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Duration and Asset/Liability Matching



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In the world of insurance asset management, “asset liability matching” (ALM) has been a standard practice among more sophisticated insurance companies for many years. More recently, larger insurers have accepted the evolution of this concept of correlating activities on the asset and liability sides of the balance sheet by implementing a more formal and comprehensive process called enterprise risk management (ERM). Sophisticated quan-

titative programs are now available to guide senior management in evaluating enterprise-wide risks.

Among small to midsize insurers it is not surprising that few have undertaken the complex and often expensive ERM process. However, far too few seem to be knowledgeable about ALM. This is evidenced in the fact that many firms that we speak to seem unaware or unsure of their liability duration(s), a

core data element required for the ALM process.

ALM begins with an analysis of assets and/or liability durations. For a bond portfolio, duration is a complicated calculation involving present value, yield, coupon, final maturity and call features.

While there are several types of duration and corresponding methods for their calculation (e.g. effective, modified,

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Economic Review: “Deja Vu all over again”?

Not likely, since we believe the US economy should fare better in 2011.

What’s the key to getting the economy moving? If we use a car as an analogy for the U.S. economy, then banks would be the engine and commercial lending would be the gas. The tank is full, but the car is stuck in park!

To better understand where we are going we must first know where we are and where we have been. We will briefly recap the economic highlights of 2010, provide our opinion of where the economy is headed in 2011 and interpret what we believe this means for fixed income investors. We will also briefly discuss our views on the implementation, misconceptions and goals of the

Fed’s latest quantitative easing program, dubbed “QE2”.

2010: A good year to clip a coupon...and then some.

We predicted that the Fed would not tighten; unemployment would remain between 9-10%; the recovery would be slower than the historical norm; GDP would remain positive for the year and likely settle in the 3% “area”; inflation would be kept at bay and finally, housing would remain under pressure. We thought the recovery would gain momentum during the second half of 2010 but it came later than anticipated. Additionally, 10-year Treasuries traded in a wider range than predicted when yields dropped to a low point of 2.38% in November before selling off to 3.80% in reaction to the announcement of QE2 and extension of the

Bush tax cuts. All of our composites had returns greater than their average coupon on both a gross and net basis, so 2010 was a good year to “clip a coupon” and then some for our clients.

2011: Continued economic improvement but at a slower pace than we would like.

Our Expectations:

The positives:

- Government stimulus in the form of extending the Bush tax cuts (avoiding fiscal tightening), a surprise 2% reduction of the employee payroll tax, extension of unemployment benefits and QE2 should serve as economic catalysts for the consumer.
- The value of the dollar

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The Group Captive Meets Medical Expense



Mike Schroeder is President of the Roundstone organization. Mike offers twenty years of insurance industry management experience with responsibilities in the captive market, self insurance pools and trusts, publicly held insurance companies and the regulatory environment. Mr. Schroeder received his Juris Doctorate from The Ohio State University College of Law and received his Bachelor of Science Degree in Business Management from Tulane University.

“...A Group Captive approach to insuring your medical expense risk is one of the many strategies available to confront escalating medical costs

Health Care Reform is debated in every news outlet, every day. Ideas regarding the government’s plan stir debate along with other wide ranging suggestions on how to stop the runaway cost of health care. Wellness programs, drug and treatment delivery methods along with coverage availability each claim to be the solution. Reducing cost or at least slowing the annual increase in the cost of medical care is the objective. How this objective is achieved is where the conflict arises.

Not surprisingly, the answer lies in a solution that brings together the best of each idea. This article focuses on a delivery method for insurance coverage through a Group Captive. One of the most attractive features of a Group Captive is it provides the ideal insurance platform to deploy many of the cost saving ideas being discussed in the health care reform debate. The “skin in the game” structure of a Group Captive encourages the stakeholders to seek innovative cost saving ideas. In fact, the wellness programs, Rx delivery methods and coverage strategies we hear about as the latest innovation of today have all been tested by self insureds; not surprising when one considers who directly benefits when a medical expense saving is achieved.

Like other Group Captive’s, the Medical Expense Group Captive is owned and/or beneficially controlled by the group member insureds. Similar to other Group Captive members or participants,

Medical Expense Group Captive participants are commonly homogenous in their business pursuits. An example of groups that have successfully implemented Group Captive strategies in the property & casualty marketplace include physicians, trucking companies, contractors and accountants. In all cases, the homogenous group agrees to band together and share a certain portion of the risk that is common in all of their businesses. The objective of moderating and reducing the cost of insuring their risk is realized when the group’s risk management strategies reduce losses both before and after they happen.

How Does It Work?

Like standard insurance for medical expenses, a Group Captive program requires infrastructure for the effective delivery of claim payments, including a claims administration or TPA company, an insurer to issue the policies and a reinsurer to cover the large or unforeseen loss events. The Group Captive Program then adds a Captive facility that is controlled by the group to assume a portion of the risk that is typically retained by the insurer.

The formation of the Captive facility historically caused the Captive solution to be one limited to larger organizations that could afford the time and upfront investment in actuarial, legal and regulatory professionals. Fortunately, the innovation of the segregated account rent-a-captive facility enables the middle market to access the benefits of a Captive solution. These segre-

gated account Captive facilities enable an insured or group of insureds to efficiently form a Captive that can serve as the risk assumption entity for the Group Captive Program. This Group Captive entity is functional in weeks with no upfront investment in professional expenses or surplus.

Once the Captive facility is formed and the program’s service providers are engaged, the Group Captive members purchase insurance the same way they do in the standard market; they send in their underwriting information, receive a quote and bind coverage. The execution of a contract with the Group Captive facility that is commonly referred to as a participation agreement follows along with a contribution of collateral before the insurer issues the medical expense policy coverage.

The Group Captive then functions like any other insurance company and reports to its owners its financial performance with premium earnings, loss payments, expenses and investment performance activity. Through retaining risk in the Captive and the application of innovative program services designed to prevent and reduce medical expenses, the Group Captive members may experience underwriting outcomes for their Captive reinsurer that enable a return of underwriting and investment income. Without the Captive participation by the insured members, these positive underwriting outcomes would have inured to the benefit of the insurance company alone. The return of

The Group Captive Meets Medical Expense

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underwriting and investment income obviously reduces the insured members cost of insuring their medical expenses and offers a cost advantage over traditional medical expense insurance coverage.

Why Does It Work?

A Group Captive delivers better results to participating members for several reasons. First, by retaining risk in the Captive facility, the insured members are able to capture a portion of the underwriting and investment income a traditional insurance company typically retains. The profit and overhead component of the standard insurance transaction can be anywhere from ten to thirty percent of the premium dollar paid by an insured. When these profit and overhead dollars are captured by the insured members, their overall cost of medical expense insurance is reduced.

Group Captive members also realize results that surpass their traditional insurance experience because of the shared incentive the members have with each other and the other risk takers. Unlike the traditional insurance transaction where you pay your premium and losses are largely irrelevant to you, when a Group Captive member contributes capital to a risk bearing enterprise that is dependent on the Group's loss experience, the incentive is for the member to police its claim activity more diligently. This is the "Skin in the Game" concept. Reduced expenses such as reinsurance are also

realized by the Group Captive members who exhibit claim experience more attractive than the overall medical expense insurance marketplace. Shared incentives create shared expense benefits.

Of course, the environment of loss prevention is also stimulated as the Group Captive members search for the most efficient way to deliver Rx, purchase medical procedures and deliver wellness ideas or practices. It is not surprising that many of the best in class health care solutions being advocated by the experts in the national debate have their origin in the Captive or self insurance marketplace. When a new method to mitigate the health risk of patients can be correlated to a premium dollar savings, it is not surprising the members of Group Captives have a higher commitment level to better health outcomes than the typical insurance buyer. Creativity, commitment, oversight and consistency all contribute to the Group Captive offering the best overall price and solution to escalating medical expense costs.

What Can Go Wrong?

The devil is in the details. The benefits a Medical Expense Group Captive offers can be lost when details such as provider networks, excess reinsurance terms, transaction fees and wellness programs are ignored or mishandled. Should the Group Captive also not utilize the efficiencies offered by established turnkey Captive facilities, the organizational costs required

to establish a regulatory adequate Captive facility can take years to recover. Experimenting with a new wellness program can deliver returns with little downside, but trying a new service provider without the knowledge and experience with reinsurance treaties and underwriting could contribute to increased costs for the Group Captive members.

Conclusion

A Group Captive approach to insuring your medical expense risk is one of the many strategies available to confront escalating medical costs head on. Take control by not only improving your approach to how health care is delivered to your organization, but how the insurance dollar is spent and returned. When the best possible cost containment services are combined with an efficiently built risk retention facility, the conclusion that a Medical Expense Group Captive offers the lowest cost solution for insuring your health care is evident.

"...by retaining risk in the Captive facility, the insured members are able to capture a portion of the underwriting and investment income a traditional insurance company typically retains."



Economic Review: Deja Vu all over again ?



John Saf has over 22 years of experience managing fixed income portfolios. His expertise in managing constrained, liability-sensitive insurance portfolios at prominent insurance asset management firms also includes overseeing Asset Liability Management (ALM) for clients.

...Will QE2 result in inflation? Interest rates began rising immediately after QE2 was announced.

should continue to decline versus the yuan and yen making U.S. goods more attractive in the global market place.

- Lending will improve as banks gain confidence in their housing sector loss provision and capital positions and become more entrepreneurial in their lending practices.

The negatives:

- Unemployment will remain at elevated levels - likely at or above 9% for the entire year.

- Residential housing will weaken slightly in 2011. Further price declines are likely (5-10% nationally) as banks continue to work through their foreclosure backlog and mortgage rates remain off their lows. We do not expect a meaningful housing recovery until 2013.

- State and local governments will remain under pressure to further reduce their operating budgets as tax revenues remain depressed and federal transfer payments decline. Debt bridges will be more challenging and expensive to obtain to carry them over budget gaps.

- Chinese inflation fears might lead Chinese government officials to slow their economy, causing a global ripple effect which slows U.S. exports to this growing market.

- Core Consumer Price Inflation ("CPI") will remain low but energy and food prices will rise during the year giving the consumer less disposable income.

Our Outlook for 2011:

- **GDP** growth will range between 2.50% and 3.25% for the year because of the previously described stimulus program, extension of the Bush tax cuts, and the 2% payroll tax decrease.

- **Monetary Policy** will remain very accommodative. We do not expect a move in the Fed Fund Rate during 2011 and no indication of a rate increase until the second half of 2012 when unemployment nears 8.5%. We do not anticipate another QE program because of the minimal impact QE2 has had. The yield curve will remain steep throughout the year.

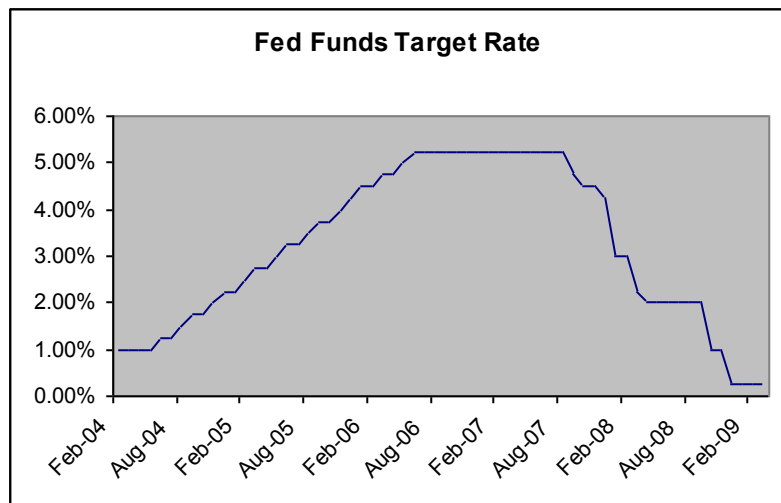
- We expect the **10-year Treasury** to yield between 3% and 4% throughout the year similar to our expectations in 2010. During 2010 the 10-year Treasury reached a high of 3.98% on April 5th and a low of 2.38% October 7th with an average yield of 3.20% for the year.

- **Inflation** should remain in check with the CPI likely remaining in the 1.0 - 1.75%

range through the year. Although fears of deflation have subsided, inflation will remain below Fed targeted levels for an extended period.

• QE2: What is it and how did we get here?

It became obvious in the summer of 2007 that the housing boom was losing momentum and the resulting slow-down could become problematic for the economy. In September of 2007 the Fed made its first move, reducing the Federal Funds Rate ("FFR") from 5.25% to 4.75%. They continued to aggressively reduce rates until December 16, 2008 when they moved to a rate target of zero to 0.25% in the aftermath of the Lehman Brothers bankruptcy. The FFR has remained at this level for the past 24 months. (See chart below.) Having used all the bullets in their interest rate cylinder, the Fed was in need of a new weapon to kick-start the economy and fend off deflation. They also needed a way to lower medium and long-term maturity



Economic Review : **Deja Vu all over again ?** (continued from page 4)

yields because the FFR mostly affects short-term interest rates.

During that time, the Fed was forced to provide liquidity to commercial paper and mortgage-backed securities markets and significantly expanded their balance sheet. In March of 2009, the Fed announced a program to purchase additional mortgages and longer term Treasury debt in the open market in an effort to lower rates across the yield curve. This would make long-term borrowing cheaper, especially mortgages, thereby spurring refinancing and home purchases. These open market purchases became known as the first quantitative easing program or "QE1".

In August of 2010 the Fed announced it would begin

another Treasury purchase plan in October to further reduce interest rates in the 1-7 year range of the Treasury curve. In theory this would further increase excess reserves of the banks and lead to an increase in lending because of the money multiplier effect where the same dollar is lent out and deposited in the banking system many times over although this may have resulted in the money multiplier effect being diminished as businesses and consumers reduce their indebtedness.

Even with the limited impact, had the Fed not implemented QE2, they might be accused of doing nothing (although they had no other options). Will QE2 result in inflation? Interest rates began rising immediately after QE2 was announced. This caused borrow-

ing rates to rise and lifted inflation expectations which counteract existing deflationary pressures. Unless the Fed can successfully unwind the program when the economy starts to grow again, the excess liquidity provided by QE2 will likely eventually add to inflationary pressures; however, we believe that persistent unemployment stats, local municipality cut-backs, increased consumer savings rates, global austerity program pressures and a weak housing market greatly diminishes the likelihood that inflation will develop. Will QE2 lead to increased lending? Maybe to some degree, but not likely if you believe the results of the study. The Fed's inability to stimulate growth through monetary

policy is often called "pushing on a string".

Capital Markets, Performance and Strategy

In addition to the encouraging returns in the equity market for 2010, the fixed income market also performed admirably. The investment grade bond market, as measured by the Barclays Capital Aggregate Index, returned 6.54% in 2010 despite losing 1.30% in the fourth quarter. The last quarter was negative due to the Treasury yield curve moving higher as Congress extended tax cuts and reduced payroll taxes. The high yield market, as measured by the Merrill Lynch High Yield Master II Index (MLHYI II), returned 15.19% for the year and 3.07% in the fourth quarter.

Duration and Asset/Liability Matching (continued from page 1)

Macauley), in essence they all represent a "cash-flow adjusted, effective term to maturity" for a series of given cash flows. Accordingly, the calculation for the duration of the portfolio of assets (or liabilities) is equal to the sum of the weighted average durations of the underlying assets (or liabilities).

To understand and eventually mitigate interest rate risks, the executive management of an insurance company ought to be familiar with their company's asset and liability durations. Duration measures the sensitivity of the cash-flow to changes in interest rates. The longer the duration, which is measured in

years, the more sensitive the cash flows are to interest rate changes. We know that a bond's value is determined by the present value calculation of its future cash flows. Duration therefore measures the bond's, or bond portfolio's value fluctuation relative to interest rate changes. For example, a bond portfolio with the duration of five years will have its value change inversely at a rate of 5% for every 1% change in interest rates.

Under present market conditions, insurers are justifiably concerned that a rising interest rate environment could have an adverse and perhaps substantial impact on the value of their bond portfolios. This scenario

could create a situation where asset values decline significantly more quickly than liabilities, creating a shortfall in the ability to fund claims payments.

Insurance asset management professionals seek to mitigate this risk through effective ALM practices. The first step involves obtaining liability duration(s) from the insurer's actuaries. This calculation is based upon the projected claims payout patterns (a "cash-flow adjusted, effective term to maturity" for a series of given cash-flows) for the various lines of business underwritten by the insurer. Investment managers will con-

struct a bond portfolio representing "reserve" assets in a manner that matches the reserve portfolio duration with the liability duration. For example, if the insurer's liability duration is 4 years then the reserve portfolio would typically be constructed with an asset duration of 4 years. Conceptually "asset/liability match" effectively "immunizes" the bond portfolio from interest rate changes since both assets and liabilities will have the same rate of variation in a changing interest rate environment.

CapVisor will explore this topic in more detail in future issues of our quarterly insurance asset management newsletter...stay tuned.

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Up Coming Events



- **The VCIA Annual Conference** will be August 9 through August 11 at the Sheraton Hotel and Conference Center in Burlington, VT.
- **The Bermuda Captive Annual Conference** will be on June 5 through June 8 at the Fairmount Southampton Resort in Bermuda.
- **The USA Risk Group Annual Executive Educational Conference** will be on May 25 through May 26 at the Balantyne Resort in Charlotte, N.C.

Carl Terzer will be a conference delegate at these upcoming events.

Hope to see you soon!

In the News.....

Also, please visit our website to read a recent editorial contribution submitted to CICR by Carl Terzer. This article is on page 10 of the publication and found in our archives at:

<http://www.capvisorassociates.com/uploads/CICRMAR2011.pdf>



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