

A Report on the Indian Exchange Traded Funds (ETF) Industry

A CFA Society India Research and Advocacy Initiative





**CFA Society
India**

A REPORT ON THE INDIAN EXCHANGE TRADED FUNDS (ETF) INDUSTRY

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I. Overview of the Indian ETF Industry

The rise of passive investing using exchange traded funds (ETFs) is one of the long-term trends in global investing. Ever since the first ETF, the NiftyBeeS was launched in 2001, the assets tracking the passive equity has grown in India to almost \$20bn or 18% share of the equity fund industry in 2019, dominated by ETFs¹. In this report, we would look at the Indian ETF industry, various policy issues for consideration, and the way forward. Given the maturity of the US ETF industry, for context we will make qualitative and quantitative comparisons of Indian ETF industry vis-à-vis the US wherever feasible.

The rest of the paper is designed this way. Section II provides a brief primer on ETFs, including the evolution of Indian ETF industry, landscape, and a brief description of market structure and the various participants in the industry. Section III and IV describes the tailwinds and the headwinds that impact the industry. Section V provides a few policy recommendations that would help further the development of the industry. Section VI concludes.

Each section has been created for the readers to dip in and out of, and consider the issues most important to them.

II. A Brief Primer on ETFs

ETFs can be thought of as a hybrid of mutual funds and stocks. Like mutual funds, they represent a proportional interest in a pooled asset. Both mutual funds and ETFs are regulated under the Mutual fund regulations of 1996. But unlike mutual funds, ETF shares are traded in continuous markets on global stock exchanges, can be bought and sold through brokerage accounts, and have continuous pricing and liquidity throughout the trading day. Thus, they can be margined, lent, shorted, or subjected to any other strategy used by sophisticated equity investors².

While both ETFs and index mutual funds are passive products with similar investment process, ETFs have distinct advantages over index mutual funds. ETFs are efficient vehicles compared to index mutual funds. In mutual funds, the portfolio manager needs to buy and sell securities every time an order is placed, incurring liquidity costs and potential capital gains. The costs and potential capital gains taxes are borne by all the investors in the mutual fund. Most of the transactions in ETFs happens in the secondary markets, where the liquidity costs and capital gains are borne by the investors engaged in the transaction, leading to greater efficiency and fairness.

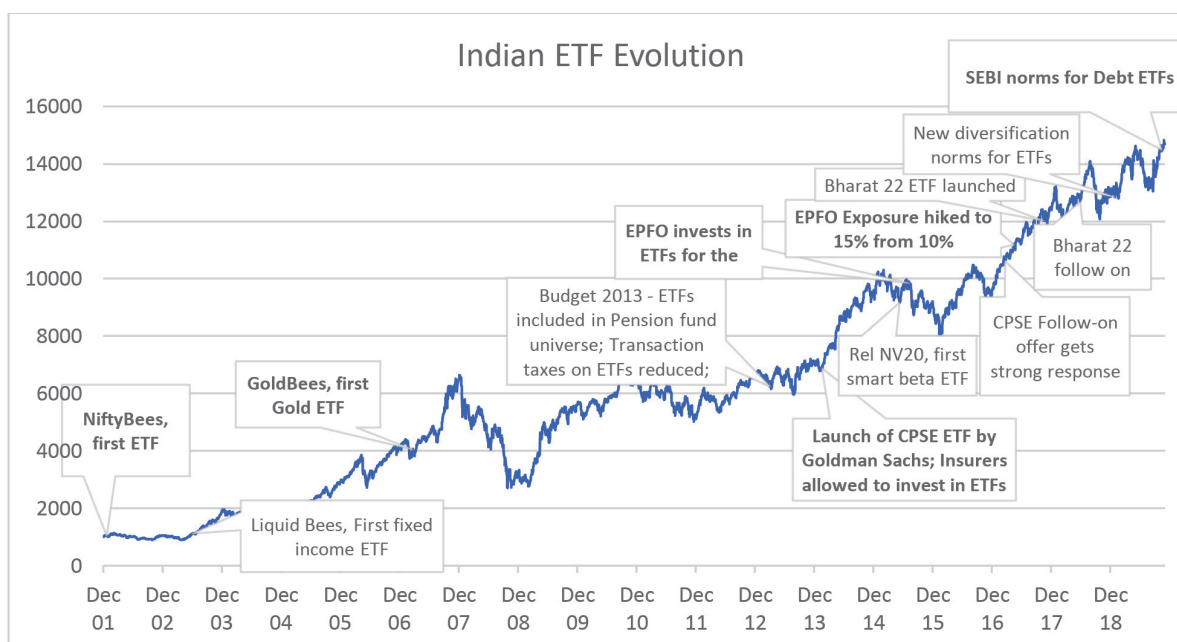
¹ Although we make a few comments on fixed income ETFs, we focus a large part of the report on equities.

² In India, some of the strategies are difficult absent a robust short-selling market.

II.a. Indian ETF Evolution

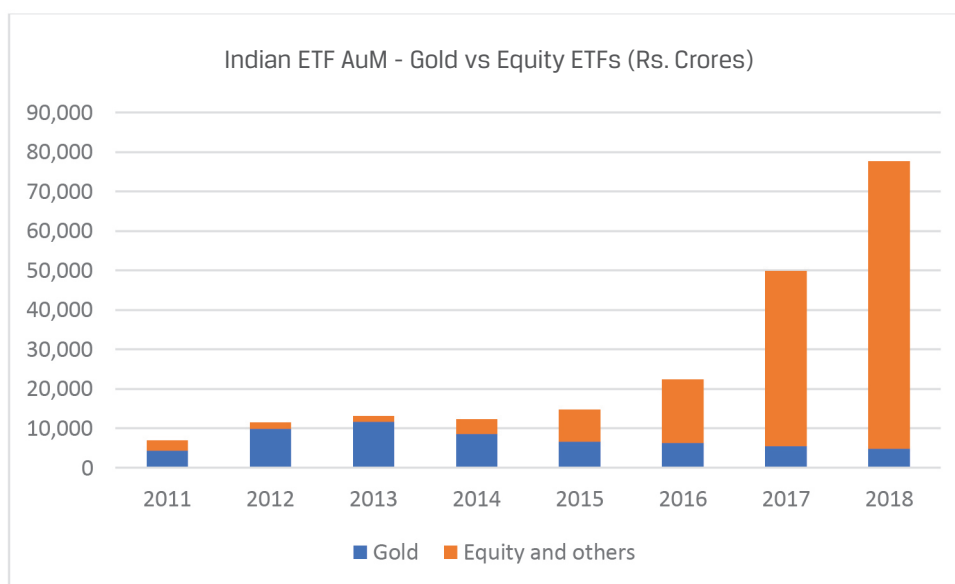
The chart below the evolution of Indian ETF industry. Although the first ETFs, first in equity and subsequently in money market and Gold were launched by Benchmark asset management as early as 2001, the industry was dominated by Gold ETFs in the first few years. The first major reform was the budget 2013, when ETFs were included as an eligible asset in the pension fund universe, and the securities transaction taxes were reduced to make it in line with mutual funds. The government divestments in public sector enterprises through the ETF route, provided a major fillip in terms of investor awareness, as well as assets. From a small asset base of Rs. 1,477 crores, representing 11% of overall ETF assets, other ETFs³ (mostly equity) grew more than twice to Rs. 3,704 crores or 30% of overall assets. At the end of 2018, other ETFs accounted for 94% of the total assets.

Chart 2a.1: Indian ETF Evolution



The chart shows the Nifty TR index since 2001. The major events around ETFs are represented as callouts.

³ Surprisingly, most statistics including SEBI's handbook of statistics continue to categorize equity ETFs under "other ETFs", a relic of an era where Gold ETFs were dominant.

Chart 2a.2: Indian ETF Assets Under Management Across Gold and Equities

Source: SEBI Handbook of Statistics

The next major fillip came in the middle of 2015, when Employees Provident Fund Organization (EPFO) took tentative steps towards investing in stock markets via an ETF route, starting with a modest 5% of incremental flows, which were subsequently hiked to 15% of incremental flows in 2017.

ETFs are regulated under SEBI's mutual fund regulations 1996. However, specific diversification norms for index funds and ETFs were circulated in January 2019. These norms were modest, mandating a minimum 10 stocks in an ETF, restricting the individual stock weight to 25% (or 35% for a thematic ETF) and top 3 weight to 65%. There were other rules aimed at liquidity.

Lastly, India launched the first corporate bond ETF in December 2019, following a series of policy moves, including the cabinet approval, SEBI's norms for debt ETFs, and the reserve bank tweaking its norms to allow debt ETFs to be eligible as collateral for repo transactions.

For a description of how ETFs evolved globally, please refer to Appendix A.

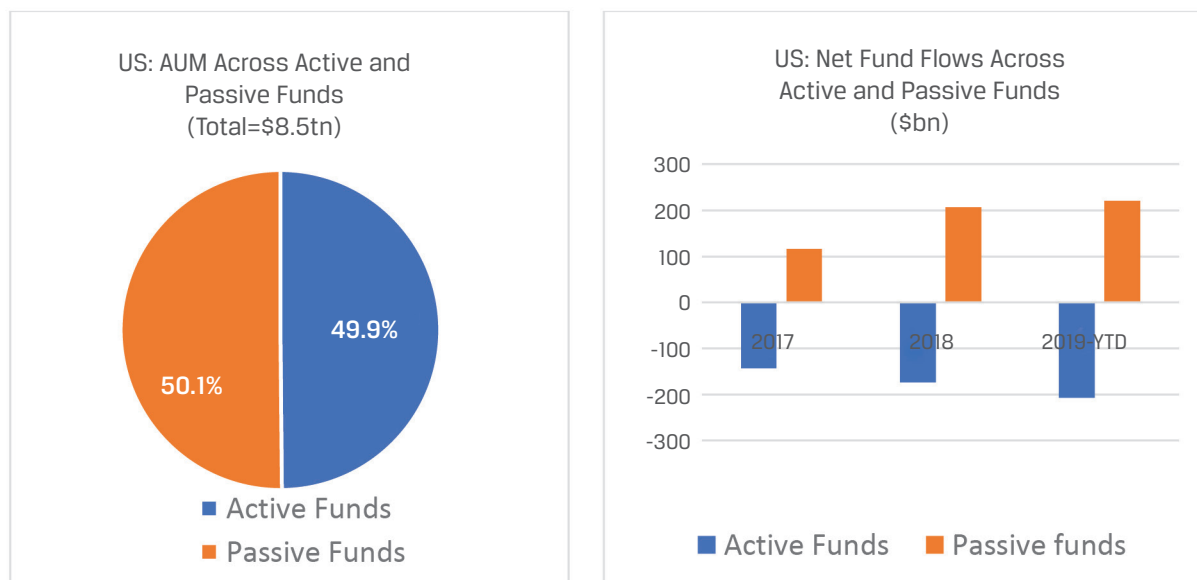
II.b. Active vs Passive Landscape – US and India

This section shows the split between assets tracked by active and passive equity funds, for both US (a mature market) and India. We've included both the index funds and the ETFs within passive funds (almost all assets managed actively are structured as a mutual fund).

In August 2019, US passive industry crossed a milestone – the assets managed by passive funds crossed the ones by active funds by a whisker, according to Morningstar calculations (50.1% vs 49.9%). Investors have pulled out of active funds and into passive in droves for the past few years.

On surface, Indian passive industry dominated by ETFs, are doing well; it's smaller but still respectable at 18% share, with strong positive flows into both active and passive funds in recent years.

Chart 2b.1: Active vs Passive Equity funds - Assets under Management and Net flows



Source: Morningstar. Data as of August 2019.

II.c. ETF Market Structure

In this section, we will describe how Indian ETFs work, both in terms of primary markets as well as secondary markets.

The chart below shows the typical market structure of ETFs. The first part reflects the primary market transactions between the ETF sponsor and the Authorized Participants (AP) who are authorized to create and redeem ETF shares. The second part shows the secondary market transactions, where market makers create two-way liquidity using a variety of tools.

Chart 2d.1: How Indian ETFs work – Primary Transactions

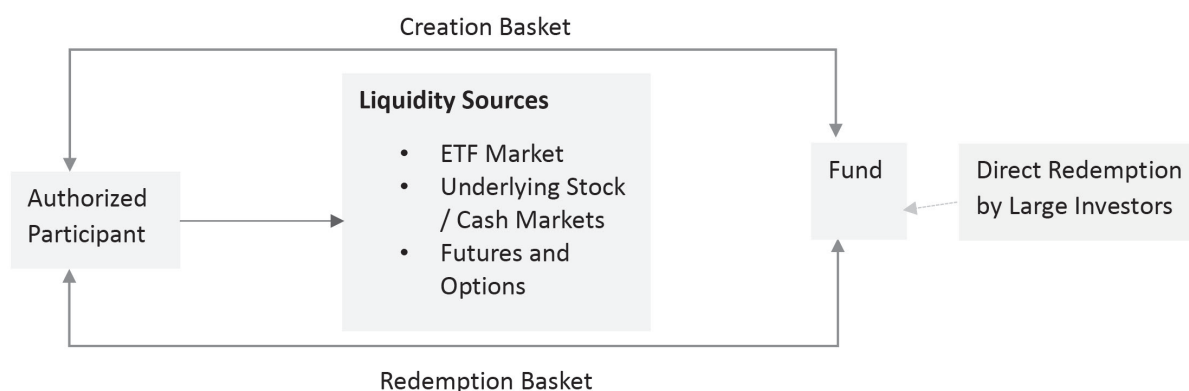
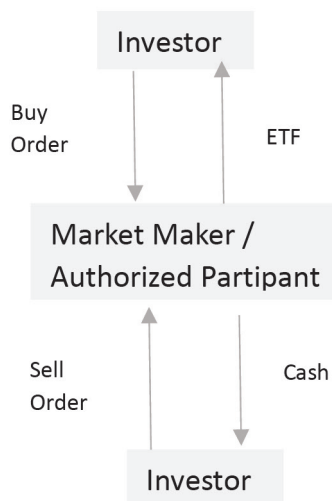


Chart 2d.2: How ETFs work – Secondary Transactions



In primary market, ETF shares are created and redeemed in pre-specified number of units (basket) by Authorized participants, which are firms that have agreements with the ETF manager or distributor to create and redeem ETF shares at the NAV price at the end of each day. If market prices deviate sufficiently away from the net asset value of the underlying basket, the AP can buy (sell) the “mispriced” ETF in the open market and redeem (create) it at NAV with the issuer. With this creation and redemption mechanism, ETFs operate like mutual funds, with the difference that only AP could create and redeem a pre-specified basket at NAV.

Lastly, in addition to creation and redemption mechanism, APs have a range of tools to ensure ETF prices are in line with the NAV. For example, APs could go long (short) the mispriced ETF and short (long) other ETFs tracking the same index; APs could also create arbitrage trades using futures and options tracking the index, or short the underlying basket of stocks / ETFs.

Like stocks, ETFs are traded in **secondary markets** with bid and offer. The factors that determine the width of a bid-ask spread are the amount of ongoing order flow, the amount of competition among market makers for that ETF, and the actual costs and risks associated with an AP doing the creation/redemption process, and the expected profit margin. Although it works the same way in India, given the low order flows and continuous two-way quotes, liquidity is a challenging issue we’ll discuss later.

There are minor differences in ETF market structure between India and rest of the world. Some of them are beneficial; for example, ETFs generate capital gains during rebalancing or creation / redemption process. ETF sponsors globally are liable to pay capital gains taxes; in India such capital gains are not taxed. However, other market structure differences, such as direct redemption feature, may’ve unintended consequences. We will explore these issues in Section IV.

With the background on ETF evolution as well as how they work, we’ll turn our attention to the tailwinds and headwinds impacting the Indian ETF industry.

III. Tailwinds impacting the ETF Industry

The ETF industry has benefited from several tailwinds from the markets and regulations. It's now well known that Indian active funds haven't performed well in recent times. According to the 2018 year-end SPIVA™ report, a little over 90% of the active funds in the large cap equity category have failed to beat the benchmark on a 3-year basis, providing a strong case for passive investing. Even in the mid and small cap segment, typically associated with greater inefficiencies, 56% of the funds underperformed the corresponding index.

- Policy moves in recent years have provided a fillip to the passive industry. The moves were aimed at making ETFs a favoured vehicle for asset sales for the government, providing a truer picture of active fund performance vis-à-vis benchmark, providing better disclosures on fees, as well as incentivizing fee-based advice.
- Government's choice of ETF as investment vehicle for divestments for Central Public Sector Enterprises (CPSE), as well as choice of investment by EPFO since 2015 have increased awareness of retail investors in ETFs. Any possible future asset sales by the government would also incentivize policymakers to develop ETF ecosystem further.
- In late 2017, SEBI came out with a set of 10 equity categories with precise definitions, and mandated fund houses to have only one scheme per category (SEBI, 2017). The categorization reduced the scope of mutual funds to stray outside the stated mandate - for example, a large cap active fund benchmarked to Nifty investing a meaningful portion of its assets in small- and mid-cap stocks, and potentially showing an outperformance. Limiting the fund houses to only one scheme per category reduced the noise, and potential for fund houses to cherry-pick the best schemes. The policy changes forced greater transparency into the active fund industry, and a more level-playing field with the passive industry.
- In 2018, SEBI asked fund houses to benchmark returns of equity schemes against a total return index (TRI) instead of price return index. Until then, the mutual funds used to benchmark their total return (including dividends and after fees) with Nifty price index (excluding the impact of dividends⁴), providing a misleading picture of active fund performance.
- Since SEBI came out with the investment advisor regulations in 2013, there has been increasing awareness about fee-based model vis-à-vis traditional distribution model. While nascent, fee-based Registered Investment Advisors (RIAs) who are held to a higher standard of care compared to distributors, should help steer investors towards low cost and passive funds over the long term.

⁴ For reference, the dividend yield of Nifty Index was 1.31% at the end of September 2019.

IV. Headwinds impacting the ETF industry

Despite the tailwinds and rising popularity, the industry faces a few headwinds. The often-cited issue is a lack of liquidity in most ETFs; There are other less-cited nuances on account of market structure which has constrained the evolution of ETFs. Finally, there are downstream issues at the level of distribution. While these issues are often inter-related, we will look at them in turn.

IV.a. ETF Design and Diversification Issues

In most geographies where ETF's constitute a large part of the ecosystem there are specific diversification guidelines. In the US, for example, these form a part of the Generic Listing Requirement of ETF's. These are a set of criteria that an enables an ETF to automatically get listed in an exchange without having to do an individual product filing with the regulator.

While SEBI does not have an equivalent automatic listing process for ETFs, it came out with its portfolio diversification norms for Equity ETFs in January 2019 and Debt ETFs in November 2019, described below:

1. Equity ETF: Minimum 10 stocks; Max Single stock exposure capped at 25% weight; Weight of top 3 stocks capped at 65%.
2. Debt ETF: Minimum 8 issues; Single exposure issuer capped at 15%; Only investment grade.

In theory, defining such outer boundary for portfolio construction by regulations helps spur product innovation. However, in practice, the resultant portfolios that adhere to these norms could still be very concentrated. For example, CPSE ETFs comprise of 10 stocks dominated by energy and materials sectors, with the top 4 stocks accounting for nearly 80% of portfolio weight. The allocation to CPSE ETF by Employee Provident Fund Organization (EPFO), which has otherwise been conservative with its equity allocation, is perceived as problematic.

IV.b. Liquidity

The liquidity of most of the Indian ETFs is modest. While US ETF flows are driven by both advisor as well as institutional flows, over 90% of Indian ETFs are owned by institutions, mainly the Employee Provident Fund Organization (EPFO).

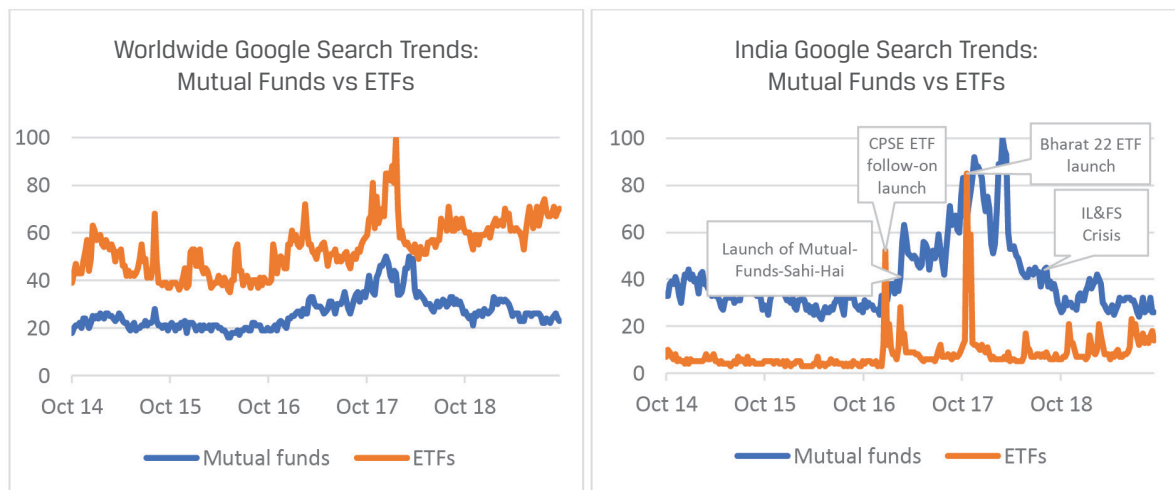
The dominance of one-way flows results in poor liquidity. The most liquid ETF in India, NiftyBees had less than one-hundredth of the daily traded value of Reliance Industries, a large liquid stock. In contrast the most traded US ETF, SPDR S&P 500 ETF had 3.5 times the daily trading volume of Apple⁵. While ETF liquidity is not a sole function of trading volumes,

⁵ Based on our calculations between Jun 2019 and Sep 2019.

the popularity of individual stocks vis-à-vis ETFs speaks volumes about the lack of market maturity in India. The Median of the daily Bid-Ask Spread on the largest ETF is as high as 17 bps, which that of individual large cap stocks is less than 5 bps. In most geographies it works the other way around.

To assess popularity, we analysed google search trends on mutual funds vs ETFs. The chart below shows that globally ETFs are popular compared to mutual funds; for a recent period, the number of searches on ETFs were 4 times those of mutual funds. In India however, mutual funds are far more popular than ETFs, although relative interest have narrowed in recent times. Interestingly, the spikes in interest have coincided with the government divestments in public sector enterprises, a trend that is likely to continue.

Chart IV.a.1: Google Search Trends as a proxy for Popularity



The liquidity problem manifests in two ways. Despite the efficiencies offered by the ETF structure – in-kind transactions and fairness in allocating costs of trading, Indian ETFs are perceived as poorer alternatives to index funds tracking the same index. To compare the two structures, we looked at the share-class returns of ETFs and index funds tracking the popular 50-stock S&P CNX Nifty index for a set of large asset management firms. To preserve their anonymity, we've denoted them as Firm₁, Firm₂, ... Firm₅. On average, the ETF share-class returns were about 50 bps higher. However, if liquidity costs such as the bid-ask spreads and the impact costs of trading are high enough, it could potentially remove the performance advantage offered by the ETF structure.

Chart IV.a.2. Three-year return of ETFs and Index funds

Firm	ETF (%)	Index fund (%)	Difference (bps)
Firm ₁	10.3	10.1	22
Firm ₂	10.3	9.8	51
Firm ₃	10.4	10.0	42
Firm ₄	10.3	9.2	114
Firm ₅	10.4	10.1	29
Average	10.35	9.83	52

Data as of 25 Sep 2019.

The liquidity problem with the ETF market also manifests in how well the ETF prices tracks NAVs. To test this, we looked at 4 liquid Nifty ETFs and compared their price returns with the index returns. In an ideal world, the median return difference would be the expense ratios (the typical expense ratio of Nifty ETFs is about 6 bps) and tracking error would be 0. The calculated standard deviations of daily returns were in the range of 18-30 bps.

However, standard deviation doesn't tell investors much about what kind of return they can expect, whether the fund is over- or under-performing its index, or how frequent outliers are for different holding periods (Hougan, Hill, & Nadig, 2015). A better way to look at tracking error is to look at return differences over the investment horizon, say 12-months. By this measure the variation at 25th and 75th percentiles were much larger, in some cases over 50 bps⁶. In other words, an investor with a one-year horizon might out- or under-perform the index by over 50 bps, a quarter of the time.

Our analyses focus only on Nifty, a popular index. ETFs tracking broader market (such as Nifty 100 or BSE 200) or smart beta indexes are expected to be more illiquid.

It may be argued that the liquidity issue in ETFs are salient because ETFs are transparent; the liquidity costs in mutual funds are internalized within the structure in the form of return impact. While there is merit to the argument, some of our comparisons of stock liquidity vs ETF liquidity, as well as ETF prices vs. NAVs makes it clear that the lack of liquidity has a meaningful impact on investor experience.

IV.c. ETF Market Structure

Indian ETF industry also suffers from structural issues which flow from, as well as contribute to its unpopularity.

Firstly, the role of authorized participants (APs) is not clearly differentiated from liquidity providers such as market makers. Globally APs are employed by ETF sponsors, specialize in

⁶ Calculations based on returns data between Sep 2016 – Sep 2019. 12-month return differences were calculated on a rolling daily basis.

specific ETF segments, put their own capital at risk and intervene when prices move away from fair values due to market demand for ETFs. Market makers perform a much more tactical role of providing daily liquidity. In fact, the European Systemic Risk Board points to a conflict of interest in the two roles during times of market stress, since arbitrage trades required to bring the ETF price in line with the prices of the constituent securities may impose losses on APs that can subsequently drain their capital and thus limit their liquidity provision, potentially creating a negative spiral (Pagano, Serrano, & Zechner, 2019).

In any case, there aren't many APs / market makers to support an ETF. A typical US ETF has over 34 Authorized participants, with 5 active APs at any time. Even small ETFs (<\$27M) have 2 active APs (Antoniewicz & Heinrichs, 2015). Although large Indian ETFs may have about 5 APs, few are active at any time and reasonably large limit-orders may take hours to clear absent a vibrant secondary market.

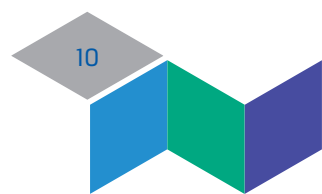
Given thin volumes, the market making costs are (unsurprisingly) high. Whenever market makers receive any substantial trade from investors it is typically one sized and they don't have offsetting orders. Hence, they have to go to the ETF manager for liquidity in lot increments. The major costs that the market maker experiences in this regard are:

- Cost of hedging: Market maker provides ETF units on Day T+0 whereas the units from the fund house are received on day T+1 in case of a buy trade.
- Cost of funds: The market maker has to provide funds to the fund house for unit creation on T+0 while the funds from the investor are received only on T+2
- Cost of carry: Any fractional units of lots that are not accepted by the investor has to be carried by the market maker because the liquidity in secondary market is so low.

We interviewed 2 out of the 3 largest market makers in the Indian markets and they mentioned that anecdotally the charges for these come to about 10 bps for each leg of transaction over and above normal transaction charges.

Indian Securities lending and borrowing (SLB) market is not very active. Securities lending is an important enabler for short-selling and market-making programs, which in turn aids liquidity in ETFs. It also has the potential to improve the performance of the ETF or profitability of the fund sponsor, depending on how much of the revenue to passed through to shareholders. A Morningstar study noted that ETF sponsors could routinely offset between 5% and 50% of management fees through securities lending program (Morningstar, 2018). While SEBI has allowed SLB in liquid ETFs at least since 2012, the practices vary. An analysis of Scheme Information Documents (SID) reveal that some ETF sponsors do not engage in SLB altogether, while others allow upto 20%. However, with the SEBI's 2018 circular mandating physical settlement for stock derivatives in phased manner, the securities lending market is expected to become more active (SEBI, 2018).

Lastly, lack of robust hedging instruments such as futures and options also hinder ETF liquidity. Liquidity providers such as ETF arbitrage desks routinely trade in ETFs and futures when prices deviate too far from the fair value. While contracts are traded on the popular Nifty index, the mid-cap Nifty Next 50, an index which is tracked by several ETFs lacks a futures contract.



Fund houses, recognizing the liquidity problem permit direct creation and redemption. The creation mechanism is available to large investors in multiples of ETF creation units, the value of which could be as low as Rs. 1 million for some ETFs; the redemption is made contingent on large discount to NAV, absence of quotes for consecutive days, or lack of secondary market volume. While these measures help large investors in the fund, they also act as a backstop, preventing market participants who might otherwise trade. They also lessen the distinction between an ETF and an index fund.

IV.d. Distribution

One of the biggest impediments to ETF adoption relates to lack of incentives for ETF distribution. Firstly, ETFs in India (like it is elsewhere) do not pay trail fees. Fee-only registered investment advisors are a recent phenomenon, but their reach pales in comparison to distributors. It is rare for retail investors to pay for advice when making investments in ETFs. Given the vast disparity between the expense ratios of mutual funds and ETFs – median asset weighted expense ratio in equity funds were 1.93% according to Morningstar 2019 Investor Experience Study, while the cheapest ETFs carried an expense ratio of 5 bps (excluding liquidity costs) – there is little incentive for mutual funds to promote investments in ETFs, even in the face of underperformance in active funds. That said, there has been increasing interest from high net worth individuals and family offices for investments in ETFs and other passive investments. Wealth platforms have increased access to ETFs in response.

The second impediment relates to the logistical frictions in trading ETFs. An investor in mutual fund needs to open a separate brokerage account, and till recently, it was not straightforward for advisors to trade in ETFs on client's behalf⁷. While interest in index mutual funds (devoid of these frictions) haven't really increased either, such frictions have been occasionally cited by market participants as a hassle.

V. Recommendations

The CFA Society India believes Indian investors would benefit from knowledge and access to passive low-cost investment options. They would also benefit from a level-playing field where they could evaluate the costs and benefits of investing in active funds vis-à-vis passive funds, which as we've seen from the report is not always the case. Our recommendations cover investor awareness, ETF ecosystem, and distribution.

V.a. Improve Investor Awareness

SEBI Chairman in his speech in August 2019 highlighted that ETFs are yet to catch the fancy of retail investors and expressed concern over the lack of progress in encouraging investments in ETFs. AMCs charge 2 bps for investor awareness initiatives, and half of the budget managed by AMFI. Given the disparity in expense ratios between active and passive funds, there is a perceived lack of incentive when it comes to increasing awareness of low-cost products. For

⁷ Changes to SEBI (Investment Advisor Regulations) 2013 allowed implementation services through direct schemes/products in the securities markets to investment advisors for the convenience of investors (SEBI, 2020).

example, AMFI's Mutual-funds-Sahi-Hai (Mutual funds are right) ad campaign, running since 2017, only recently started promoting commission-free Direct plans. There is still no promotion on the use of passive funds, or the use of fee-based registered investment advisors. We believe the regulators and exchanges should take a lead in increasing awareness in ETFs, and continue to nudge the industry in this regard.

Another issue with investor awareness charge is that index funds and ETFs are low cost products, with most broad-based ETFs having total expense ratios (TERs) in the range of 1-10 bps. A 2 bps charge is quite high in comparison to their TERs. It makes sense to link the investor awareness charge to TER as much as net assets.

V.b. Improve ETF Ecosystem

Reintroduce Liquidity Enhancement Schemes for Illiquid ETFs:

Even if secondary market volumes are thin, robust market making could improve liquidity outcomes, be it tighter bid-ask spreads, or lower impact cost and tracking error. These schemes categorize ETFs based on the breadth and relative importance, and places obligations on market makers to provide pre-determined liquidity outcomes. For example, Australian Stock Exchange requires market makers qualifying for Schedule 1 ETFs (broad based ETFs such as ASX200) to support at least AUD50,000 orders within a spread of 40 bps, 80% of the time. In return for these obligations, participants receive incentives equivalent to the trading fees they would otherwise pay to ASX if they achieve the minimum quoting benchmarks prescribed by ASX on a monthly basis. ASX offers certain market makers technical services rebates in support of their market making activity where they have shown persistent, quality support to the Australian ETP market (ASX, 2020).

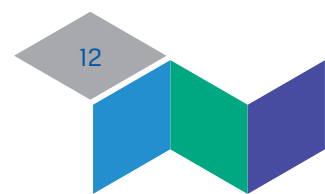
Indian exchanges have tried liquidity enhancement schemes in the past to jump-start ETF liquidity with limited success, last one in 2015, with limited success. However, given ETF market is a lot bigger and a lot more important today than then, and given the prevalence of such schemes across the globe to improve liquidity (including countries with high market depth such as the US), it is worth re-attempting the scheme.

Improve ETF Price Discovery:

Regulators should also continue to develop the supporting infrastructure such as securities borrowing and lending market to make it easier to short ETFs; increase the pool of indexes on which F&O contracts are available; and clarify the role of Authorized participants and liquidity providers.

Phase out Direct Redemption:

Combined with the other measures, the direct redemption mechanism available for large investors must be phased out. Large investors globally reach out to APs / ETF desks of fund managers for making the desired units available on exchanges when on-screen liquidity is low, which is a far better mechanism than direct redemption. At best, an exemption may be made for a specified category of investors to cover government bodies (for example, the EPFO) but other large investors and corporates should necessarily be through APs.



V.c. Remove Stamp Duty on ETFs

The Finance Bill, 2019 proposed certain amendments in the Stamp Act, 1899. The amendments have resulted in ETFs being at a disadvantage as it is being levied on three legs:

While creating fresh units directly from the AMC @ 0.005%

While executing underlying securities @ 0.015%

While purchasing ETFs on the exchange @ 0.015%

Since the stamp duty charges already form part of the ETF price, it makes sense to not levy them while purchasing them in exchanges. A few other jurisdictions such as the UK, Ireland, Hong Kong, and Malaysia have exempted ETFs from stamp duty charges.

V.d. Continue Using ETFs as Vehicles for Divestments

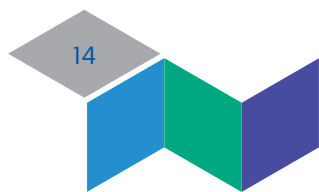
Government divestment announcements (using ETF as vehicles) coincided with the broadest interest in ETFs among retail investors, as we've previously seen. Any future divestments accompanied with incentives to promote retail ownership might work better than marketing campaigns to promote ETF adoption.

VI. Conclusion:

Indian ETF industry has grown and matured considerably in the past 18 years, in terms of assets, product launches, or adoption by institutional and high net-worth investors. The industry has also benefited from tailwinds from the market and regulations.

Yet in other respects – investor awareness, liquidity, and market structures, the industry is still nascent. Given the advantages offered by ETFs (low-cost, transparency, and liquidity), there is considerable scope for deepening the market, increase awareness, and improve allocations in retail portfolios.

Appendix



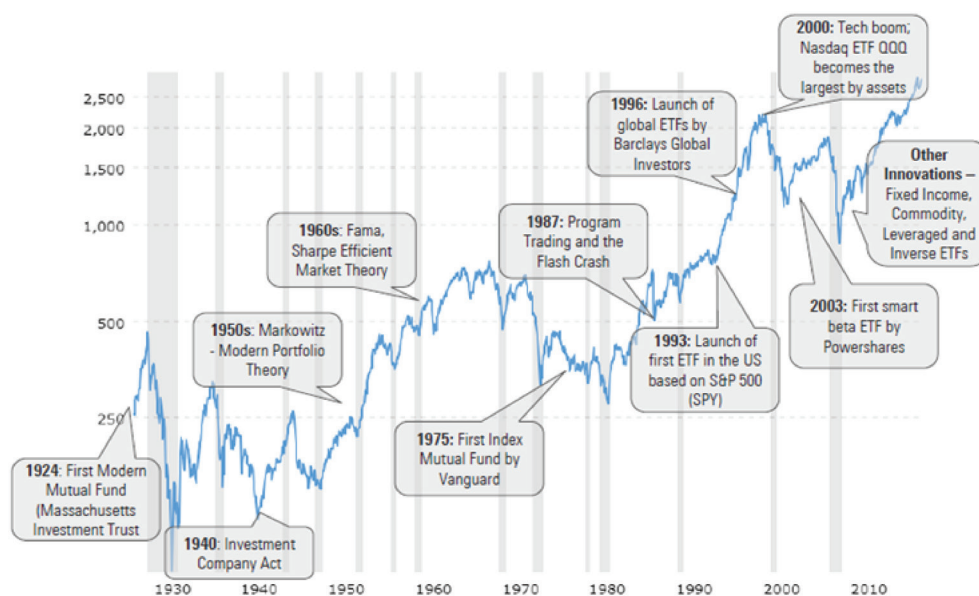
Appendix A: International ETF Evolution⁸

ETFs is a product borne out of a long history of innovation in both academia as well as markets. The chart below shows the evolution of international ETFs, starting from mutual funds, program trades to the modern ETF.

The first modern open-end mutual fund is the Massachusetts Investment Trust; launched in 1924, it went public in 1928, and still exists today. After the stock market crash of 1929, several mutual funds were wiped out, but the industry started to grow again with the help of two vital pieces of legislation, the Securities Act of 1933, and the Investment Company Act of 1940⁹. Investors were able to pool money and gained the benefits of diversification and scale in fund management, recordkeeping, performance measurement and reporting. The funds themselves were actively managed, with an aim to get the highest returns possible.

In the 1970, modern portfolio theory, first introduced by Harry Markowitz in the 1950s and popularized by William Sharpe and others in the 1960s began to be incorporated into institutional investment products. Together with these innovations came the concept that investors might be better off “buying the market” than picking individual stocks. This idea was popularized by Burton Malkiel in his seminal 1973 book *A Random Walk Down Wall Street*. Institutions gradually began following that advice, and large institutional asset pools, such as pension plans and endowment funds, began investing in private portfolios that mimicked the popular S&P 500 Index.

Chart 2a.1 From mutual funds, program trades, to ETFs



The chart shows the S&P 500 index since inception (1926). The bars represent recession periods as defined by the National Bureau of Economic Research. The major events in the evolution of ETFs are represented as callouts.

⁸ This section is adapted from the CFA guide to Exchange Traded Funds (Hougan, Hill, & Nadig, 2015).

⁹ Mutual funds in the US are sometimes called the 40-Act funds.

The first index mutual fund was launched by John Bogle of the Vanguard Group, became available in 1975. The modern ETF is, in their investment processes and organization, simply an extension of index-based mutual funds. But ETFs also happen to be more tax efficient, have lower cost than index funds, and be available on an exchange.

ETFs trace their roots back to the concept of “program trading,” a computer-based innovation in the 1980s that allowed investors to purchase or sell all the shares of a major index (such as the S&P 500) through a single trade order defined as the list of index stock tickers and shares in each. Large program trading was a novel idea then, and was attributed as one of causes for the crash of 1987, when computer programs started liquidating stocks in response to certain stop loss targets and creating a domino effect.

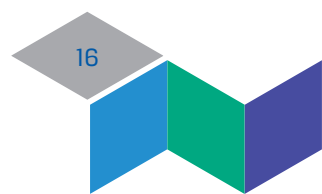
Despite the setback, over the years several attempts were made to package these trades into a single product. The idea for the first US ETF based on S&P 500 the SPY was born at the American Stock Exchange in the early 1990s. State street global Advisors and American Exchange created a structure that pioneered many of the key features of every ETF on the market today: an exchange-traded access to a major market index that relied on an ongoing creation/ redemption mechanism to keep the ETF’s market price tracking closely to fair value throughout the day. SPY ended its first year with \$475 million in assets under management (AUM) and today is one of the largest ETFs in the world.

Over the next two decades, the industry saw several innovations. The international ETF series launched by Morgan Stanley Capital International (MSCI) in partnership with Barclays Global Investors were revolutionary, because it was the first-time investors discovered the power of ETFs to offer price discovery, as ETFs were continuously traded even when the stock exchanges of the underlying markets were closed.

ETFs became a popular vehicle of choice during the late 1990s, when there was tremendous interest in technology stocks. QQQ, an ETF launched in 1999, garnered \$18.7 billion in assets in the first year of trading; by comparison, the total industry assets were only \$15.7 billion the previous year.

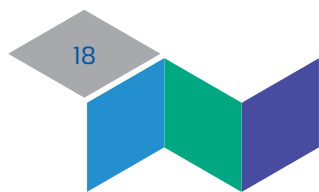
Powershares launched two smart beta ETFs tracking quant indexes in 2003, with an aim to outperform the market. Since then, the share of smart beta ETFs as a proportion of overall ETF assets have grown and accounted for over 20% of US ETF assets in 2018.

After the credit crisis of 2009, investors wanted access to products that protect them during stock market crashes. Fixed income ETFs, minimum volatility ETFs, and short and leveraged ETFs have all become popular over the last decade.



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