



Quarter 3, 2007, Volume 22, No. 3

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Highlights: 2007 BondEdge Annual Fixed Income Workshops

Interactive Data Fixed Income Analytics hosted a highly successful series of fixed income workshops this year in Los Angeles, Chicago, and New York. 300 portfolio managers and other fixed income professionals from the asset management, insurance, banking, pension fund, and broker-dealer industries attended the workshops, indicating strong interest in the many new topics covered this year.

“**Excellent! Well run!**”

“**It was a very informative conference.**”

This year's Annual Fixed Income Workshops covered fixed income theory as well as practical applications of BondEdge®. Session topics addressed updates in various key areas including the mortgage and municipal markets, credit risk arena, and insurance company applications. The Performance Attribution session was extremely well attended, as were sessions covering a wide range of fixed income analytics, such as BondEdge What-if Simulations and Benchmarking with Compare & Matrix Management.

“**Everything was great.**

I would definitely attend again!”

In addition to the topics above, attendees were given a sneak preview of the next generation of BondEdge, which employs the Microsoft® .NET Framework ([Click here](#) for related article). According to Vice President of Product Development, Philippe Rasborn, “Attendees were very enthusiastic about the direction we are taking the product, with emphasis on features such as easier portfolio set-up and management, accessing and running all reports from one area, more powerful and flexible report creation tools, and a more intuitive and streamlined navigation.”

BondEdge Annual Fixed Income Workshop, Chicago, May 8, 2007



Louis J. Gehring, Senior Vice President, BondEdge Product Manager, presents to a full house during "Performance Attribution in BondEdge."

BondEdge Annual Fixed Income Workshop, New York, May 10, 2007



Workshop attendees network during lunch, just prior to a sneak preview of BondEdge next generation.

BondEdge Annual Fixed Income Workshop, New York, May 10, 2007



Workshop attendees network with colleagues during cocktail hour.

BondEdge Annual Fixed Income Workshop, New York, May 10, 2007



Maureen Manacop, Assistant Vice President, Client Services, and Jeremy Baker, Marketing and Events Coordinator, review survey results in preparation to pick raffle prize winner

If you attended one of our workshops, you qualify to receive CFA Institute continuing education credits (1 credit per workshop hour attended). If you would like to receive accreditation, please contact Jeremy Baker at jeremy.baker@interactivedata.com.

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BondEdge Municipal Analytics Web Seminar Case Study a Success!

100 portfolio managers logged-on to our recent BondEdge Web seminar, "BondEdge Municipal Analytics Case Study with Lehman Municipal Indices." The seminar focused on the enhanced municipal capabilities in BondEdge, including access to bond-level data for Lehman Municipal Indices ([Click here](#) for related article). Louis J. Gehring, Senior Vice President and BondEdge Product Manager, reviewed key components of the enhanced capabilities, and then presented several case study examples followed by an online Q&A session.

During the Web seminar, we polled attendees on their need and use for a variety of municipal analytic tools and measures. Our informal polling reveals a clear desire for more sophisticated analytic tools by which to measure muni portfolios, many of which have been incorporated into BondEdge, or are under development. **To arrange for a coverage check and custom demonstration using your own portfolio and index, please contact Lisa Herbert at (310) 479-9715 or via email at lisa.herbert@interactivedata.com.**

Poll Recap:

- 1/3 have experienced 10-25% growth in the private wealth segment of their business in the past 3 years
- 1/2 currently run performance attribution on municipal portfolios/portfolios with municipal assets
- Of those who don't, nearly all do not due to insufficient tools (e.g., budget, resources) vs. need for the analysis
- The interest in an ability to compare municipal portfolios/portfolios with municipal assets to the Lehman Municipal Index was nearly unanimous
- 2/3 do not currently have a measure (i.e., duration beta) to correlate curve exposure in their blended (municipal and taxable) portfolios and of that 2/3, 1/2 find no value/the measure doesn't apply and 1/2 have no access to the appropriate analytics

All attendees were given post-seminar access to the Web seminar recording and PowerPoint® presentation. *If you were unable to attend the event and are interested in requesting online access, please [click here](#) or contact Interactive Data Fixed Income Analytics Marketing at (877) 850-2900 or via email at be.marketing@interactivedata.com.*

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BondEdge Head of Research Published in Fixed Income Attribution Book

Interactive Data Fixed Income Analytics announces the republication of the article, "An OAS Framework for Portfolio Attribution Analysis," in The Spaulding Group's book, [Readings in Fixed Income Performance Attribution](#). The book, edited by Stephen Campisi, CFA and David Spaulding, CIPM, is a compilation of articles on fixed income attribution. The article was written by Senior Vice President and Director of Quantitative Research, William Burns, Ph.D. and former Senior Quantitative Analyst, Wensong Chu, Ph.D. and was first published as the lead article in the summer 2005 issue of the Journal of Performance Measurement.



The book [Readings in](#)

[Fixed Income Performance Attribution](#), is available for purchase from The Spaulding Group [here](#).

For a copy of the article, please contact Lisa Herbert at lisa.herbert@interactivedata.com.

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2nd Quarter 2007 Fixed Income Markets Review: *Market Flash*

A bearish steeping of the U.S. Treasury curve, combined with widening credit and mortgage spreads, produced negative total returns for fixed income benchmarks during the 2nd quarter. Concerns related to strong economic indicators in May were followed by disturbing trends in the sub-prime mortgage market during June.

The above is a partial reprint of our quarterly capital markets report, "Market Flash". **To view this report in its entirety, please [click here](#).**

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BondEdge News

BondEdge Version 5.5x - Ready for Upgrade!

BondEdge version 5.513 is now available. Clients must upgrade to a 5.5x version by August 31st (beyond that date, versions in the 5.4x series will no longer be supported). Version 5.5x offers a number of important enhancements as described below.

TBA CUSIPs & Dollar Rolls – TBA Mortgage CUSIPs are now in the BondEdge database. This version allows you to add TBA CUSIPs to your portfolios and to capture Dollar Roll strategies for performance attribution ([Click here](#) for related article).

New Simulation Tools – The Specified Scenario and Compare Probability-Weighted Return simulations have been significantly upgraded in this version, offering greater flexibility in specifying spread changes for all asset types. For corporate bonds, spread changes can now be input by industry and/or by issuer, while changes in MBS spreads can be specified by collateral type for pass-throughs, and/or by tranche type for CMOs. Muni portfolio managers can input spread changes by the primary type (e.g., G.O., Revenue, Pre-Refunded, ETM and Insured) and by Use of Proceeds (e.g., Education, Hospital, Utility, etc.). Scenarios can be shared between the two analyses, and both simulations now offer the ability to run instantaneous shifts to the yield curve using duration-matched or maturity-matched logic. Clients can also use a new scenario importing capability to import a large number of non-parallel interest rate shifts to generate a distribution of outcomes for VaR testing and other analysis.

Adjustable Rate Home Equity Loan Prepayment Model – Version 5.5x includes a new prepayment model for deals backed by Adjustable Rate Home Equity Loans. As credit issues continue to challenge investors in the sub-prime market, prepayments continue to be an important aspect of analyzing this asset class. The model incorporates the impact of default and credit curing in its prepayment projections, along with the refinancing incentive and other key loan characteristics ([Click here](#) for related article).

Municipal Portfolio Management Tools – Version 5.5x includes enhanced tools for private wealth managers, P&C insurers, banks and others whose portfolios contain both tax-exempt and taxable securities. BondEdge now provides more descriptive information for municipal securities, including underlying ratings for insured bonds and more information about credit enhancement. An expanded Contribution-to-Duration report now categorizes Munis by type to help portfolio managers analyze interest rate risk for this sector, and we have revised our sector listings to be consistent with those used by the major muni index providers. The Custom Report Writer has a new Muni Distributions field that summarizes key characteristics for municipal holdings in a single selection, showing the % of holdings that are taxable, tax-exempt (Federal, State or both), Credit Enhanced, Callable, Trading to Call, Puttable, OID, Bank Qualified or subject to the AMT. The Muni Holdings report now shows Acquisition information, # of Days Held and Gain/Loss for tax-planning purposes. Finally, the Portfolio Alerts report now shows recently pre-refunded municipal bonds to help you track the impact of these actions on your portfolios.

And! We now constituent-level data for the Lehman Brothers Municipal Bond indices and have made certain of these indices available for portfolio vs. benchmark comparisons and Returns-based Performance Attribution (more will be added upon request). ***If you are interested in subscribing to the Lehman Muni indices, please contact your BondEdge Representative.***

Performance Attribution with Custom-weighted Indices – You can now use custom-blended indices (e.g., 30% of Index 1, 50% of Index 2, 20% of Index 3) in Factor-based Performance Attribution (PART) analysis. The same functionality will be available via the Returns-based Attribution system later this year.

Clients who need assistance upgrading to version 5.5x or wish to install a test version before upgrading a production system should contact their BondEdge Representative or the Client Services Group for assistance.

BondEdge Version 5.6 - Preview!

As we focus our efforts on developing the next generation BondEdge system (built using state-of-the-art Microsoft® .NET programming tools) for release next year, we will be offering a limited set of enhancements for the remainder of 2007 ([Click here](#) for related article). BondEdge version 5.60, tentatively scheduled for release in October 2007, will offer a flexible new Factors-Based Performance Attribution Issue-Level Report Writer that will allow you to build customized attribution reports, showing individual security performance and contribution to return information across all categories of the attribution analysis. You will be able to subtotal by sector, quality rating, country or currency, and full exporting capability will be included.

Issue Level Attribution - Contribution to Returns								
Portfolio: SAMPLE PORTFOLIO				Base Currency: USD				
Beg. Date: 11/30/2006		Ending Date: 12/29/2006		OK		Subtotal by: Sector		
Identif ⁿ	Issuer	Total Return Contrib	Income Contrib	Paydown Contrib	Amort/ Roll Contrib	Parallel Effect Contrib	Non-Parallel Contrib	Term Str Effect Contrib
DOMESTIC MKT:								
TREASURY								
9128100T	UNITED STATES TREAS BDS	-0.01208	0.00600	0.00000	-0.00173	-0.01771	0.00088	-0.01857
	Subtotal Treasury	-0.01208	0.00600	0.00000	-0.00173	-0.01771	0.00088	-0.01857
AGENCY								
3128*14Y	FEDERAL HOME LN MTG CORP M	-0.00126	0.00345	0.00000	-0.00070	-0.00760	0.00150	-0.00679
	Subtotal Agency	-0.00126	0.00345	0.00000	-0.00070	-0.00760	0.00150	-0.00679
PASS-THRU								
31390AC9	FNMA POOL - 640096	0.00455	0.00457	-0.00002	-0.00094	-0.00178	0.00136	-0.00136
31390PG7	FNMA POOL - 651922	0.00304	0.00304	0.00000	0.00094	-0.00319	0.00088	-0.00137
FGW05024	FHLMC GOLD	-0.00344	0.00305	0.00014	-0.00073	-0.00640	0.00163	-0.00650
FN040033	FNMA	-0.00962	0.00244	0.00031	-0.00049	-0.01088	0.00254	-0.00883
FN040514	FNMA	-0.00211	0.00274	0.00029	-0.00026	-0.00487	0.00106	-0.00407
GNF06018	GNMA	-0.00040	0.00366	-0.00030	-0.00076	-0.00471	0.00114	-0.00433
	Subtotal Pass-Thru	-0.00798	0.01950	0.00042	-0.00224	-0.03183	0.00862	-0.02546
ARM								
31337A*XR	FHLMC POOL - 410688	0.00404	0.00408	-0.00004	-0.00038	-0.00199	0.00142	-0.00095
31402DA3	FNMA POOL - 725526	0.00278	0.00247	0.00032	0.00037	-0.00526	0.00085	-0.00404
36202K*WM	GNMA POOL - 008752	0.00331	0.00334	-0.00002	-0.00029	-0.00090	0.00064	-0.00054
	Subtotal ARM	0.01012	0.00988	0.00026	-0.00030	-0.00815	0.00291	-0.00554
CMO								
05948KA4	BA_MTG_ALT_2005-005-1CB2	0.00150	0.00281	0.00048	0.00019	-0.02167	0.00143	-0.02005
3133T4CY	FHLMC_1673-FB	0.00726	0.00252	0.00000	0.00027	-0.01120	0.00083	-0.00010
31392HML	FNMA_2003-011-BU	-0.00207	0.00305	0.00000	0.00013	-0.01227	0.00134	-0.01081

We are also working to release new Swap indices (with 2-year, 5-year, 10-year and 30-year maturities) in support of Liability-Driven Investment (LDI) strategies that use Swap Indices in constructing benchmarks. Clients will be able to combine these with other indices to create customized benchmarks. As mentioned above, we are adding the ability to use custom-blended indices in Returns-based Attribution analysis for clients who wish to analyze returns in this framework against a blend of indices.

Also in version 5.60, we'll be adding new Coupon Type fields to the Report Writer so that you can easily identify all of the fixed rate, floating rate, fixed-to-floating rate, step-up and inflation-indexed securities in your portfolios. Finally, for clients with multi-user installations we're adding additional log-in security features to help you comply with internal requirements.

If you have any questions about these features or are interested in obtaining the pre-release of version 5.60 as soon as it is available, please contact your BondEdge Representative.

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Special Update! Liability-Driven Investment (LDI) – Market Feedback from Fixed Income Workshops

In the 4th quarter of 2006, we wrote about the trend toward Liability-Driven Investment (LDI) strategies and described some of the tools available in BondEdge for asset managers and plan sponsors who are implementing this approach to managing investment portfolios ([Click here](#) for related article). Over the past six months we have seen a marked increase in the number and frequency of inquiries on this topic, ranging from firms who are in an initial, exploratory phase to those who are already marketing their services with LDI at the core of their offering.

In surveys completed by over 200 attendees at our spring 2007 workshops, approximately 25% overall said

they plan to offer one or more LDI strategies (the percentage of asset managers is even higher, as many of the attendees included). While at least two-thirds of these respondents said they use, or plan to use, interest rate swaps or futures to extend the duration of the investment portfolios that are managed against liabilities, other responses showed there is a wide variety of investment approaches being used or contemplated, including the use of CMT caps, swaptions, inflation swaps, as well as dedicated/immunized portfolios of cash bonds only.

Managers plan to use a variety of what we'll call LDI return benchmarks as well. Of course, by definition an LDI benchmark is based on the structure of the liabilities being funded, but there is another aspect to consider, namely, what total return is the manager expected to obtain or exceed on the invested assets? One approach that is being promoted by some is to construct a custom blend of swap indices, where the blend is designed to match the duration of the liabilities. In a simplistic example, a plan sponsor with 80% of its workforce active (non-retired) and 20% retired might use the return on a 30-year swap as the benchmark for the active component and the return on a 7-year swap for the retired component, so the benchmark return computed each month would be $(\text{Return}_{30\text{yr Swap}} \times 80\%) + (\text{Return}_{7\text{yr Swap}} \times 20\%)$. We are in the process of adding Swap indices with maturities of 3, 5, 7, 10, 20 and 30 years to the list of indices maintained in BondEdge to support our clients using LDI strategies. Other clients are using long government or government/corporate indices, some are using custom indices built from STRIPS, and so on.

As described in the Q4 newsletter article mentioned earlier, BondEdge has a variety of tools that can be used to compare a portfolio to virtually any benchmark that can be modeled as a portfolio, and we will be working in the months ahead to make BondEdge even more "LDI-friendly". *If you have any questions or suggestions about using BondEdge for your LDI strategy, we would welcome your input – please contact Lou Gehring at louis.gehring@interactivedata.com, Teri Geske at teri.geske@interactivedata.com or your BondEdge Representative with your comments.*

Liability-Driven Investment (LDI) Recap and BondEdge Tools Available

One of the hottest new topics in pension management today is "Liability Driven Investment", or LDI. In this article, we briefly review what is meant by LDI and why it is generating so much attention. We also describe how BondEdge can assist investment managers who wish to offer an LDI strategy, and for pension plan sponsors who may wish to analyze different approaches to LDI for their fixed income assets.

As is widely known, the combination of falling interest rates and declining equity values during the first part of this decade took many U.S. pension funds from the surplus status they enjoyed throughout the 1990's to an under-funded position. The decline in rates increased the present value of pension liabilities, while the decline in equity values reduced the value of plan assets (compounded by the fact that many plans had increased their equity allocations during the '90's). Furthermore, U.S. accounting regulations are becoming more demanding with respect to the recognition of pension plan deficits on the sponsor's balance sheet (regulations in the U.K. have already moved in this direction), so there is growing interest in reducing the volatility of a plan's funding status. LDI strategies are designed to do just that – to link the duration of a pension plan's investments to the duration of its liabilities, thereby reducing the risk of the mismatches that have arisen in recent years.

LDI recognizes that making a pension plan's investment decisions based only on maximizing return for a given level of return volatility does not incorporate the plan's liabilities into the investment decision. Pension liabilities are "bond-like", in that they represent a series of relatively predictable, promised future cash flows, but the fixed income component of a plan's assets is typically benchmarked against one or more market indices with durations that have no relationship to the duration of the plan's liabilities – the duration of a bond index is typically 5 years or less, which may be 20+ years shorter than the duration of a plan's liabilities. An LDI strategy explicitly incorporates the duration of the liabilities into the investment strategy, which can be accomplished in different ways.

A simple LDI strategy might be to completely immunize the plan's liabilities with fixed income securities – in other words, invest the plan's assets in a bond portfolio with a duration equal to the duration of the liabilities – so that as interest rates fluctuate, changes in the values of the plan's assets and liabilities would offset each other. However, with yields still quite low this would likely be a costly approach as it would limit the plan's investment options and therefore would reduce its flexibility to invest in assets with a higher return

potential. Furthermore, since pension liabilities are often extremely long-lived, with durations exceeding that of most available fixed income investments, this may not be practical. Also, this approach would mean abandoning the advantages of an objective, market-based return benchmark. Finally, if pension plans "en masse" started selling short maturity bonds in favor of long-maturity bonds, it could create a supply/demand imbalance that would depress long-term yields, thereby increasing the duration of pension liabilities, requiring even greater purchases of long-maturity bonds, and so on.

A less drastic and more common LDI strategy involves the use of interest rate swaps to extend the duration of the plan's assets. In this case, the return earned by the fixed income portfolio excluding the swaps can still be evaluated against the chosen market benchmark(s), while the duration of, and return on the plan's overall asset mix can include the impact of the swaps. A core or core-plus investment manager can offer this type of LDI solution to pension plans, which allows the plan to rely on the manager's expertise to achieve a fair (market-based) return on its assets while meeting the objective of tying its investment strategy to its liabilities.

Using BondEdge to Evaluate LDI Strategies – BondEdge has an Asset/Liability module that allows portfolio managers to view the duration of an existing portfolio versus a specified series of liability payouts, or to construct an optimal portfolio to fund a set of liabilities based on user-defined criteria and one or more "buy lists" of securities. The following Surplus Statement shows how a portfolio compares to a 20-year series of liability payouts that increase over time, based on user-specified assumptions about how to discount the liabilities:

Immunization View - Surplus Statement								
Portfolio: LDI Portfolio				Pricing Date: 09/27/06				
Liability Discount: Single Rate - 5.500%				Base Currency: USD				
Immunization Technique: Effective Duration								
	Present Mkr Value (000)	Face Value (000)	Average Maturity Years	Annual Internal Yield	-----Par Duration to Worst	alle----- Effective Duration	Non-Para Duration	Convexity
Portfolio Assets	906289	1108970	7.52	4.97	8.06	7.92	1.28	0.04
Liability Payouts	865171	1625000	12.73		10.18	10.18	0.59	0.76
Difference:	41118	-516030	-5.21		-2.12	-2.26	0.70	-0.72
Surplus in (000):		41118						
Surplus in (%):		4.75						
			Export			Print		
			Exit					

The Asset/Liability module also shows how the surplus would vary as interest rates change.

To evaluate an LDI strategy that uses interest rate swaps, an investment manager can use the BondEdge What-If simulation to quickly see how adding one or more swaps will extend the duration of a portfolio. In this simple example, we add a 10-year swap to a simplified portfolio consisting of a 10-year U.S. Treasury (50%), a 5-year corporate bond (25%) and a recently issued, 6% MBA pass-through (25%). The What-If analysis shows how the duration of the portfolio is increased by adding the swap (note that the market value of the portfolio is unchanged, as the swap has zero value at inception):

What If - Portfolio Editor

Portfolio: LDI Portfolio

Adjust Cash Cash Identifier: 000000CM

Par Units: Thousands Actual

Identifier	Curr Par (000)	Buy/Sell (000)	% of Port	Price	Yield	Issuer	Coupon
FN060035	224344	0	25.00	100.560	5.81	FNMA	6.00
36962GT3	223829	0	25.00	99.392	5.13	GENL ELEC CAP CORP MTN	5.00
912810DX	360797	0	50.00	122.844	4.65	UNITED STATES TREAS BONDS	7.50
SWAP10YR	0	300000	0.00	0.000	0.05	10 Year Swap	0.00

What If - Summary Report

Portfolio: LDI Portfolio Rep:

	Before	After	Difference
Par Value (000)	808970	1108970	300000
Market Value (USD 000)	906289	906289	0
Annual Income (USD)	51712	51712	0
Avg Quality	AGY	AGY	
Avg Coupon	6.392	4.663	-1.729
Avg Mat Yrs	7.517	7.517	0.000
Avg Life	7.583	7.583	0.000
Curr Yield	5.802	5.802	0.000
YTM/C	5.061	5.061	0.000
Mod Dur	5.645	8.064	2.420
Eff Dur	5.505	7.924	2.420
Convexity	-0.086	0.037	0.123

Compare Exit Export Print Exit

A portfolio representing a pension plan's liability payouts can easily be constructed from 0% coupon bonds (or using the Private Placement model's principal payment schedule). This liability portfolio can then be compared to the investment portfolio, including swaps, using in-depth analysis such as the Compare Key Rate Durations report.

We will likely be hearing more about liability-driven investing as it gains more attention and popularity. *If you would like to learn more about the BondEdge features described here, please contact your BondEdge Representative.*

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Back-to-Basics: Key Rate Durations*

Introduction

In previous Back-to-Basics articles we have reviewed the concept of effective duration (also known as option-adjusted duration) and why it is a meaningful measure of interest rate risk for all types of fixed income securities. While effective duration is a critical tool in portfolio analysis and risk management, it is important to recognize that this single duration number is an estimate of an asset's (or liability's) sensitivity to a parallel shift in interest rates. While effective duration is useful and convenient for many purposes, robust risk management requires us to recognize that although changes in interest rates are often highly correlated across the curve, in reality the slope and shape of the yield curve changes over time, sometimes dramatically so. The 10-year period from 1997 through 2006, illustrates this point: although weekly changes in the 10-year and 2-year Treasury yields were highly correlated over this period, with an R^2 of 0.84, the slope of the curve, measured by the difference between the 10-year and 2-year yields, ranged from -51 basis points (the yield curve was inverted for almost all of the year 2000) to 271 basis points. Clearly, not all yield curve shifts are parallel.

It is well known that portfolios can achieve a particular effective duration with very different sensitivities to the short, intermediate or long end of the yield curve. Managing a portfolio's interest rate risk requires tools to measure sensitivity to non-parallel shifts in the yield curve. This Back-to-Basics article discusses the concept of Key Rate Durations and how they can be used to measure exposure to this so-called yield curve

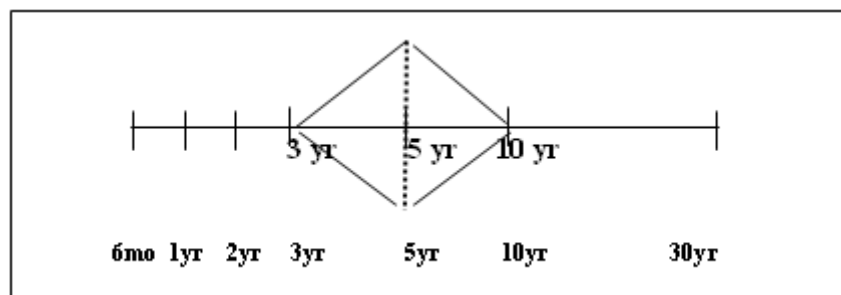
risk.

**Updated from a previous article on this topic*

Computing Key Rate Durations

Key Rate Durations (KRDs) measure an asset's or portfolio's price sensitivity to independent shifts along the yield curve at selected "key" points. The relevant yield curve is the benchmark (risk-free) curve pertaining to the bond's currency. KRDs are computed by decreasing and increasing each individual key spot rate by some number of basis points (e.g., ± 50 bps or ± 100 bps) and re-computing the asset's (or liability's) price given that shift, holding all other spot rates along the term structure constant. The average percentage change in the asset's value resulting from a given pair of \pm key rate shifts is its Key Rate Duration for that point on the curve. The sum of these "partial" durations is the asset's overall effective duration – thus, KRDs "deconstruct" a security's overall interest rate sensitivity into its component parts.

Each key rate shift is "anchored" (declines to zero) at the key rate points immediately preceding and following the point that is being measured – for example, assume the key points on the curve are defined as the 6-month, 1-year, 2-year, 3-year, 5-year and 10- and 30-year rates. To compute the 5-year Key Rate Duration, the shift at the 5-year point is fully absorbed by the time we reach either the 3-year or 10-year points on the curve:



Key Rate Durations for Various Asset Types

For bullet maturity assets and liabilities, the largest Key Rate Duration corresponds to a shift in the risk-free spot rate that is closest to the instrument's maturity date, since a shift in this rate would have the greatest impact on the price (present value of the cash flows). The Key Rate Durations corresponding to shifts in spot rates earlier than the maturity date will be smaller, as they reflect the changes in discount rate used to compute the present value of the interest payments received relative to the overall present value.

KRDs are particularly informative for instruments with embedded options, including call or put options, embedded caps and floors, as well as prepayment options, as they show the impact on the overall duration of an asset or portfolio of the call, put or prepayment option's sensitivity to a shift in a key interest rate. Consider the case of a bond maturing in ten years that is continuously callable at par after two years. Intuitively, we know that the price of this asset is sensitive to a change in both the 10-year and 2-year points on the yield curve, because a change in the 2-year rate would affect the likelihood of the call being exercised, while a change in the 10-year would affect the present value of the principal payment expected at the final maturity date if the bond is not called prior to maturity. We know that the bond's effective duration will be somewhere between the effective duration of a 2-year bullet and a 10-year bullet security, but the bond cannot be viewed as either a "10-year" or a "2-year" instrument. Using Key Rate Durations we can quantify the relative sensitivity of the bond's price to changes at both of these points on the curve.

For amortizing instruments and loans such as mortgage loans or pass-throughs, CMOs and asset-backed securities, Key Rate Durations indicate the relative importance of a shift at different parts of the curve given the pattern of principal repayments. Even without the complexity of changes in prepayment forecasts, the price of a mortgage-backed security sensitive to a shift in the Treasury rates that are used to discount the collateral cash flows (either passed through directly or distributed to the tranches in a CMO deal). If a security's cash flows are "front-loaded" relative to its average life, the earlier Key Rate Durations will be

relatively large. If the cash flows are "back-end loaded" relative to its average life, the later Key Rate Durations will be larger. Of course, prepayable securities are also sensitive to a shift in the current mortgage rate that affects the borrower's incentive to refinance, usually the 10-year point on the curve for fixed rate collateral. A well-protected PAC tranche will have a smaller 10-year key rate duration than a support tranche in the deal because a change in refinancings would impact the support tranche more than the PAC. KRDs help to explain why a CMO Interest Only (IO) tranche has a negative overall effective duration: a decline in mortgage rates, as driven by a change in the 10-year Treasury rate, causes prepayments to increase. The IO's price falls when mortgage rates decline, as faster prepayments reduce the total interest payments received by the IO holder. The IO's Key Rate Durations are positive except at the 10-year point, where the KRD is large and negative (a decline in price when rates fall produces a negative duration value), even if the IO is not expected to receive any cash flow at that time, because the 10-year Treasury rate drives the refinancing component of the prepayment forecast.

Interpreting and Using Key Rate Durations

There are a number of reasons one might wish to isolate a portfolio's sensitivity to movements at specific points on the curve. Assume we wish to construct a portfolio so that its interest rate sensitivity matches that of a benchmark, or a liability the portfolio is intended to fund. Even if the option-adjusted durations of the portfolio and liability are perfectly matched, this says nothing about their relative sensitivities to non-parallel yield curve shifts. We know that we can structure a portfolio in a number of ways to achieve a duration target (e.g., barbelled, bulleted, laddered, etc.), and these various structures have different sensitivities to non-parallel yield curve moves. Portfolio managers often summarize term structure exposure using distributions, allocating each bond to a particular Maturity- or Duration-based "bucket". While useful as a summary analysis, a significant shortcoming of this approach is that each asset can only be assigned to one bucket – thus, the 10-year bond callable in 2 years cannot be "counted" in both the 2-year and 10-year buckets. The limitation is even more striking for amortizing and prepayable bonds. Key Durations overcome these limitations, allowing us to do more rigorous risk management and portfolio vs. benchmark comparisons. Key Rate Durations allow us to quantify yield curve exposures between a portfolio and a benchmark, or a liability to be funded, by deconstructing the overall effective duration of each instrument in the portfolio and benchmark into its component parts. If one wishes to take a position on future movements in the yield curve (e.g., a steepening bet), Key Rate Durations can be used to quantify the extent to which that strategy has been implemented. In the Tracking Error analysis in BondEdge, the differences between a portfolio's and benchmark's key rate durations are used to measure the relative sensitivity to changes along the underlying yield curve. By multiplying the differences in KRDs by the volatilities associated with each key point on the yield curve, and incorporating the correlations across the potential yield curve shifts, the Tracking Error captures a full range of possible interest rate moves without relying on any single yield curve point to define "interest rate risk".

One drawback of KRDs is that interpreting the individual key rate values themselves may not be particularly intuitive. Since it is extremely unlikely that a single point on the Treasury curve will exhibit an isolated "jump" upwards or downwards while all other points on the curve remain fixed, it is sometimes difficult to describe what the individual KRDs mean. However, when viewed in relative terms, we can easily make some useful observations. For example, if Portfolio #1 has a KRD at the 1-year point of say, 0.527 and a 5-year KRD of 0.844, and Portfolio #2 has a 1-year KRD of 1.19 and a 5-year KRD of 0.35, then Portfolio #2 is roughly twice as sensitive to shifts at the short end of the yield curve than Portfolio #1, and is less than half as sensitive to shifts at the intermediate part of the curve. We can also say that Portfolio #2 is much more sensitive to changes in short-term rates than to movements in the intermediate part of the curve, whereas Portfolio #1 is more sensitive to shifts in intermediate rates than to movements at the short end of the curve. A key rate duration analysis makes it easy to compare a portfolio to a benchmark or a liability in a way that may reveal structural mismatches not readily identified by other summary portfolio measures. At both the individual security and portfolio levels, key rate durations can provide valuable insights about term structure sensitivity and in a way that no single duration measure can¹.

¹ For a more in-depth comparison of duration measures and yield curve risk, please refer to the white paper entitled, "Beyond Duration: Dissecting Yield Curve Risk", available on the BondEdge Private Client Site and by request at www.interactivedata-fia.com.

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Hybrid ARM Prepayments

Issuance of Hybrid ARMs remains strong well into 2007. As versus 2002-2003, when the yield curve displayed 200-300 bps of steepness (as measured by the Treasury 2Y-10Y spread), through 2006-2007 when the curve was flat to inverted, ARM issuance has continued to climb. As the table below shows, Hybrid ARMs account for 11.4% of the outstanding mortgage market as of mid 2007, up from just 3.3% in 2002. This has largely come at the cost of GNMA issuance, Balloons, and Traditional ARMS.

Mortgage Market Issuance Trends

Type	Term	2007	2006	2005	2004	2003	2002
Conventional Fixed	15	14.9%	18.0%	21.1%	23.2%	22.0%	16.6%
	20	3.3%	3.6%	3.9%	3.9%	3.4%	2.3%
	30	60.1%	56.2%	51.7%	50.1%	51.3%	56.2%
GNMA Fixed	15	0.4%	0.5%	0.7%	0.8%	0.8%	0.7%
	30	8.8%	9.0%	9.8%	11.1%	13.5%	17.7%
Balloon	5	0.2%	0.3%	0.4%	0.5%	0.5%	0.2%
	7	0.5%	0.7%	0.9%	1.1%	1.0%	0.9%
ARM	1/1	0.5%	0.8%	1.1%	1.4%	1.7%	1.9%
Hybrid	3/1	1.4%	2.0%	2.8%	2.3%	1.7%	1.0%
	5/1	7.0%	6.4%	5.6%	4.1%	3.2%	1.6%
	7/1	2.0%	1.8%	1.6%	1.3%	0.9%	0.5%
	10/1	1.0%	0.8%	0.5%	0.3%	0.2%	0.2%
Grand Total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

With the Treasury curve set to steepen yet again, and housing prices remaining somewhat firm, Hybrid-ARM programs promise to remain an enticing financing option for borrowers.

As with any mortgage product, one of the largest sources of risk inherent in Hybrids lies with prepayments. Hybrid borrowers tend to behave like balloon borrowers, since at the end of the fixed-rate period, they tend to reassess their borrowing costs and options. The BondEdge Hybrid ARM prepayment model captures this enhanced sensitivity to refinancing at the end of the fixed-rate period.

However, the BondEdge Hybrid ARM model tended to produce base prepayment speeds during the fixed-rate period that outpaced actual reported prepayments. Consequently, as of the end of July 2007, the BondEdge Hybrid ARM prepayment model will benefit from a modest recalibration to recent historical speeds. The affect on the prepayments for typical Hybrid ARMs will be to slow prepayments down slightly thus lengthening durations by approximately 0.10. The table below illustrates the general affect for various segments of the Hybrid ARM index.

Agy	Prog	Treasury OAS			Treasury OAD		
		New	Old	Difference	New	Old	Difference
FN	FN 3/1	96	92	4	0.92	0.77	0.15
	FN 5/1	81	77	4	1.57	1.43	0.14
	FN 7/1	71	66	4	2.21	2.10	0.10
	FN 10/1	63	59	4	3.29	3.14	0.15
FH	FH 3/1	105	102	3	0.96	0.82	0.14
	FH 5/1	82	78	4	1.61	1.47	0.14
	FH 7/1	70	65	5	2.29	2.15	0.14
	FH 10/1	68	63	5	3.27	3.10	0.17
GN	GN 3/1	81	92	-11	1.44	1.00	0.44
Tot	All Hyb	78	74	4	1.88	1.74	0.14

		Average Life (Months)			Life Time CPR (%)		
Agy	Prog	New	Old	Difference	New	Old	Difference
FN	FN 3/1	23.3	20.8	2.6	40.4	45.0	-4.6
	FN 5/1	32.4	30.0	2.3	30.8	33.7	-2.9
	FN 7/1	41.9	39.6	2.4	24.3	26.4	-2.1
	FN 10/1	53.4	48.0	5.4	19.9	23.1	-3.1
FH	FH 3/1	23.7	22.0	1.7	39.5	42.8	-3.3
	FH 5/1	32.1	29.6	2.5	30.8	34.2	-3.3
	FH 7/1	41.7	38.2	3.5	24.5	27.6	-3.1
	FH 10/1	51.8	46.3	5.5	20.2	23.7	-3.5
GN	GN 3/1	31.8	31.2	0.7	30.4	32.1	-1.7
Tot	All Hyb	36.2	33.3	2.8	28.6	31.7	-3.0

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Client Services Q & A

Q. What is the difference between Portfolio History Average vs. Portfolio History Individual Holdings?

A. The Portfolio History Averages saves certain summary statistics about the portfolio on each re-pricing date – its yield, duration, average life, sector distributions, etc. This information is used to construct the Portfolio History Reports that shows the portfolio's characteristics over a period of time. It does not save any individual bond information.

The Portfolio History Individual Holdings allows clients to save the individual bond information when whenever the portfolio is re-priced or imported. Certain holdings reports such as the BondEdge Standard Report and Custom Holdings reports are available for historical reporting. You may choose set frequency of capturing historical holdings daily, weekly or monthly.

Q. I am using BondEdge to forecast scenarios and compare the returns of the scenarios to those of a benchmark. Is there any way to compare a Specified Scenario Simulation to a benchmark? I have been doing it through the single scenario analysis option, but it is not nearly as in-depth as the specified scenario simulation in both its inputs and its reports. Do you have any suggestions?

A. The Specified Scenario and Compare Probability Weighted Returns simulations have been significantly upgraded in BondEdge Version 5.5. You now have the flexibility to input spread changes at the industry and ticker symbol level for corporate bonds, with similar features for other sectors. Since the scenarios can also be shared between Portfolio Simulations and Compare, you are now able to use the new and improved scenario tools when running a portfolio against an Index.

Q. How can I add CMBS positions to my portfolio in BondEdge?

A. Our CMBS module gives users access to over 10,000 CMBS securities in the BondEdge database. New CMBS issues are added to the database throughout the month with the daily and month-end system updates.

You can also locally model CMBS securities using the private placement model if you have the necessary inputs such as CUSIP, issuer, coupon, maturity date, current principal balance, cashflow schedule, etc. Please note that the descriptive and factor data automatically get updated while the local models remain static with the daily and month-end system updates.

Q. How does BondEdge calculate the duration for a portfolio when derivatives are used to achieve a target duration?

A.

Portfolio Holdings	Par/# of contracts	Price	Conver. Factor	Market Value	% of portfolio
Corporate Bonds	10000	98.205	N/A	9821**	100
CTD* Tsy - 8.00% of 05/15/2001	10	107.53	1	1075	10.95
Cash (duration = exir. Of contract)	-10	107.53	1	-1075	-10.95
Total				9821	100.00%

Portfolio Holdings	Effec. Dur.	Contrib. to Dur.	Convex.	Contrib. to Convex.
Corporate Bonds	7.25	7.25	0.4	0.4
CTD* Tsy - 8.00% of 05/15/2001	5.3	0.58	0.18	0.02
Cash (duration = exir. Of contract)	0.5	-0.05	0.18	-0.02
Total		7.78		0.4

*CTD = Cheapest to Deliver

**Includes accrued interest.

Note: Prices used in this example do not reflect current market conditions.

In this example, the initial portfolio consists of corporate bonds with a duration of 7.25. Adding ten 10 yr. futures contracts, which have a duration of 5.3 and a convexity of 0.18, lengthens the portfolio's duration to 7.78. The contribution to the portfolio's duration from the futures position reflects the exposure to underlying cheapest-to-deliver Treasury. BondEdge offsets the value of the futures position with cash so there is no net change in the portfolio's market value.

Even though the duration of the futures contract itself is less than the duration of the corporate bond portfolio, adding the futures increases the duration of the portfolio. In other words, the overall sensitivity to changes in interest rates has been increased, due to the "leveraging effect" of the futures position, as follows:

When the futures contract settles (on the expiration date) the underlying Treasury must be purchased at the futures price. To raise cash for the purchase, we will sell the Treasury which is delivered. If rates rise, the value of the Treasury falls but we still "owe" the price of the contract so the value of the overall portfolio declines, over and above the decline in value of the corporate bonds. Conversely, if rate fall, the value of the cheapest-to-deliver Treasury rises above the amount which must be paid on the settlement date, so the value of the portfolio increases.

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