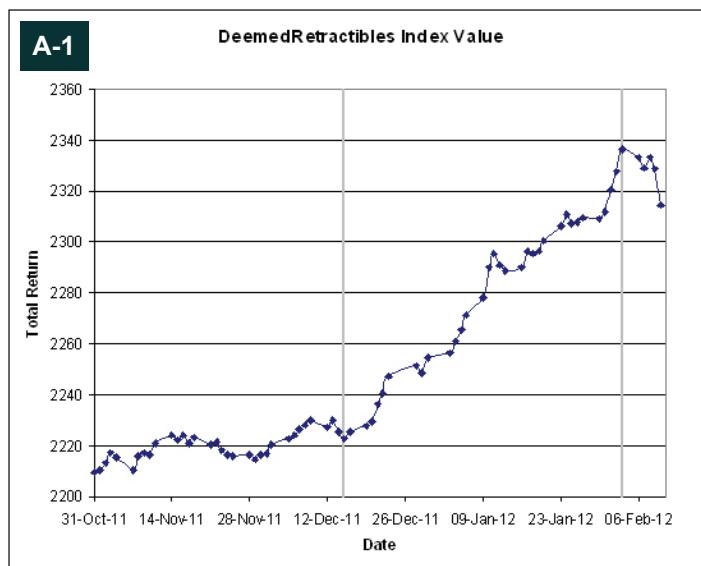


Pricing of Straight Perpetuals and DeemedRetractables

From December 15, 2011, to February 3, 2012, the DeemedRetractable Index exhibited strong performance, rising 5.1%, as shown in Chart A-1. As was the case with the decline of the FixedReset index by 3.93% in the period 2010-3-26 to 2010-4-29, the dramatic move allows for the investigation of how the market values such issues as the change in price is large relative to the payment or accrual of dividends, changes in credit quality and other factors.



Definitions

Several technical terms are used in this essay; it is a pity to have to load up my writing with so much jargon, but it is a very effective shorthand when defining groups of preferred shares according to common characteristics, or referring to various methodologies for the calculation of yield.

Straight Perpetuals are described on PrefLetter.com¹ as follows: *All these issues will have call provisions of some kind, allowing the issuer to repay the money on certain dates or during a certain period and cancel the shares. They pay a fixed dividend until the issuer either calls them or defaults.* These issues can be attractive to issuers as they may be included with other elements of equity on the firm's balance sheet; this improves the reported debt/equity ratio relative to what it would have been had the capital been raised by a bond issue, while at the same time not diluting the ownership interest of the common shares – note that this rationale for issuance also applies to FixedResets.

DeemedRetractables have been discussed in this newsletter for the past year, particularly in the January, February, March and June, 2011, editions; every edition since this class of issue was defined has included an appendix reviewing their relative pricing. All these issues are:

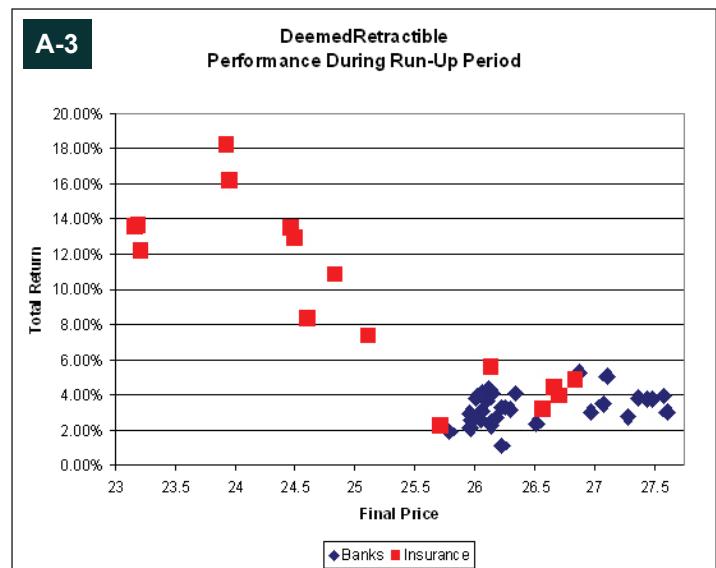
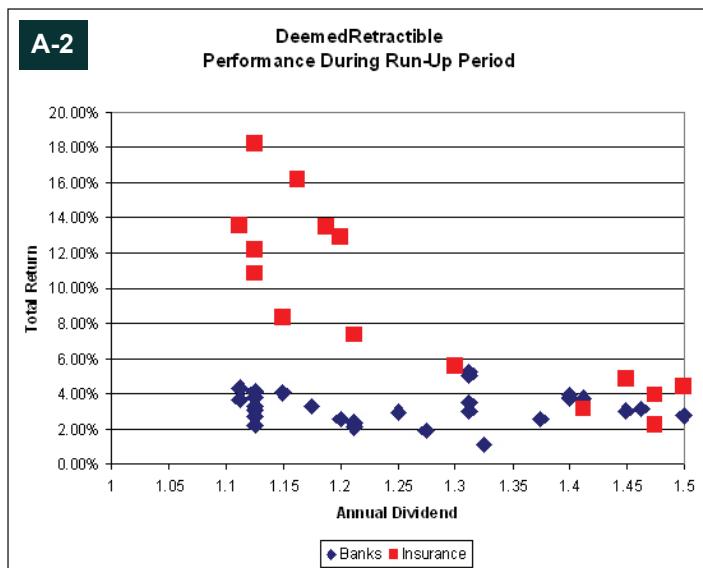
- Similar to Straight Perpetuals, but in addition:
- Issued by banks, insurance companies and insurance holding companies regulated by OSFI
- Are non-cumulative (since otherwise they would not qualify as Tier 1 Capital)
- Do not have provisions in their prospectus allowing the issuer to convert to common.

This class of issue is attractive to issuers due to their ability to be included in Tier 1 Capital, but lack a Non-Viability Contingent Capital clause, which would enable their conversion to common shares according to a set formula once OSFI has made a determination that the institution is non-viable. Due to this shortcoming, their eligibility for inclusion as Tier 1 Capital will decline over time until it is completely eliminated by January 31, 2022; therefore, it is assumed, the issuers will no longer consider them to be “cheap equity” but rather “expensive debt”, and therefore call them for redemption.

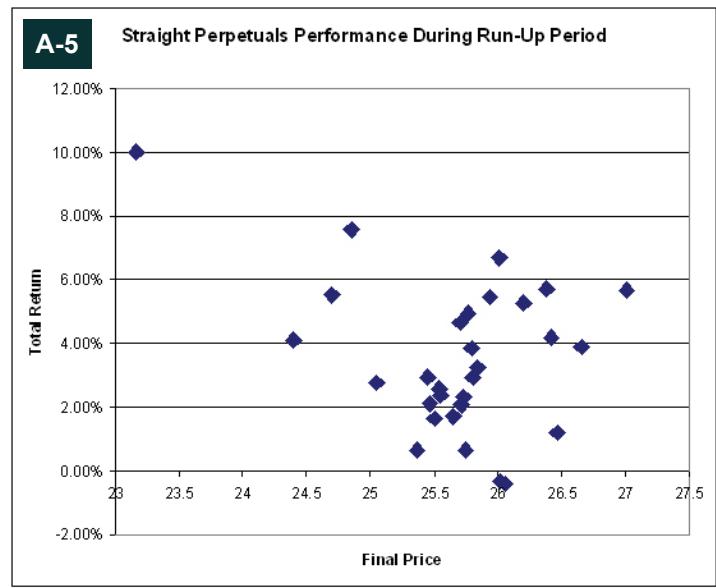
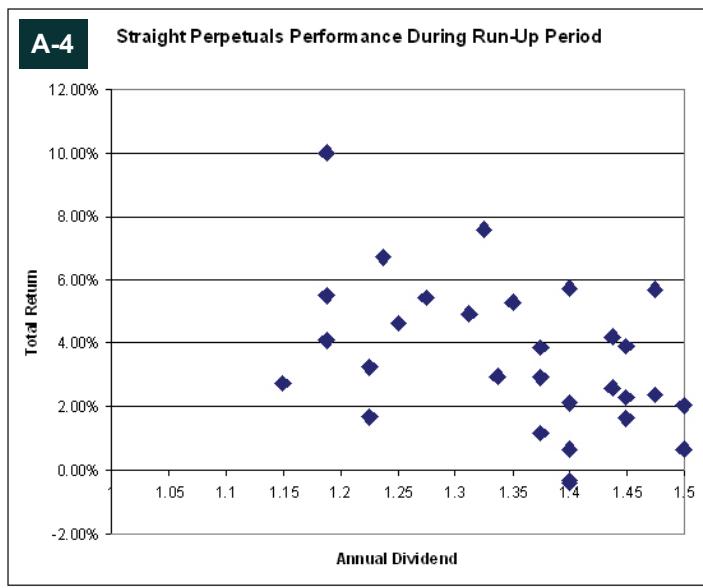
¹ <http://www.prefletter.com/whatPrefLetter.php>

Overall Characteristics of the Rally

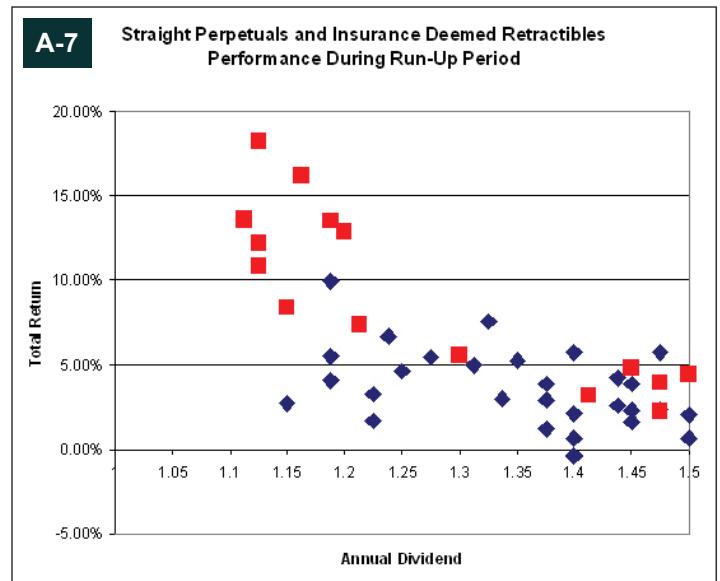
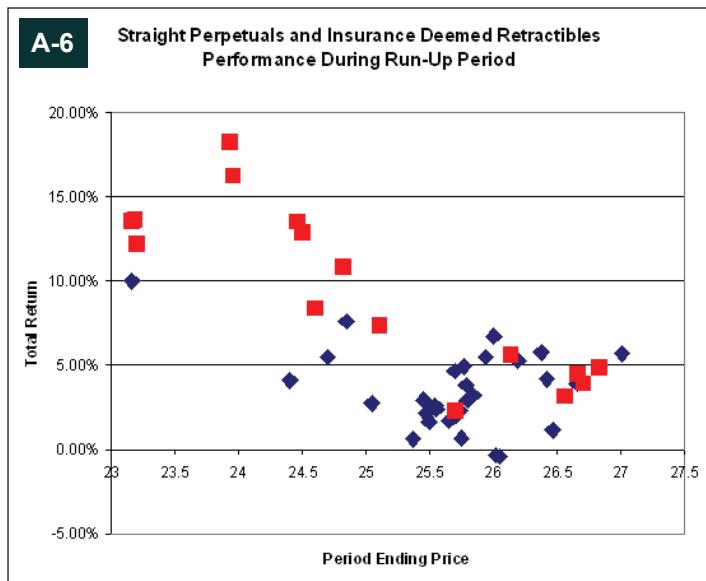
In this particular case, there was a notable difference between the performance of bank and insurance issues, with the latter's average return of 9.43% trouncing the former's 3.29%. Chart A-2 shows that the outperformance of insurance issues was due to a heavy contribution from issues with lower dividends, while Chart A-3 shows why banks did not participate in the rally to the same extent: returns over the period were strongly muted for those issues with a price at the end of the period exceeding par value. As has been noted repeatedly in this newsletter's regular appendix "DeemedRetractables", bank issues appear to have a redemption due to loss of NVCC status accounted for in their valuation, while the potential for OSFI extension of this bank rule to the insurance sector is, at best, given minor weight in market pricing.



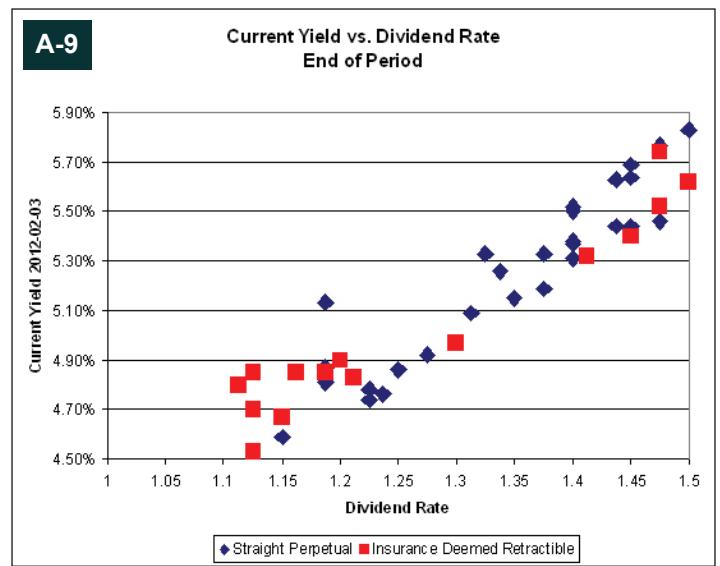
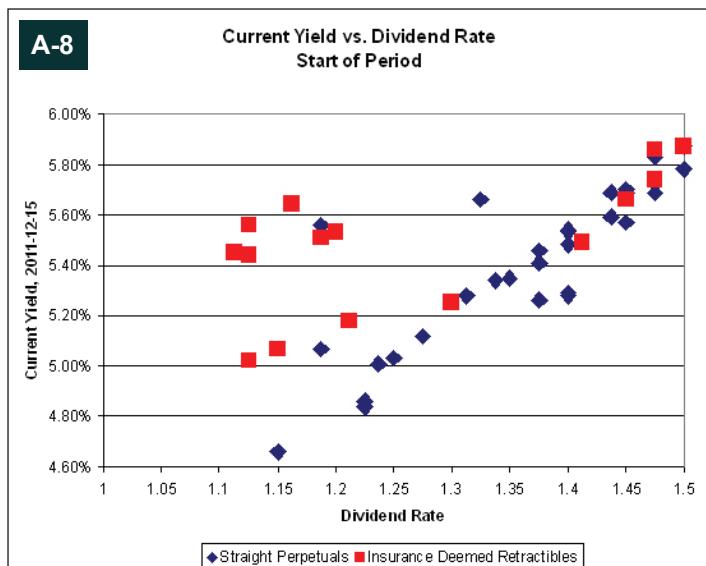
As shown in this month's appendix on DeemedRetractables, insurance issues of this type continue to have pricing characteristics much more in common with Straight Perpetuals than they do with bank DeemedRetractables – and it is certainly true that Straight Perpetuals also performed very well during the rally, as shown in Charts A-4 and A-5, although they did not perform as well overall as bank DeemedRetractables.



Inspection of Chart A-6 shows that there is a great difference in the distribution of dividend rates between Insurance DeemedRetractables and Straight Perpetuals, with the former class' issues relatively skewed towards lower coupon issues that strongly outperformed during the rally. Additionally, there is a tendency with Straight Perpetuals, missing from the characterization of Bank DeemedRetractables, for returns to increase with lower coupons and lower price, which maintained a degree of similarity between this class of preferreds and Insurance DeemedRetractables. One might say that both Insurance DeemedRetractables and Straight Perpetuals were priced so much cheaper than Bank DeemedRetractables at the beginning of the period that the differences in performance during the period are relatively minor.



We may also observe that the lower-coupon Insurance DeemedRetractables started the period trading cheap to the curve defined by Straight Perpetuals, as shown in Chart A-8. This effect had largely disappeared by the end of the period, reported in Chart A-9. Thus, a great deal of the outperformance of Insurance DeemedRetractables over Straight Perpetuals was simply catch-up; the removal of a previous distortion.



This last effect is sufficiently large as to require some quantification. Table A-1 shows the two calculations of Current Yields for the five Straight Perpetuals with the lowest coupon (ELF.PR.F is omitted from this calculation, as it is an outlier). A similar calculation is shown for Insurance DeemedRetractables in Table A-2.

Table A-1: Yield Change During Period, Low-Coupon Straight Perpetuals

Issue	Dividend Rate	Start Price	End Price	Start Current Yield	End Current Yield
CIU.PR.A	1.15	24.66	25.05	4.66%	4.59%
BAM.PR.M	1.1875	23.44	24.40	5.07%	4.87%
BAM.PR.N	1.1875	23.41	24.70	5.07%	4.81%
FTS.PR.F	1.225	25.22	25.65	4.86%	4.78%
RY.PR.W	1.225	25.33	25.84	4.84%	4.74%
Average				4.90 %	4.76 %

Table A-2: Yield Change During Period, Low-Coupon Insurance DeemedRetractables

Issue	Dividend Rate	Start Price	End Price	Start Current Yield	End Current Yield
SLF.PR.C	1.1125	20.40	23.16	5.45%	4.80%
SLF.PR.D	1.1125	20.41	23.19	5.45%	4.80%
GWO.PR.I	1.125	22.40	24.83	5.02%	4.53%
MFC.PR.C	1.125	20.24	23.93	5.56%	4.70%
SLF.PR.E	1.125	20.69	23.21	5.44%	4.85%
Average				5.38 %	4.74 %

As may be seen the spread between the two data sets changes from 48bp at the start of the period to -2bp at the end of the period – a substantial narrowing by anybody's standards. In fact, if we apply the formula that states the Modified Duration of a perpetual annuity is the inverse of its yield² and take the average Current Yield of the insurance issues as 5.06%, then the Modified Duration is about 19.8 and the expected price change for a 50bp change in yield is 9.9%.

Given the salient facts discussed in this section, we may conclude that the performance of the DeemedRetractable index during the run-up in price was due to:

- A decrease in market yields, which affected bank DeemedRetractables and PerpetualDiscounts similarly
- Issues priced above par tended to underperform; bank DeemedRetractables were all priced above par at the start of the period, most insurance DeemedRetractables were trading at a discount
- Low-coupon insurance issues were cheap to comparable PerpetualDiscounts at the start of the period, but were fairly priced at the end.

However, there is one major question left unanswered in this analysis and, since we have used Current Yield in the discussion so far, it is a question we must ask: how important have the call schedules been in determining the relative performance of different issues?

Rank Change Analysis

I introduced Rank Change Analysis in the May, 2010, edition of this newsletter, in the analysis of FixedResets. As stated in that issue:

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 to 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*12 + 1*32 = 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.*

² See <http://www.prefblog.com/?p=2582>

In this section, the three different groups of preferreds will be examined:

- Straight Perpetuals
- Bank DeemedRetractables
- Insurance DeemedRetractables

With ordering defined by the five different measures of yield used by my analytical software, HIMIPrefx™.³ These measures were discussed in the July and November, 2011, editions of this newsletter:

- **Current Yield:** This measure assigns a 100% chance of the instrument existing to perpetuity, even if this possibility does not exist for the instrument (i.e., if it matures or if there are both put and call provisions)
- **Yield to Worst:** This measure assigns a 100% chance to the scenario which results in the lowest yield of any redemptions possible.
- **Portfolio Yield:** In this method, the probability of each call scenario is evaluated (by Black-Scholes option theory) and the realized yield for each of these scenarios is calculated. The Portfolio Yield is the probability weighted average of these yields.
- **Cost Yield:** This method treats each instrument as a perpetual, but assigns a cash value to each redemption possibility. The yield to perpetuity is then calculated using the positive cash-flows from dividends and end-value proceeds as well as the negative cash-flows from the effect of the options
- **Curve Yield:** Very similar to Cost Yield, but the negative cash-flows due to option effects are calculated according to the replacement value of the foregone future cash-flows

For each of the three sets of instruments, all five yields were calculated at both the beginning and the end of the period. (2011-12-15 and 2012-2-3). Changes in the ranking of each instrument within each set for each yield measure were calculated, and Rank Change Analysis used to compare the stability of the rankings by each yield measure over each set. The results of this analysis are present in Table A-3. It should be noted that the values of the analyses are comparable within each set, but not between sets, as each set had a different number of members.

Table A-3: Rank Change Analysis for the Period 2011-12-15 to 2012-2-3

Set	Current Yield	Yield-to-Worst	Portfolio Yield	Cost Yield	Curve Yield
Bank Deemed-Retractables	90	2,400	1,746	732	734
Insurance Deemed-Retractables	190	104	38	220	182
Straight Perpetuals	394	1,860	1,576	470	760

The results of Table A-3 are as expected for Bank DeemedRetractables and for Straight Perpetuals: rankings by Current Yield are the most stable when the asset class as a whole changes value quickly.

The results for the Insurance DeemedRetractables are odd: I believe the results were skewed by the relatively small size of the sample (changes in two issues, GWO.PR.G and MFC.PR.C were responsible for more than half the score for the Current Yield analysis) and by the fact that a disproportionate number of this class were moving through the critical \$24-25 price levels, where option values increase sharply. During the period I observed a significant slowing of price increases when issues were priced in this range, but I have not yet determined whether this anecdotal observation can withstand critical analysis.

Another possible reason for the unexpected result with respect to Insurance DeemedRetractables is the sharp narrowing of the yield spreads for the lower-coupon members of this set relative to PerpetualDiscounts, alluded to in the section “Overall Characteristics of the Rally” and observable by examination of Charts A-8 and A-9. In fact, the former chart shows a significant inversion of the usual Current Yield – Dividend Rate relationship for a significant population of the issues at the beginning of the period; this inversion had disappeared by February 3. This confounding effect complicates matters considerably – perhaps by too much for Rank Change Analysis to be useful.

Investment Implications

It is clear that for short term price changes of this magnitude, the ordering of comparable issues by Current Yield is likely to be more stable than orderings by other methods, an observation that is consistent with the FixedReset data examined in the May, 2010, edition of this newsletter.

However, Current Yield is not a particularly good predictor of future performance (as discussed in the November, 2011, edition of this newsletter) and this is particularly the case when the future period contains a great number of calls – as it did on 2005-12-31, when there was negligible correlation between Current Yield and the subsequent year’s performance. This empirical observation is well supported by common sense – Current Yield assumes that the instrument will exist to perpetuity, an assumption that is very difficult to support when so many instruments are trading so far above their call price.

It is certainly now the case, particularly for Bank DeemedRetractables, that issues are trading well above their call price. This means that details of the call schedules have become critically important to the valuation of these instruments – but these details are ignored in the Current Yield calculation.

This disconnect between short-term preservation of rank by Current Yield and long term performance prediction means that sudden large changes in market levels are often accompanied by trading opportunities. Investors who may be in the habit of reviewing their preferred share portfolio quarterly, or even annually, should definitely be taking an extra look at their portfolio’s composition when prices change substantially.

³ <http://www.prefshares.com>