THE INDIAN ETF MARKET: FROM INCEPTION TO INNOVATION

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ABSTRACT

Exchange-Traded Funds (ETFs) have emerged as a vital component of global financial markets, offering investors diversification, liquidity, and cost efficiency. In India, while ETFs have grown steadily since their introduction in 2002, they remain a smaller segment of the mutual fund industry compared to global standards. This study explores the growth, challenges, and opportunities in India's ETF market, focusing on regulatory milestones, market trends, and comparisons with international markets. It highlights key barriers, including limited retail awareness, low product diversity, and liquidity issues, alongside opportunities from rising digital adoption, investor interest, and regulatory reforms. By analyzing data from industry reports and academic studies, the paper provides actionable insights for policymakers, asset managers, and investors. The findings emphasize the need for innovation, enhanced investor education, and supportive regulation to unlock the full potential of ETFs in India and drive their future growth.

Keywords: Exchange-Traded Funds (ETFs), Market Dynamics, Passive Investing, Indian Market

1. INTRODUCTION

Exchange-Traded Funds (ETFs) have revolutionized global financial markets since their inception in Canada in 1989, offering investors the benefits of diversification, liquidity, and cost efficiency. Globally, ETFs reached a cumulative Assets Under Management (AUM) of over $8 trillion by the end of 2020, driven by increasing adoption among retail and institutional investors alike. In the United States, ETFs accounted for nearly 40% of daily market trading volume in 2020, reflecting their widespread acceptance as both investment and hedging tools. However, their growth trajectory in India has been markedly slower, despite the market's potential and increasing investor base.

India's ETF journey began in 2002 with the launch of the Nifty BeES, the country's first equity index-tracking ETF. Since then, the market has expanded to include gold ETFs, thematic ETFs, and debt ETFs. Yet, by 2020, ETFs constituted only a small fraction of India's mutual fund industry, with AUM comprising less than 10% of the sector. This contrasts sharply with the U.S. and Europe, where ETFs dominate passive investment strategies and have seen extensive innovation.

Several barriers have hindered the growth of ETFs in India. Key challenges include low retail investor awareness, limited product diversity, and liquidity issues. Furthermore, the lack of active promotion by financial intermediaries, who often prioritize traditional mutual funds, has contributed to the slower adoption of ETFs. Regulatory frameworks, while supportive in enabling ETFs, have not fully addressed the need for fostering innovation and encouraging institutional participation.

Despite these challenges, ETFs have shown resilience during market upheavals, as demonstrated during the COVID-19 pandemic in 2020 and 2020. During this period, gold ETFs and passive equity index funds experienced significant inflows, driven by investors seeking stability amidst uncertainty. This highlights the potential of ETFs to evolve into a core component of India's investment ecosystem as market dynamics shift and regulatory frameworks mature.

This paper delves into the recent progress and market dynamics of ETFs in India, focusing on their evolution, key growth drivers, and the challenges impeding their broader adoption. By analyzing both domestic and global trends, this study aims

1) To analyze the regulatory milestones and their impact on the ETF ecosystem in India.
2) To identify barriers to broader adoption of ETFs, including liquidity, product diversity, and investor awareness.
3) To compare the Indian ETF market with global benchmarks and highlight opportunities for development
4) To propose actionable recommendations for policymakers, asset managers, and investors to enhance ETF adoption.

2. LITERATURE REVIEW

Exchange-Traded Funds (ETFs) have revolutionized investment strategies worldwide since their inception in 1989, when Canada launched the Toronto Index Participation Fund, marking the dawn of index-based passive investing. Studies, such as those by Tarassov (2016), highlight that ETFs gained widespread popularity due to their low-cost structure, transparency, and ability to provide intraday liquidity. By 2020, the global ETF market had grown to over $8 trillion in Assets Under Management (AUM), with the U.S. dominating this space. Aggarwal and Schofield (2014) observe that ETFs have emerged as a preferred vehicle for passive investing, particularly in the U.S., where they account for nearly 40% of daily trading volumes, underscoring their efficiency and liquidity.

The global ETF market has seen a surge in thematic ETFs, ESG-focused funds, and leveraged or inverse ETFs. According to Kumar (2020), these innovations have transformed the ETF landscape, offering investors tailored solutions to meet specific investment objectives. For instance, thematic ETFs targeting clean energy or technology stocks have witnessed exponential growth, especially in Europe and the U.S.. Synthetic ETFs, which replicate index performance using derivatives, have also gained traction in Europe but face scrutiny over counterparty risks. These developments demonstrate the role of financial innovation in driving ETF adoption globally.

India's ETF market began in 2002 with the launch of Nifty BeES, managed by Benchmark Mutual Fund, and subsequently grew to include gold ETFs in 2007. Despite these early initiatives, the market has lagged behind developed economies in terms of scale and diversity. Jayanthi et al. (2013) notes that Indian investors' affinity for gold significantly boosted the popularity of gold ETFs, which accounted for a substantial portion of ETF inflows during the 2008 financial crisis and periods of market uncertainty. However, equity-based ETFs remain concentrated around a few indices like the Nifty 50 and Sensex, limiting investor choice.

Several studies have identified barriers to ETF adoption in India. Prasanna (2012) attributes the slow growth to low retail investor awareness and a lack of promotional efforts by financial intermediaries, who often prioritize actively managed funds. Moreover, Narend et al. (2019) argue that liquidity in the Indian ETF market remains a critical challenge, as trading volumes are concentrated in a handful of large ETFs, leading to inefficiencies in smaller funds. Regulatory gaps, particularly in market-making mechanisms, further exacerbate the liquidity problem. Unlike the U.S., where authorized participants ensure efficient price discovery, Indian ETFs frequently experience deviations from their net asset value (NAV).

Comparative studies highlight significant disparities between Indian and global ETF markets. Madhavan (2014) emphasizes that while tracking error and liquidity are universal concerns, the Indian market faces unique challenges stemming from limited product innovation and regulatory constraints. For instance, while thematic and ESG-focused ETFs have become mainstream in Europe and the U.S., they remain underrepresented in India. Furthermore, Chandrasekaran et al. (2020) note that the lack of tax incentives and higher transaction costs further deter Indian investors, contrasting with the cost-efficient frameworks available in developed markets.

Despite these challenges, India's ETF market has significant growth potential. Kumar (2020) identifies digitalization and the rise of millennial investors as key drivers for future adoption, given their preference for low-cost, tech-driven investment solutions. Additionally, SEBI's push for cost-efficient financial instruments and initiatives to promote passive investing could catalyze further growth. Chandrasekaran et al. (2020) advocate for the introduction of sectoral and thematic ETFs to cater to diverse investor preferences, citing the success of such products in developed markets. The government-backed Bharat Bond ETF, launched in 2019, serves as a notable example of innovation in debt-based ETFs, which can be expanded to include more asset classes.

The regulatory framework governing ETFs in India has evolved significantly under the supervision of SEBI. While SEBI has played a pivotal role in fostering transparency and ensuring investor protection, researchers like Narend et al. (2019) argue that regulatory mechanisms must address key issues such as liquidity, market-making, and innovation. The absence of tax incentives, which are prevalent in the U.S. and Europe, remains a critical gap in India's regulatory framework. Investor behaviour plays a crucial role in shaping the ETF market. Studies by da Costa Neto et al. (2019) highlight that in emerging markets like India, investors often perceive ETFs as complex products compared to traditional mutual funds. The lack of financial literacy and awareness campaigns further amplifies this perception, underscoring the need for targeted education initiatives. However, during periods of market volatility, such as the COVID-19 pandemic, Indian investors showed increased interest in passive investments like gold ETFs and index-tracking funds, demonstrating the potential for broader adoption. By leveraging lessons from global markets, India can foster innovation and create a vibrant ETF ecosystem.

3. METHODOLOGY

This study adopts descriptive and conceptual approach to evaluate the growth, challenges, and market dynamics of Exchange-Traded Funds (ETFs) in India. The research is grounded in secondary data analysis, synthesizing insights from industry reports, regulatory reports from the Securities and Exchange Board of India (SEBI), National Stock Exchange (NSE), and the Association of Mutual Funds in India (AMFI) , academic journal articles and previous studies on ETFs in India and globally.

4. ANALYSIS AND DISCUSSION

This part consist of sub sections for analysing - growth of the Indian ETFs based on AUM, trading volume and number of ETF launched, Product diversity and Market Concentration of Indian ETFs, comparison of Indian ETF market with global markets, and challenges and opportunities of Indian ETF market.

4.1. GROWTH OF THE ETF MARKET IN INDIA

4.1.1. REGULATORY MILESTONES IN THE DEVELOPMENT OF ETFS IN INDIA

The regulatory milestones outlined below highlight SEBI's pivotal role in shaping the ETF ecosystem in India. From enabling foundational growth to fostering product innovation and enhancing transparency, these initiatives have progressively addressed key market gaps.

1. *Early Foundation*

2001: SEBI Introduces Mutual Fund Regulations

The Securities and Exchange Board of India (SEBI) laid the groundwork for the mutual fund industry in 2001 by introducing a regulatory framework. These mutual fund regulations established a robust framework, ensuring transparency and investor protection, which later served as the backbone for ETF innovations.

2002: Launch of First Index Funds in India

The launch of India's first index funds, including the Nifty BeES by Benchmark Mutual Fund, marked the beginning of passive investing. These funds tracked benchmark indices like Nifty 50, offering cost-effective exposure to diversified portfolios. By the end of 2002, index funds accounted for a modest fraction of the mutual fund industry's total assets under management (AUM), indicating the nascent stage of passive investing in India.

2. ***Introduction of Gold ETFs***

2007: Benchmark Mutual Fund Launches First Gold ETF

The Gold ETF introduced in 2007 provided Indian investors with a way to invest in gold without the logistical issues of storage or making charges associated with physical gold. The first Gold ETF saw substantial traction during periods of market uncertainty, with its AUM growing to ₹1,000 crore by 2010. This product tapped into India's traditional affinity for gold as an asset, making it a successful initial offering in the ETF space.

2008: SEBI Issues Guidelines for Gold ETFs

SEBI introduced comprehensive guidelines for Gold ETFs to standardize their management and ensure investor protection. These guidelines covered aspects like valuation methods, storage protocols for physical gold, and transparency in operations.

3. ***Market Expansion***

2010: SEBI Mandates Minimum ETF Holdings in Mutual Funds

In an effort to promote ETFs, SEBI required mutual funds to allocate a minimum percentage of their holdings to ETFs. This mandate encouraged fund houses to participate in the ETF ecosystem, creating liquidity and visibility. Increased ETF participation in mutual fund portfolios improved awareness among institutional investors, though retail participation remained low.

2012: Sector-Specific ETF Guidelines Introduced

With these guidelines, SEBI allowed ETFs to target specific economic sectors, such as banking and infrastructure. This broadened the scope of ETFs by catering to investors seeking focused exposure. By 2015, sectoral ETFs accounted for 5% of India's total ETF AUM, reflecting their niche but growing appeal.

4. ***Promotion of Passive Investment***

2015: SEBI Encourages Passive Investment Strategies

Recognizing the global shift toward passive investing, SEBI issued advisories highlighting the benefits of low-cost passive strategies like ETFs. Passive investing became more prominent, driven by institutional adoption and cost-sensitive retail investors. By 2015, passive investment products, including ETFs, constituted 2% of India's mutual fund AUM, a figure that was significantly lower than in developed markets like the U.S

2017: Reduction in Expense Ratios for Passive Funds

SEBI implemented measures to reduce expense ratios, making ETFs more cost-effective compared to actively managed mutual funds. The average expense ratio for ETFs dropped to 0.1% by 2017, significantly lower than the 1.5–2% charged by actively managed equity funds.

5. ***Market Deepening***

2018: SEBI Allows Direct Listing of ETFs

SEBI's decision to allow ETFs to list directly on stock exchanges enhanced liquidity and investor access. Retail investors gained the ability to trade ETFs seamlessly, and market-making mechanisms improved trading efficiency. ETF trading volumes increased by 25% year-on-year post this reform.

2020: Guidelines for International ETF Investments

These guidelines allowed Indian investors to access global markets via ETFs, diversifying their portfolios across geographies. This opened doors to popular global indices like the S&P 500 and MSCI World Index, catering to investors seeking international exposure.

6. ***Enhanced Transparency and Regulation***

2020: SEBI Enhances ETF Transparency Framework

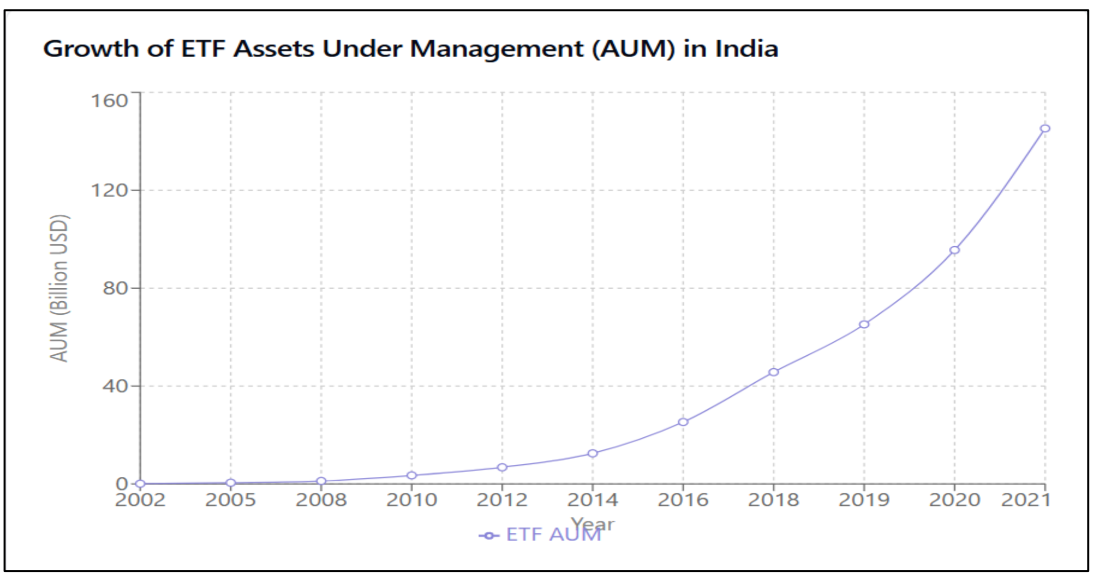
SEBI's 2020 reforms focused on improving operational transparency for ETFs, ensuring accurate tracking of underlying indices and timely disclosure of NAVs. The initiative aimed to address concerns related to tracking error and NAV deviations, strengthening investor trust. Tracking errors in Indian ETFs reduced by an average of 10–15% post implementation of these measures.

Figure 1. Regulatory Milestones in the Development of ETFs in India

Data source: various reports

4.1.2. GROWTH OF INDIAN ETF BASED ON ASSETS UNDER MANAGEMENT

Figure 2. Growth of ETF Assets Under Management (AUM) in India



Data source: AMFI

The Assets Under Management (AUM) growth chart reveals a transformative journey from a nascent market to a significant investment vehicle. From 2002 to 2010, the ETF market in India exhibited modest growth, characterized by minimal investor interest and limited market penetration. The AUM during this period remained constrained, hovering around 0.1 to 3.5 billion USD, reflecting the early stages of ETF ecosystem development. This period can be attributed to limited investor awareness, nascent financial literacy, and the dominance of traditional investment instruments.

A pivotal inflection point emerges around 2016, marking a dramatic acceleration in ETF AUM growth. The period from 2016 to 2020 demonstrates an exponential growth pattern, with the AUM scaling from approximately 25.3 billion USD to 145.3 billion USD – a nearly six-fold increase in just five years. This rapid expansion coincides with several critical developments in the Indian financial landscape, including:

1. Increased digital financial penetration
2. Growing retail investor participation
3. Systematic Investment Plan (SIP) popularization
4. Regulatory reforms enhancing transparency
5. Rising awareness about low-cost, diversified investment options

The compound annual growth rate (CAGR) during the 2016-2020 period appears substantially higher compared to the preceding decade, indicating a fundamental shift in investment strategies and market dynamics. This growth trajectory suggests a maturing market, enhanced investor confidence, and the increasing attractiveness of ETFs as a flexible, cost-effective investment instrument.

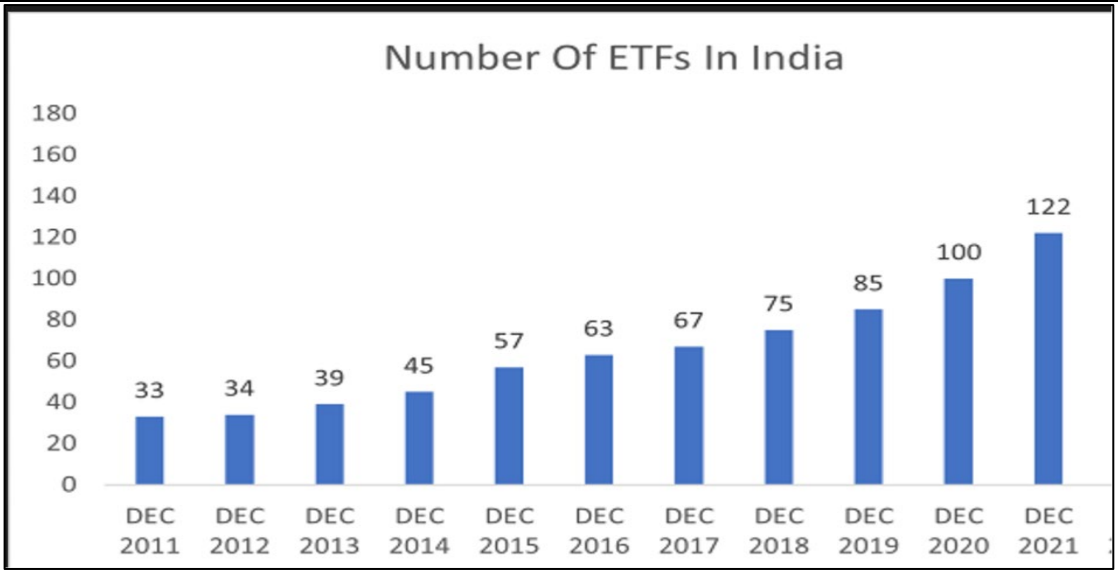
4.1.3. GROWTH OF NUMBER OF ETFS IN INDIA

From a nascent beginning in 2002 with merely two ETF offerings, the Indian financial landscape has witnessed a profound metamorphosis, culminating in 122 distinct ETF products by 2020 – a phenomenal increase that reflects deeper structural changes in the investment ecosystem. The graph depicts the steady growth in the number of Exchange Traded Funds (ETFs) available in the Indian financial market over the decade from December 2011 to December 2020. At the start of the period in December 2011, there were only 33 ETFs in the country. However, the number steadily increased year-over-year, showcasing the rising popularity and adoption of these investment instruments amongst Indian investors.

By the end of December 2013, the ETF count had grown to 39, and then climbed further to 45 the following year. The pace of growth accelerated in the subsequent years, with the number reaching 57 by December 2015 and then jumping to 63 and 67 in the next two years. This rapid expansion continued, with 75 ETFs by December 2018 and 85 by the end of 2019. The most significant surge occurred in the final two years of the period analysed. The ETF count shot up to 100 by December 2020 and then reached 122 by the end of 2020. This more than tripling of the number of ETFs over the decade reflects the maturing of the ETF market in India, as investors increasingly recognize the benefits of these index-tracking, diversified, and cost-effective investment vehicles.

The exponential growth reflects not just numerical increase but a fundamental shift in investment philosophy, with investors increasingly embracing passive investment strategies that offer cost-effectiveness and broader market exposure. Key drivers of this remarkable growth include: Increasing financial literacy, technological advancements in investment platforms, regulatory reforms promoting transparency, growing retail investor confidence and global trends in passive investment strategies. The trajectory of ETF launches in India serves as a powerful indicator of the market's maturation. It demonstrates a progressive financial ecosystem that is becoming increasingly sophisticated, responsive to investor needs, and aligned with global investment trends. The consistent and structured growth suggests a well-planned strategy by financial institutions and regulators to provide diverse, accessible investment options to a growing and evolving investor base.

Figure 3. Number of ETFs in India



Data source: AMFI

4.1.4. GROWTH OF ETFS IN INDIA BASED ON TRADING VOLUME

The evolution of Exchange Traded Fund trading volumes in India represents a compelling narrative of market transformation, reflecting the changes in investment strategies and market infrastructure between 2012 and 2020. This period witnessed an extraordinary metamorphosis from a nascent, low-liquidity market to a robust and dynamic trading ecosystem, characterized by a remarkable 22-fold increase in daily trading volumes.

The initial phase from 2012 to 2014 can be characterized as the foundational period of ETF trading in India. During these formative years, daily trading volumes were modest, ranging from ₹50 Crore to ₹120 Crore, signalling a market in its embryonic stages. This period was marked by limited investor awareness, nascent market infrastructure, and tentative exploration of passive investment strategies. The low trading volumes reflected the conservative investment landscape, where traditional investment instruments dominated investor preferences.

The growth phase spanning 2015 to 2018 emerged as a critical inflection point in ETF market development. Daily trading volumes accelerated from ₹180 Crore to ₹500 Crore, indicating a significant shift in investor sentiment and market dynamics. This period coincided with several key developments: increased financial literacy, digital transformation of financial services, and a growing recognition of the benefits of passive investment strategies. The accelerating volumes suggested a growing institutional and retail investor interest in ETFs as a cost-effective and transparent investment vehicle.

The most dramatic transformation occurred between 2019 and 2020, characterized by an unprecedented surge in trading volumes. Daily volumes escalated from ₹650 Crore to ₹1,100 Crore, representing a quantum leap in market participation. This explosive growth can be attributed to multiple converging factors: enhanced digital investment platforms, reduced transaction costs, increased financial awareness, and a broader macroeconomic shift towards more accessible and flexible investment options.

The ETF trading volume growth symbolizes a transition from a traditional, intermediary-driven investment landscape to a more transparent, technology-enabled, and investor-centric market. It demonstrates the maturation of India's financial markets, highlighting the increasing sophistication of both institutional and retail investors.

Figure 4. growth of ETF trading Volume

Data source: AMFI

4.2. PRODUCT DIVERSITY AND MARKET CONCENTRATION

Exchange-Traded Funds (ETFs) in India have grown remarkably over the years, with the market offering a diverse range of products to meet varied investment needs. By 2020, the Indian ETF landscape had matured significantly, with over 100 ETFs listed on the National Stock Exchange (NSE), making it an attractive avenue for both retail and institutional investors. The key types of ETFs available in the market consist of;

Index ETFs

Index ETFs are the most popular category, designed to track major stock indices such as the Nifty 50, Sensex, and mid-cap indices. They provide investors with broad market exposure at relatively low costs. For instance, the Nifty BeES is one of the oldest and most traded ETFs in this category, offering seamless access to the performance of the Nifty 50.

Sectoral and Thematic ETFs

Sectoral and thematic ETFs target specific sectors, such as banking, technology, or energy, allowing investors to benefit from sectoral growth trends. Examples include the Bank BeES, which focuses on the banking sector, and thematic ETFs targeting innovation or sustainability themes. These ETFs enable investors to align their portfolios with anticipated sector-specific or thematic growth.

Gold ETFs

Gold ETFs invest in physical gold, providing an effective hedge against inflation and currency volatility. Unlike physical gold, these ETFs offer high liquidity and eliminate the storage and security concerns associated with gold. Prominent offerings include the HDFC Gold ETF, which closely tracks gold prices and is a preferred choice for diversification.

Debt ETFs

Debt ETFs consist of bonds or fixed-income securities and are popular for their ability to provide stable returns with lower risk. The Bharat Bond ETF series, launched as part of government initiatives, is a prime example of this category, catering to conservative investors looking for fixed-income exposure.

Smart Beta ETFs

Smart Beta ETFs employ alternative index construction methodologies rather than traditional market capitalization. These ETFs focus on factors like momentum, value, or low volatility to optimize returns while managing risks effectively. They cater to sophisticated investors seeking exposure beyond traditional index-based strategies.

ESG (Environmental, Social, and Governance) ETFs

ESG ETFs are designed to invest in companies adhering to high environmental, social, and governance standards. These ETFs appeal to investors keen on sustainable and responsible investing. ESG-based ETFs were increasingly gaining traction by 2020, reflecting the global shift toward sustainable finance.

International ETFs

International ETFs provide exposure to global indices and foreign markets, enabling geographic diversification. For example, ETFs tracking the S&P 500 or Nasdaq allow Indian investors to invest in international equities without directly trading in foreign markets.

Commodity ETFs

Apart from gold ETFs, commodity ETFs include other commodities like silver or oil. These products help investors hedge against market volatility and offer exposure to commodity price movements.

Market concentration

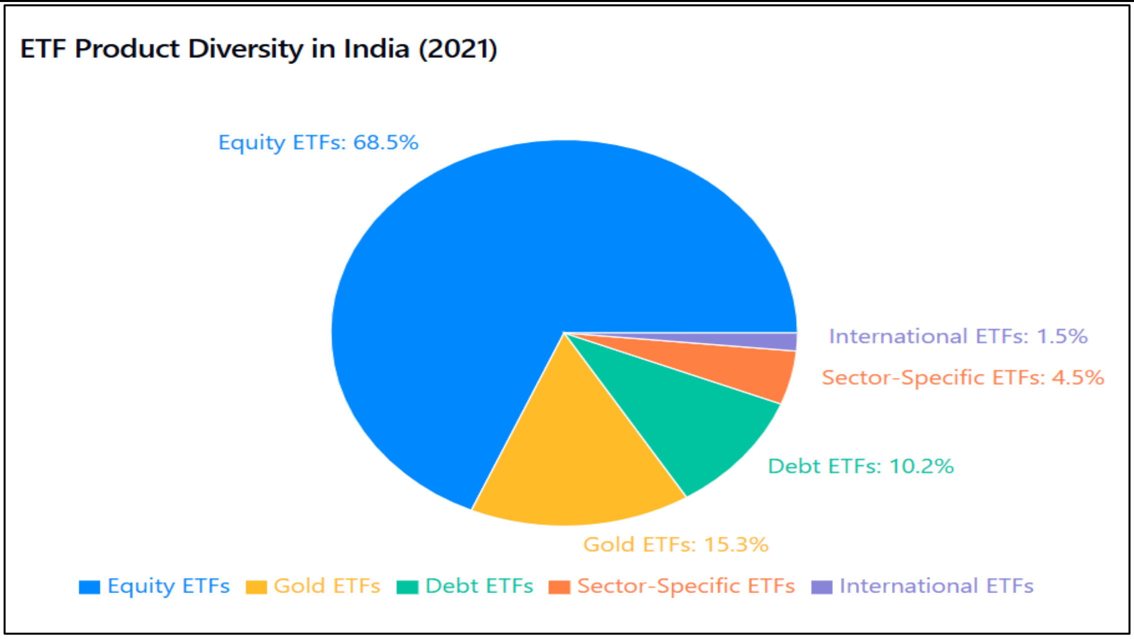
The Indian Exchange Traded Fund (ETF) market in 2020 presents a fascinating illustration of market concentration and development, characterized by a pronounced dominance of equity-based investment products. Figure 5 reveals a sophisticated yet narrowly focused investment ecosystem, where traditional investment preferences and market structures significantly influence product composition.

Equity ETFs emerge as the unequivocal cornerstone of the Indian ETF market, commanding an overwhelming 68.5% of total assets under management. This substantial market share reflects the deeply ingrained cultural and economic preference for equity investments in India. The equity ETF dominance underscores investors' risk appetite, confidence in domestic market potential, and a strategic alignment with India's robust economic growth narrative. The concentration suggests a market still in its evolutionary stage, where investors predominantly seek exposure to broader market indices and equity-driven growth strategies.

Gold ETFs occupy a noteworthy secondary position, representing 15.3% of the market – a proportion that eloquently speaks to India's cultural and economic relationship with gold. This significant allocation mirrors the traditional Indian affinity for gold as a store of value, investment hedge, and cultural asset. The relatively substantial gold ETF market share demonstrates a nuanced investment approach that balances modern financial instruments with deeply rooted investment traditions, offering investors a sophisticated mechanism to participate in gold investments without physical asset management.

The peripheral categories of debt ETFs (10.2%), sector-specific ETFs (4.5%), and international ETFs (1.5%) collectively highlight the market's current limitations and potential future growth trajectories. The constrained representation of debt ETFs suggests a conservative investment environment, potentially stemming from limited debt market depth, regulatory constraints, or investor risk perceptions. Sector-specific ETFs' minimal presence indicates an underdeveloped thematic investment ecosystem, while the microscopic international ETF segment reveals the nascent stage of global investment exposure through passive investment vehicles.

Figure 5. ETF product diversity in India



Data source: AMFI

4.3. COMPARATIVE ANALYSIS WITH GLOBAL MARKETS:

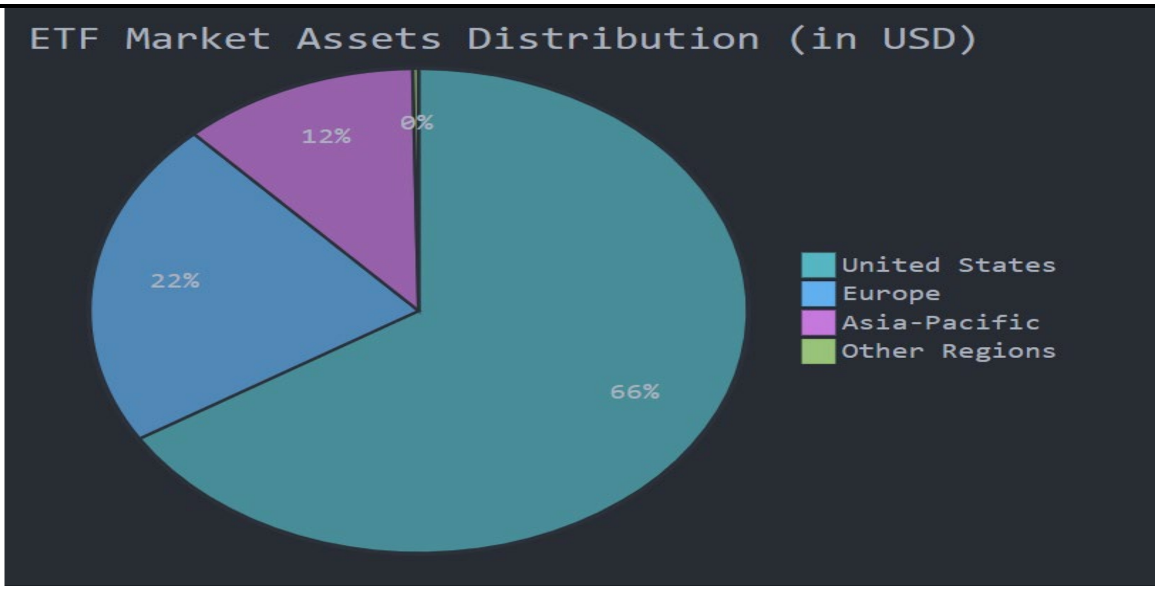
The global Exchange Traded Fund (ETF) market has grown exponentially, becoming a critical component of financial markets worldwide. By 2020, the total Assets Under Management (AUM) in the global ETF market surpassed $8 trillion, reflecting a robust Compound Annual Growth Rate (CAGR) of 15.2%. This growth highlights the increasing investor preference for ETFs as efficient, cost-effective, and transparent investment vehicles.

The market's geographic distribution underscores the dominance of the United States, which accounts for 68% of the global ETF market. Europe follows with a 22% share, while the Asia-Pacific region, including India, constitutes the remaining 10%. Despite its smaller share, the Asia-Pacific market is witnessing rapid growth, driven by increasing investor awareness and expanding product offerings.

Table 1. Geographic Distribution of ETF market Assets

Region	ETF Assets (USD)	Market Share
US	$6.8 trillion	68%
Europe	$2.25 trillion	22%
Asia-Pacific	$1.2 trillion	10%
Other Regions	$0.03 trillion	<1%

Figure 6. Global ETF Market Asset Distribution



Data Source: ETFGI.Com

Comparative Market Metrics

A closer look at market-specific metrics reveals stark contrasts between the United States, Europe, and India. The United States leads with over $5.4 trillion in AUM, supported by more than 2,300 ETFs and expense ratios ranging from 0.05% to 0.20%. Retail participation in the U.S. market is exceptionally high at 75%, emphasizing the widespread adoption of ETFs among individual investors.

Europe, with $1.8 trillion in AUM and 1,500+ ETFs, exhibits moderate expense ratios (0.10% to 0.30%) and 65% retail participation. In comparison, India's ETF market is relatively nascent, with $145.3 billion in AUM, 122 ETF products, and expense ratios between 0.10% and 0.50%. Retail participation in India is also 65%, but the average investment size is significantly smaller, reflecting an emerging market's characteristics.

Table 2. Market Metrics of ETF

	Total ETF AUM	Number of ETFs	Avg. Expense Ratio	Retail Participation
US	$5.4 trillion	2,300+	0.05% - 0.20%	75%
Europe	$1.8 trillion	1,500+	0.10% - 0.30%	65%
India	$145.3 billion	122	0.10% - 0.50%	65%

Product Diversity Comparison

Globally, ETFs encompass a diverse range of asset classes. Equity ETFs dominate, accounting for 65% of total products, followed by fixed income (20%), sector/thematic ETFs (10%), commodities (3%), and alternative assets (2%). In India, equity ETFs similarly represent the majority (68.5%), with notable contributions from gold ETFs (15.3%), debt ETFs (10.2%), sector-specific ETFs (4.5%), and international ETFs (1.5%). However, the limited representation of alternative and thematic products in India indicates significant room for innovation and diversification.

Figure 7. Global ETF product diversity

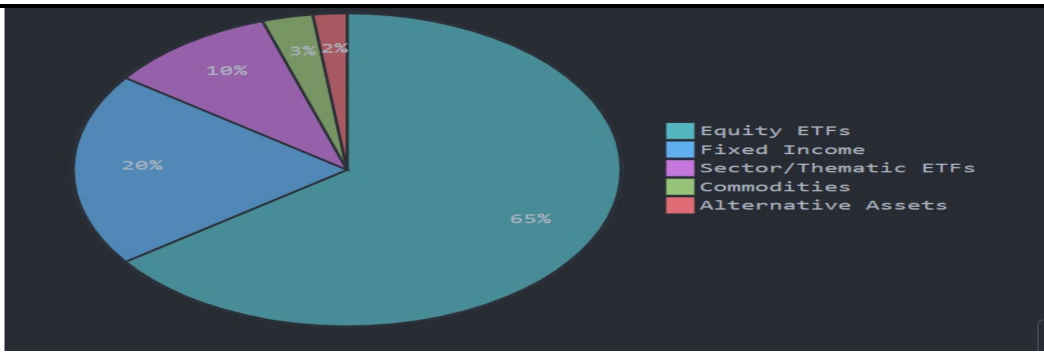
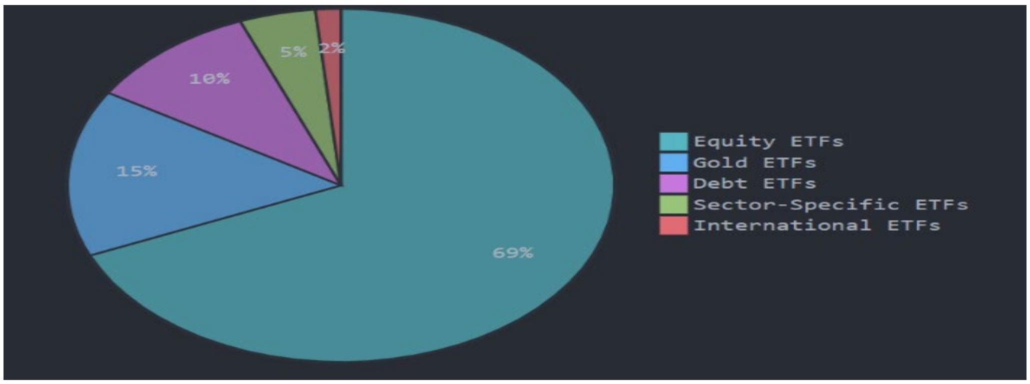


Figure 8. Indian ETF product diversity



Comparative Analysis Dimensions

1. Market Maturity and Penetration

The U.S. market exemplifies maturity, with ETFs constituting 40% of daily trading volumes and supported by a sophisticated ecosystem of market-making mechanisms. Innovation is a cornerstone of this market, with low expense ratios further fueling adoption.

In contrast, the Indian ETF market accounts for only 5% of daily trading volumes. It lacks the extensive market-making infrastructure and product variety seen in developed markets, reflecting its early-stage development.

2. Investor Participation Dynamics

Investor participation also varies significantly across regions. The U.S. market sees heavy retail involvement, with an average investment size between $15,000 and $50,000. In India, retail investors make smaller contributions, averaging $2,000 to $10,000 per investment. Institutional investors play a relatively larger role in India (35% of participants), signifying the need for broader retail outreach.

3. Regulatory Environment

The regulatory environment in India is notably more complex than in developed markets, creating barriers to rapid ETF innovation. For example, launching a new ETF in India can take 6–12 months, compared to 3–6 months in the U.S. Furthermore, significant restrictions on international investments and lower tax efficiency deter potential investors.

4. Technology and Innovation

Technology adoption is another area of divergence. In the U.S., 85% of ETF trades occur through digital platforms, supported by robo-advisors and advanced algorithmic trading. In India, while digital platforms facilitate 45% of trades, robo-advisory services and algorithmic trading remain in their infancy.

5. Benchmarking and Performance

Tracking error—a measure of an ETF's performance relative to its benchmark—is an important indicator of market efficiency. The U.S. market exhibits minimal tracking errors (0.10%–0.25%), while Europe sees moderate errors (0.20%–0.40%). India, on the other hand, experiences higher tracking errors (0.30%–0.75%), reflecting challenges in replication efficiency and market liquidity.

Table 3. Tracking Error

Country	Average Tracking Error
United States	0.10% - 0.25%
Europe	0.20% - 0.40%
India	0.30% - 0.75%

The comparative analysis underscores that while India's ETF market is at an early stage of development, it holds tremendous potential. The success of the market will depend on its ability to address challenges such as limited product diversity, regulatory complexities, and low liquidity. By leveraging its young, tech-savvy investor base and embracing strategic innovations, India can position itself as a significant player in the global ETF landscape.

4.4. CHALLENGES AND OPPORTUNITIES

The Indian ETF market has witnessed exponential growth, but its progress has been accompanied by a range of challenges and opportunities. Understanding these dynamics is essential for policymakers, asset management companies, and investors to harness the potential of ETFs in India effectively.

Challenges

Low Retail Participation Despite the growth in the ETF market, retail investor participation remains relatively low compared to other investment vehicles like mutual funds. Many Indian investors are unfamiliar with ETFs or lack access to the platforms required to trade ETFs. According to SEBI reports, retail investors accounted for only a minor portion of ETF trading volumes as of 2020.

Limited Product Awareness ETFs are often misunderstood as being similar to traditional mutual funds, leading to hesitation among investors. The lack of widespread financial literacy, especially in smaller cities and rural areas, has restricted the penetration of ETFs across India.

Liquidity Constraints One of the critical challenges in the Indian ETF market is the lack of liquidity in certain ETFs, especially those with low trading volumes. This issue can lead to wider bid-ask spreads, making trading more expensive for investors. Illiquidity also affects price discovery and the ability of investors to exit positions efficiently.

Over-Reliance on Institutional Investors The Indian ETF market is heavily reliant on institutional players, particularly the Employees' Provident Fund Organisation (EPFO), which invests in ETFs to meet its equity exposure requirements. This concentration creates a market imbalance, as retail participation remains marginal.

Limited Range of Offerings While the Indian ETF market has expanded to include thematic and sectoral ETFs, the range of options remains narrow compared to developed markets. For instance, ETFs focused on alternative assets, such as commodities other than gold or real estate investment trusts (REITs), are limited.

Tracking Error and Cost Management ETFs in India face challenges related to tracking errors, where the performance of the ETF deviates from its benchmark index. Tracking error often arises due to operational inefficiencies, cash drag, and liquidity issues. Additionally, while ETFs are generally low-cost products, expense ratios in India can still be higher than those in more developed markets.

Regulatory Barriers Although SEBI has been proactive in regulating ETFs, certain barriers, such as restrictions on international ETFs and stringent compliance norms, have limited the growth of the market. For example, international ETFs were introduced only in 2020, making India lag behind in global ETF participation.

Lack of Market Makers In the Indian context, market makers, who play a crucial role in maintaining liquidity and narrowing spreads in ETFs, are less prevalent. This absence hinders the smooth functioning of the ETF market, particularly during volatile periods.

Opportunities

Rising Demand for Passive Investments As Indian investors become more cost-conscious and aware of passive investing's benefits, ETFs present a significant growth opportunity. The growing popularity of index investing globally has positively influenced the mindset of Indian investors, who increasingly view ETFs as an efficient investment vehicle.

Digital Penetration and Fintech Innovations The rise of digital trading platforms and fintech innovations has made ETFs more accessible to retail investors. Mobile-based trading apps and robo-advisors simplify the process of investing in ETFs, bridging the gap for first-time investors in Tier-II and Tier-III cities.

International Market Exposure With SEBI introducing guidelines for international ETFs in 2020, Indian investors now have an opportunity to diversify their portfolios globally. This move allows access to leading international indices, such as the S&P 500 or Nasdaq 100, without requiring direct overseas investments.

Potential for New ETF Categories India's growing economy and evolving financial markets present opportunities to launch innovative ETF categories, such as ESG (Environmental, Social, and Governance) ETFs, REITs, and commodity-based ETFs (beyond gold). Such diversification would attract niche investors and expand the market base.

Government Initiatives and Policies The Indian government's focus on disinvestment through ETFs, such as Bharat Bond ETFs, underscores the critical role ETFs play in public finance management. These initiatives not only deepen the ETF market but also attract retail and institutional investors to government-backed products.

Increased Focus on Cost Efficiency SEBI's efforts to reduce expense ratios for ETFs have made them more competitive compared to actively managed funds. The emphasis on cost efficiency aligns with global trends and is likely to drive further adoption among cost-conscious investors.

Corporate Participation and Thematic ETFs Corporate investors are increasingly recognizing the potential of ETFs for treasury management and diversification. The growth of thematic ETFs, focusing on sectors like technology, banking, and healthcare, provides an attractive avenue for institutional and retail investors seeking targeted exposure.

Growing Institutional Interest Institutional investors, including pension funds, insurance companies, and mutual funds, are exploring ETFs as a low-cost way to achieve diversified exposure to equities and fixed-income securities. The EPFO's continued investments in ETFs highlight their appeal to large institutions.

Evolving Regulatory Framework SEBI's progressive policies, such as allowing direct ETF listings and encouraging transparency, are creating a conducive environment for market growth. Future regulatory reforms, such as incentivizing market makers and simplifying compliance norms, could address existing challenges and accelerate adoption.

Education and Awareness Campaigns With growing awareness initiatives by SEBI, AMFI (Association of Mutual Funds in India), and financial institutions, the knowledge gap surrounding ETFs is gradually narrowing. Such campaigns are instrumental in driving retail investor participation.

5. CONCLUSION

The evolution of the Indian Exchange-Traded Fund (ETF) market is a testament to the transformative impact of regulatory support, financial innovation, and growing investor interest. Since the introduction of ETFs in 2002, the market has gradually matured, expanding its product offerings and attracting diverse investor segments. Despite these advancements, the Indian ETF market remains in its early stages compared to developed economies, presenting both challenges and opportunities.

This study reveals that while equity ETFs dominate the Indian market, reflecting the country's strong preference for equity investments, other categories such as gold, debt, and sectoral ETFs are gaining traction. Regulatory milestones, such as SEBI's guidelines for transparency and the reduction of expense ratios, have been instrumental in fostering trust and promoting cost-efficient investment options. However, the market continues to face challenges like limited product diversity, liquidity constraints, and tracking inefficiencies.

Comparisons with global markets highlight the need for innovation in India's ETF landscape. While thematic and international ETFs have become mainstream globally, their presence in India is limited. The study also underscores the importance of addressing operational inefficiencies, particularly tracking errors, which hinder investor confidence and market efficiency. These gaps present opportunities for regulators and asset managers to drive product diversification and operational improvements.

The findings emphasize the critical role of regulatory and technological interventions in shaping the future of ETFs in India. Simplifying compliance, incentivizing liquidity providers, and leveraging digital platforms can enhance accessibility and investor participation. Additionally, targeted awareness campaigns can address misconceptions and broaden adoption among retail investors.

In conclusion, the Indian ETF market is poised for significant growth, supported by a young, tech-savvy investor base and a progressive regulatory framework. Strategic initiatives to expand product diversity, enhance liquidity, and promote financial literacy will be pivotal in unlocking the market's potential and positioning India as a key player in the global ETF ecosystem. By learning from global benchmarks and adapting to local investor needs, India can create a vibrant and inclusive ETF market that caters to both retail and institutional investors.

6. RESEARCH IMPLICATIONS

The findings of this study carry significant implications for multiple stakeholders in India's financial ecosystem. Regulators play a vital role in shaping the ETF ecosystem. To foster growth, they need to streamline the processes for launching new ETFs by reducing delays and simplifying compliance requirements. This will encourage asset managers to introduce diverse and innovative ETF products. Additionally, addressing liquidity challenges by incentivizing market makers can improve price discovery and ease of trading. Reducing tracking errors is also essential to enhance investor confidence, as it ensures ETFs more accurately reflect the performance of their underlying indices. These regulatory measures can collectively make the ETF market more accessible, transparent, and efficient.

Asset managers must focus on diversifying their product offerings to cater to the evolving preferences of investors. Introducing thematic ETFs focused on sectors like technology, healthcare, or sustainability can attract investors with specific interests. Similarly, ESG-focused and alternative asset-based ETFs can broaden the appeal of passive investment vehicles. Alongside product diversification, investor education must be prioritized to increase awareness about ETFs and their benefits. Many investors, particularly in emerging markets, are unfamiliar with ETFs or perceive them as complex products. Targeted education initiatives can bridge this gap, helping investors make informed decisions and increasing participation in the ETF market.

7. SCOPE FOR FURTHER RESEARCH

Future research in the ETF domain could explores into the transformative role of technologies such as artificial intelligence, machine learning, and blockchain in enhancing ETF creation, management, and trading, including innovations like automated portfolio rebalancing and transparent index construction. Behavioural finance studies could explore how demographic factors, risk perceptions, and financial literacy influence ETF investment decisions, offering insights into generational preferences. Additionally, research on ESG-focused ETFs in India could assess investor interest, performance metrics, and challenges in developing sustainable passive investment products. Lastly, the growing category of international ETFs warrants investigation into investor motivations, allocation strategies, and barriers to global diversification through ETFs, providing actionable insights for stakeholders.

CONFLICT OF INTERESTS

None.

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