



*If you go to Minnesota in January, you should know that it's gonna be cold. You don't panic when the thermometer falls below zero. - Peter Lynch*

Just 3 short months ago one couldn't turn on a TV, pick up a newspaper or visit an internet news outlet without seeing something about the massive sell off in fixed income markets. Investors were gripped with fear by the rapid descent in bond prices as the US Federal Reserve contemplated tapering their \$85B per month on bond purchases. For the record, the May 1 – June 30<sup>th</sup> decline was -3.3% on the Barcap Aggregate Bond Index<sup>1</sup>. Come again? Yes. The massive decline in bonds that has kept individual and professional investors alike up at night was a meager 3.3%, an amount that wouldn't warrant back page news if it came from equity markets. Much in the same way as real estate in 2008, few expect bonds to decline in value because they rarely do. When it happens, it hurts more than when you are prepared for the blow. Let me be clear, all assets can be subject to extreme price movements when stretched beyond where fundamentals would justify. The correction from overvaluation can be quite painful due to the sheer magnitude or the shock factor as is the case with equities and their potential to decline 20-30% or more over short periods. With investment grade fixed income, sharp declines are quite rare. Nonetheless, we saw how painful a small decline was in what everyone expects as their “safe asset.”

The amount aside, May and June were admittedly scary given the pace of the reversal in rates. From May 1 to June 26<sup>th</sup>, rates increased by .92%<sup>2</sup>. In statistical terms, this is a 2.62 standard deviation event, a probability of about .004% or 1/227 outcome. This speaks to of course the pace of the change, .92% over 40 trading days, not the magnitude. Sadly, .90% changes in rates are quite normal if they occur over longer periods. The impact of the blow, if extended, is softened by the collection of coupon income, but the price impact is the same. Said differently, the fall is the same but the landing is cushioned by the receipt of interest income that accrues over time. Therefore, the losses feel like less than they are. Still, there are several questions left unanswered. First, how did we get here? Second, is it safe to go back into the water? The answers to these questions and more are the topic of this quarter's Market Insights as we lay out a framework for evaluating fair value in fixed income.

### Bubbles, One Seemingly Logical Step at a Time!

Behavioral finance teaches us that investors extrapolate near term events into the future. Whatever path we are on today, investors expect to be on it into the future. They do it to both over, and underprice assets. This is, in essence, how bubbles form. No bubble has ever been created based on one gigantic miscalculation. Rather, it is a sequence of stretched assumptions, each building on prior flawed assumptions, that turn many, small, false notions into a bubble. This has happened over and over again throughout history most recently with internet stocks and real estate. What few realize is that at the point of greatest overvaluation of an asset, at the peak of the bubble, there is usually another asset that is equally attractive. Remember, money has to come from and flow to somewhere. For every Yin, there is a Yang!

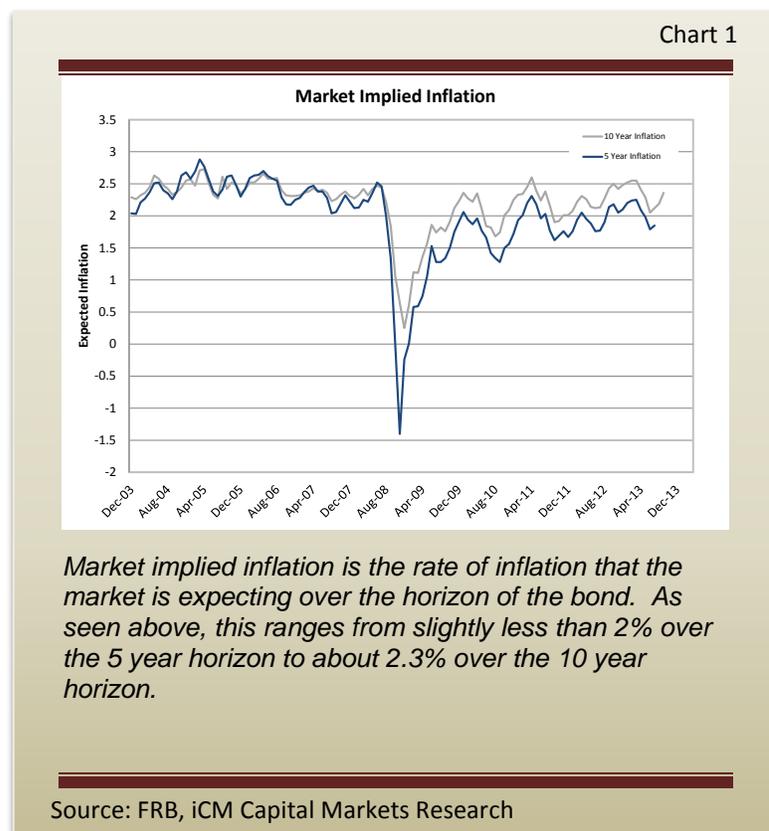
Ironically, this bubble did manifest itself differently than we have ever seen, but still one step at a time. While most bubbles are formed as a result of overly enthusiastic investor sentiment,

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<sup>1</sup> MPI Stylus Pro, Barcap Live

<sup>2</sup> Barcap Live, iCM Capital Markets Research

animal spirits as they say, this one arose as a result of central bank policy. Adding liquidity to our financial system through interest rate reductions and quantitative easing prompted appreciation in asset prices. As they rose, new found wealth was harvested and respent into the economy providing a boost, a “wealth effect.” Even absent spending, asset price gains were stimulative to the economy as higher asset prices reduced the cost of capital to organizations by either less dilution of shares or through lower interest rates on debt. At its earliest, this dated back to TARP. In this instance, staring down deflation in the midst of the worst financial crisis of the past 80 years, it was understandable if not justifiable. The latter rounds of stimulus were more questionable in terms of both economic impact and justification. Make no mistake, all had a meaningful effect on asset prices. Regardless of the motivation, any force that pushes an asset away from fair value is unstable at best and one with which may come dangerous consequences.



### Forecasts & Fair Value Pricing

Fair value pricing is an ambiguous concept and one that is subject to much debate among asset managers. At an absolute level, determining the fair value of any fixed income asset involves duration, horizon expected inflation, the required real risk free rate of return at that horizon, expected defaults, pre-payments and the corresponding spread. For investment grade bonds, little matters more than expected inflation over the time horizon of the bond. The coupon (or imbedded discount for non-coupon bearing bonds) must be sufficient to cover inflation plus a reasonable real return. For treasury bonds, this “reasonable real rate” has been about .75%<sup>3</sup> over time. Simplistically, if the yield on the 10-year Treasury bond is 2.6%, this would allow for a 1.85% inflation rate while preserving the real return. If inflation has typically ranged between 2-3%, what does that say about a bond yielding 1.6% as was the case this past May? Either, inflation needs to be much lower than we have experienced historically, the real return is zero or less, or rates need to rise. The only scenario of the three presented that ends well for that bondholder is the first one. In that instance, inflation needs to be extremely low, less than 1%. Since 1925, using 10 year rolling returns, this has occurred in 9% of all periods. All of these periods were prior to 1942. Since the window is 10 years, this indicates that a decade of inflation at 1% or less hasn’t happened since the Great Depression (at least in US markets). Given these metrics and probabilities, it becomes obvious that rates needed to rise from 1.6%, which they have. While painful, this was healthy. With the yield on the 10 year treasury at approximately 2.6% today, this allows for a more reasonable inflation rate that is priced into the 10 year treasury of about 1.85%. While this is still too low in our opinion, it is a mile better than where we were last spring.

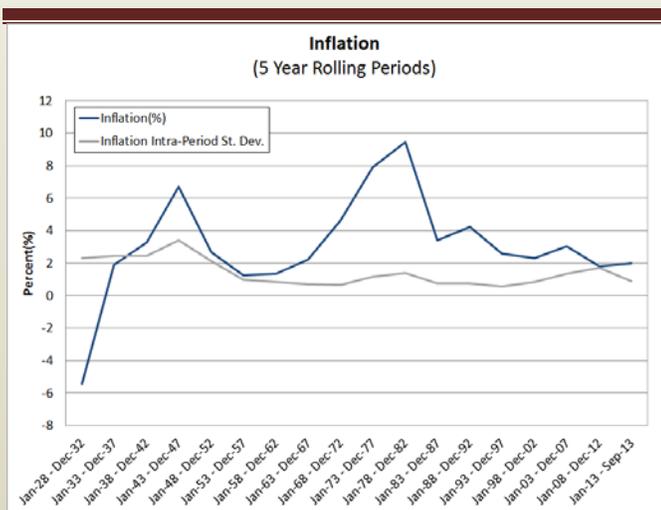
<sup>3</sup> This excludes the most recent 30 year period where rates moved from double digits to near zero given that a double digit decline in rates is a mathematical impossibility from current interest rate levels.

So where does that leave us? Inflation. Economists use dozens of variables that range from economic output to capacity utilization to forecast inflation. It is one of the most complex relationships in all of finance to model due to the number of variables that impact prices in unique and often conflicting ways. At iCM, we believe that the only good forecast is the one not made. Therefore, for inflation or any other variable for that matter, we prefer to measure what the market has priced in and determine how reasonable or unreasonable that may be rather than make a forecast. To us, this is a far more effective practice. Let the market show its hand. If the first 3 cards drawn are deuces, what is the likelihood that the 4<sup>th</sup> card will be higher than a two? Pretty good, I would say since 48 of the remaining 49 cards are above two. So in practice, when the market is pricing in an exceptionally low rate of inflation of less than 1.75%, we look for it to be higher and vice versa. In the example that we used at the beginning of the article where we stated that a .92% increase in rates was a .004% probability, we would and did believe that the pace of rate increases would certainly slow since the probability of it happening even once was so remote. What happened? Over the next 60 days, rates barely budged. In essence, our job becomes easy when there are outliers.

Today, our work with regard to inflation is slightly more difficult given that things have moderated some. Markets have priced in a rate of inflation of about 2.3% over the next 10 years. Reasonable? Probably. Not an outlier expectation by any stretch. In fact, we would place the average of the post-Volker era at 2.86% and the average since 1925 at 3.37%. Using our prior analytical framework, if the 10 year bond yields 2.6% and inflation is 2.3%, the market has only priced in enough room for a .3% real rate of return vs. .75% historically. This tells us that there is still some work to be done to reach fair value, even if the market is correct in its pricing in a 2.3% annual rate for the next decade. This would require a .45% increase in rates to provide a normal real rate of return.

Remember, the longer that we extend the time horizon, the more likely normality and mean reversion becomes. Just as in baseball where a player that hit .280 for his career suddenly hits .400 for a month, should we expect him to hit .400 for the remainder of his career? Of course not. Most would say that the near term was a hot streak, an outlier, and would expect something closer to his longer term average. This is normality. In our case, normality would be a move toward a 2.86% - 3.37% implied inflation rate plus a normal real return. This would require an increase in rates at the 10 year maturity of +.45% to +1.5% over the course of the next decade. The pace is key, as we have already addressed. Remember, fair value is the average, a 50% probability. Rates could stay the same, move higher or lower, each having a corresponding likelihood. For rates to mover lower, that would require a low probability event to occur. Can it happen? Sure. It just isn't likely. Likewise, a modest move higher is a slightly better than a 50% probability. Let me state clearly though, just as a move lower is a low probability event so is a significant move higher.

Chart 2



*Despite what some would suggest, inflation from year to year is a relatively stable value. As seen above (gray line) the variability within 5 year periods as measured by standard deviation is quite low at 1.4%. This implies little change within shorter periods. Over longer periods changes can be more meaningful but occur sequentially rather than in bursts.*

Source: MPI Stylus Pro, Bureau of Labor Statistics

We mentioned in the prior paragraph that significantly higher rates were possible but a low probability. What could cause this? For rates to move significantly higher, it would require a sharp shock to inflation. As seen in Chart 2, inflation has secular characteristics in that trends can persist over the near term. In the chart we can see that the standard deviation (gray line) is very low. This means that within each 5 year block inflation is relatively stable. In fact, the overall intra-period standard deviation is only 1.4%, around an average 3% inflation rate. What is interesting is that across periods, the standard deviation doubles. What this tells us is that inflation is relatively stable from year to year. However, it can make large adjustments over longer periods by making small sequential adjustments in short periods. The moral, just as sharp, short term changes to interest rates are a low probability event, so too is a sharp, short term change to inflation.

The last thirty years have been kind to bond investors, rewarding those who invested diligently with equity-like returns with less risk. This was driven by a historic decline in interest rates from the teens to today's level of somewhere near 2.6% creating this aura of safety in that most expect them not to decline in value. If the last few months have taught us anything, it is that any asset that has been overpriced can become vulnerable. While bond market declines have historically proven to be much less severe than equity declines, they can happen. When they do, the blow is more painful since it is unexpected. Just as the performance of the last 30 years is unlikely to repeat itself, so too are the doomsday forecasts of sharply higher rates in the near term. What is more likely is an orderly sequential move higher in rates to the tune of .45% to 1.5% over a period of years. Normal? Getting there. Painful? Less so if you are prepared. As such, we have employed several techniques aimed at hedging and reducing our exposure to domestic interest rates. Furthermore, we continue to be vigilant in monitoring that situation and remain uniquely suited to respond on behalf of our clients to an ever evolving environment. Remember, Minnesota in January will probably be cold. It's best to wear a coat. Thank you for your trust and confidence.

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