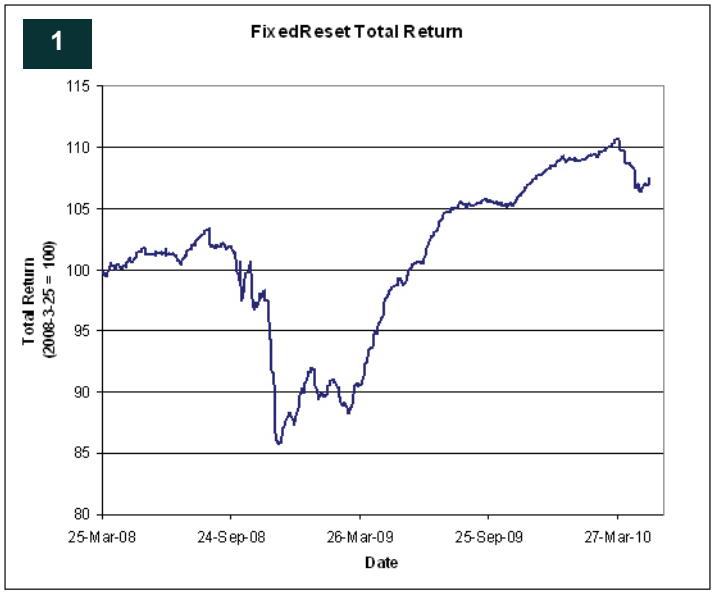
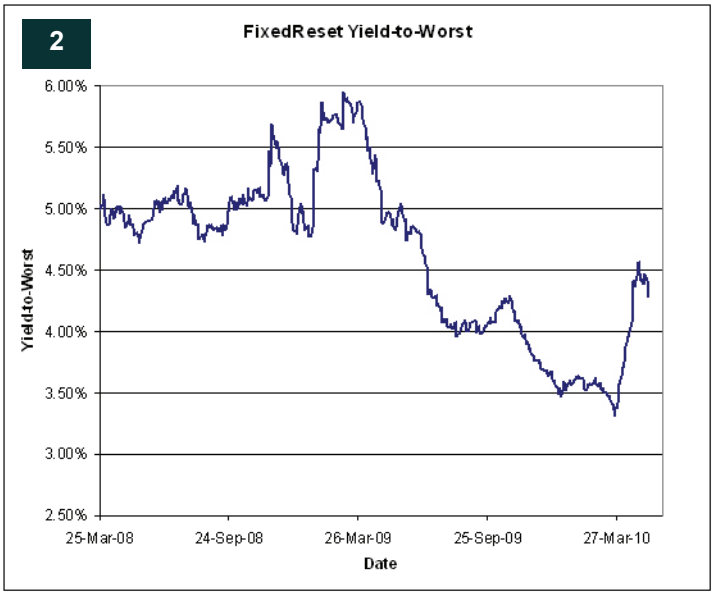
The Slump in FixedResets: Analytical Implications

In the period 2010-3-26 to 2010-4-29, the FixedReset total return index[1] declined by 3.93% (see Chart 1) while the median weighted average yield increased by more than 120bp, from 3.31% to 4.56% (see Chart 2).





This decline presents a useful opportunity to test various valuation methodologies that have been suggested in the past; as may be seen from the charts, it is the first major decline to have occurred in this sector apart from the Credit Crunch – during which it is well known that there was a high level of randomness in preferred share pricing.

Early last year[2] – when pricing in the FixedReset market was so outlandish I was desperate to find an analytical framework that would help make sense of the matter – I developed some alternate specifications of yield that would allow the assignment of a single number to each issue as a first approximation to valuation. The intent was to incorporate in the yield a certain amount of uncertainty as to whether the Yield-to-Reset or Yield-to-Perpetuity was the better measure of expected return.

This essay will begin with a brief description of the structure of FixedReset preferreds which will highlight the analytical problems that surround their valuation.

I will then review the various measures of yield that have been developed in order to provide some structure to the analysis of market prices of these issues. These are Calculated Attributes, as opposed to values such as Reset Date, Initial Dividend and Issue Reset Spread, which are Intrinsic Attributes.

- Yield-to-Reset
- Yield-to-Perpetuity
- Blended Yield
- Forecast Yield
- Current Yield
- Dynamic Price Yield
- Dynamic Spread Yield

The Slump Period, which is defined here as the period between the peak of the FixedReset market on March 26, 2010 until the trough on April 29, 2010, will then be analyzed in detail. The behaviour of individual issues during the Slump Period will be examined and relationships drawn between them on the basis of their attributes, in order to determine how, given a sudden general pull-back in the market sector, the differences in performance of individual issues may be best explained. This analysis includes both scatter charts showing market conditions at the beginning and the end of the Slump Period, and Rank Preservation Analysis.

Many will find the conclusion surprising! Inefficient pricing is deeply engrained within the FixedReset market and I will close with general observations regarding the efficient exploitation of the market anomalies that are thus created.

FixedReset Preferred Shares' Structure

The first issue with this structure was BNS.PR.P, which closed on March 25, 2008.[3] The basic structure of the class has not changed since its introduction though, of course, the specifics of dividends and reset terms have varied substantially through the period.

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1 Proprietary to Hymas Investment Management Inc.

2 In the January, February, March and May editions of this newsletter. The collected 2009 editions of PrefLetter are available for sale via https://www.prefletter.com/eMailVerification.php?path=pl

3 See http://www.prefblog.com/?p=1895

The Intrinsic Attributes of FixedResets that distinguish them from other preferred shares are:

- Initial Dividend Rate
- First Reset Date
- Issue Reset Spread

The Initial Dividend Rate is specified in the prospectus as a specific dollar figure, which may be expressed in either annual or quarterly terms. All extant issues pay dividends quarterly. The amount of the first dividend is also specified; it will only rarely be equal to subsequent payments as the issuers prefer to pay dividends on all (or, at least, most) of their preferred share issues on the same date and hence the first period, calculated from the issue date, will extend over a non-standard time-span.

In the jargon, such issues will have either a "long first coupon" or "short first coupon". Most issuers will opt for the former.

There have been several opportunities in the past to achieve excess returns by buying a recent issue shortly before the long first coupon is earned, as the difference can be quite substantial[4] and is often not reflected in market prices.

The First Reset Date is specified at time of issue to be some date in the future, usually a little longer than five years from issue date, but sometimes significantly longer as was the case with BAM.PR.R.[5] Subsequent Reset Dates occur every five years thereafter for all issues currently outstanding.

Many events are triggered by the arrival of a Reset Date:

- This issue is callable at par
- The dividend resets to a rate equal to the sum of the Five Year Canada yield and the Issue Reset Spread
- The issue is convertible, at each holder's option (subject to restrictions ensuring that all extant issues will have a minimum number of shares outstanding) into Floaters.

Floaters have the following characteristics:

- Dividends are paid at a rate equal to the sum of the three-month Canada Treasury Bill rate and the Issue Reset Spread, recalculated quarterly
- Callable at any time at $25.50 or at $25.00 on Reset Dates
- Exchangeable back to FixedResets on every subsequent Reset Date.

There are several reasons for the five year period between Reset Dates. From a sales perspective, it makes the issues more attractive to a generation of investors accustomed to dealing with five-year mortgage renewals and under the impression that five years has some mystical importance. Additionally, preferred shares may not be redeemable less than five years from issue date if they are to be included in a financial institution's Tier 1 Capital.[6]

It must be understood that the ability of the issuer to call a perpetual issue after only five years is not a good thing for investors.[7] The issuers have the right, but not the obligation, to call the issue – and they will only exercise that right if it in their own best interests. And, of course, their own best interests when making such a decision are completely antithetical to the best interests of the investor.

One reason for the fact that most issues have a first reset date significantly in excess of the five year minimum is the need to calculate the Initial Reset Spread at a rate reflective of market conditions at time of issue. OSFI does not permit "step-ups" to exist in preferred shares included in Tier 1 Capital.[8] Thus, it is not allowable to have an anticipated dividend increase after any given Reset Date, although rates tied to overall market conditions are acceptable provided that they do not reflect the financial condition of the issuer.[9] On the other hand, even the unsophisticated Canadian preferred share market might look askance at an issue for which the dividend rate is expected to decline substantially at some point in the future.

To satisfy these conditions, the Issue Reset spread is determined at time of issue as – approximately! – the spread over Canada bonds with a term equal to the term until the first Reset Date. Since 5.5-year bonds will normally have a higher yield than 5-year bonds, a longer initial term is considered preferable, as the Issue Reset Spread will be lower, given equal Initial Dividend Rates. This conception was pushed to the limit of the underwriters' tolerance by the BAM.PR.R issue discussed in the March 2010 edition of this newsletter, which had a 6.5 year term until the first Reset Date.[10] It may be noted that since Brookfield is not regulated by OSFI and has no need to calculate Tier 1 Capital, it has considerably more latitude when setting the terms on new issues than do issuers who do need to consider the opinions of the regulator.

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4 For example, the first dividend on RY.PR.X was $0.62072, compared to the quarterly figure of $0.390625. See http://www.prefblog.com/?p=5987

5 See the March, 2010, edition of this newsletter and http://www.prefblog.com/?p=9269

6 Office of the Superintendent of Financial Institutions, *Capital Adequacy Requirement (CAR) – Simpler Approaches*, available on-line at http://www.osfi-bsif.gc.ca/app/DocRepository/1/eng/guidelines/capital/guidelines/CAR_A_e.pdf (accessed 2010-5-14)

7 See *Analysis of Perpetual Resets*, available on-line at http://www.himivest.com/media/moneysaver_0805.pdf. See also the comments of Len Ruggins, former CFO of BCE Inc., quoted at http://www.prefblog.com/?p=2205

8 *Capital Adequacy Requirement (CAR) – Simpler Approaches*, supra

9 It is for this reason that RatchetRate preferreds are not eligible for inclusion in Tier 1 Capital, since the proportion of prime paid may be expected to increase as the financial condition of the issuer deteriorates.

10 See also http://www.prefblog.com/?p=9414

The Allure of FixedResets

Retail investors dominate the Canadian preferred share market due to the favourable tax treatment of dividends relative to interest; most institutional investors, notably pension funds, gain no advantage from this treatment and therefore avoid the market.

FixedResets were designed to appeal to the quirks of retail investors:

- **Disregard of reinvestment risk:** The very favourable call option held by the issuer is not considered important as the investor will receive his capital back in full. The consideration that this capital will then have to be reinvested, at yields that will – almost by definition – be lower than the initial yield, is not considered important.
- **Inability to calculate yield:** There is a very strong tendency – as we will see later in this essay – to calculate yield by dividing the dividend by the price. The amortization of the discount or the premium to par is considered inconsequential.
- **Insistence that each investment do all things:** Risk management for an investor should be a process of ensuring, to the extent possible, that all risks are addressed somewhere in the portfolio; but this is sometimes extended to mean that each individual investment must also cover all risks.[11] Thus, the inflation protection inherent in the FixedReset structure (due to the dividend resetting periodically to reflect Government of Canada yields), is considered a very valuable attribute. As discussed in my essay introducing the concept of Break Even Rate Shock,[12] the premium paid for such protection in broader fixed income markets is close to zero; a well constructed portfolio will not address inflation risk within the fixed income allocation.
- **Distaste for price volatility:** The normal and rational aversion to price volatility is exaggerated by retail investors, as I have discussed in connection with GICs.[13] The call option noted above will prevent the price of each instrument from going far above par; and while the effect on price of overall changes in market yields is muted by the resetting of the yield, the potential for price volatility due to deterioration of the company's credit quality or of greater credit spreads that may be effective in the future[14] appears not to be a major issue at this time.

Problems Inherent in FixedReset Valuation

The major problem confronting an analyst with the temerity to attempt to understand the FixedReset market is negative convexity.

Most readers will be familiar with the fundamental equation of fixed income expresses the price change of a fixed income instrument as a multiple of its change in yield, as I have previously discussed[15]:

$$\Delta P = - D_{Mod} * \Delta I$$

Where:

ΔP is the percentage change in price

ΔI is the change in percentage yield

D_{Mod} is the Modified Duration

D_{Mod} expresses the sensitivity of the price of a fixed income instrument to changes in yield. If yields change by 0.1%, say, from 5% to 5.1%, the price of a bond with a D_{Mod} of five will change by five times that change, or 0.5%.

The equation as show is not exact, however, since D_{Mod} is not constant – it also changes with percentage yield and this relationship is denoted "convexity".[16] For a normal bond, convexity is relatively small and positive – that is; D_{Mod} will increase as yield decreases, so that each successive decline in yield brings an ever-increasing advance in the instrument's price.

However, for issues that carry embedded options, convexity can be negative: sometimes large and negative, so that as yield increases, D_{Mod} also increases, and losses due to a yield increase can rapidly accelerate. In the preferred share world, this has heretofore been most apparent with PerpetualPremium instruments: for small increases in market yield, the price of the instrument will decline slowly, since the instrument is still likely to be called on the originally calculated call date; continued yield increases will bring the instrument to a tipping point, after which the call is no longer considered likely and future yield increases will achieve approximately the same response as a PerpetualDiscount.[17]

The chief analytical problem with FixedResets is not simply that they exhibit negative convexity, but that this negative convexity takes effect through a mechanism that may not be apparent to an investor on casual inspection.

For example, an industry professional was recently quoted[18] as saying *if the bond yield has risen substantially, the issuer is likely going to redeem the shares to prevent you from cashing in on the elevated rates*, which is simply nonsense.

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[11] Periodic media frenzies regarding options in pension plans are illustrative of this misconception.

[12] See the June, 2009, edition of this newsletter and http://www.prefblog.com/?p=8385

[13] *Preferred Shares and GICs*, available on-line at http://www.himivest.com/media/PrefsAndGICs_090814A.pdf

[14] Discussed in the August, 2009, edition of this newsletter

[15] *Modified Duration*, available on-line at http://www.himivest.com/media/moneysaver_0705.pdf See also the January, 2010, edition of this newsletter.

[16] See http://www.prefblog.com/?p=1640

[17] Although not quite, as explained in the January 2010 edition. See also *Perpetual Hockey Sticks*, available on-line at http://www.prefblog.com/?p=780

[18] National Post article no longer available on line; excerpted at http://www.prefblog.com/?p=9405

The issuer's decision as to whether or not to redeem the shares will have little, if anything, to do with the yield on Five Year Canadas, since this yield will to a large extent be reflected in their cost of alternative financing. The decision to redeem will be almost entirely determined by the Issue Reset Spread and its relationship to the credit spreads paid by the issuer in other markets.[19]

A table will help to clarify this situation. Consider a situation in which an issue is currently paying 4.50% with an Issue Reset Spread of 150bp. The issuer makes a decision regarding whether to call the issue based on the framework shown by Table 1.

Table 1: Issuer's decision on redemption of issue currently paying 4.50%, with Issue Reset Spread of 150bp.

Market Spread	5-Year Canadas at 2%	5-Year Canadas at 5%
100bp	**Redeems.** Retaining issue will cost 3.50%, but refinancing available at 3.00%	**Redeems.** Retaining issue will cost 6.50%, but refinancing available at 6.00%
200bp	**Does not redeem.** Dividend resets to 3.50%	**Does not redeem.** Dividend resets to 6.50%

Table 1 shows that the decision regarding redemption is not dependent upon the Five-Year Canada yield, but upon the Market Spread, which will depend on the market's overall evaluation of credit risk and the credit quality of the individual company. Hence, in contrast to more familiar processes, a company can quite rationally elect to redeem an issue even if that issue's dividend is about to decline; and equally, elect to leave it outstanding even if the dividend is about to increase.

The 2%/200bp cell shows an event that I feel is insufficiently appreciated by the market: the company's credit quality has declined (from a 150bp spread sufficient at time of issue to 200bp at time of reset), market yields have decreased … but instead of receiving his capital back as expected, the issue's dividend is resetting to a lower rate and the term is being extended for at least another five years. This is negative convexity.

Alternative Yield Measures

As noted, several yield measures have been developed by Hymas Investment Management in an attempt to make sense of market pricing. These will now be described briefly.

Yield-to-Reset (YtR)

This yield is simply another, more FixedReset-centric, name for yield-to-first-call and is calculated in the same manner.

Note that it is imperative that a calculator designed for preferred shares be used[20] since bond calculators will automatically include accrued interest in the calculation, which does not exist for preferred shares. Those who have very particular tax circumstances may wish to use the calculator[21] discussed in the March, 2010, edition of this newsletter, which also allows for differential taxation of capital gains (losses) and dividends, but it will be important that this differential taxation effect be applied uniformly over all calculations.

Those seeking to reproduce the numbers presented in this essay are reminded of the HIMIPref™ peculiarity regarding the MATURITY_NOTICE_PERIOD, which introduces a small error due to the programme offsetting the call date by thirty days. This error is not large enough to affect the conclusions drawn in this essay.

Yield-to-Perpetuity (YtP)

This is the yield that will be realized by the investor if the issue is not called. A modified version of the calculator is used for this calculation,[22] which requires the estimation of additional factors:

- The dividend rate following the first reset (assumed to be constant for the remaining term of the calculation)
- The end-price of the instrument.

The first value may be estimated by adding the Issue Reset Spread to the contemporary yield of five-year Canadas. The second value is not so straightforward; it may be estimated by assuming that the contemporary price of the instrument will remain constant throughout its life; or by calculating the price that will result in a Current Yield somewhat less than the expected Current Yield on PerpetualDiscounts, or by any other method the analyst deems reasonable. There is a lot of scope for differences of opinion in the validity of any set of assumptions; the analyst may use any assumptions he wishes to as long as they are internally consistent.

Blended Yield

This value was introduced in the January, 2009, edition of this newsletter and assumes that there is a high degree of homogeneity in the terms and credit quality of the issues selected as the universe of calculation.

The YtR and YtP of each issue is calculated and the Blended Yield of each instrument is obtained by calculating a weighted average of these values for each instrument using a constant proportion for each instrument. A range of potential proportions is chosen, and the "best" blend determined by assuming that all instruments should trade with the same Blended Yield and selecting the proportion that results in the lowest standard deviation of the Blended Yields found in the data.

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[19] Discussed in the August, 2009, edition of this newsletter.

[20] I suggest Keith Betty's calculator, available on-line at http://www.telusplanet.net/public/kbetty/ytc.xls (accessed 2010-5-14) and explained in my article Yield Ahead, available on-line at http://www.himivest.com/media/moneysaver_0607.pdf

[21] Available on-line at http://www.prefblog.com/xls/resetTaxEffects.xls

[22] Available on-line at http://www.prefblog.com/xls/ytc_resets.xls

It is this part of the calculation that makes a homogeneous data set imperative! Major differences in credit quality or term to Reset Date will invalidate the assumption.

The best fits for Blended Yield in this analysis were found with an 80/20 split of YtR/YtP on March 26, and 100/0 on April 29 – a surprising result in itself, since one would expect the importance of YtP to increase as prices decrease.

Forecast Yield

This method was introduced in the February, 2009, edition of this newsletter.

In this method, it is assumed that the market is forecasting a rate of 5-Year Canadas (used to reset the rates) and is then trading on the basis of Yield-to-Worst once this forecast is applied. The YtP is then adjusted according to the difference between this forecast and the actual five-year Canada yield used to determine YtP. The calculation of YtR is unaffected.

It is then assumed that all instruments trade on the basis of their Yield-to-Worst (YTW), so the lower of these two values is selected for each instrument and the standard deviation of instruments in the sample minimized as the forecast five-year Canada rate is varied.

This method is not useful given current market conditions as, even after the slump, FixedReset prices indicated an overwhelming expectation that most instruments will be called at the first opportunity. The method can only be expected to have predictive value in a situation in which a fairly homogeneous data set is relatively tightly clustered around the call price.

Current Yield

I was highly amused when I reported in the March, 2009, edition of this newsletter that Current Yield gave a better fit to the data than any of the fancier yields discussed above.

Current yield is simply the current dividend divided by the price. There are no adjustments made for expected future changes to the dividend rate, or for the potential of a future call. One of the first articles on preferred share analysis I wrote for popular consumption[23] pointed out that Current Yield has very low predictive power for future returns … but it seems that many investors have not yet gotten around to reading that article!

Dynamic Price Yield

A shortcoming of Blended Yield is that YtR and YtP are used in the same proportion for each issue, regardless of that issue's terms. Therefore, a certain amount of potentially valuable analytical information is not being used.

I attempted to address this fault in the May, 2009, edition of this newsletter with the introduction of Dynamic Price Yield (defined terms used in the original presentation have been changed to conform with the nomenclature used in this essay):

> The Dynamic Price Yield assigns a weight to YtR and YtP according to its current price; in this methodology two parameters are varied. A base percentage was applied to issues trading at a presumed price of $23.00; this percentage was increased in a linear fashion according to the actual bid price of each issue in excess of $23.00. Thus, denoting the first figure X and the second Y, the price P and YtR% the chance of the five-year call being effective:
>
> $YtR\% = X + (P-23)Y$
>
> The Dynamic Price Yield, DPY. for each issue was then calculated according to the formula:
>
> $DPY = YtR\% * YtR + (1 - YtR\%) * YtP$

Thus, in this methodology, a higher price implies a greater importance of YtR. Again, a homogeneous data set is assumed: the best fit is determined by minimizing the standard deviation of the calculated DPYs for the issues in the sample.

On March 26, variance was minimized with a base percentage (X) of 35% and a slope (Y) of 10%, which resulted in YtR% varying between 58% and 75%, with an average of 68%.

On April 29, the base figure increased to 50% while the slope remained at 10%, resulting in YtR% varying between 85% and 100%, with an average of 92%.

As with Blended Yield, this is a counter-intuitive result since one would expect YtR% to decline with declining prices.

Dynamic Spread Yield

A flaw inherent in Dynamic Price Yield is due to the fact that it assigns probabilities based on price when in fact (as discussed above) the probability of call should be based on the Issue Reset Spread.

The Dynamic Spread Yield is calculated similarly to the Dynamic Price Yield, but Issue Reset Spreads are used as the determinant of call probability, rather than the price:

$YtR\% = X + (I-B)Y.$

Where B is a constant,
I is the Issue Reset Spread
X is the base percentage for YtR%
Y is the slope

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[23] *A Call, too, Harms*, available on-line at http://www.himivest.com/media/advisor_0606.pdf

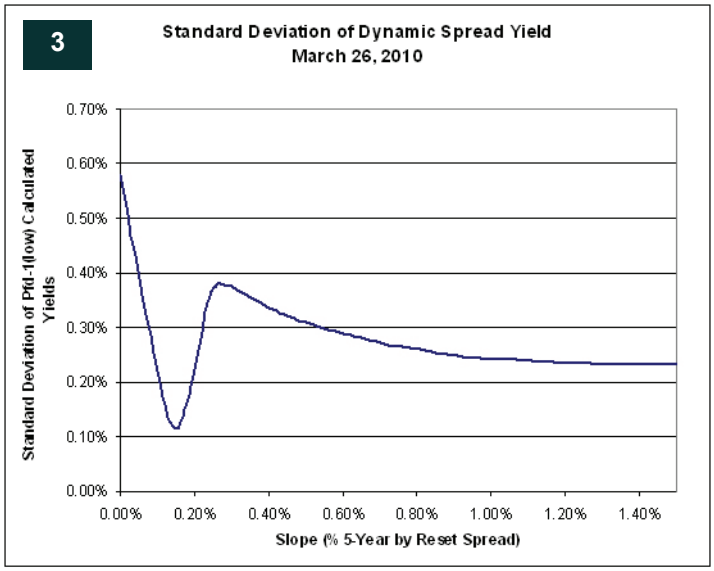
In this methodology, it is an increasing Issue Reset Spread that implies a greater importance of YtR. Values for the Best Fit are shown in Table 2:

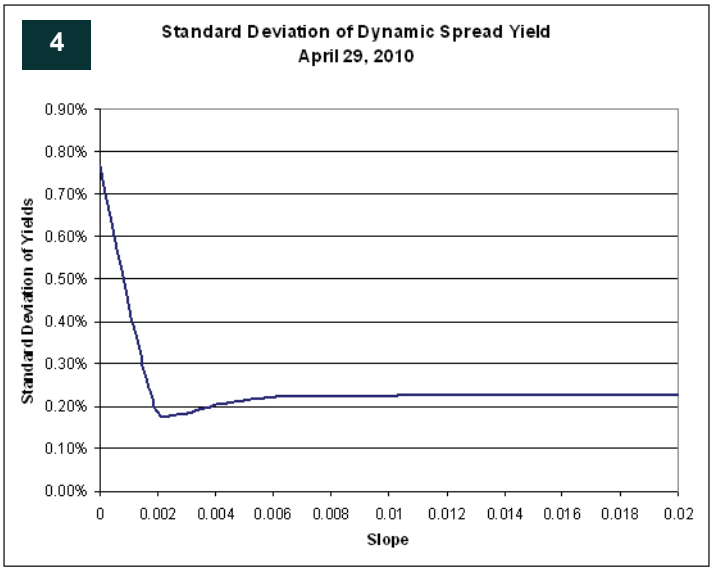
Table 2: Best Fit Parameters for Dynamic Spread Yield

Parameter	March 26	April 29
B	100	20
X	17%	10%
Y	0.25%	0.25%

These parameters result in YtR% varying between 27% and 74% with an average of 54% on March 26, while the April 29 results are variance between 28% and 100% with an average of 77%.

Not only are these counter-intuitive results (an increasing importance of YtR as price declines) but there is an oddity in the calculation that I do not understand: there are local maxima in the variances as shown in Charts 3 and 4.





Comparing Goodness of Fit

Table 3 shows the Goodness of Fit for each of the yield calculations. These figures were calculated as the minimum Standard Deviation of calculated yields for the issues in the data set, which is described in the next section.

Table 3: Goodness of Fit Measures for Yield Calculations

Yield Measure	March 26	April 29
Yield-to-Retraction	0.23%	0.22%
Yield-to-Perpetuity	0.73%	0.84%
Blended Yield	0.12%	0.22%
Forecast Yield	0.23%	0.21%
Current Yield	0.37%	0.52%
Dynamic Price	0.12%	0.21%
Dynamic Spread	0.12%	0.17%

Testing the Predictive Power of Various Attributes

In order to avoid (as much as possible) unexamined heterogeneity in the sample, the analysis has been restricted to FixedReset issues rated Pfd-1(low) by DBRS. This sample includes the five major banks and three major insurers, for a total of 33 issues out of 43 investment grade FixedReset issues at the beginning of the Slump Period (March 26 – April 29, 2010).

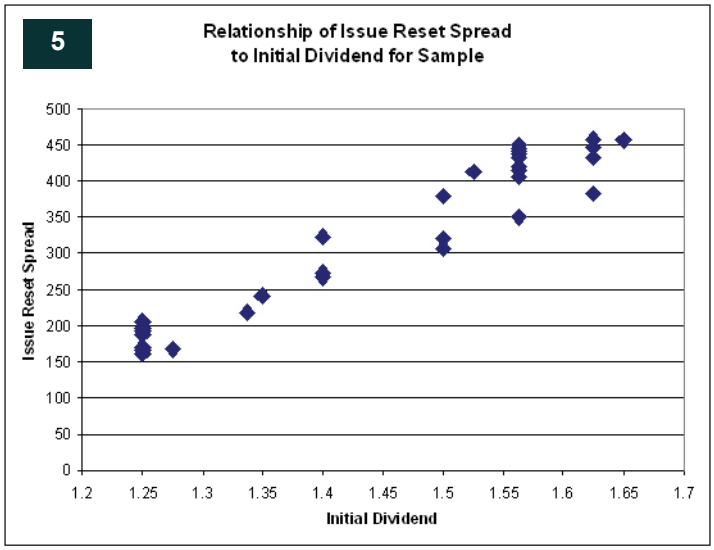
The total return (including dividends, assumed to be reinvested on the ex-Dividend date at the bid price on that date) of each issue was calculated and various variables tested in various ways to determine their explanatory power. Data for this process is summarized in Table 4.

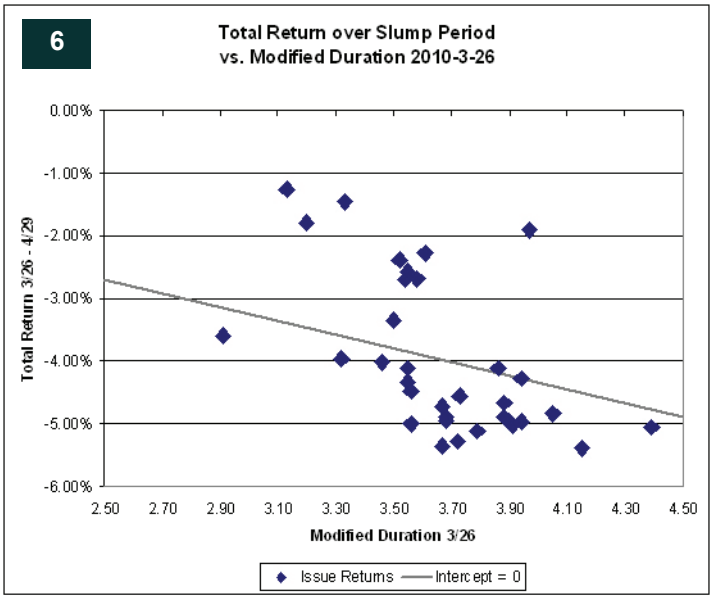
Table 4: Major Characteristics of Data Set

Ticker	Initial Dividend	Spread on Reset	Reset Date	ModDur 3/26	Return 3/26 – 4/29	Bid 3/26	Bid 4/29
BMO.PR.M	1.25	165	08/25/13	3.20	-1.80%	26.46	25.66
BMO.PR.N	1.625	383	02/25/14	3.55	-4.34%	28.41	26.77
BMO.PR.O	1.625	458	05/25/14	3.73	-4.55%	28.45	26.75
BMO.PR.P	1.35	241	02/25/15	4.39	-5.06%	27.50	25.77
BNS.PR.P	1.25	205	04/25/13	2.91	-3.60%	26.47	25.21
BNS.PR.Q	1.25	170	10/25/13	3.32	-3.97%	26.32	25.46
BNS.PR.R	1.25	188	01/26/14	3.54	-2.70%	26.42	25.40
BNS.PR.T	1.5625	414	04/25/14	3.67	-4.73%	28.37	26.65
BNS.PR.X	1.5625	446	04/25/14	3.67	-5.36%	28.33	26.44
CM.PR.K	1.3375	218	07/31/14	3.97	-1.91%	26.66	26.15
CM.PR.L	1.625	447	04/30/14	3.72	-5.27%	28.25	26.76
CM.PR.M	1.625	433	07/31/14	3.91	-5.01%	28.16	26.75
GWO.PR.J	1.50	307	12/31/13	3.46	-4.02%	27.35	26.25
MFC.PR.D	1.65	456	06/19/14	3.79	-5.12%	28.12	26.68
MFC.PR.E	1.40	323	09/19/14	4.05	-4.83%	27.32	26.00
PWF.PR.M	1.50	320	01/31/14	3.50	-3.36%	27.75	26.45
RY.PR.I	1.25	193	02/24/14	3.61	-2.27%	26.46	25.55
RY.PR.L	1.40	267	02/24/14	3.58	-2.69%	27.18	26.10
RY.PR.N	1.5625	350	02/24/14	3.55	-4.12%	28.05	26.51
RY.PR.P	1.5625	419	02/24/14	3.56	-4.49%	28.20	26.55
RY.PR.R	1.5625	450	02/24/14	3.56	-5.00%	28.31	26.51
RY.PR.T	1.5625	406	08/24/14	3.94	-4.97%	28.45	26.65
RY.PR.X	1.5625	442	08/24/14	3.94	-4.27%	28.25	26.66
RY.PR.Y	1.525	413	11/24/14	4.15	-5.38%	28.35	26.45
SLF.PR.F	1.50	379	06/30/14	3.86	-4.11%	27.96	26.81
TD.PR.A	1.25	196	01/31/14	3.55	-2.57%	26.51	25.52
TD.PR.C	1.40	274	01/31/14	3.52	-2.39%	27.1	26.11
TD.PR.E	1.5625	437	04/30/14	3.68	-4.95%	28.33	26.55
TD.PR.G	1.5625	438	04/30/14	3.68	-4.88%	28.34	26.58
TD.PR.I	1.5625	415	07/31/14	3.88	-4.89%	28.36	26.60
TD.PR.K	1.5625	433	07/31/14	3.88	-4.67%	28.35	26.65
TD.PR.S	1.25	160	07/31/13	3.13	-1.26%	26.14	25.50
TD.PR.Y	1.275	168	10/31/13	3.33	-1.46%	26.35	25.65

One problem with the data set is that there is too strong a relationship between the initial dividend rate and the Issue Reset Spread, as shown in Chart 5. R-squared (a measure of how well one variable relates to another) is about 93% for the data set; this is due to the relative constancy of the five-year Canada yield throughout the period during which FixedResets have been issued. A wider range of values would provide a greater chance of differentiating between the effects of these two issue attributes.

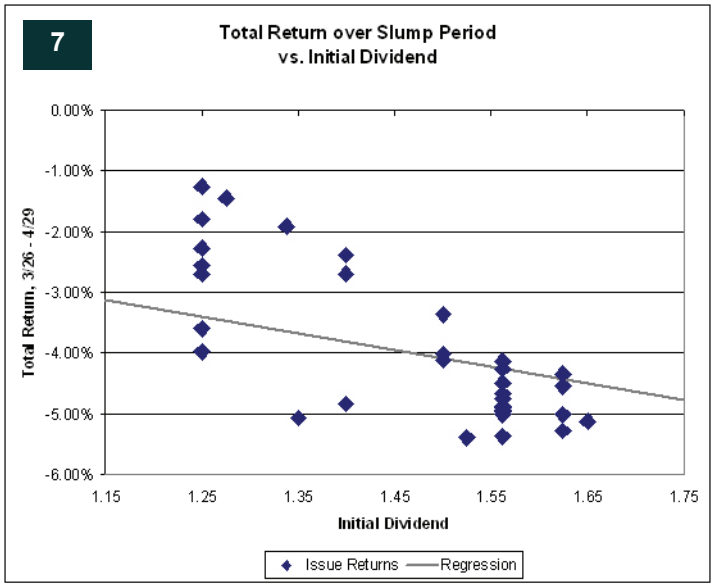
Chart 6 shows at a glance why I felt compelled to write this essay: Modified Duration is not a particularly good explanatory variable. With two degrees of freedom, only 30% of the variance is explained by the Modified Duration on March 26 and there is a very significant intercept (i.e., the expected return of an instrument with $D_{Mod} = 0$). With one degree of freedom (forcing the intercept to zero), R-squared increases to 93%, but this may simply be an artifact of the data; I do not have a great deal of confidence that this goodness of fit would be stable if a wider range of Modified Durations were available for examination.

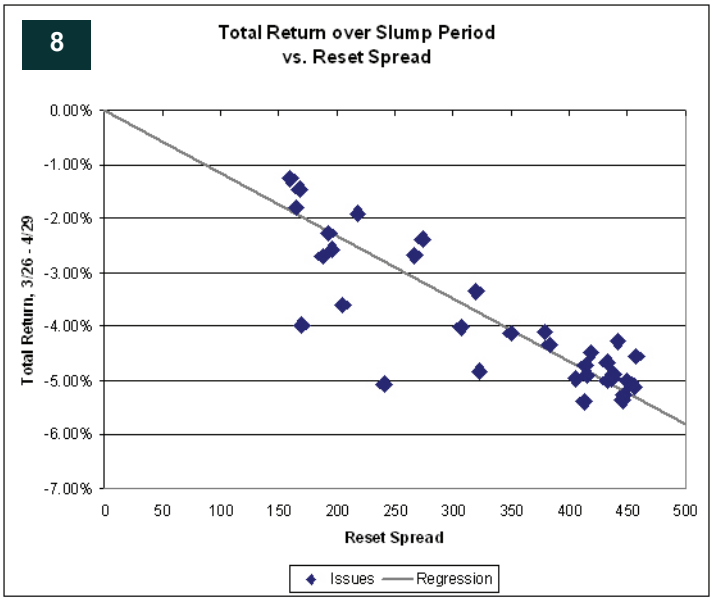




Charts 7 and 8 supply the germ of an idea. Although these variables should not have much to do with realized return, there is enough correlation to indicate that – somehow – they do have an effect.

Unfortunately, the slope of the relationship shown in Chart 8 is in the wrong direction for the first rational hypothesis that comes to mind. This hypothesis is simply that as the market declined, holders of issues with relatively low Issue Reset Spreads grew increasingly nervous regarding the certainty of a call at the first reset date; resulting in selling pressure on these issues magnifying the losses. Sadly, however, this hypothesis is directly contradicted by the data: there is a good correlation (70% with an intercept; 97% if the intercept is forced to zero) between increasing Issue Reset Spreads and increasing losses.

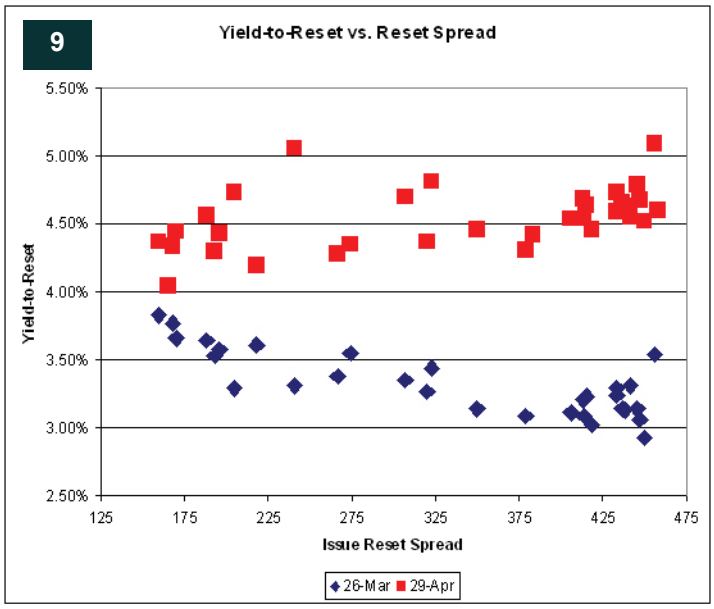


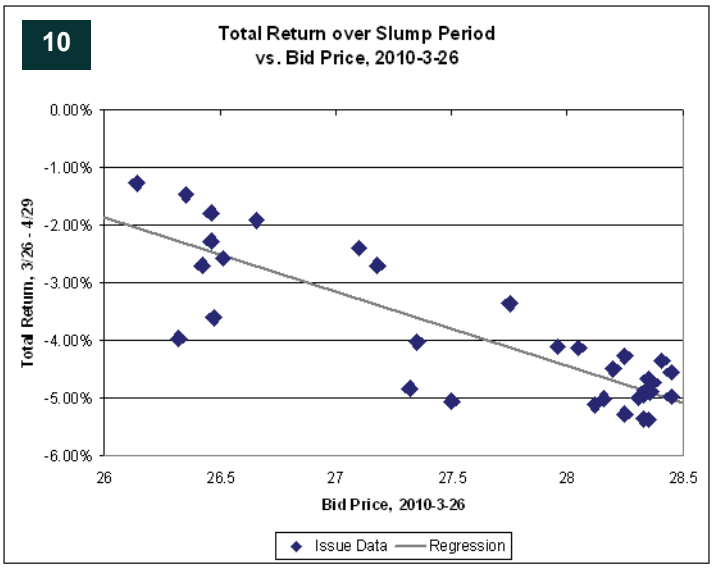


However, the nature of this relationship could indicate a fundamental lack of understanding of fixed income mathematics, similar to the "sell low coupon Perpetual-Discounts when the market is falling" canard that was so dramatically in evidence in June, 2008.[24]

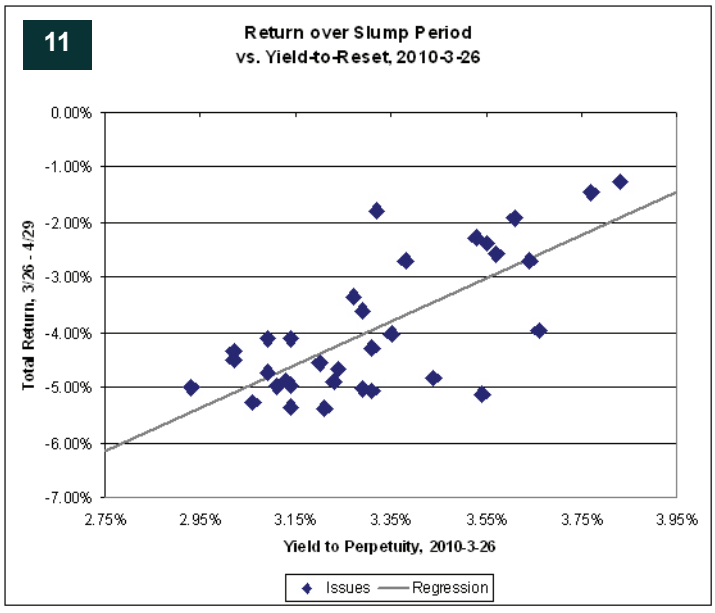
Some support is provided to this latter hypothesis by Chart 9, which shows the relationship between YtR and the Issue Reset Spread at the beginning and end of the Slump Period. The relationship on March 26 is as expected – as I explained during my seminar on FixedResets,[25] one would expect YtR to decline as the Issue Reset Spread increases, since rational investors may be expected to be willing to give up yield in exchange for a greater probability of call. For this relationship to disappear during a period of stress – when it is most valuable – is certainly silly, but experience in the PerpetualDiscount market tells us that it is by no means unprecedented.

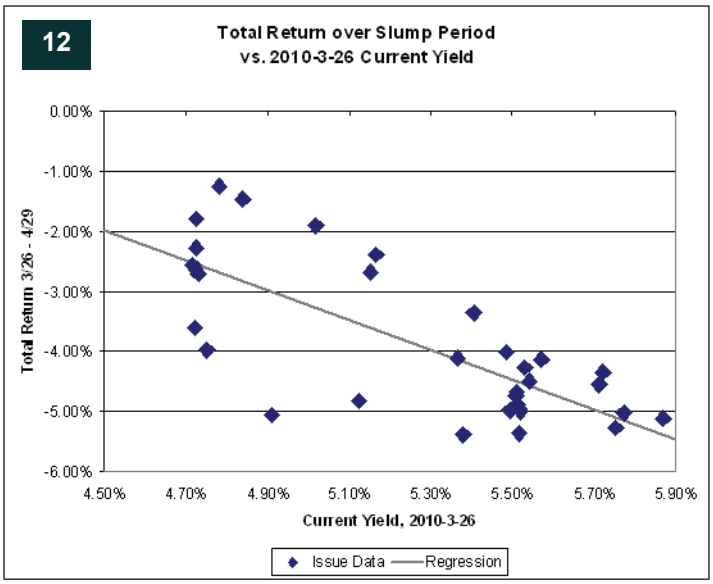
It was Chart 10 that put me on the track of what I believe to be the truth – or, at the very least, a defensible explanation. There should be no relationship between the bid price at the beginning of the Slump Period and the losses experienced – but clearly, there is. Could it be possible that there was a flight away from higher-priced issues during the Slump Period, that occurred without reference to quaint notions such as risk and return?





There is some support provided by Chart 11. There is reasonable correlation (about 52%) between lower Yields-to-Reset at the beginning of the period and higher expected losses during the period. A certain confirmation of this is achieved by looking at the relationship between Current Yield and experienced returns, as shown in Chart 12 (correlation of 54%).





[24] See *The Swoon in June*, available on-line at http://www.himivest.com/media/moneysaver_0809.pdf

[25] Available for viewing via http://www.prefletter.com/eMailVerification.php?path=vid

If – for some reason – there is a real relationship between initial yield and the return during the relatively short Slump Period, the question remains: which yield has the most explanatory power? In order to gain some insight into this question, we will use Rank Change Analysis to see which relationships between yields were most stable through the period.

Rank Change Analysis

The assumption underlying Rank Change Analysis is that relationships between issues will be stable. If the value of an attribute for a given issue exceeds the value of that same attribute for another issue at time 1, then it should also exceed it at time 2. In other words, when we rank all the issues according so some measure of value, we should find that this ranking is relatively stable as market conditions change, if the analysis that produced the rankings is valid through the period.

We can experiment with different ranking methodologies to see which ordering is most stable through the slump.

Scoring of the stability can be accomplished by examining the change in order through the period and squaring the differences in ranking. Thus, if we begin the period with the ordering (A, B, C, D) and end it with (B, A, D, C) then each element has changed position by 1 place and the scoring is the sum of squares, 4.

If the ranking at the end of the period is (B, C, D, A) then three elements have changed by one place and one has changed by three, so the scoring is $3*1^2 + 1*3^2 = 3 + 9 = 12$. By this methodology, then, there has been a more significant change in the ordering of set in the second re-ordering than in the first.

Yields for the sampled issues were calculated for March 26 and April 29 and the scoring methodology applied to determine which ordering was most stable throughout the Slump Period. The results are shown in Table 5 – and may be surprising!

Table 5: Rank Change Analysis of Various Orderings by Yield

Ranking Methodology	Rank Change Score from March 26 to April 29
Yield to Reset	7,210
Yield to Perpetuity	52
Blended Yield	5,166
Forecast Yield	7,210
Current Yield	186
Dynamic Price	4,420
Dynamic Spread	3,454

I believe the very low score for Yield-to-Perpetuity to be a red herring. The variation in Issue Reset Spreads is sufficiently large as to make the changes resulting from the changes in price insignificant; in addition, I find it very difficult to believe that the market as a whole trades on the basis of Yield-to-Perpetuity.

I would have expected Yield-to-Reset to be the most stable ordering, but this is not the case. As the very high score indicates, there were huge changes in the relative ordering of different issues by Yield-to-Reset throughout the Slump Period.

However, the low score for Current Yield is interesting and probably highly significant – but before we declare the market to be trading on the basis of Current Yield, we'll have to look at the implications more closely.

Current Yield in the FixedReset Market

Charts 13 and 14 show the relationship between Current Yield and Bid Price for March 26 and April 29, respectively, and show that – contrary to expectations and logic – Current Yield increases with Bid Price (the correlations are 85% and 89%, respectively).

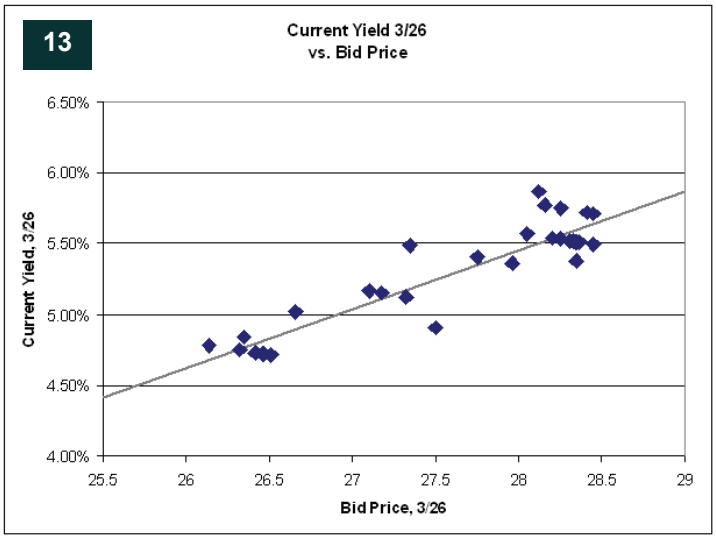
While this makes no sense, we do have an explanation available in terms of retail investor irrationality, as discussed in the section "The Allure of FixedResets". We may hypothesize that retail determines which issues to buy based on an objective function with two components:

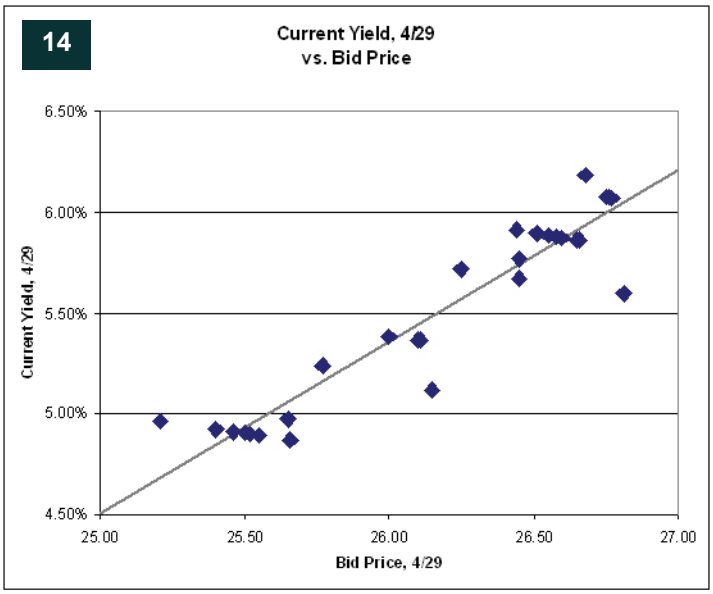
- Maximize Current Yield
- Minimize Expected Capital Loss

The interplay between these factors leads to the observed behaviour of Current Yield increasing as the Expected Capital Loss increases. We could, if we liked, assign values to these elements of a draft "Retail Objective Functions", but it is enough, for the purposes of this essay, to show that this relationship was stable throughout the stress evidenced during the Slump Period.

This hypothesis is also consistent with market behaviour observed during the period of redemptions of Straight Preferreds during the redemption frenzy of 2002–06: issues would routinely trade well above par, only to be called with an immediate loss resultant for the unwary purchasers.

This hypothesis fits the data – what more can I say?





Exploiting the Retail Objective Function

It will be noted that Reset Dates do not enter into the Retail Objective Function at all. While there is a tendency to minimize expected capital losses, this is done in absolute terms without considering the amortization period – in other words, retail cares only about the size of the total expected loss, not the rate at which the loss is incurred.

This implies that excess returns may be made by those who invest in accordance with fundamental rules of fixed income in mind: that yield is important and that Yield-to-Reset is an important, under-used, attribute of FixedReset preferred shares. The Slump Period's huge change in ranking when ordered by Yield-to-Reset (Table 5) indicates that a simplistic trading strategy based entirely on maximization of Yield-to-Reset may be profitable – but, it should be noted, Table 5 shows only that the ordering of the various issues has changed. It does not necessarily mean that profits from exploiting these changes would have exceeded transaction costs.

I look forward to writing a sequel to *A Call, too, Harms* in about five years, when the current crop of FixedReset preferreds has been (almost certainly) called! But what title can I give it?