## Perils of ETF Investing: the Case of ZPR

It has become trite to observe that ETF investing has grown enormously in importance since the introduction of the iShares S&P/TSX 60 Index ETF ("XIU") in 1990, the first ETF in the world.[1] The Investment Company Institute reports[2] that of $28.9-trillion in US-registered investment company total net assets, $22.1-trillion was invested in mutual funds against $6.5-trillion in Exchange Traded Funds. That's an impressive market share for issues which will not, in general, offer a fat commission or trailer fee to anybody qualified to sell the product!

But there are concerns about the sector. In 2010, I decried OSFI's attempt to meddle with the bond indices[3] to the detriment of investors and emphasized the three elements of a good index as set out by Russell Investments[4]:

- To act as performance standards for active managers.
- To serve as proxies for asset allocation purposes.
- To become purchasable and replicable vehicles for passive investment strategies.

I also discussed the "DEX HYBrid Bond Index" produced by the Toronto Stock Exchange, explaining why it illustrates the characteristics of a bad index.

Adriana Z. Robertson, then of University of Toronto Faculty of Law and Rotman School of Management, wrote an excellent paper in 2019, examining indices and the funds dependent upon them through the lens of consumer protection.[5] She makes the very important point that *Before proceeding, it is worth pausing to note that it is not always entirely clear what people have in mind when they use the term "passive" to refer to index investing. It cannot simply mean that the fund manager has no, or almost no, discretion in selecting securities … Rather, the idea of "passive" investing has a flavor of being meaningfully rules-based: rather than picking and choosing securities, the fund is following predetermined rules. In light of this, when the investor chooses which index fund she wants to buy, she will presumably look at the relevant rules and decide whether these are the rules that she wants her portfolio to follow. … Rather than having wide discretion, by committing to following some specified index, the fund manager can credibly commit to potential investors how she will invest their money.*

Robertson takes the following positions:

**The SEC is Requiring Disclosure of the Wrong Information:** … *As we saw in some detail, two indices that purport to capture the same factor (such as, for example, "growth") may do so in very different ways, and two large-cap indices may in fact contain firms of different sizes. As a consequence, in order to understand what the index is actually doing, one must, at a minimum, carefully examine the methodology underlying the index. Moreover, to the extent that the methodology is vague or opaque, even a careful examination my not be sufficient to fully understand how the index operates.* …

**Recognize that Index Investing is Delegated Management:** … *The whole point of "passive" investing is that the investor doesn't have to pay attention to her portfolio. If an investor is constantly monitoring the underlying index, she may not necessarily be delegating the management of her portfolio, but she is also not meaningfully engaged in what would conventionally be called passive investing.*

**Rethink the Use of Indices as Benchmarks:** *A second set of implications of the analysis in Part II has to do with the use of indices as performance benchmarks. As discussed in Section I.C, any comparison of a portfolio against a benchmark is as much about the benchmark itself as it is about the portfolio. Of course, there is nothing inherently wrong with this—it is just a fundamental feature of the way comparisons work and is true for any benchmark, not just in financial markets. As long as one has a clear understanding of the material features of the benchmark index, such comparisons can be quite useful. Problems arise, however, when one does not have a clear understanding of the underlying benchmark….*

And now it is time to consider …

1 Blackrock Inc., *iShares S&P/TSX 60 Index ETF*, available on-line at https://www.blackrock.com/ca/investors/en/products/239832/ishares-sptsx-60-index-etf (accessed 2023-10-12)

2 Investment Company Institute, *Investment Company Fact Book 2023*, available on-line at https://www.ici.org/system/files/2023-05/2023-factbook.pdf (accessed 2023-10-12)

3 James Hymas, *Shaken and stirred*, Advisor's Edge Report, April 2011, available on-line at https://www.himivest.com/media/advisor_1104.pdf

4 Russell Investments, *Russell U.S. Indexes: Construction & methodology*, on-line at http://www.russell.com/indexes/data/us_equity/russell_us_indexes_methodology.asp (accessed 2011-2-21, link now broken)

5 Adriana Z. Robertson, *Passive in Name Only: Delegated Management and "Index" Investing*, Yale Journal onRegulaJon, June 2019, available on-line via https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3244991# (accessed 2023-10-12)

## ZPR And Reset Date Bucketing

ZPR is the BMO Laddered Preferred Share Index ETF and on its website[6] claims net assets of $1,418.78-million; given that the Management Expense Ratio is 0.50%, this implies over $7-million in fees annually.

### Premise

Laddering is a venerable fixed-income investment strategy, best known nowadays in the context of GIC ladders[7]. In a GIC ladder, the investment methodology is to create a portfolio of GICs with maturity dates that are evenly spaced throughout the term of the ladder; a classic GIC ladder will have a five year term and be formed by five distinct GICs having terms of 1, 2, 3, 4 and 5 years. As each GIC matures, the proceeds are reinvested in a new five-year GIC to renew the ladder.

The highly touted benefits of this strategy are that it avoids the large swings in income that may result from investing in a single five-year GIC and renewing it on maturity at the five year rate then effective – instead, the yield realized annually from the ladder will be the weighted average (ideally, the five GICs will have an equal principal value) of the five-year rates from the prior five years. Additionally, the strategy seeks to mitigate the illiquidity of GICs by having one-fifth of the portfolio maturing every year, at which point a partial withdrawal from the portfolio can be effected if desired – or, funds added by simply combining the new money with the redemption money, rather than having to buy a different new issue in a small amount (which could adversely affect the interest rate offered by the bank).

It would appear that BMO decided to take advantage of retail's fondness for laddering when designing its fund: ZPR is said to employ 'annual reset term buckets' with an implied smoothing effect on income received in much the same manner as occurs in a classic GIC ladder.

This selling feature seems to have been considered so important that laddering is emphasized in the prospectus and on the fund's main web page – and even in the name of the fund itself!

### ZPR Prospectus

The ZPR prospectus dated 2023-1-17[8] describes the Solactive Laddered Canadian Preferred Share Index as follows: *The Solactive Laddered Canadian Preferred Share Index includes preferred shares that generally have an adjustable dividend rate and are laddered using equal weights in annual reset term buckets. Securities are market capitalization weighted within the annual term buckets. Constituents are subject to minimum market capitalization, quality and liquidity screens. Further information about the Solactive Laddered Canadian Preferred Share Index and its constituent issuers is available from Solactive on its website at www.solactive.com.*

This assertion is later reiterated: *The Solactive Laddered Canadian Preferred Share Index includes Canadian preferred shares that meet size, liquidity, listing and quality criteria. The Index uses a five year laddered structure where annual buckets are equal weighted while constituent securities within each bucket are market capitalization weighted.*

They also note that the fund should be expected to reflect the performance of this index: *The investment strategy of BMO Laddered Preferred Share Index ETF is currently to invest in and hold the constituent securities of the Solactive Laddered Canadian Preferred Share Index in the same proportion as they are reflected in the Index. The Manager may also use a sampling methodology in selecting investments for BMO Laddered Preferred Share Index ETF to obtain exposure to the performance of the Index.*

### ZPR Advertising

The claims of the prospectus are reinforced on the fund's main web page:[9]

- *BMO Laddered Preferred Share Index ETF has been designed to replicate, to the extent possible, the performance of the Solactive Laddered Canadian Preferred Share Index, net of expenses. The Fund invests in and holds the Constituent Securities of the Index in the same proportion as they are reflected in the Index.*
- *The Solactive Laddered Canadian Preferred Share Index includes Canadian preferred shares that meet size, liquidity, listing and quality criteria. The Index uses a five year laddered structure where annual buckets are equal weighted while constituent securities within each bucket are market capitalization weighted.*

### ZPR "ETF Facts"

This document, dated 2023-1-17 can be downloaded from the fund's main web page. It states: *The ETF seeks to replicate, to the extent possible, the performance of a Canadian preferred share index, net of expenses. Currently, the ETF seeks to replicate the performance of the Solactive Laddered Canadian Preferred Share Index (the "Index"). The Index includes rate reset preferred shares that generally have an adjustable dividend rate and are laddered with equal weights in annual reset term buckets. Securities are market capitalization weighted within the annual term buckets.*

6 https://www.bmogam.com/ca-en/products/exchange-traded-fund/bmo-laddered-preferred-share-index-etf-zpr/#overview (accessed 2023-10-12)

7 Royal Bank of Canada, GIC Laddering Strategy, available on-line at https://www.rbcroyalbank.com/investments/gic-laddering.html (accessed 2023-10-13)

8 See https://www.bmo.com/assets/pdfs/gam/bmo-etf-prospectus_en.pdf (accessed 2023-10-12)

9 BMO, *ZPR - BMO Laddered Preferred Share Index ETF*, available on-line at https://www.bmogam.com/caen/products/exchange-traded-fund/bmo-laddered-preferred-share-index-etf-zpr/#overview (accessed 2023-10-13)

### ZPR "Factsheet"

This document, dated 2023-8-31, can be downloaded from the fund's main web page. It states:

- ***Portfolio Strategy*** *BMO Laddered Preferred Share Index ETF has been designed to replicate, to the extent possible, the performance of the Solactive Laddered Canadian Preferred Share Index, net of expenses. The Fund invests in and holds the Constituent Securities of the Index in the same proportion as they are reflected in the Index.*
- ***Benchmark Info*** *The Solactive Laddered Canadian Preferred Share Index includes Canadian preferred shares that meet size, liquidity, listing and quality criteria. The Index uses a five year laddered structure where annual buckets are equal weighted while constituent securities within each bucket are market capitalization weighted.*

### Solactive's Role

The Solactive Guideline for the index[10] begins – as does virtually everything nowadays! – with a disclaimer: *This document contains the underlying principles and regulations regarding the structure and the operating of the Solactive Laddered Canadian Preferred Share Index. Solactive AG shall make every effort to implement regulations. Solactive AG does not offer any explicit or tacit guarantee or assurance, neither pertaining to the results from the use of the Index nor the Index value at any certain point in time nor in any other respect. The Index is merely calculated and published by Solactive AG and it strives to the best of its ability to ensure the correctness of the calculation. There is no obligation for Solactive AG – irrespective of possible obligations to issuers – to advise third parties, including investors and/or financial intermediaries, of any errors in the Index. The publication of the Index by Solactive AG is no recommendation for capital investment and does not contain any assurance or opinion of Solactive AG regarding a possible investment in a financial instrument based on this Index.*

The specifications are stated and agree with BMO's assertions: *The Solactive Laddered Canadian Preferred Share Index includes preferred shares that generally have an adjustable dividend rate and are laddered using equal weights in annual reset term buckets. Securities are market capitalization weighted within the annual term buckets. Constituents are subject to minimum market capitalization, quality and liquidity screens.*

Other assertions regarding index characteristics made in the document are:

- *The Solactive Laddered Canadian Preferred Share Index includes preferred shares that generally have an adjustable dividend rate and are laddered using equal weights in annual reset term buckets. Securities are market capitalization weighted within the annual term buckets.*
- *The preferred shares in the Solactive Laddered Canadian Preferred Share Index Universe are clustered by their Maturity bucket. There are 5 Maturity buckets available: 1 year, 2 years, 3 years, 4 years, and one bucket covering instruments for 0 and 5 years to maturity.*
- *If an instrument included in Index is removed from the Index between Adjustment Days due to an Extraordinary Event, if necessary, the term bucket would be reweighted based on the market capitalization of the remaining issues. This is announced by Solactive AG after the close of business on the day on which the new composition of the Index was determined by the Committee. The Index is adjusted with one Business Day notice if possible.*
- *In particular an "Extraordinary Event" is*
  - *– a Merger*
  - *– a Takeover bid*
  - *– a delisting*
  - *– the Nationalisation of a company*
  - *– Insolvency.*
- *On each Adjustment Day each Index Component of the Solactive Laddered Canadian Preferred Share Index is weighted according to the Market Capitalization of the respective preferred share within the term buckets. The weights are capped twofold on a Selection day, whereas a cap on an issuer basis is applied of 12.5% per issuer on a selection day as well as a Cap of 20% per Maturity Bucket.*

However, the document is appallingly badly written. Most importantly, the third commitment in the above list, dealing with the removal of instruments in the index, contains the phrase 'if necessary' … and there is no explanation anywhere in the document regarding how to determine whether the reweighting of the term buckets is "necessary" at any time. It will be noted that although the Solactive website contains a great many notices of redemption – particularly during the years 2021 and 2022 – there is not a single notice of the reweighting of a term bucket.

[10] Solactive, *GUIDELINE, Solactive Laddered Canadian Preferred Share Index, Version 2.1 dated December 18th, 2017*, available on-line at https://www.solactive.com/wp-content/uploads/2017/12/Index-Methodology_Laddered_Preferred_Index.pdf (accessed 2023-10-13)

To my mind, the most glaring example of negligence in this document is the absence of a formula and precise algorithm for the calculation of the weights of individual issues in the notional portfolio. There should be a published formula along the lines of:

$W_i = C_i * {}_iT_m * M_i * {}_iN_m$

Where:

$W_i$ is the final weight of issue i in the portfolio

$C_i$ is the unadjusted 'raw' weight of the issue in the portfolio according to its Market Capitalization

${}_iT_m$ is the adjustment factor used for Maturity Bucket m applicable to instrument i, which ensures that the weighting of each Maturity Bucket is 20%.

$M_i$ is the adjustment factor for instrument i necessary to enforce the provision that each issuer has a total weight of less than 12.5% in the final portfolio

${}_iN_m$ is the adjustment factor for instrument i which resides in Maturity Buck m necessary to enforce the badly written provision that I believe means no issuer will have a total weighting of more than 20% in any single Maturity Bucket.

And of course, each of these factors should have detailed instructions regarding their calculation. One nuance is the order of calculation – do you calculate $M_i$ first and then ${}_iN_m$ or the other way around? Or do you perform the calculation reiteratively in an effort to make $M_i$ as close to 1 as possible? It makes a difference!

### Problem: The Actual Weight of ZPR Reset-Date Buckets

In the September, 2023, edition of this newsletter, I calculated the term-to-reset for all the FixedResets in the portfolio as of 2023-7-31 and determined the total weight in the buckets for each year following the calculation date. I performed the same calculation for buckets defined by calendar year. I commented that *It is clear, however, that the calendar years that are underweighted are 2026 and 2027. Readers will remember that there were substantial numbers of redemptions in 2021 and 2022 (23 FixedReset in each of the two years, by my quick and unverified count); it is possible that proceeds of these redemptions were distributed among all 'reset buckets' rather than being reinvested in the originating reset bucket. Such an action would lead to underweighting in the bucket experiencing the redemption. This appears to conflict with the assertions made on the fund's web-page…*

Fortuitously, I was able to find a BMO report[11 12] after publication of the September PrefLetter showing their calculation of the weights by calendar year dated 2023-9-6. I show these data in Table ZPR-1:

**Table ZPR-1: ZPR Reset-Term Bucket Weight by Calendar Year**

| Bucket | PrefLetter, as of 2023-7-31 | BMO, as of 2023-9-6 |
|---|---|---|
| 2023 & 2028 | 25.44% | 26.58% |
| 2024 | 27.15% | 26.93% |
| 2025 | 21.58% | 21.73% |
| 2026 | 13.38% | 12.92% |
| 2027 | 11.55% | 11.85% |

The agreement is pretty good, considering the difference in calculation date and methodology (I used bid prices for the PrefLetter calculation; I suspect that BMO uses closing prices for theirs, but have not verified this).

One way or another, it is clear that the Reset-Term Buckets (also, inaccurately, referred to as Maturity Buckets) are far from being in compliance with the highly-touted '20% each' claim.

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11 BMO Exchange Traded Funds, BMO Laddered Preferred Share (ZPR) Summary Guide, available on-line at https://bmogamhub.com/system/files/bmo_etfs_preferred_share_data.pdf/?file=1&type=node&id=81954.
The report now available from this link is now the October, 2023, edition. This report may also be recovered by:

- Go to the BMO ETF Dashboard at https://www.bmoetfs.ca
- Type "Monthly Metrics" into the search box and search
- The results page shows a link to "Monthly Metrics Summary – ZPR Canadian Preferred Shares"
- Click to download the document.

12 This report appears to have been written by someone little experience in fixed-income analytics. The relevant table is labelled "Duration (Years): 3.11", with a footnote stating: *Duration is a measure of sensitivity to changes in interest rates. For example, a 5 year duration means the value will decrease by 5% if interest rates rise 1% and increase in value by 5% if interest rates fall 1%. Generally, the higher the duration the more volatile the price will be when interest rates change.* The footnote is true as far as it goes (although it defines Modified Duration, as opposed to Macaulay Duration, without noting the distinction), but to claim that a portiolio of deeply discounted perpetual instruments has a 'duration' of 3.11 is ludicrous – although it may be justified for some purposes if very narrowly defined (see "Digression: Money Market Funds and Spread-WAM" in the essay "New Exchange Traded Fund, ZPR, Tracks a New Index, TXPL" in the December, 2012, edition of PrefLetter, available on-line at https://www.himivest.com/media/prefLetterApp_1212.pdf). They also provide no less than six measures of yield, but do not specify which one is used in their computation.

### Inquiries to BMO

I commenced inquiries prior to the publication of the September PrefLetter, at 12:36am on 2023-9-7.

> Sirs,
>
> In your discussion of the ZPR ETF at https://www.bmogam.com/ca-en/advisors/investmentsolutions/etf/bmo-laddered-preferred-share-index-etf-zpr/ you make the following statements:
>
> **"Portfolio Strategy**
>
> BMO Laddered Preferred Share Index ETF has been designed to replicate, to the extent possible, the performance of the Solactive Laddered Canadian Preferred Share Index, net of expenses. The Fund invests in and holds the Constituent Securities of the Index in the same proportion as they are reflected in the Index.
>
> **Benchmark Info**
>
> The Solactive Laddered Canadian Preferred Share Index includes Canadian preferred shares that meet size, liquidity, listing and quality criteria. The Index uses a five year laddered structure where annual buckets are equal weighted while constituent securities within each bucket are market capitalization weighted."
>
> I have analyzed the portfolio holdings of this fund as of 2023-7-31 with respect to the starting date of the next reset rate and have allocated the securities into annual buckets with the following relative weights
>
> 0-1 Year: 30.7%
> 1-2 Year: 22.3%
> 2-3 Year: 15.4%
> 3-4 Year: 9.5%
> 4-5 Year: 19.5%
>
> It might be objected that it is not the effective date of the reset that is important, but the calculation date of the reset. However, analyzing the data through the latter lens does not result in any material difference; in fact, the proportion of '0-1 Year' issues does not change at all within the three significant figures of this analysis.
>
> Some minor errors in the analysis will result from my failure to differentiate properly between some FixedResets and their associated Floating-Resets (e.g., FTS.PR.H and FTS.PR.I) at this stage of the drafting of the final analysis. These small errors are not material to the analysis.
>
> Can you comment on the relative distribution of the reset effective dates, in light of the assertions that "annual buckets are equal weighted" and "The Fund invests in and holds the Constituent SecuriEes of the Index in the same proportion as they are reflected in the Index."?
>
> For your convenience, I attach a tab-delimited text file of the analytical data; the source data was obtained from your website effective 2023-7-31.
>
> Sincerely,

Well, I'll admit it was embarrassing to send them an analysis that I knew was flawed, but the appendix was prepared at the last minute;[13] quite frankly, I had not expected there to be anything particularly noteworthy about the results, which I considered to be just another exercise in routine monitoring, passed on to newsletter subscribers who might wish to use the data for benchmarking purposes. Once I realized that there was such a ghastly divergence between BMO's claims about the fund and the facts – and I had no doubts about the substance of my preliminary conclusions – I wanted to give BMO a chance to respond so that I could include their response in the publication.

And I did receive a response! "*I have escalated your inquiry for additional insight*" received on the morning of September 8. I had heard nothing further by September 14, so sent a follow-up which received no response. Another follow-up was sent September 21, which was answered with "*I apologize for the delay. I have escalated your inquiry.*" At this time, I informed them that I had found BMO's publication "Monthly Metrics Summary – ZPR Canadian Preferred Shares" on their website, and that the data published within this document substantiated my analysis of ZPR's distribution of Reset Dates. I provided them with a link to the web page from which the data could be recovered.

[13] Like many other things around here.

The revelation that BMO was actually publishing data confirming my conclusions brought forth, on September 26, the revelation that "*ZPR mimics the index. Here is the weighting of ZPR as of Sept 6th.*" This communication included a screen shot of the relevant data summarized above in Table ZPR-1. However, my actual question about the matter, BMO's evaluation of how well this data reflected their advertising, was ignored. My response on September 27 included:

> For additional certainty regarding this point, I refer you to the prospectus for ZPR, on-line at https://www.bmo.com/assets/pdfs/gam/bmo-etf-prospectus_en.pdf and its description of the Solactive Laddered Canadian Preferred Share Index on page 75, which is page 81 of the PDF:
>
> "The Solactive Laddered Canadian Preferred Share Index includes preferred shares that ... are laddered using equal weights in annual reset term buckets."
>
> and on page 156, which is page 162 of the PDF:
>
> "The Solactive Laddered Canadian Preferred Share Index includes Canadian preferred shares that meet size, liquidity, listing and quality criteria. The Index uses a five year laddered structure where annual buckets are equal weighted ..."
>
> Is it the view of BMO that the prospectus for ZPR reflects an accurate description of the Solactive Laddered Canadian Preferred Share Index and thus of the fund's investment strategy? If so, how is such an assertion justified given the actual reset-year weighting data you have supplied, dated September 6?

On October 4 I requested an update on the status of the inquiry, noting that it had been four weeks since my original eMail; as no response was received I repeated my request for an update on October 12. No response has been received as this newsletter goes to publication.

I think at this point it is fair to conclude that BMO simply does not want to, or does not know how to, respond to the question and is simply hoping that I go away.

### Inquiries to Solactive

I commenced inquiries to Solactive on September 15 via their website – they do not provide an eMail address for such inquiries:

> Sirs,
>
> I have reviewed your methodology for the Solactive Laddered Canadian Preferred ShareIndex, which you publish at https://www.solactive.com/wpcontent/uploads/2017/12/Index-Methodology_Laddered_Preferred_Index.pdf
>
> Section 2.3 states that "If an instrument included in Index is removed from the Index between Adjustment Days due to an Extraordinary Event, if necessary, the term bucket would be reweighted based on the market capitalization of the remaining issues. This is announced by Solactive AG after the close of business on the day on which the new composition of the Index was determined by the Committee. The Index is adjusted with one Business Day notice if possible."
>
> In your press releases for this fund, listed at https://www.solactive.com/indices/?se=1&index=DE000SLA08K6#announcements, you include a notice regarding the redemption of IA FINANCIAL CORP INC NON-CUM CONV RED PERP PFD REGISTERED SHS A SERIES I at https://www.solactive.com/redemption-iafinancial-corp-inc-non-cum-conv-red-perp-pfd-registered-shs-a-series-i-3rd-april-2023/
>
> It appears from Section 4 of your methodology that this is an "Extraordinary Event" as defined, as the redemption has the effect that the "the trading in or the issuing of public quotes on the Index Component at the Exchange has ceased immediately or will cease at a later date".
>
> Despite this, I can find no announcement of any adjustment of the weightings of the term buckets for this or any of the other redemptions which have been announced by Solactive over the past few years. The absence of adjustment implied by the absence of announcement appears to be contrary to Section 2.3. Can you please comment on this matter?
>
> Sincerely

This was followed up with the following, sent September 21:

> I have not yet received an answer to my question, which was sent to you via the 'contact' page on your website on 2023-9-15.
>
> Can you tell me when I might expect to receive an answer?
>
> The question is reiterated below.
>
> Sincerely,
> …
> [prior message appended]

eMails were then exchanged and after several follow-ups I finally got a clear answer on October 10:

> We apologize for the late reply. Thank you for raising this to our attention. As you mention, Section 2.3 of the methodology states that "If an instrument included in Index is removed from the Index between Adjustment Days due to an Extraordinary Event, if necessary, the term bucket would be reweighted based on the market capitalization of the remaining issues." Given the criteria for a "necessary" reweighting following the Extraordinary Event are not clearly defined leading to an ambiguity in treatment for these exceptional cases we have mainly relied on the ordinary adjustment to apply any re-weighting that might have been required. The Ordinary adjustment is made at the end of each month, so the re-weighting would have occurred then at the latest.
>
> The Index Committee will review this case in detail and may make proposals to amend the Index Guideline to remove such potential ambiguity in line with our Methodology Policy.
>
> If there is any further correspondence on this matter, please feel free to forward it directly to our Head of Index Management [Redacted].

So, after a bit of a false start and a more lengthy process than I had expected, Solactive stood up and took responsibility for their actions.

### Culpability

A surprising number of errors contributed to the apparent BMO breaching of the terms of their prospectus:

**A badly written index methodology:** as I mention above in the section "Solactive's Role", the index methodology is appallingly poorly written. While Solactive must take primary responsibility for this error, BMO shares responsibility: they bought the product. As Robertson writes in her paper quoted in the introduction: *As a consequence, in order to understand what the index is actually doing, one must, at a minimum, carefully examine the methodology underlying the index. Moreover, to the extent that the methodology is vague or opaque, even a careful examination my not be sufficient to fully understand how the index operates.* … There are, of course, strong doubts as to whether an ordinary investor has either the time or the expertise to conduct such a careful examination; but BMO certainly had a responsibility to ensure that the methodology made sense, and to monitor this methodology with the passage of time, particularly after they started collecting fees in excess of $7-million annually.

**A poor working culture:** The Solactive explanation of the error, quoted in the last text box above, includes the detail: *Given the criteria for a "necessary" reweighting following the Extraordinary Event are not clearly defined leading to an ambiguity in treatment for these exceptional cases we have mainly relied on the ordinary adjustment to apply any re-weighting that might have been required*. What kind of attitude is that? The front-line workers don't understand their instructions, so they just ignore them instead of asking their well-paid bosses for clarification? I'm not sure I'd accept a job offer from this company!

**Lack of monitoring:** Mistakes happen. If there's one thing I have learned in my career, it's that mistakes happen. All you can do is hope they're not fatal and monitor all your responsibilities with an intensity that may vary with the importance and vulnerability of the task but is never completely absent. Both Solactive and BMO completely ignored their responsibility to ensure that the product they were producing met and continued to meet specifications; this is a clear-cut case of managerial incompetence. Solactive made several promises about index composition; BMO made one of these promises a central part of their advertising; and there were no regular checks of whether these promises were kept – or, if there was some kind of monitoring procedure in place, it was ignored.

**Sloppy preparation of prospectus:** As noted above, the ZPR prospectus makes explicit claims regarding the composition of the fund. Assuming we may take Solactive's explanation of the origin of the problem at face value and given that the two badly underweighted Reset Term Buckets coincide with the mass redemption occurring in 2021 and 2022, we may conclude that the claim was not checked when the prospectus was prepared; the claim of *equal weights in annual reset term buckets* was simply false at the time the claim was made. I will leave it to those with more legal and regulatory expertise than my own to sort out what the proper response to this error should be.

### Further Questions

I am fascinated by the existence of the report noted in the section 'Problem: The Actual Weight of ZPR Reset-Date Buckets' – the weighting of the Reset Date Buckets in the total portfolio. I would dearly love to know:

- When did BMO begin producing these data? When did BMO begin publishing these data?
- Why was this data not prominently displayed on the fund's main web page, together with the other 'Holding Allocations' (Sector Allocation, Geographic Allocation and Credit Allocation) that are published? It would seem to be a reasonable thing to publicize, in view of the prominence the laddering receives in their promotional material. Did somebody at BMO consider the idea and then, after a review of the data, decide that the data should not be publicized?
- How can it possibly be that these data were produced and never reviewed by somebody who was both familiar with the prospectus and advertising and in a position to make further inquiries?

### Conclusion

BMO appears to have learned nothing from the financial crisis of 2007–09. When discussing credit rating reforms in December 2007, Mark Zelmer (then with the Bank of Canada) wrote[14]:

> *In the end though, investors need to accept responsibility for managing credit risk in their portfolios. While complex instruments such as structured products enhance the benefits to be gained from relying on credit ratings, investors should not lose sight of the fact that one can delegate tasks but not accountability. Suggestions such as rating structured products on a different rating scale could be helpful, in that this may encourage investors to think twice before investing in such complex instruments. Nevertheless, investors still need to understand the products they invest in, so that they can critically review the credit opinions provided by the rating agencies.*

This sage advice is applicable not simply to investors, but to intermediaries such as BMO who seek to turn an index – particularly a bespoke index – into an investible product. They can delegate the authority to manage the nitty-gritty of index calculation; but they cannot delegate responsibility for ensuring that the index achieves its stated aims. It seems to me that BMO is attempting to minimize its involvement in the indexing strategy by emphasizing that it is only trying to replicate the performance of the index. But as the intermediary, it has a responsibility to its clients, the investors, to monitor the adherence of its supplier, Solactive, with the stated aims of the index. This is particularly the case when a specific attribute of the index methodology - the equal weighting of the Reset Date Buckets - is given such prominence in the prospectus and advertising.

A fundamental requirement of securities regulation is 'Know Your Product'. It seems to me that BMO did not, in fact, know its product.

[14] Mark Zelmer, *Reforming the Credit-Rating Process*, Financial System Review – December 2007, Bank of Canada, available on-line at https://www.bankofcanada.ca/wp-content/uploads/2010/04/fsr_1207.pdf (accessed 2023-10-13)