowest levels in nine years.

We believe that investing in companies involved in helping to improve...
crop yields will deliver strong returns over the medium to long term. Soft commodity companies are generally capital-intensive businesses that have a far greater sensitivity to volume than to price. These companies reduce their cost per unit by increasing volume and therefore increasing their profitability.

**Infrastructure Opportunity**

Global demographic trends are driving the need for infrastructure in the world’s developing economies. China and India have shifted from agrarian to industrial, urban societies. These countries require new, modern infrastructure to facilitate the expansion of industry and the urbanization of their economies, and to satisfy the demands of continued population growth and an expanding middle class.

In developed markets, infrastructure is old and dilapidated. The percent of gross domestic product spent on infrastructure has been declining steadily for decades in most developed economies, leaving them with a crumbling legacy. This aged and dilapidated infrastructure needs to be either repaired or replaced.

The investment required to fix or upgrade existing infrastructure within developed economies is stunning. The American Society of Civil Engineers has estimated that infrastructure funding needs are $2.2 trillion over a five-year period in the United States (http://www.infrastructurereportcard.org/).

Even more disconcerting, funding levels as a share of all U.S. federal expenditures are exactly the same as they were more than 20 years ago. America’s crumbling infrastructure has been well-documented and the ready supply of capital for projects is dwarfed by the demand for infrastructure.

Over the past several decades, the U.S. government has pushed responsibility for the expansion and upkeep of America’s infrastructure down to the state level. States have been unable to meet the capital requirements of this task. More recently, the economic downturn has reduced the usual sources of revenue for the states. Real estate taxes, income taxes, and sales taxes all have declined precisely when the need for capital is the greatest. States cannot incur budget deficits from year to year, so they are unable to generate capital for infrastructure. Many are courting private-sector investors in order to fill the budget gaps.

**Timber Investment Opportunity**

Global demographic trends are driving the need for timber in the world’s developing economies. China and India, for example, require new, modern buildings and timber to facilitate the expansion of industry, urbanization, and meeting the demands of continued population growth with an expanding middle class.

The investable timber market is roughly $120 billion and growing as new companies look to capitalize on equity market listings through publicly traded companies and real estate investment trust structures. Presently, the U.S. market for investable timber is surpassing $70 billion with institutional investors dominating nearly all holdings through direct ownership, private timber funds, or publicly traded securities. Publicly traded timber investments have been recognized recently by investors as a viable alternative to traditional private equity-type exposures to timber. Numerous constraints to investing in private timber deals and funds include the following:
- Lack of liquidity of direct investments in the asset class
- Clients typically require a longer time horizon to successfully capitalize upon investment
- Significant governance required to implement an exposure to private timberlands
- Highly concentrated nature of the private timber asset class (an estimated 65 percent of private timber assets are in the United States)
- Potential tax issues related to gaining non-U.S. exposure to privately held timberland
- Limited number of managers in the asset class
- High investment minimum in private timber commingled funds

Investments in private agriculture, infrastructure, and timber are more difficult to value than investments in securities. The market for private agriculture, infrastructure, and timber transactions remains opaque and shallow, so valuation poses a challenge for even the most astute investor. In contrast, publicly traded securities in these asset classes have transparent pricing and valuation, which provide for a more reliable LDI solution.

**Asset Allocation and LDI Portfolio Tools Make a Big Difference**

Understanding the drivers of risk and return is the first step toward constructing an effective portfolio. Such understanding allows investors to consider different portfolios, where one is taking risks, and where those risks are rewarded. We consider both long-term assumptions of return along with shorter-term views about returns. We consider how correlation changes or other unexpected behavior within an asset class would impact a portfolio. We also consider active return and market return separately and optimize these components.

A dynamic balanced approach differs from the traditional balanced approach in the following four ways:

**No market or peer group benchmarks.** Instead, target absolute risk and return outcomes. For example, our return target might be 3 percent over the cash rate every year, or 5 percent per annum ahead of inflation over a market cycle. The risk objective might be half the absolute volatility of equities, or a maximum drawdown of 5 percent each year.

**No limited universe of assets.** Instead, use the broadest possible range of asset classes, risk premia, and investment instruments in your portfolios.
No constraints. Once free of a market benchmark, investors can express asset allocation views with maximum conviction. Equity weightings in a typical dynamic balanced fund might range from 25 percent to 75 percent, for example, as compared with 45 percent to 55 percent for a traditional balanced fund. LDI asset allocation views are based primarily on an understanding of how different asset classes behave at different points of the market cycle, but this also allows investors to take advantage of valuation extremes (such as the widening of credit spreads in late 2008) as well as investment themes (e.g., the decoupling of Eastern markets from the West).

No nasty surprises. Obsessive risk management is the best defense against nasty surprises. So construct portfolios based on risk weighting, not trade weighting: observe and control portfolio risk through different risk lenses (e.g., Value-at-Risk, factor risk, liquidity risk); and use quantitative risk-management tools that are customized for your portfolio. Asset allocation is qualitative, while portfolio construction is quantitative.

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