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Benefits of scale economies in U.S. asset management

Introduction

Professionally managed funds offered by U.S. asset managers—such as mutual funds and exchange traded funds (ETFs)—have made it easier and more cost-efficient for millions of American investors to access markets. Over the past few decades, American families' household assets invested in funds have dramatically increased,[1] while the cost of investing (as measured by fund expenses and trading costs) has drastically decreased.[2] The share of U.S. household financial assets invested in professionally managed funds, for example, has grown roughly eight-fold since the 1980s as more Americans use these products to meet their financial goals.[3] Today, more than 100 million Americans (about 60 million U.S. households) participate in the equity and bond markets via mutual funds, institutional funds, and ETFs.[4] These products combine simplified access to markets with low expenses, and make saving for long-term financial goals such as college, retirement, or other significant life events, easier and more achievable.

As more investors seek simple, cost-efficient ways to participate in financial markets, economies of scale and scope in asset management have evolved to meet their needs. Economies of scale benefit investors—especially retail investors—by making it easier to access markets with greater liquidity and lower costs. For example, had fund expenses remained static just over the past ten years, the estimated additional expenses paid by investors would have been over $200 billion.[5] Economies of scope—where the creation of one type of fund reduces the costs of creating related funds—have brought more choice to investors as the breadth of fund options available, particularly in low-cost index investing, has grown rapidly. There are now around 2,300 U.S.-registered ETFs across a diverse range of asset classes and exposures—nearly 30 times as many products as there were two decades ago.[6]

Asset managers' ability to innovate and help investors efficiently access markets through professionally managed funds depends on the continued modernization of capital markets, including increased transparency, and dynamic industry competition. Rulemaking that supports these efforts is therefore crucial to delivering the benefits of these products to the millions of investors that rely on them today. However, it is equally critical that any regulatory changes do not have unintended consequences that could diminish the benefits investors, markets and companies receive from the presence of scaled asset management. For example, proposed amendments to antitrust regulations under the Hart–Scott–Rodino or "HSR" Act by the U.S. Federal Trade Commission ("FTC") to amend anti-trust regulations[7] would reverse nearly three decades of industry progress to deliver cost-efficient market access to hundreds of millions of Americans.

In this paper, we take a closer look at how economies of scale, scope and competition in the U.S. asset management industry have benefited investors, examine the negative implications of the FTC's HSR proposal and share alternative solutions that we believe would strengthen, rather than disrupt, financial markets.

The growth of index investing has enabled U.S. investors' market participation

One driver of increased investor participation in markets has been the growth of index investing. Since the inception of the index mutual fund by Vanguard in the mid-1970s and the first ETF in the U.S. in 1993, household ownership of index funds has grown exponentially. As of year-end 2020, 43% of mutual fund-owning households in the U.S. owned at least one equity index mutual fund, and an estimated 17% also owned ETFs.[8] Importantly, it is not just

All source information can be found in the Endnotes section. The opinions expressed are as of January 2022 and may change as subsequent conditions vary.

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individual investors who have embraced index investing; index funds have increasingly been adopted by a wide range of institutional investors such as asset managers, endowments, and large-scale retirement plans and solutions. For example, in defined contribution plans (i.e., 401(k) plans) alone, index assets have grown nearly five times over the past decade and now represent around 36% of total defined contribution assets (and continue to grow at a rate nearly twice that of the total defined contribution industry).[9] Many financial professionals, such as registered investment advisors (RIAs) and broker-dealers, also use index funds to create portfolios for their clients, including through the fast-growing use of ETFs in model portfolios.

The popularity of index investing reflects the benefits that these products have provided for investors since the mid-1970s, including simplified access to markets, lower fund expense ratios (and therefore higher returns net of expenses), greater diversification (which generally reduces unsystematic risk), and, for ETFs, generally daily transparency into portfolio holdings combined with tax efficiency for the fund and its investors.[10] Critically, the proliferation of index investing has reduced costs not just for the users of index products, but across the entire investment industry. Competition among index and active managers for flows/assets drives down expenses in both index and active products, and increasing use of ETFs by active managers for a range of portfolio management applications—e.g., gaining broad market exposure at lower costs than by purchasing individual securities—has contributed to decreasing expense ratios in active funds.

The U.S. asset management industry is competitive and diverse

The U.S. asset management industry is highly competitive and fragmented. Even among the top 10 U.S. asset managers by assets under management ("AUM"), expense ratios continue to be a driver of competition and strongly influence organic growth (**Exhibit 1**). In other words, in an environment of historically low expense ratios across the industry, competition among asset managers is still alive and well. Asset managers face competition from several sources:

- Competition for flows/assets among active and index managers and other investors (e.g., hedge funds)
- Competition from sophisticated institutional investors, like Sovereign Wealth Funds, who may have the time and resources to manage their own portfolios in-house, rather than relying on an external manager
- Competition from direct indexing, where managers design bespoke index portfolios that seek to meet clients' objectives while harvesting losses that offset gains, producing tax alpha
- Competition from new product types (e.g., bond portfolio trades versus bond ETFs) and from traditional active managers converting mutual funds to ETFs

Importantly, competition in asset management across a range of dimensions, including expense ratios (fees), performance, strategies, and type of exposure, has created

Exhibit 1: Cost pressures persist across the top 10 asset managers (by AUM) in the U.S.

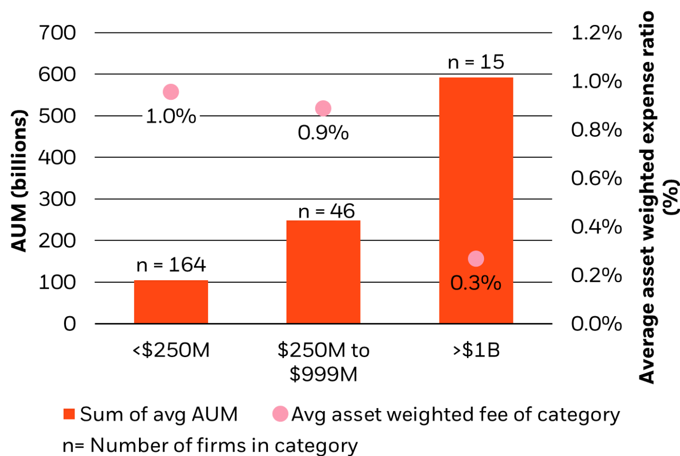
	Asset-weighted average expense ratios (%)			2020			
Asset Manager	**2015**	**2020**	**% change**	**Year-end AUM ($B)**	**Market share (%)**	**Asset Growth (%)**	**Organic Growth Rate (%)**
Vanguard	0.12	0.09	-28	6,150	25.97	15.49	1.52
BlackRock/iShares	0.40	0.26	-36	2,342	9.89	17.90	7.00
Fidelity	0.71	0.37	-48	2,161	9.13	21.33	0.58
American Funds	0.68	0.57	-15	2,032	8.58	14.67	-1.83
State Street	0.19	0.16	-12	870	3.67	17.49	4.67
T. Rowe Price	0.71	0.52	-27	771	3.26	16.03	-4.96
Invesco	0.84	0.61	-27	620	2.62	15.90	-3.52
Franklin Templeton	0.82	0.67	-18	574	2.42	4.21	-4.83
JPMorgan	0.78	0.57	-27	437	1.85	24.43	12.9
PIMCO	0.64	0.94	47	403	1.70	3.32	-1.71

Source: See Endnotes 11 and 12.

significant choice for investors. For example, 225 different fund providers cumulatively offer nearly 1,700 open-end funds with investment strategies specifically focused on investing in U.S. Small-Cap equities alone. Expense ratios across these funds range from 0.01% to over 1%.[13] While all these funds attract assets, the lowest expense ratio products have garnered the most money (**Exhibit 2**), providing the impetus for continued competition on expenses.

Dynamic, competition-driven fee pressure in the asset management industry offers meaningful benefits to investors. For example, the average asset weighted expense ratios of all U.S. open-end mutual funds and ETFs in 2011 was approximately 0.68%, compared to roughly 0.42% in 2020. Had the asset management industry been static and non-competitive, with fund expense ratios staying at 0.68% as a result, the estimated additional cumulative expenses paid by investors would have been over $200 billion over the last decade alone.[14] As scale economies in asset management continue to enable the price to invest to go down, Americans continue to see the resulting savings, empowering more first-time savers, middle income investors, and retirement savers to reach their financial goals.

Exhibit 2: Across 1,699 U.S. Small-Cap equity strategies, investor assets gravitate to the lowest expense ratio products (by AUM)



Source: See Endnote 15.

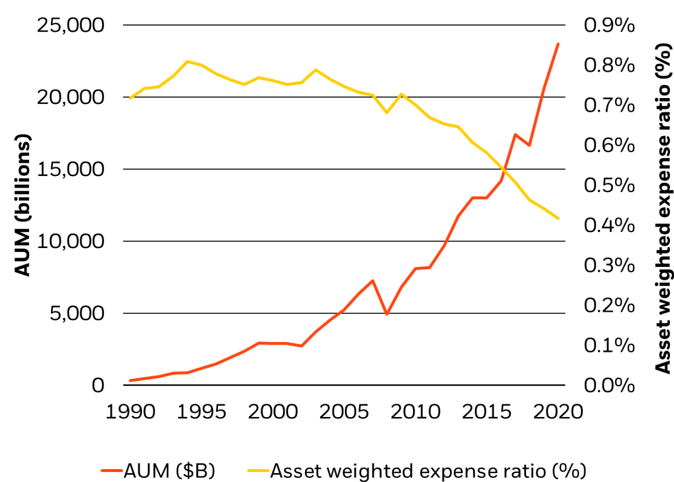
The advantages of scale economies in asset management

Scale offers mechanisms to reduce costs and increase operational efficiency. For example, larger asset managers can:

- methodically spread fixed costs (e.g., data, technology system/platform, and personnel costs, etc.);
- leverage distribution channels with fewer intermediaries (e.g., investors can directly buy ETFs on zero-commission brokerage platforms); and
- efficiently implement trading strategies by using multiple brokers/trading venues, trading in local time zones, and investing in advanced trading systems/platforms, algorithms, and data.

The benefits of economies of scale and strong competition in asset management are passed on to investors in the form of lower expense ratios. For example, the average asset-weighted expense ratios across all U.S. open-end funds (active and index) have steadily declined since the 1990s. Just in the past decade, expense ratios dropped nearly 40% as fund AUM grew (**Exhibit 3**). Even in the index fund universe, where overall fee compression is extreme, competition continues to drive fund expense ratios even lower.[16]

Exhibit 3: Inverse relationship between assets and expense ratios in U.S. open-end funds

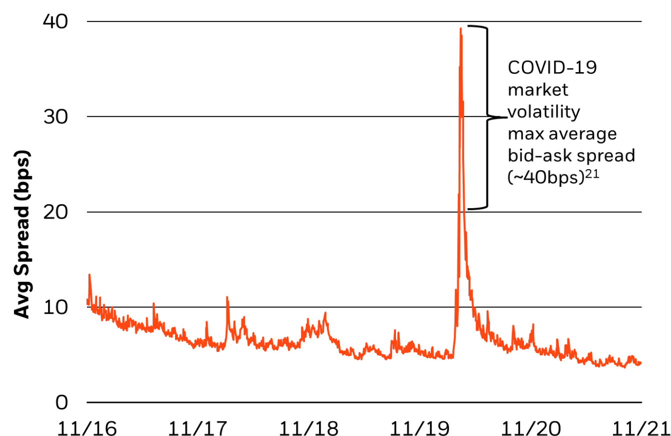


Source: See Endnote 17.

The strong inverse relationship between fund assets and expense ratios exists at the individual fund level and at the fund complex level (i.e., a group of funds run by a single asset manager). Funds associated with a single asset manager are managed independently according to their stated investment objective. However, large asset managers can generally leverage scale operations and trading and portfolio management resources, such as dedicated teams for specific trading functions or access to broad sets of data, to reduce costs. For example, a fund that is part of a "top five fund complex" (by aggregate AUM) is estimated to have a lower expense ratio by about 0.24% than a fund outside of the top five.[18] This illustrates how asset managers leveraging scale economies can positively influence a reduction in expenses across a range of funds.

In addition to lower fund expenses, trading costs for investors (as measured by historical average bid-ask spreads for U.S. equities) have also decreased by over 95% over the past three decades. This has been driven by factors such as technological advancement and automation in market structure supported by regulatory reforms and fierce competition among the different players advancing innovation in the capital markets ecosystem.[19] This trend is particularly relevant for ETF investors who typically buy or sell shares of an ETF on a stock exchange (like buying or selling a stock). In fact, the cost of trading has decreased across the largest 500 U.S.-domiciled ETFs by assets over the past five years (**Exhibit 4**), despite a background of higher market volatility on average over the same period.[20] This reflects higher trading volumes, increased liquidity, competitive markets, and greater access to capital markets for investors.

Exhibit 4: Trading costs have decreased significantly across the 500 largest U.S. equity ETFs (by AUM) over the past five years

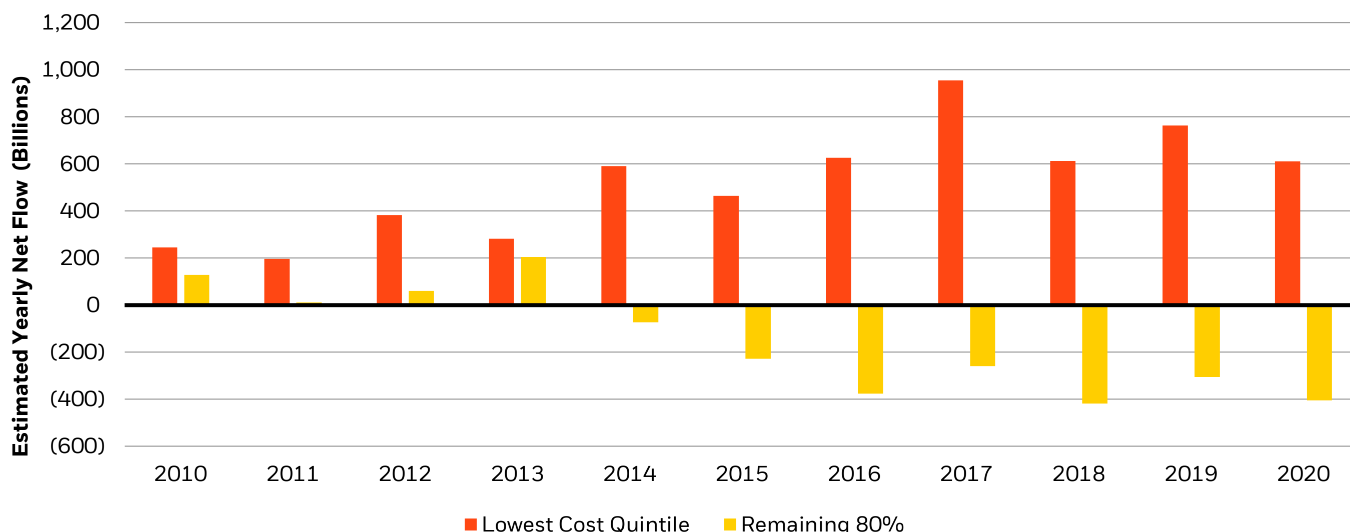


Source: See Endnote 22.

Investors seek lower expenses and stable returns

There is a virtuous cycle between lower costs and investor flows. As the simplicity of investing increases, investors continue to seek out funds with the lowest expense ratios. Over the past decade, net flows have increasingly gone to the lowest cost funds (**Exhibit 5**).

Exhibit 5: Investors favor lower cost funds



Source: See Endnote 23.

Morningstar analysis further illustrates that the migration to the lowest cost funds is not a new trend, stating, “Since 2000, net flows into funds charging fees that rank within the cheapest 20% of their Morningstar category group have trended higher.”[24] In addition to higher investor flows, fund performance and the likelihood that a fund stays open tend to be better on average among funds with the lowest expense ratios. These trends exist across both U.S. open-end active and index funds. The lowest expense ratio actively managed funds succeeded in beating their benchmark by about twice as often as the most expensive ones “(a 34% success rate versus a 17% success rate) over a 10-year period”.[25] The combination of low fees and strong performance illustrates how these funds attract the greatest investor flows. Importantly, lower costs to invest and stable fund returns enable greater compounding growth of savings,[26] which is particularly important for Americans saving for long-term financial goals, such as retirement.

Preserving the benefits of scale in asset management for investors

On September 21, 2020, the FTC issued a Notice of Proposed Rulemaking (“NPRM”) that includes proposed amendments to antitrust regulations under the HSR Act. The goal of the amendments, as stated in the NPRM, is to address some of the challenges the FTC and the Antitrust Division of the Department of Justice (together, the “antitrust agencies”) face today, such as limited information and transparency into potential competitive impacts of certain transactions such as minority acquisitions.[27] However, as proposed, the changes could pose significant impediments to the ordinary course investment activities of asset managers and, more importantly, have negative repercussions for investors.

Under the current HSR Rules, certain transactions—including minority acquisitions of voting securities above a certain dollar threshold—require a premerger notification filing to the antitrust agencies by the acquiror (such as an asset manager, on behalf of its clients) and a responsive filing by the issuer of the securities. A notification filing incurs a fee[28] and triggers an initial review period of 30 days or more, during which the filer may not purchase additional shares of the security.[29]

Today, asset managers are permitted to monitor holdings against HSR filing limits on a fund-by-fund basis. To obtain more substantive information on the total economic stake of the issuer being acquired by associated entities, the FTC has proposed requiring “associates aggregation,” which would necessitate investment entities to aggregate holdings across funds under common management when monitoring against the filing thresholds. This would result in asset managers more frequently exceeding the HSR filing thresholds, triggering an exponential increase in the number of required HSR filings.

Asset managers making more frequent HSR filings would be most detrimental to the investors who rely on professionally managed funds. For one, the acquisition freeze associated with an HSR filing would impair fund portfolio management activities, as the funds holding a “frozen” security would be prohibited from acquiring additional holdings in that security while HSR filings are pending review by the antitrust agencies. This could have significant portfolio management impacts for both active and index funds.

Generally, the objective of an index fund is to replicate the performance of an underlying benchmark index. If a fund manager must wait up to 30 days or more for approval to increase their positions in a security, they may not be able to accurately track the fund’s benchmark index. This could generate significant tracking error and cash drag, which can negatively impact fund performance and increase portfolio risk. Acquisition freezes could be especially harmful for index funds during index rebalances (time-sensitive events when index funds must reconfigure portfolio holdings to reflect changes made to benchmark indexes). In addition to the performance and risk-related effects, it would make index rebalancing less predictable and less transparent as security acquisition would be pending FTC approval and there is no way to predict or project the timing of the outcome or the outcome itself. This could increase risk for liquidity providers and challenge their ability to efficiently and reliably provide liquidity for the large pools of assets traded during index rebalances. This could lead to higher costs for investors, compounded by the fact that liquidity providers may have less appetite to provide liquidity for future rebalances given the potential for higher levels of uncertainty. For active funds, which seek to beat the performance of an underlying benchmark index, unpredictable delays in security acquisitions could limit the ability of managers to achieve outperformance from security selection and timing, potentially diminishing investors’ returns.

While the challenges posed by associates aggregation may be more consequential for larger asset managers, even smaller, niche asset managers may face significant challenges. For example, new ETF providers who enter the market by offering niche or thematic ETFs that are highly concentrated in particular industries or sectors may be discouraged to do so, as investment thresholds may limit the feasibility of efficiently offering these types of strategies. Investment categories that are made up of small

to mid-sized issuers, such as U.S. Small-Cap equities (e.g., S&P Small-Cap 600® and Russell 2000 indexes) and U.S. Mid-Cap equities (e.g., S&P Mid-Cap 400® index), would be especially impacted by increased HSR filings, as even smaller positions could trigger filings (the smaller market capitalization of these issuers would result in higher ownership percentages).

If the amendments are implemented as currently proposed, the ability for asset managers to manage funds efficiently and consistent with their investment objectives would be challenged. The impediments to efficient portfolio management introduced by associates aggregation would limit scale operations and could therefore reduce the benefits asset managers pass on to investors through professionally managed funds, potentially leading to higher fund expenses, diminished fund performance and limited product choice.

It's not just investors in professionally managed funds who would be impacted by this proposal. For example, a reduction in index fund assets could reduce the amount of stable, long-term capital for companies. Index funds remain invested in a stock for as long as it remains in its underlying index.[30] The long-term nature of index capital enables companies to allocate more towards strategic investment focused on unlocking new avenues for growth, maximizing long-term enterprise value, and investing in research and innovation rather than shorter-term financial targets. More stable capital also allows a company to issue stocks and bonds with a lower required rate of return, reducing the weighted average cost of capital and helping in future fund raising for investment. Additionally, if small- to mid-size issuers (such as companies whose stock is in the U.S. Small-Cap or U.S. Mid-Cap category) are disproportionately impacted by ownership limits, this could translate to an unfair playing field among companies raising growth capital, dampen incentives for companies to continue seeking capital from public markets, and potentially skew the overall composition of companies participating in public capital markets.

Conclusion

Flows into professionally managed funds have demonstrated that more and more investors are turning to these products to help them reach their long-term financial goals. Scale in asset management, driven by the growth of index investing and competition in the asset management industry, has enabled this increased adoption by lowering fund expenses and simplifying market access for all investors. A regulatory environment that supports the efficient management and distribution of professionally managed funds will be crucial in allowing investors to reap the benefits offered by these products well into the future.

While we agree with the FTC that it is important to ensure product and capital markets in the U.S. remain fair and competitive, more comprehensive research is needed around the potential impacts of the changes proposed in the NPRM—especially the negative impacts they could have on investors, markets and companies. We believe there are ways that are less disruptive to markets for the FTC to achieve its goal and we recommend that the FTC withdraw or refine the associates aggregation proposal. Alternatives could include exempting institutional investors and index funds from associates aggregation or tailoring its application to specific areas of HSR Rules.[31] Through these other paths, the FTC could obtain the information it seeks without limiting asset managers' ability to efficiently deliver the products millions of Americans rely on to help meet their financial goals.

Endnotes

1. ICI states that "total net assets in regulated, open-end investment funds have grown substantially." "In the U.S., regulated funds include open-end funds—mutual funds and exchange-traded funds (ETFs)—as well as unit investment trusts and closed-end funds." Source: 2021 ICI Factbook. See: https://www.ici.org/system/files/2021-05/2021_factbook.pdf.
2. 2020 marked the lowest average expense ratios across all U.S. open-end funds (including all U.S. open-end mutual funds and exchange-traded funds and excluding money market funds and fund-of-funds) paid by investors ever. The average asset-weighted expense ratio across all U.S. open-end funds in 1990 was 0.72%; in 2020 it was 0.42%. Source: Morningstar, as of December 31, 2020. ©2021 Morningstar. All Rights Reserved. The information contained herein: (1) is proprietary to Morningstar and/or its content providers; (2) may not be copied or distributed; and (3) is not warranted to be accurate, complete or timely. Neither Morningstar nor its content providers are responsible for any damages or losses arising from any use of this information.
3. U.S. household financial assets held in "funds" defined as registered investment companies, including holdings of mutual funds, ETFs, closed-end funds, and UITs, which grew from 3% in 1980 to 23% at year-end 2020. Source: 2021 ICI Factbook. See: https://www.ici.org/system/files/2021-05/2021_factbook.pdf.
4. Source: 2021 ICI Factbook. See: https://www.ici.org/system/files/2021-05/2021_factbook.pdf.
5. Sources: Morningstar, BlackRock. Morningstar data as of December 31, 2020. Calculations by Blackrock. Asset weighted expense ratio calculated using all share classes of ETFs and mutual funds, excluding fund-of-funds and money market funds. Total expenses calculated by multiplying weighted average expense ratio by average of beginning and end of year assets for calendar year.
6. In 2000, there were just 80 U.S.–registered ETFs available for purchase. By year-end 2020, there were around 2,300 U.S.–registered ETFs across a diverse range of asset classes and exposures. Data includes ETFs that invest in other ETFs. Source: 2021 ICI Factbook. See: https://www.ici.org/system/files/2021-05/2021_factbook.pdf.
7. See official notice of proposed rulemaking here: https://www.federalregister.gov/documents/2020/12/01/2020-21753/premerger-notification-reporting-and-waiting-period-requirements?form=MY01SV&OCID=MY01SV.
8. Percentages are not mutually exclusive. Source: 2021 ICI Factbook. See: https://www.ici.org/system/files/2021-05/2021_factbook.pdf.
9. Source: P&I 2020 Money Managers Survey, as of December 31, 2020. Index assets are growing at a 16% compound annual growth rate while total industry assets are growing at a 9% compound annual growth rate. Excludes multi-asset products such as target date funds and allocation funds.
10. Unlike mutual funds, most ETF investors don't interact directly with the fund when buying or selling ETF shares; instead, ETF buyers and sellers typically transact in the secondary market. This means investors are generally insulated from the buying or selling activities of other shareholders which would otherwise result in increased transaction costs and portfolio turnover. ETF investors still pay capital gains taxes when they sell shares at a profit, similar to other investments including stocks, bonds and real estate.
11. Source: Morningstar, as of December 31, 2020. Table based on exhibit from Morningstar's '2020 Morningstar Fund Fee Study', pg. 16. Includes all U.S. open-end funds, excluding money market funds and fund of fund products. Market share is based on asset manager assets. Asset growth is change in asset manager assets from year-end 2019 to year-end 2020. Organic growth rate measures 2020 annual asset manager net flows as a percentage of year-end 2019 assets. ©2021 Morningstar. All Rights Reserved. The information contained herein: (1) is proprietary to Morningstar and/or its content providers; (2) may not be copied or distributed; and (3) is not warranted to be accurate, complete or timely. Neither Morningstar nor its content providers are responsible for any damages or losses arising from any use of this information.
12. Asset-weighted expense ratios represent the actual expenses paid by investors in relation to asset growth. Asset-weighted average fee is calculated as sum of funds' annual report net expense ratios multiplied by year-end assets divided by year-end assets.
13. Source: Morningstar, as of December 31, 2020. Fund universe is based on all open-end funds (active and index) in the Morningstar "Small-Cap Equities" category.
14. Sources: Morningstar, BlackRock. Morningstar data as of December 31, 2020. Calculations by Blackrock. Asset weighted expense ratio calculated using all share classes of ETFs and mutual funds, excluding fund-of-funds and money market funds. Total expenses calculated by multiplying weighted average expense ratio by average of beginning and end of year assets for calendar year.
15. Source: Morningstar, as of December 31, 2020. Categorization is based on aggregation of asset manager average U.S. Small-Cap equity fund AUM, bucketed by AUM ranges.
16. Source: Morningstar, as of December 31, 2020. Includes all U.S. open-end mutual funds and ETFs (excluding money market funds and fund of funds). Index fund fees have dropped by around 50% over the past decade. The information contained herein: (1) is proprietary to Morningstar and/or its content providers; (2) may not be copied or distributed; and (3) is not warranted to be accurate, complete or timely. Neither Morningstar nor its content providers are responsible for any damages or losses arising from any use of this information.
17. Source: Morningstar, as of December 31, 2020. Includes all U.S. open-end mutual funds and ETFs (excluding money market funds and fund of funds). ©2021 Morningstar. All Rights Reserved. The information contained herein: (1) is proprietary to Morningstar and/or its content providers; (2) may not be copied or distributed; and (3) is not warranted to be accurate, complete or timely. Neither Morningstar nor its content providers are responsible for any damages or losses arising from any use of this information.
18. Source: Morningstar, BlackRock. Morningstar data as of September 30, 2021. Calculations by BlackRock. Authors' estimates based on data from fund universe which includes all U.S. open-end mutual funds and ETFs (excluding money market funds and fund of funds). A multiple regression model was used to measure the predicted value of the dependent variable (fund expense ratio) against the independent variable (whether a fund belongs to a 'top five fund complex' (measured by aggregate fund complex AUM)).
19. Source: Modern Markets Initiative, "A Report on Market Automation and Democratizing Markets: Lowered Bid-Ask Spreads and Investor Savings". See report for commentary and academic studies on the drivers of decreasing trading costs and resulting savings for investors. See: https://www.modernmarketsinitiative.org/reports-studies.
20. For example, while the VIX, a common measure of expected market volatility, has been roughly 8.5 points higher in 2021 than in 2017, the average spread across ETFs have dropped by around 39% on an annual average basis. Source: Bloomberg, TAQ, NYSE. As of November 30, 2021.
21. As stated by the ICI, "during stressed markets, when selling pressure is intensified and volatility is elevated, bid-ask spreads on both ETFs and their underlying securities widen. Whether ETF bid-ask spreads remain narrower than those on their underlying securities during these times of stress will depend, in part, on the willingness of dealers to remain in the secondary market and provide competitive two-sided quotes for ETF shares relative to their underlying securities. During the market turmoil in March 2020, bid-ask spreads on large ETFs widened, but often remained narrower than those on their underlying securities." Source: ICI, "Experiences of US Exchange – Traded Funds During the COVID – 19 Crisis". October 2020. See: https://www.ici.org/system/files/attachments/pdf/20_rpt_covid2.pdf.
22. Source: TAQ, NYSE. As of November 30, 2021.
23. Source: Morningstar, as of December 31, 2020. Includes all U.S. open-end mutual funds and ETFs (excluding money market funds and fund of funds). Quintiles calculated by BlackRock based on distribution of year-end annual report net expense ratios across all funds in data universe. Historical net flows calculated based on sum of annual net flows across all funds in data universe. ©2021 Morningstar. All Rights Reserved. The information contained herein: (1) is proprietary to Morningstar and/or its content providers; (2) may not be copied or distributed; and (3) is not warranted to be accurate, complete or timely. Neither Morningstar nor its content providers are responsible for any damages or losses arising from any use of this information.

Endnotes

24. Morningstar also notes that "flows for the remaining 80% of funds have been negative in nine of the past 10 years." Source: Morningstar, '2020 Morningstar Fund Fee Study'. Data as of December 31, 2020. See: https://www.morningstar.com/lp/annual-us-fund-fee-study.
25. Includes all U.S. open-end mutual funds and ETFs (excluding money market funds and fund of funds). Source: Morningstar, 'Morningstar's Active/Passive Barometer, March 2021'. Data and calculations as of Dec. 31, 2020, pg. 3. See: https://www.morningstar.com/lp/active-passive-barometer.
26. Morningstar states, "Fees are a reliable predictor of future returns. Low-cost funds generally have greater odds of surviving and outperforming their more-expensive peers." Source: Morningstar, '2020 Morningstar Fund Fee Study'. Data as of December 31, 2020. See: https://www.morningstar.com/lp/annual-us-fund-fee-study.
27. See official notice of proposed rulemaking here: https://www.federalregister.gov/documents/2020/12/01/2020-21753/premerger-notification-reporting-and-waiting-period-requirements?form=MY01SV&OCID=MY01SV.
28. Each notification filing incurs a fee ranging from $45,000 to $280,000, depending on the size of the proposed transaction. Filing fees apply at the security level and could accumulate significantly given the number of transactions for which an asset manager would need to file.
29. While the HSR statute limits the initial review period to 30 days, the FTC can review transactions after the initial review period expires. The FTC announced on August 30, 2021, that the "tidal wave" of HSR filings received in 2021 has led to an inability for their staff to adhere to the 30-day window, and that the FTC would begin sending warning letter to applicants at the conclusion of the review period notifying them that the review remains open and warning applicants to close transactions at their own risk. Source: https://www.ftc.gov/news-events/blogs/competition-matters/2021/08/adjusting-merger-review-deal-surge-merger-filings.
30. The S&P 500® index, for example, holds companies for an average of approximately 25 years, while active mutual funds typically hold a stock for an average of 18 months. Average derived from S&P 500® index one-way annual turnover, historical data 1992 – 2019 was 3.9%, which equates to average holding period of 25 years. Morningstar turnover ratio for U.S.-focused equity funds was 65%, which equates to approximately 1.5 years. Sources: BlackRock, as of December 17, 2020 and Morningstar, as of December 31, 2020.
31. A full description of the recommendations is detailed in the BlackRock comment letter submitted February 1, 2021: https://www.blackrock.com/corporate/literature/publication/ftc-hsr-coverage-exemption-transmittal-rules-020121.pdf.

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