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The Art of Seeing Nobody – Inflation, Insurance and Investing in 2010

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"I see nobody on the road," said Alice.

"I only wish that I had such eyes," said the king, "to be able to see nobody. It's all I can do to see real people, by this light.
Through the Looking Glass, by Lewis Carroll

The Fed, economists, the bond market and other inflation hunters have been looking down the inflation road for much of the past two years, and have been seeing nobody, quite clearly, in fact. Commodity prices, CPI, PPI and capacity utilization continue to paint a very benign picture for inflation.

Inflation is always and everywhere a monetary phenomenon.
Milton Friedman, 1963

The money supply's velocity in the U.S. has been contracting through the current recession as financial institutions have tightened lending standards, allowing the Fed to ease monetary policy and grow the money supply without a corresponding rise in consumer inflation. The tremendous amount of liquidity the Fed has provided to the market, coupled with the devaluation of the dollar, point to inflation somewhere down the road. The gap between yields on 10-year Treasurys and TIPS rose above 2.25% in December (which was the low end of the 5-year range prior to Lehman's collapse and the financial crisis) and stands at nearly 2.50%, indicating that bond traders expect higher levels of inflation in the future.

Figure 1. Velocity of Money (M1) / Source: Bloomberg

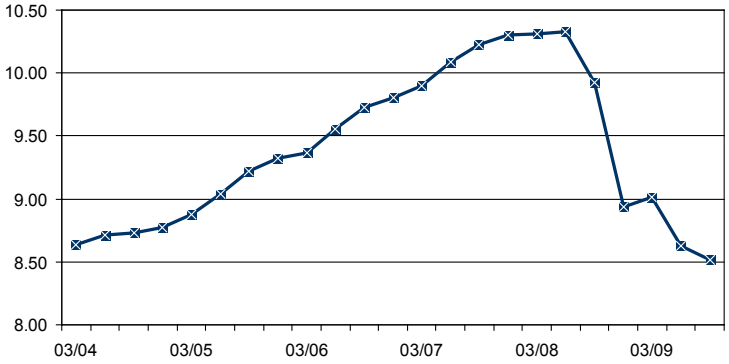
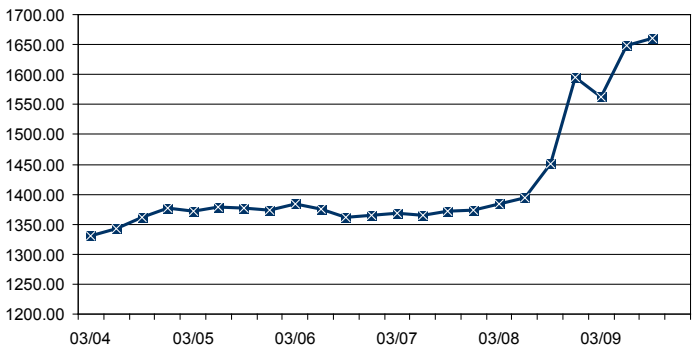


Figure 2. Growth of Money (M1) / Source: Bloomberg



Why insurers and portfolio managers care about inflation

While we at Conning don't subscribe to a doomsday inflation scenario, it is certainly possible to see some rebound in prices and in fact, it's already happening in some places in the economy. But whether it's going up or down from here, inflation affects insurance companies, their investments and the ALM strategies they choose.

Inflation affects insurance companies in different ways depending on the products they write and the ways they administer those products. Lines of business largely unaffected by inflation are nominal value policies such as fixed dollar per occurrence health coverages, ordinary life insurance, annuities without COLA provisions and property-casualty coverages with very low limits, e.g., basic no-fault. Certainly, the purchasing power of the assets and, to the extent that high inflation is accompanied by high interest rates, the valuations of the assets and liabilities are affected by inflation. But generally in these coverages, neither the frequency of claims nor the average amount to be paid per claim is much affected by inflation.

On the other hand, indemnity coverages in health, disability, property-casualty, and life lines with escalators such as COLA annuities and pre-need coverages would experience increased claim costs during inflationary times. The working layers of catastrophic reinsurance can be viewed similarly. The full effect of an inflationary spiral wouldn't necessarily be felt due to the overall policy limits of some of these lines of business. Modifications (stop-loss reinsurance, experience rating and hedging, to name a few) might change the effect further by passing the result on to someone else.

Some lines that are hyper-affected by inflation include excess limit casualty coverages, upper layer pro-rata and quota share reinsurance, malpractice, and professional and product liability. This is because in these cases, inflation affects not only the average claim costs, but also their frequency by pushing more claims up above the minimum levels and into higher coverage brackets. The distinction is important to investment strategy because a portfolio with returns designed to track inflation may do well to offset claim cost escalation, but it cannot hope to account for increased "utilization" or claim frequency. That must be anticipated in pricing, if competitive pressures allow it.

Inflation is a significant asset liability management challenge. Can investment strategies be designed to counter its deleterious effects on surplus?

Traditional strategies include equities and real estate. These attempt not to hedge or match inflation as much as overwhelm it. They try to garner so high an excess return so as to make the gyrations of inflation levels far enough below to assure a positive spread. Real estate values are certainly linked to inflation, but the risk and liquidity characteristics of the real estate-based asset classes make them inappropriate for many companies that need them. Stocks actually do poorly in times of high inflation. Until the recent economic downturn and capital market crisis, U.S. common equity total returns beat inflation (and most everything else) handily over the long haul, but the periodic correlation is not good **(see Figure 3)**.

Figure 3. CPI Correlation / Source: Conning Quantitative Research

CPI Correlation	Last 1 yr	Last 3 yrs	Last 5 yrs	Last 7 yrs	Last 10 yrs
vs S&P 500	-0.28	-0.37	-0.31	-0.29	-0.18
vs Russell 2000	-0.34	-0.28	-0.23	-0.22	-0.14
vs EAFE	-0.42	-0.46	-0.35	-0.34	-0.27

Large cap, small cap or international, there just isn't a good relationship month to month, quarter to quarter, between stocks and the Consumer Price Index. The same results obtain when lags are built in.

What about fixed income?

So we turn to fixed income, the mainstay of insurance portfolios. Duration-adjusting a bond portfolio to cope with inflation requires making some underlying assumptions about the relationship between inflation and interest rates. Until the development of the Treasury Inflation-Protected Securities market **(see Time for Tips Again?)**, one could buy only interest rates, not real returns. Can you buy a portion of the yield curve whose returns track well with inflation? The historical record is not encouraging. Again, we can look at a table of correlation coefficients.

Figure 4. CPI Correlation / Source: Conning Quantitative Research

CPI Correlation	Last 1 yr	Last 3 yrs	Last 5 yrs	Last 7 yrs	Last 10 yrs
vs UST 3 mo	-0.34	0.54	0.53	0.49	0.52
vs UST 2 yr	0.37	0.26	0.12	0.10	0.11
vs UST 10 yr	0.16	0.07	0.01	0.00	0.01
vs UST 30 yr	0.01	0.08	0.03	0.03	0.03
vs BarCap Agg	-0.01	-0.32	-0.32	-0.24	-0.17

Again, there's not much to go on. Even those who assert that there is a relationship admit that it is not a very strong one, that it holds only over the long term, and caution that it often runs in opposite directions. If we accept the weak linear correlation and try to regress inflation on periodic interest rate movements, we can in theory develop an adjustment factor for our target portfolio duration that can help to compensate **(see The Duration-Inflation Relation sidebar).**

Time for TIPS again?

One avenue that might offer hope is a real-return security, i.e., one whose return is somehow linked to a measure of inflation. First introduced in Great Britain in 1981, there has been much subsequent development in the market. Canada issued some bonds in 1991, but most attempts had not really gained much of a foothold in the minds of investors until the U.S. Treasury introduced inflation-adjusted securities about a decade ago.

In a 2004 Viewpoint article and a subsequent update in 2008, we discussed the basics and the mechanics of TIPS as well as the strategic case for a TIPS allocation in an insurance portfolio whose liabilities bear at least some exposure to inflation risk. Is it time to revisit this asset class?

Check your assumptions

As investments issued by the U.S. Treasury, TIPS carry no credit risk and feature the full faith and credit status of the U.S. government. Unlike their nominal Treasury cousins, however, TIPS principal is subject to erosion during periods of deflation and this can translate into principal loss for investors under some circumstances. Even the anticipation of deflation, though of itself not a cause for principal erosion, can wreak havoc on TIPS valuations as investors in this asset class experienced in late 2008.

As a quick review of TIPS mechanics, the principal of a TIPS bond adjusts (up or down) in accordance with changes in the all-items CPI. At sale or maturity, the investor receives the greater of the total inflation adjustment (since issuance) or original par. The price of a TIPS bond will fluctuate largely (though not entirely) in response to expectations of the future path of inflation and changes in real interest rates. Pricing is also affected by liquidity. TIPS are not as liquid as nominal Treasurys – the TIPS bond market remains relatively small and their bid/ask spreads are wider.

CPI's Whipsaw

In July of 2008, all-items CPI crested at a 5.6% year-over-year (y-o-y) reading. With oil peaking near $150 per barrel and the economy still growing, the thought in mid-2008 of a looming deflationary period

THE DURATION-INFLATION RELATION

Let's look at an extremely simple liability example: assume a $100 liability must be paid with certainty in five years. Assume the risk-free spot rate is 2.5% per annum. The liability duration in this case is 4.7, as shown below:

$100 in five years	Future value		Present value	
no inflation	$100	@ 2.5%	$88.39	▲ = ~4.7%
no inflation	$100	@ 3.5%	$84.20	

Suppose now there is a 2% annual inflation built into the pricing for a current face amount of $100:

$100 in five years	Future value		Present value	
2% inflation	$110.41	@ 2.5%	$97.59	▲ = ~4.7%
2% inflation	$110.41	@ 3.5%	$92.96	

If inflation is either fixed or uncorrelated to interest rate changes, duration is unaffected.

If we assume a one-to-one relationship, i.e., inflation and interest rates move in lock-step:

$100 in five years	Future value		Present value	
2% inflation	$110.41	@ 2.5%	$97.59	▲ = ~-0.2%
3% inflation	$115.93	@ 3.5%	$97.61	

Here, we can see that virtually all the discounting provided by higher market interest rates (and then some!) is offset by the inflationary effect on future claim values. Now the liability duration is effectively zero. Under these conditions, matching the asset duration to the unadjusted liability duration of 4.7 could spell disaster for the company if rates spike upward. So, in theory, shortening duration should help. However, a linear regression of inflation against interest rates produces a coefficient close to zero and an R^2 equal to 0.01. This is not statistically significant and duration shortening as an inflation hedge is a leap of faith.

seemed reasonable only for radical contrarians, those completely out of touch with reality, or some combination thereof. But the profound market events beginning in August and September of 2008 ravaged many of the brightest and most sophisticated of investors and left many scrambling for safety in what seemed to be a suddenly highly unstable and hostile capital markets environment.

As the fourth quarter of 2008 began, commodity and stock prices tumbled and U.S. Treasury bonds rallied strongly. Stunned investors tried to make sense of the chaos and fears of economic collapse seemed all too real. Whispers of deflation began to crescendo. By December, y-o-y CPI fizzled to 0.1% and bottomed at -2.1% y-o-y in July 2009. Deflationary fears have simmered down since late 2008, and the positive 1.8% y-o-y CPI reading in November 2009 (a welcome trend for TIPS investors) is projected to continue. Conning expects all-items inflation in 2010 to be +1.6%. Regardless, the great financial crisis and its concomitant mounting concerns over deflation torpedoed TIPS returns in September and October of 2008 and resulted in their first negative annual returns since 1999.

Perhaps none of this is a big deal given that TIPS remain a relatively small amount of total U.S. Treasury marketable debt securities and many insurance companies have not made TIPS a standard part of their investment portfolios. But it has provided some highly interesting insights into how securities issued with the U.S. Government's full faith and credit stamp do not fully immunize investors from the potential loss of invested principal.

How could this happen?

Certainly the main reason that TIPS bond prices corrected so strongly in late 2008 was due to fears of deflation. However, other factors were at work, including the extreme deleveraging that affected many asset classes in late 2008. Some investors holding TIPS bonds maturing in 2009 or 2010 suddenly became concerned that they might actually lose principal on their investments. This could happen under the following scenario.

Suppose in early 2008 as inflationary concerns were heating up, an investor decided to build a TIPS allocation. He bought TIPS bonds across the yield curve, almost all of which had been issued and outstanding for a period of time, meaning several bonds had accumulated a good deal of positive inflationary principal adjustments by early 2008. Assume further that one of the bonds purchased had accumulated 20% total inflation adjustments since original issue and was due to mature in a year. Thus, a $1,000 investment (based on original par) would cost $1,200 (assuming the bond was priced at par).

However, the $200 of inflation adjustment (bought and paid for) is exposed to deflation between purchase and maturity (or sale, if earlier). Although the investor will get back no less than original par at maturity ($1,000), that is a small consolation when facing negative principal adjustments of up to $200 due to deflation.

This is an extreme example to be sure; to date, deflation has been modest and appears to have run its course. Though we do not expect the recent deflationary period to re-ignite in the near term, the lessons it provided are clearly beneficial for managing a strategy designed to hedge inflation risk in insurance portfolios.

Limiting Deflation Risk

Some of the ways Conning managed these risks in 2008 were to shy away from investment in short-dated TIPS bonds and/or to invest in those with very little positive inflation adjustment since issuance (many recently-issued bonds fall into this category). As TIPS pricing stabilized in early 2009, we also were able to sell some short TIPS positions at gains and eliminate the risk of future deflation on those positions.

Conclusion

Currently, TIPS appear fairly valued relative to Treasurys. Investor expectations of future inflation remain near historically average levels. Moreover, there is a potentially extended period of time before underlying inflationary pressures actually become manifest. Regardless, real yields are low (and even negative at the short end of the TIPS curve). We encourage insurance companies that are considering a strategic investment in this asset class to contact their investment advisor to discuss the best time to make initial or additional investments in TIPS. ◆

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