

ETFs as Alternative Fixed Income Tools

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Benefits of ETFs



Liquidity



- ETFs provide intraday liquidity through buying and selling during the trading hours of the stock exchange.



Diversification



- ETFs may broaden exposure & increase liquidity over individual securities or Pools.



Portfolio Transparency



- Investors have access to the price of an ETF and the portfolio composition at any time during regular market trading hours.



Cost Efficiency / Containment



- Trading costs are known before a trade is executed, avoiding unintended trading costs.

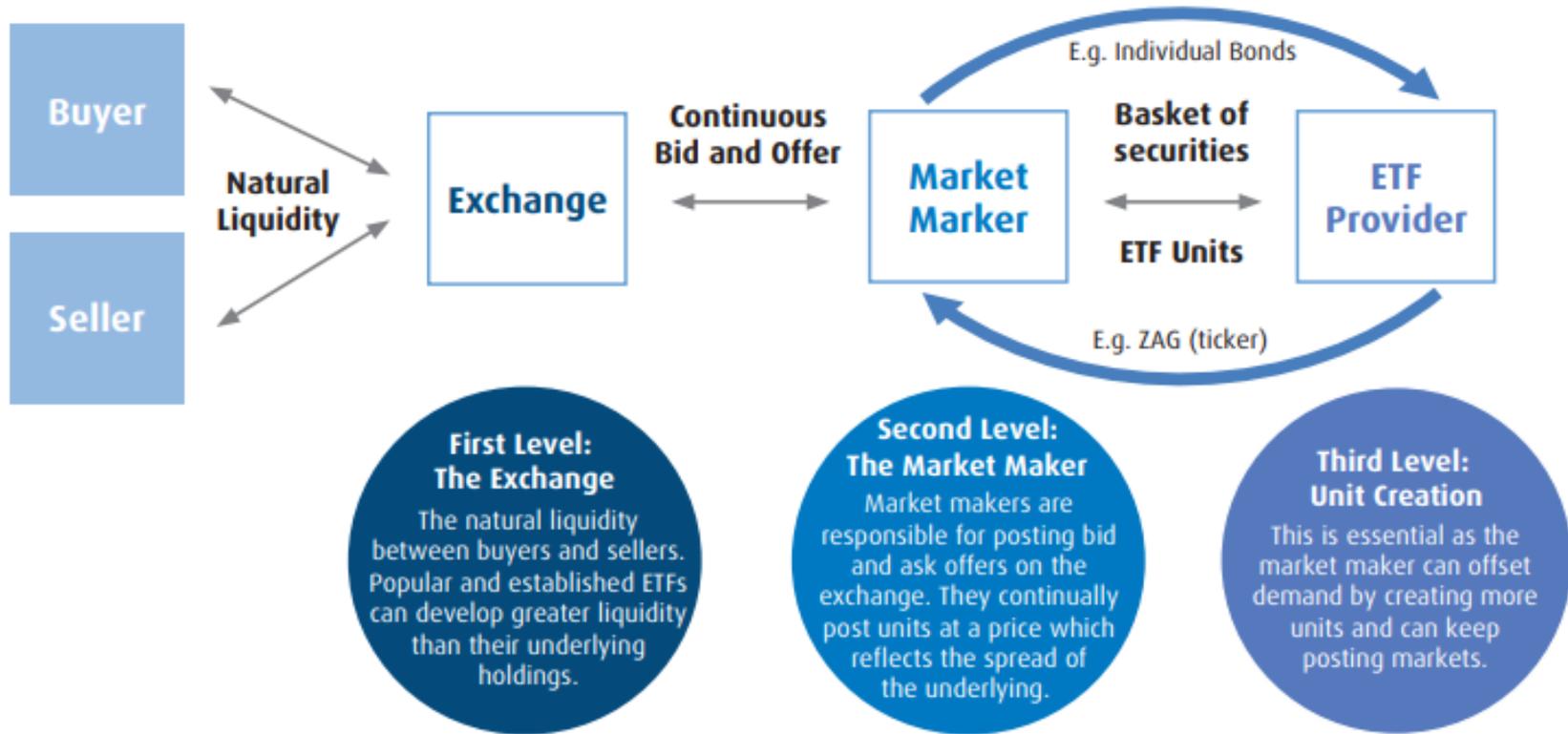
Bond Market Liquidity

- A well functioning market depends on two way flow between dealers and investors
- A normal market will ebb and flow where there may be slight imbalances between supply and demand
- If there are no natural buyers, dealers can step into to provide liquidity, but the amount is finite
- When dealers can no longer provide liquidity, the market ceases to function

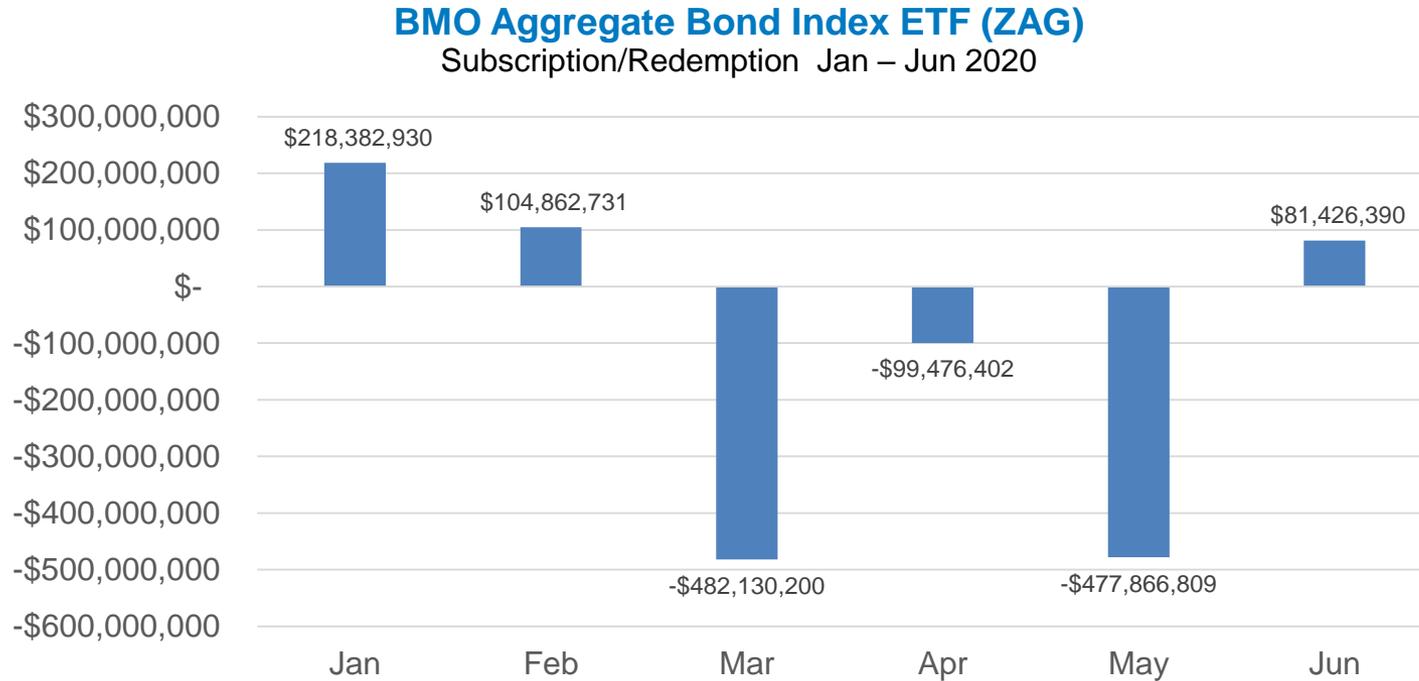


How an ETF Trades – Access to 3 Levels of Liquidity

HOW AN ETF TRADES – THREE LEVELS OF LIQUIDITY



Providing liquidity when it is most needed



Source: BMO GAM

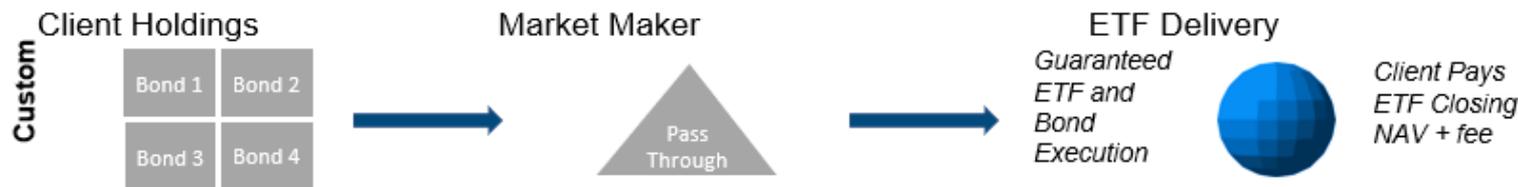
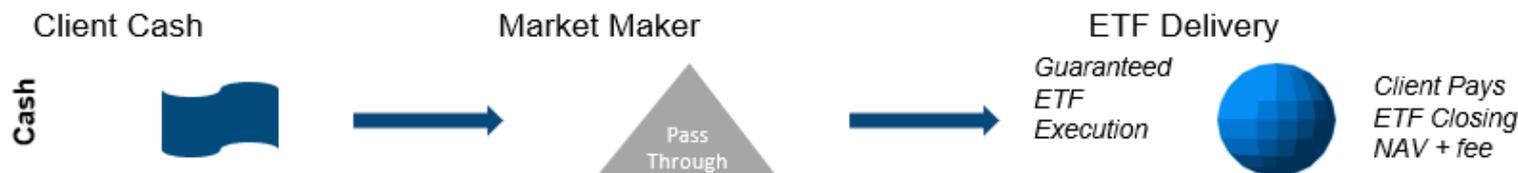
Past performance should not be seen as an indication of future performance

ETFs provided Price Discovery when bond market went no-bid and when NAVs were stale-dated

ETFs Offers Execution Flexibility



ETFs Provide Three Execution Opportunities for Clients:



Custom Creations on Fixed Income ETFs – A Case Study

- We find that the Creation/Redemption mechanism for Fixed Income ETFs is often misunderstood. In addition, not many clients are aware of the liquidity that this mechanism can provide for some of the more illiquid underlying bonds
- Fixed Income ETFs have 3 additional layers of liquidity when compared to the underlying bonds. First, retail liquidity. Second, exchange liquidity (the “ET” part of “ETF”). Third, fund liquidity (“F” part of “ETF”). The Creation/Redemption mechanism taps into the fund liquidity.
- In a custom creation, a client can present a portfolio of bonds that they are willing to exchange for an equivalent amount of a Fixed Income ETF
- There is no restriction on the number of bonds that the client can present in the portfolio. However, the more diversified the portfolio and the closer it tracks the underlying ETF index then the higher the acceptance rate of the underlying bonds into the creation
- Other factors that come into play include the size of the ETF in question, the mandate of the ETF, and the positioning of the ETF at the time
- In summary, you can do a custom creation on an ETF with as few as 1 bond in your portfolio. The creation happens at transparent index levels and hence minimizes the slippage for both the client and the ETF.

Recent Case Study: Client did a custom creation by selling 25mm CRSLNX 4.651% 09/30/2046 bonds vs receiving an equivalent amount of ZAG shares. Both counterparties were happy with the transaction. The ETF got the opportunity to plug a hole in the portfolio at DEX levels. The client was able to get liquidity in a very illiquid bond and diversify away from single name to index risk.

ETF Providers – Facilitators for Resolving Market Access Problems:

- Two Case Variations

- Greater and Lesser [Constrained] Ease of Market Access for Client

- Assumptions:

- Client Scale of Activity (about \$Cdn 3-10 billion assets under management) - *
 - presumed price-takers in target market
 - (for this presentation) underlying assets in target market are publicly traded
 - insufficient internal resources for active management or for monitoring ‘torpedo risk’ on this asset exposure
 - *external* management for an actively managed mandate
 - scale of (indirect or direct) demand for market liquidity generates minimal market impact due to crowding-in or out of target market (under “normal” conditions)
 - market for the *means* of implementation is competitive (many providers / many alternative means available)

- * tightly capitalized funded arrangement which is not perceived as a credible liquidity provider (e.g., long-closed and mature defined-benefit pension plan)

ETF Providers – Facilitators for Resolving Market Access Problems:

Case 1 - (Greater Ease of Market Access for Client) Actively Managed US High-Yield Corporate Bond Mandate

- Assumptions:
 - target market (US high-yield corporate bonds) remains sufficiently inefficient to warrant active management for mandate
 - systematic risk-exposure (market beta) represents the primary ('policy') deliverable from the mandate; alpha outcomes from management of the mandate are secondary
 - insufficient internal analytical resources warrants external management in any case
 - client / governing fiduciaries grant *market timing* discretion for funding of mandate
 - reciprocal accountability for efficient deployment of funding
 - (‘clock is ticking’ on full target commitment amount from day one)

ETF Providers – Facilitators for Resolving Market Access Problems:

Case 1 - (Greater Ease of Market Access for Client) [continued] Actively Managed US High-Yield Corporate Bond Mandate

- Timeline for Implementation:
 - August-early September 2008 – Case Preparation for Initial High-Yield Bond Allocation
 - Late-September 2008 – Finalize Recommendation and Trustee Approval
 - October-November 2008 – (External Active) Manager Search
 - Early-December 2008 – Manager Selection Approved and
Investment Management Agreement Negotiated
 - Late-First Week, January 2009 – First Funding
 - Early-March 2009 – Completion of Funding for Commitment; Post-Mortem

ETF Providers – Facilitators for Resolving Market Access Problems:

Case 1 - (Greater Ease of Market Access for Client) [continued] Actively Managed US High-Yield Corporate Bond Mandate

- Agency Problem:
 - Post-mortem for implementation identifies an agency problem that would have warranted alpha-beta separation in the mandate implementation
 - Alpha generation bias produced manager obsession with precision in selection at the expense of timely ramp-up in the mandate exposure during fast-moving market
 - meaningful benchmark-relative performance drag due to over-extended ramp-up period
was never fully recouped (despite consistent manager outperformance in post-rampup results)
- Possible Approaches to Solution:
 - (funded) introduce low-cost exchange-traded fund exposure as means for timely asset mix rebalancing
 - (unfunded) credit derivatives-based overlay

ETF Providers – Facilitators for Resolving Market Access Problems:

Case 1 - (Greater Ease of Market Access for Client) [continued] Actively Managed US High-Yield Corporate Bond Mandate

- Subsequent Experience:
 - steadily increasing 'policy' allocation to US high-yield corporate bonds within overall asset mix dictated increased attention to *efficiency* and *cost-effectiveness* in implementation of rebalancing process
 - our internal 'policy' for derivatives-based rebalancing implementation process was slow to develop
 - funded version of implementation (ETF) was only practical alternative for rebalancing purposes
 - tracking error experience among various offerings were analyzed and verified to previously identified trustee tolerances
 - about one-sixth of 'policy' weighting for US high-yield corporate bonds is maintained on average (up to one-quarter weighting [or down to one-eighth weighting] on anticipated rebalancing to higher [lower] portfolio exposure)
 - ETF allocations to active fund manager as incentive mechanism for timely rampup

ETF Providers – Facilitators for Resolving Market Access Problems:

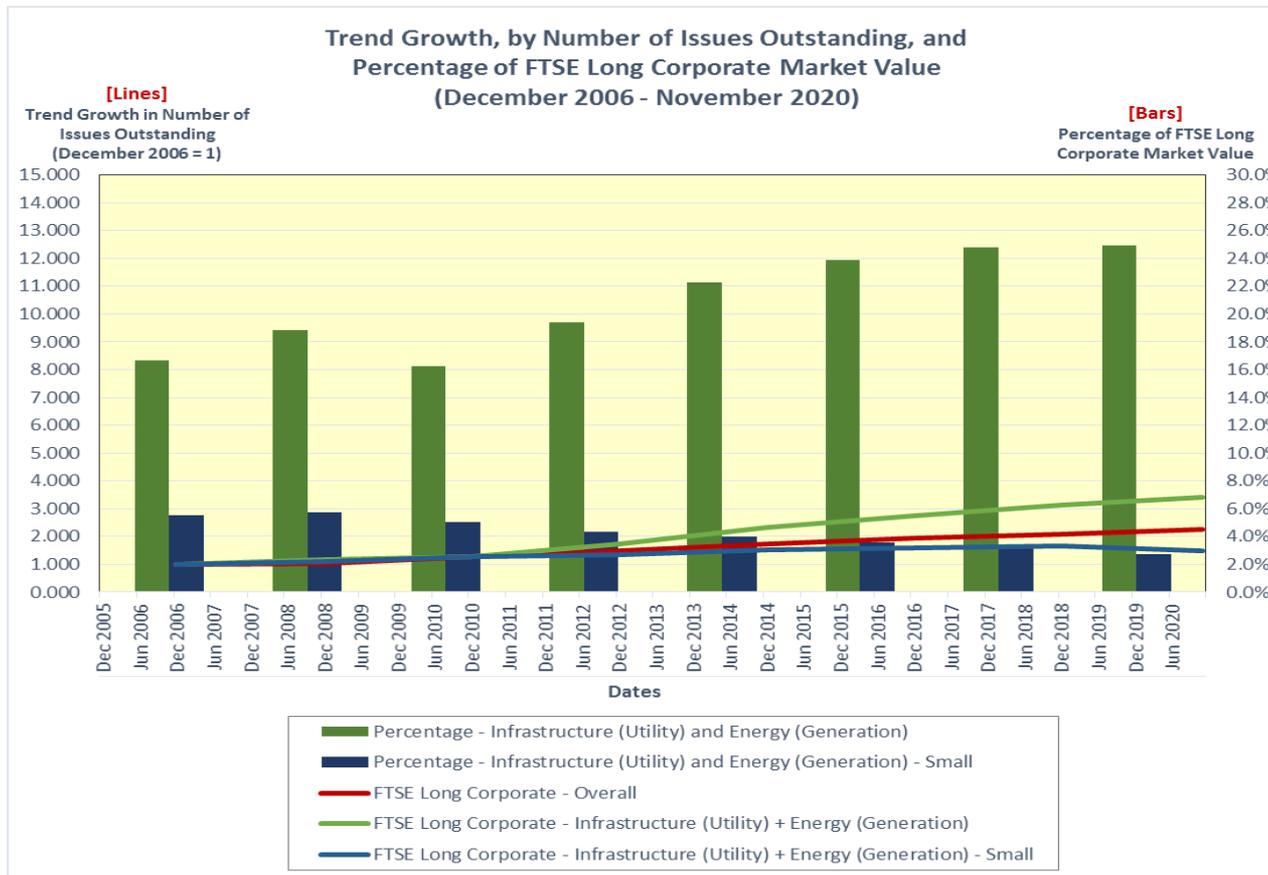
Case 2 - (Constrained Market Access for Client) Internal Replication of Liability-Related ‘Policy’ Exposure

- Assumptions:
 - primary objective - minimize tracking error in liability-related (‘policy’) portfolio whose performance is benchmarked to specific long-dated credit-heavy liability-proxy market index
 - secondary objective – security type selection which matches *organic* liquidity profile of asset exposure against pension liability-servicing payout profile

- Problem:
 - market benchmarks comprise ‘crowded’ niche markets (e.g., publicly traded infrastructure project-linked debt)
 - market benchmarks comprise pockets of meaningfully impactful asset exposure (re: potential tracking error) and uniquely valuable types of risky asset exposures (re: liability payout-matching characteristics)
 - unequal market access to niche markets among would-be ‘policy’ investors due to biased intermediation process in markets for publicly traded assets

ETF Providers – Facilitators for Resolving Market Access Problems:

Case 2 - (Constrained Market Access for Client) Internal Replication of Liability-Related ‘Policy’ Exposure



progressive disappearance of “small” new-issuance in niche publicly traded asset exposures

ETF Providers – Facilitators for Resolving Market Access Problems:

Case 2 - (Constrained Market Access for Client) [continued] Internal Replication of Liability-Related ‘Policy’ Exposure

- Possible Remedies:
 - Publicly traded reference markets* -
 - (funded) exchange incomplete internal asset exposure for low-cost (more complete) *exchange-traded fund* exposure to deliver ‘policy’ exposure and minimize tracking error
 - (unfunded) credit derivatives-based overlay
 - Private markets -
 - swap out transactions in a biased intermediation channel (syndicated public deals, ‘desk private’ debt) for transactions in an alternative intermediation channel (limited partnerships [+ coinvestments])
 - direct (privately arranged) debt transactions

* exchange *incomplete* internal asset exposure (high tracking error) for *more complete* externally provided publicly traded asset exposure

ETF Providers – Facilitators for Resolving Market Access Problems:

Case 2 - (Constrained Market Access for Client) [continued] Internal Replication of Liability-Related ‘Policy’ Exposure

- Possible Remedies: [continued]
 - Internal versus fully external providers of management services for mandate –
 - risk transfer (partial annuity buy-ins)

- Philosophical Considerations and Complicated Tradeoffs:
 - importance of tight tracking error (exchange-traded fund)
 - via first-call / power transacting advantage among investment management service providers (re: investment management of publicly traded asset exposure)
 - carry bonus and customized risk profiles / organic liquidity characteristics (limited partnerships [+ coinvestments] and direct [privately arranged] debt transactions)
 - availability of specialized expertise (‘silo’ arrangements for management of mandate versus broad [public + private market] latitude for investment management of mandate)
 - cost effectiveness

Bank of Canada Comments about Fixed Income ETFs

Advantages and disadvantages of exchange-traded fund warehousing

Advantages	Disadvantages
Improved efficiencies in bond distribution	More complex bond market
Reduced segmentation	Reduced access to individual bonds
Increased price discovery in bond markets	
Lowered transaction costs for portfolio trades	

Will exchange-traded funds shape the future of bond dealing? Bank of Canada Staff Analytical Note 2020-16

R. Arora, J.S. Fontaine, C. Garriott, G. Oullette Leblanc, July 2020

<https://www.bankofcanada.ca/2020/07/staff-analytical-note-2020-16/>

Why Fixed Income ETFs

Fixed Income ETFs provide tighter execution than individual bonds

ETF Name	Ticker	Term	Credit	Underlying Institutional Spread	ETF Spread
BMO Aggregate Bond Index ETF	ZAG	Aggregate	Aggregate	0.35%	0.06%
BMO Short Federal Bond Index ETF	ZFS	Short	Federal	0.06%	0.07%
BMO Mid Federal Bond Index ETF	ZFM	Mid	Federal	0.09%	0.06%
BMO Long Federal Bond Index ETF	ZFL	Long	Federal	0.11%	0.10%
BMO Short Provincial Bond Index ETF	ZPS	Short	Provincial	0.06%	0.07%
BMO Mid Provincial Bond Index ETF	ZMP	Mid	Provincial	0.10%	0.06%
BMO Long Provincial Bond Index ETF	ZPL	Long	Provincial	0.20%	0.17%
BMO Short Corporate Bond Index ETF	ZCS	Short	Corporate	0.20%	0.07%
BMO Mid Corporate Bond Index ETF	ZCM	Mid	Corporate	0.48%	0.06%
BMO Long Corporate Bond Index ETF	ZLC	Long	Corporate	0.69%	0.25%
BMO BBB Corporate Bond Index ETF	ZBBB	Short/Mid	Corporate	0.31%	0.26%
BMO High Quality Corp.Bond Index ETF	ZQB	Short/Mid	Corporate	0.20%	0.16%

Source: BMO GAM

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