Innovation in Fixed Income
Re-thinking the role of duration and sector allocation in bond portfolios

November 2013

Agenda

- Central bank influence on interest rates and sectors
- What do we mean by “Unconstrained Fixed Income”?
- Why is unconstrained fixed income a good idea?
- How does it work?
- Some live trade examples
- Investor considerations/questions?
Central bank liquidity has been the dominant global theme
Central bank intervention created a liquidity super-cycle that lifted risk assets and drove rates lower globally

“We do think that these policies can bring interest rates down—not just Treasury rates, but a whole range of rates, including mortgage rates and rates for corporate bonds and other types of important interest rates.”

-- Fed Chairman Ben Bernanke
Sept. 13, 2012

Central Bank Balance Sheet Assets

![Central Bank Balance Sheet Assets Chart]

As of August 2013. Source: GSAM, Federal Reserve & Bloomberg. This information discusses general market activity, industry or sector trends, or other broad-based economic, market or political conditions and should not be construed as research or investment advice. Please see additional disclosures.

Central bank policy has pushed yields on traditional “core” fixed income sectors to low levels

One of the Fed’s stated goals is to bring down interest rates across the yield spectrum by using rate guidance and asset purchases to lower expected returns on “core” sectors and push investors into riskier sectors.

![Interest Rate Spread Chart]

As of September 30, 2013. Source: GSAM, Bloomberg, Barclays, Bank of America Merrill Lynch, Credit Suisse, JP Morgan. This information discusses general market activity, industry or sector trends, or other broad-based economic, market or political conditions and should not be construed as research or investment advice. Please see additional disclosures.
10 year Treasury yield model with and without QE
10-year yields moving back to levels indicated by growth, inflation, Fed rate policy

10-year Treasury yield versus a basic yield model with and without QE

Historically: Rates could be explained by a simple model based on growth, inflation and Fed rate policy ("model ex-QE" below). Fed asset holdings did not have a significant effect.

After Operation Twist: Rate models with and without Fed asset holdings diverged (i.e., a rate model needed QE to explain the level of rates).

Today: With the Fed moving to taper, the relationship has reversed.

Source: GSAM, Bloomberg. As of September 30, 2013. The 10-year yield model ex-QE uses the following variables: US ISM manufacturing index (proxy for growth), US core CPI (proxy for inflation) and the Federal Funds target rate (proxy for Fed rate policy). The model with QE employs the same three variables plus Fed long-term asset holdings (proxy for QE) as a fourth variable. This information discusses general market activity, industry or sector trends, or other broad-based economic, market or political conditions and should not be construed as research or investment advice. Past performance does not guarantee future results, which may vary. Please see additional disclosures.

What is Unconstrained Fixed Income?
A benchmark agnostic, long-only portfolio with less embedded interest rate risk

- The portfolio’s opportunity set includes all global fixed income markets and sectors
- Long only portfolio
- No embedded interest rate risk
- Profile of a typical unconstrained fixed income portfolio
  - Target return: LIBOR + 4 - 5%
  - Target volatility: 5 – 6% over a full market cycle
  - Tactical allocations across multiple sectors such as corporate credit, emerging markets, mortgages, country relative value, tactical duration and active currency
  - Duration band: +/- 3 years allows active interest rate risk management

Sources: GSAM. This information discusses general market activity, industry or sector trends, or other broad-based economic, market or political conditions and should not be construed as research or investment advice. Please see additional disclosures. Targets are subject to change and are current as of the date of this presentation. Targets are objectives and do not provide any assurance as to future results. There is no guarantee that these objectives will be met.
Sector rotation has significant alpha opportunity

Assigning the responsibility to a professional to tactically invest to these sectors as the market dictates should provide higher risk adjusted returns.

<table>
<thead>
<tr>
<th>Calendar Year</th>
<th>Total Returns:</th>
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<tbody>
<tr>
<td></td>
<td>Highest</td>
</tr>
<tr>
<td>2001</td>
<td>10.97 EMD External</td>
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<td>2002</td>
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<td>20.17 EMD External</td>
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<td>15.73 EMD Local</td>
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<td>13.73 EMD Local</td>
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<td>2013 YTD</td>
<td>10.47 EMD Local</td>
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</tbody>
</table>

Source: GSAM, Barclays, JP Morgan; As of September 30, 2013. US Treasuries: Barclays US Treasury Index; US Agencies: Barclays US Agency Index; ABS: Barclays US ABS Index; CMBS: Barclays CMBS Index; IG Credit: Barclays US Credit Index; High Yield: Barclays 2% Capped US High Yield Index; EMD External: JPM EMBI Global; EMD Local: JPM GBI-EM Global Diversified Index. This information discusses general market activity, industry or sector trends, or other broad-based economic, market or political conditions and should not be construed as research or investment advice. Past performance does not guarantee future results, which may vary. Please see additional disclosures.

Why Unconstrained Fixed Income?
Investors are not being paid for interest rate risk

Source: Barclays US High Yield Index, Bloomberg, GSAM. As of September 30, 2013. Past performance does not guarantee future results, which may vary. This information discusses general market activity, industry or sector trends, or other broad-based economic, market or political conditions and should not be construed as research or investment advice. Please see additional disclosures.
Tactical sector allocation: A sell off in emerging markets debt earlier this year created value

Sources: JP Morgan. As of October 16, 2013. Past performance does not guarantee future results, which may vary. This information discusses general market activity, industry or sector trends, or other broad-based economic, market or political conditions and should not be construed as research or investment advice. Please see additional disclosures.

Tactical sector allocation: High-quality municipal bonds
Long maturity municipal bonds yields are 120% of Treasury yields

Sources: JP Morgan, GS. As of October 16, 2013. Past performance does not guarantee future results, which may vary. This information discusses general market activity, industry or sector trends, or other broad-based economic, market or political conditions and should not be construed as research or investment advice. Please see additional disclosures.
Relative value view on country rates: Long Europe vs. UK

- European and UK data have both improved markedly in recent months
- Our analysis indicates that UK data and growth may well surprise to the upside sooner than the market anticipates
- Buy German 5-years, sell UK 5-years - benefit from widening of the yield difference

**GSAM Current Activity Index**

**5 Year UK Gov Bonds vs. 5 Year German Gov Bonds**

Sources: GSAM, Bloomberg. As of October 2013. Past performance does not guarantee future results, which may vary. This information discusses general market activity, industry or sector trends, or other broad-based economic, market or political conditions and should not be construed as research or investment advice. Please see additional disclosures.

Investor considerations / questions

- How are investors using an unconstrained fixed income strategy in their overall portfolio?
- Is this truly a global strategy? Is it inherently biased to US markets, if mortgages and US government bonds are included in the opportunity set?
- What are the implementation options? What would be entailed in managing this strategy in a separate account format?
- What are some ways to evaluate a manager’s ability to successfully and tactically allocate across sectors, particularly in a space with short track records?
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