



Ryan ALM, inc.

Asset / Liability Management

The Solutions Company

Problem : Investment Grade Bonds

Investment grade bonds have been the illegitimate child in the Asset Allocation family for the last 20 years. Consultants have consistently reduced their allocation to this asset class in search of Alpha. Based on our data...Consultants were right !

Ryan Data

Our data suggests that investment grade bonds as measured by the Lehman Aggregate bond index have little or no Alpha versus pension liabilities as measured by the Ryan STRIPS indexes. Note that **true Alpha for a liability driven objective is the excess return above liability growth and not a generic market index**. Most practitioners believe that yield is a great forecaster of bond returns if the time horizon is long enough. As a result, corporate and mortgage backed bonds are favored over Treasuries since they yield more. But these bonds tend to have credit, liquidity and event risk which may distort and greatly reduce promised returns (yields).

The Lehman Aggregate has for over 20 years been accepted as the fixed income benchmark. As the former head of research at Lehman and designer of many of their indexes, I admit that I played a major role in making this icon happen. The Lehman Aggregate is the best expression of the risk/reward behavior of investment grade bonds we have today.

The modified duration of the Lehman Aggregate has been fairly constant over the last 20 years ranging from a low four to a low five year and **averaging near 4.9 years**. Comparing the Lehman Aggregate returns to four and five STRIPS over a 20-year horizon should provide a fair measurement of the Alpha in investment grade bonds vs. pension liabilities as well as their intrinsic value versus Treasuries.

Annualized Returns (06/30/85 to 06/30/05)

Lehman Aggregate	8.41%	
Ryan 4-year STRIPS Index	8.10	0.31%
Ryan 5-year STRIPS Index	8.86	- 0.45%
Ryan 6-year STRIPS Index	9.36	- 0.95

Our data suggest that the bond market as an asset class shows no value (Alpha) vs. the Ryan constant 5-year STRIPS Index. Amazingly, there is value lost of 45 basis points per year (before

fees). **The STRIPS Index demonstrates how important duration matching is as there is an annual return difference of 50 to 76 bp per year between the 4, 5 and 6-year STRIPS..**

Ryan STRIPS Index

In March 1985, STRIPS were born and the very next day Ron Ryan and his team at RFSG (Ryan Financial Strategy Group) created the first STRIPS Index as a yield curve series of constant annual durations (and maturities) from one to 30-years plus a composite index. This daily index grew in popularity and has been a favored pricing and valuation technique for Custom Liability Indexes. Note that the Ryan STRIPS Indexes are the personal property of Ron Ryan.

Value of Bonds... Beta Portfolio

So if bonds have no Alpha as an asset class for pensions, what is their value ? ... as the **Beta portfolio !** Pension funds knew in the 1970's and early 1980's that Dedication and Immunization techniques were a good fit for their liability objective. Indeed, Insurance companies and especially Lotteries use bonds as a matching asset (Beta portfolio). In fact, both are mandated by state laws and rules to do just that ... match assets to liabilities in a low risk way. Given the high yields of that era, dedication and immunization pension strategies were viewed as low cost and low risk. When yields came tumbling down, these **matching bond strategies** were cashed in at huge profits in favor of **"surplus optimization strategies"**. Well, given the massive deficits, a trail of bankruptcies and an explosion of higher contributions, the surplus optimization strategies are now being revalued and questioned as to their practicality.

The truth is pensions had the game won in the late 1990's but continued to play. Just like Las Vegas, if you continue to play after you are way ahead you will eventually lose. There are no sacred cows investments that consistently win ... trees do not grow to the sky !

So what to do ? Just as matching strategies were cashed in, surplus optimization strategies should have been cashed in the late 1990's or ported over to Beta portfolios ... Portable Alpha.

Portable Alpha

The more efficient strategy is a blend or compromise of these two strategies (matching + surplus optimization). That is what an efficient Portable Alpha strategy should look like. You need both an Alpha and a Beta portfolio. Since it is difficult for investment grade bonds to outgrow liabilities (a bond portfolio look alike) you need to find Alpha in non-bond assets (non investment grade). Since non-bond assets don't behave like liabilities (interest rate sensitivity) you need bonds to match to the term structure of liabilities (Beta portfolio). The asset allocation of non-bond assets should be monitored frequently vs. the liabilities they are funding. Moreover, **they should know in advance the absolute return benchmark needed to produce the desired Alpha. This should be a calculation of what annualized return is necessary to fully fund liabilities (a ROA hurdle rate)**. Unfortunately, the actuarial calculation of ROA is not sufficient or accurate, you need a **series of ROA calculations** based upon the term structure of liabilities such that short, intermediate, long and very long liabilities should all have different ROA hurdle rates. It would be quite difficult, if not impossible, for short asset managers to achieve the ROA of a long asset manager in today's market nor should they.

PALS

The key asset management product of Ryan ALM is PALS (**Portable Alpha Liability System**). This **trademarked product creates a synergistic Alpha and Beta portfolio based upon a Custom Liability Index as an integrated system**. The Alpha portfolio's mission is to cure the deficit of a targeted liability area (i.e. 15 to 20 years). A Custom Liability Index provides the information needed to understand the shape, size, interest rate sensitivity and ROA needed to fully fund this specific liability area. Alpha is now correctly defined and measured as the excess return above liability growth. Ryan ALM uses a multi-cap equity portfolio as our Alpha portfolio. This excess return (Alpha) is ported over to the Beta portfolio on a chronological basis until each year is fully funded. Ryan ALM uses a zero-coupon Government portfolio as our Beta portfolio. **Such a disciplined approach (PALS) results in the lowest risk, lowest cost ALM portfolio available today**. Costs are reduced as PALS reaches and supports a fully funded status which should lower if not eliminate contributions.

Custom Liability Index (CLI)

As we have reported consistently, inappropriate rules are truly the villain of the pension crisis. Actuaries are required to calculate and report assets vs. liabilities in a way that is difficult for the industry to use as a practical tool in Asset Allocation, Performance Measurement and Asset Management. Annual and triennial reports that do not mark to market do not provide timely and accurate information. **Until a Custom Liability Index is created that prices each liability at the market frequently, the asset side can not function effectively**. The term structure shape of liabilities is needed as the foundation for Asset Allocation. You would think that the per cent in short, intermediate, long and very long liabilities is the base for the allocation per cent to short, intermediate, long, very long assets. The growth in liabilities is needed to understand if asset growth is sufficient and successful (relative returns vs. liabilities not generic market indexes). The quest for Alpha starts with understanding and measuring liability growth. Asset management needs to understand the risk/reward behavior of the objective index. With a liability objective, asset management must understand and measure correctly the interest rate sensitivity of the client's liabilities they are asked to fund. **Indeed, a Custom Liability Index is the first step in any ALM objective**.

**“Given the wrong index ... you will get the wrong risk/reward”
Confucius**