

# U.S. Fund Fee Study

Investors saved an estimated \$5.5 billion in fund fees in 2018.

## Morningstar Research

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## Executive Summary

Investors paid less to own funds in 2018 than ever before. Our study of U.S. open-end mutual funds and exchange-traded funds found the asset-weighted average expense ratio was 0.48% in 2018, down from 0.51% in 2017. We estimate that investors saved roughly \$5.5 billion in fund expenses last year thanks to this 6% fee decline, which is the second-largest year-over-year decline we have recorded since we began tracking the trend in asset-weighted average fees in 2000.

The asset-weighted average expense ratio has fallen every year since 2000. Investors are paying roughly half as much to own funds as they were in the year 2000, when the asset-weighted average fee stood at 0.93%; they're paying 40% less than they did a decade ago and about 26% less than they did five years ago.

The asset-weighted average expense ratio of passive funds was 0.15% in 2018 (versus 0.25% a decade ago) compared with 0.67% for active funds (0.86% in 2008). This means active-fund investors are paying about 4.5 times more than passive-fund investors on each dollar, the widest disparity since 2000.

The asset-weighted average fee fell again in 2018 because \$605 billion flowed into the lowest-cost funds (that is, those with fees that rank within the bottom 20% of their Morningstar Category group) and \$478 billion flowed out of all other funds (that is, those that rank in the most expensive 80%). Roughly three fourths of the dollars that flowed to the lowest-cost funds went into passively managed funds. In addition, the average fund's price tag fell--the equal-weighted average expense ratio dipped to 1.05% in 2018 from 1.10% in 2017.

There are several factors driving the asset-weighted average fee lower.

1. Greater awareness: Investors are increasingly aware of the importance of minimizing investment costs, which has led them to favor lower-cost funds.
2. Intensifying competition: Asset managers have been cutting fees to vie for market share.
3. Evolving advice model: The move toward fee-based financial advice has spurred the demand for lower-cost funds like ETFs.
4. Unbundling: Institutions and advisors have increasingly opted against costlier share classes that embed advice and distribution fees. (In this year's study, we examine trends in flows by service-fee arrangement--bundled, semibundled, and unbundled--for the first time.)

### Key Takeaways

- ▶ In 2018, investors paid an average 0.48% expense ratio for funds, as measured by the asset-weighted average expense ratio of all U.S. open-end mutual funds and exchange-traded funds. This reflects a 6% decline from 2017.
- ▶ As a result of this decline in asset-weighted average fees, we estimate that investors saved roughly \$5.5 billion in fund expenses last year.
- ▶ Investors are paying roughly half as much to own funds as they were in the year 2000, when the asset-weighted average fee stood at 0.93%; they are paying 40% less than they did a decade ago and about 26% less than they did five years ago.
- ▶ The asset-weighted average expense ratio for active funds fell to 0.67% in 2018 from 0.71% in 2017. This 4.9% decline was the largest-ever annual percentage decrease we have measured dating back to 2000 and was driven mainly by large net outflows from expensive funds and share classes and, to a lesser extent, inflows to cheaper ones.
- ▶ The asset-weighted average expense ratio for passive funds fell to 0.15% in 2018 from 0.16% in 2017, a 7% decline. This reflected strong flows into the lowest-cost equity and bond funds, as well as fee cuts by some asset managers for widely held broad index mutual funds and ETFs.
- ▶ Active-fund investors paid about 4.5 times more than passive-fund investors on each dollar in 2018. This is the widest gap between active and passive fund fees since we began tracking trends in asset-weighted average fees in 2000.
- ▶ Changes in fees charged by asset managers and the introduction of new funds and share classes are represented in the equal-weighted average expense ratio.
- ▶ Active funds exhibited a 3.7% decline in equal-weighted average fees in 2018. The equal-weighted average fee across all share classes of all active funds dropped to 1.11% in 2018 from 1.15% in 2017.
- ▶ The equal-weighted average expense ratio for passive funds was 0.63% in 2018, down from 0.64% in 2017.
- ▶ The average active fund still charges about 1.8 times as much as the average passive fund. That's basically unchanged from 2017 and slightly higher than 2015, when the average active fund charged about 1.7 times as much as the norm for passive funds.
- ▶ In 2018, the cheapest 20% of funds saw net inflows of \$605 billion, with passive funds soaking up 74% of those inflows and active funds accounting for 26%. The remaining 80% of funds saw net outflows of \$478 billion, which was the largest-ever outflow from this cohort.
- ▶ Of the \$605 billion that flowed into the cheapest 20% of funds and share classes, most of it went into the cheapest of the cheap, as 97% of net new money flowed into the least costly 10% of all funds.
- ▶ As a result of these trends, most investors now own lower-priced funds. Eighty-three percent of all assets reside in mutual funds and ETFs whose fees rank in the bottom 40% when compared with other funds in their category group.
- ▶ The evolution of the economics of the advice business is shaping flows and fees. As advisors move away from transaction-driven compensation models and toward fee-based ones, share classes that have fewer embedded advice and/or distribution costs are seeing more flows.

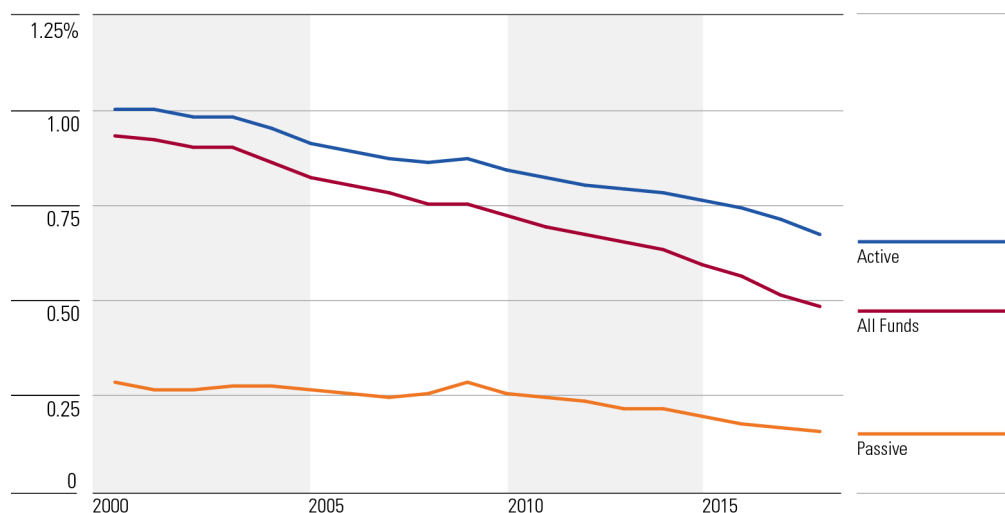
- ▶ Looking through the lens of Morningstar's service fee arrangement attribute, we can see that bundled share classes (largely load funds) have been in outflows for the past five years while semibundled and unbundled share classes (those that have fewer embedded costs unrelated to investment management) have seen steady inflows.
- ▶ As an alternative to higher-cost actively managed funds, some asset managers have launched strategic-beta funds, which seek to marry the best attributes of active and passive approaches to security selection and portfolio construction. In 2018, the asset-weighted average fee for U.S. equity strategic-beta funds was 0.17%, which was slightly higher than traditional index funds' fees of 0.08% but significantly lower than active funds' fees of 0.70%.
- ▶ Although its competition has gained ground, Vanguard continues to have the lowest asset-weighted average expense ratio among asset managers, which was 0.09% in 2018.

### **Trends in Fund Fees Paid by Investors**

In this study, we examine the trend in mutual fund expenses paid by investors using the asset-weighted average expense ratio. The asset-weighted average is a better measure than an equal-weighted average as it approximates what investors paid for the funds they invested in rather than what funds charged.

Investors paid less to own funds in 2018 than ever before. Our study of U.S. open-end mutual funds and ETFs found the asset-weighted average expense ratio was 0.48% in 2018, an 6% decline from 2017. This is the second-largest year-over-year percentage decline we have recorded since we began tracking the trend in asset-weighted average fees in 2000. Consequently, we estimate that investors saved roughly \$5.5 billion in fund expenses last year. This fee decline is a big positive for investors because fees compound over time and diminish returns.

The asset-weighted average expense ratio has fallen every year since 2000. Investors are paying roughly half as much to own funds as they were in the year 2000, when the asset-weighted average fee stood at 0.93%; they are paying 40% less than they did a decade ago and about 26% less than they did five years ago.

**Exhibit 1** Asset-Weighted Average Fees for Funds Declined 6% in 2018

Source: Morningstar Direct. Data as of 12/31/2018.

The asset-weighted average fee for passively managed funds fell to 0.15% in 2018 from 0.16% in 2017. That roughly 6% decline reflects strong flows into the very cheapest passive funds, as well as fee cuts by some asset managers for widely held broad index funds. Among passive funds, taxable bond funds saw the biggest year-over-year cost decline, as the asset-weighted average fee fell 10% to 0.12% in 2018. This resulted largely from a spike in flows to very low-cost short- and ultrashort-term bond index funds and ETFs, reflecting resurgent investor demand for cashlike alternatives amid market turbulence. These index funds and ETFs accounted for approximately a third of flows into all funds in 2018.

The asset-weighted average fee for actively managed funds also fell, to 0.67% in 2018 from 0.71% in 2017. This 4.9% decline was the largest we have measured since we began tracking the trend in active funds' asset-weighted average fees in 2000. It was driven primarily by large outflows from expensive funds, inflows to cheaper funds, and an increase in the number of active funds cutting fees.

**Exhibit 2** Investors' Average Fund Costs as Represented by Asset-Weighted Average Fees

	<b>Asset-Weighted Average Fees (%)</b>							
	<b>Active</b>				<b>Passive</b>			
	2015	2016	2017	2018	2015	2016	2017	2018
US Equity	0.79	0.76	0.73	0.70	0.13	0.12	0.11	0.10
Sector Equity	0.91	0.90	0.88	0.85	0.30	0.29	0.28	0.28
Allocation	0.75	0.74	0.70	0.65	0.19	0.16	0.16	0.15
International Equity	0.93	0.92	0.87	0.82	0.29	0.26	0.23	0.22
Taxable Bond	0.62	0.59	0.55	0.53	0.16	0.14	0.14	0.12
Municipal Bond	0.55	0.53	0.51	0.47	0.27	0.26	0.25	0.24
Alternative	1.36	1.38	1.35	1.31	1.01	1.00	1.00	0.94
All Funds	0.76	0.74	0.71	0.67	0.19	0.17	0.16	0.15

Source: Morningstar Direct. Data as of 12/31/2018.

**Exhibit 3** Fees Paid for Passive Funds Exhibited a Larger Decline Than Those Paid for Active Ones

	<b>Asset-weighted Average Fees: Change from Prior Year (%)</b>							
	<b>Active</b>				<b>Passive</b>			
	2015	2016	2017	2018	2015	2016	2017	2018
US Equity	-2	-3	-4	-5	-6	-9	-8	-4
Sector Equity	-3	-1	-2	-4	-5	-5	-2	-2
Allocation	-3	-2	-4	-7	-13	-13	0	-5
International Equity	-2	-1	-5	-6	-7	-12	-9	-8
Taxable Bond	-4	-5	-6	-4	-13	-8	-5	-10
Municipal Bond	-2	-3	-3	-9	0	-3	-5	-5
Alternative	1	1	-2	-3	0	-1	0	-6
All Funds	-3	-3	-4	-5	-8	-10	-7	-6

Source: Morningstar Direct. Data as of 12/31/2018.

Active-fund investors paid about 4.5 times more than passive-fund investors on each dollar in 2018. This is the widest relative disparity between active and passive fund fees that we have observed since we began tracking trends in asset-weighted average fees in 2000. The gap widened because the asset-weighted average fee of passively managed funds fell more in percentage terms than that of actively managed funds, notwithstanding the fact the average fees fell for active and passive funds alike.

**Trends in Fund Fees Charged by the Industry**

The mass migration to lower-cost funds has been a key driver behind the decline in the asset-weighted average fee. But fee cuts and the introduction of lower-cost share classes have also played roles.

Equal-weighted average accords equal weight to all funds; it reflects what the asset-management industry is charging for its products. In 2018, fee reductions by active funds contributed more to falling asset-weighted average fees than they have in years. This is most evident by observing trends in the equal-weighted average expense ratio. Below, we show the equal-weighted average expense ratio for active and passive funds by Morningstar Category group.

**Exhibit 4** Fund Fees Charged by Asset Managers as Represented by Equal-Weighted Fees

	<b>Equal-weighted Average Fees (%)</b>							
	<b>Active</b>				<b>Passive</b>			
	2015	2016	2017	2018	2015	2016	2017	2018
US Equity	1.21	1.19	1.16	1.12	0.60	0.56	0.51	0.51
Sector Equity	1.44	1.43	1.40	1.37	0.49	0.49	0.48	0.47
Allocation	1.17	1.18	1.12	1.10	0.82	0.71	0.97	0.88
International Equity	1.40	1.36	1.32	1.27	0.59	0.56	0.53	0.50
Taxable Bond	0.97	0.95	0.91	0.89	0.29	0.28	0.26	0.26
Municipal Bond	0.91	0.89	0.88	0.83	0.33	0.31	0.28	0.27
Alternative	1.77	1.77	1.72	1.61	1.47	1.45	1.46	1.44
All Funds	1.21	1.19	1.15	1.11	0.70	0.68	0.64	0.63

Source: Morningstar Direct. Data as of 12/31/2018.

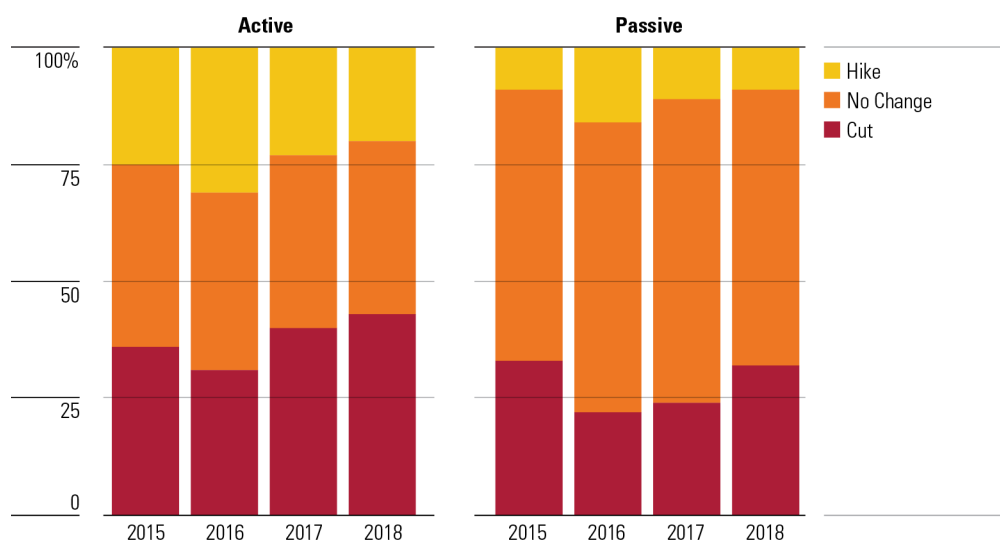
**Exhibit 5** Among Active Funds, Larger Fee Declines in 2018 Relative to Prior Years

	<b>Equal-weighted Average Fees: Change from Prior Year (%)</b>							
	<b>Active</b>				<b>Passive</b>			
	2015	2016	2017	2018	2015	2016	2017	2018
US Equity	-1	-2	-3	-3	-1	-7	-8	-1
Sector Equity	-2	0	-2	-2	-2	-1	-1	-2
Allocation	-2	1	-5	-3	9	-13	37	-10
International Equity	-2	-2	-3	-4	-5	-4	-6	-6
Taxable Bond	-2	-3	-4	-2	-4	-4	-6	0
Municipal Bond	0	-2	-2	-5	-1	-6	-9	-5
Alternative	0	0	-3	-7	0	-1	0	-1
All Funds	-1	-2	-3	-4	-3	-4	-5	-3

Source: Morningstar Direct. Data as of 12/31/2018.

In recent years, the equal-weighted average cost of index mutual funds and ETFs has fallen more than the average for actively managed funds. Most notably, providers of broad-based market-capitalization-weighted index funds have been engaged in what has been dubbed a "fee war." Given these funds' commodity-like nature, it is natural that their prices would be pushed down to the marginal cost of managing them and that assets would consolidate in the hands of a few large-scale manufacturers. More recently, this same degree of fee pressure has spread into other corners of the market, most notably within the realm of strategic-beta ETFs. Given that the marginal cost of managing these funds is only incrementally greater than that for their more-vanilla counterparts, this space has and will continue to see mounting fee pressure in coming years.

The percentage of both active and passive funds that reported lower annual expenses increased in 2018. Overall, 42% of funds reported lower expense ratios in 2018 compared with 38% in 2017. Among all funds, 32% of passive funds reported lower fees than the prior year (24% did so in 2017) versus 43% of active funds (40% in 2017).

**Exhibit 6** Passive Funds Have Been Less Likely to Raise Fees Than Active Ones

Source: Morningstar Direct. Data as of 12/31/2018.

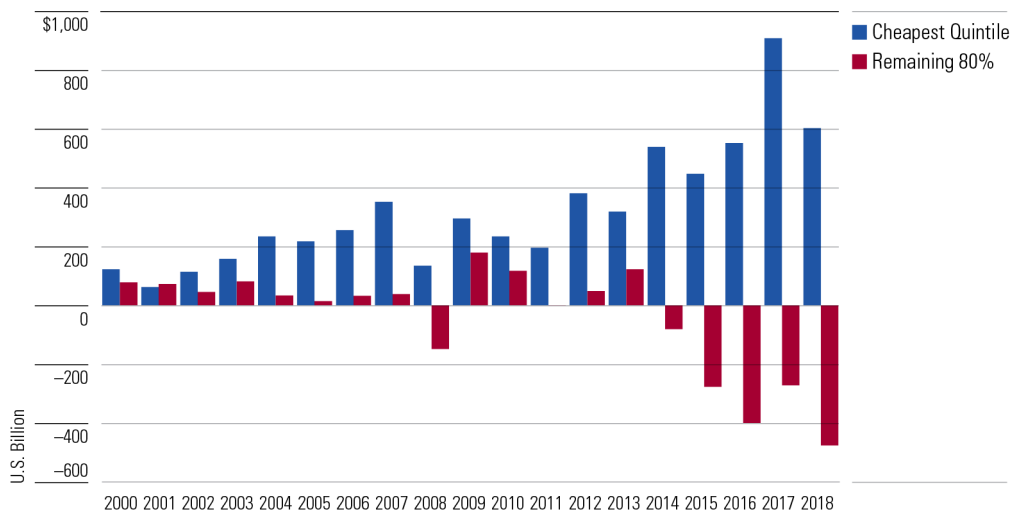
Although the equal-weighted average cost of investing in active and passive funds has been declining over time, the average active fund still charges about 1.8 times as much as the average passive fund. That is basically unchanged from 2017 and slightly higher than 2015, when the average active fund charged about 1.7 times as much as the norm for passive funds. This is because the equal-weighted average passive fee has fallen slightly more (roughly 10% cumulatively) than the average active fee has (about 8%) since 2015.

**Asset Flows Favor Lower-Cost Funds and Share Classes**

Morningstar research has found that fees are the best variable for predicting future relative performance. Low-cost funds generally have greater odds of surviving and outperforming their more-expensive peers.

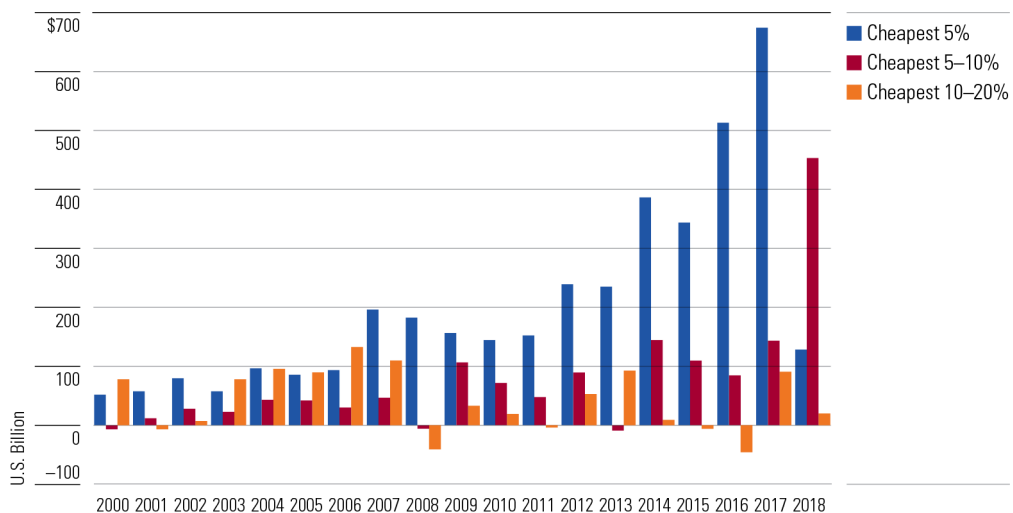
Since 2000, we have seen the cheapest funds (that is, those whose fees rank within the bottom 20% of their Morningstar Category group) rake in assets from investors. That trend continued in 2018, when these low-cost funds saw net inflows of \$605 billion, with around three fourths of that going to passively managed funds.

On the flip side, we have seen all other funds (that is, the remaining 80% of funds sorted by cost) hemorrhage assets. Indeed, flows have been negative for five years running for funds in this cohort, and 2018 was no exception as they saw a record \$478 billion in outflows.

**Exhibit 7** The Shift Into Low-Cost Funds Has Accelerated

Source: Morningstar Direct. Data as of 12/31/2018.

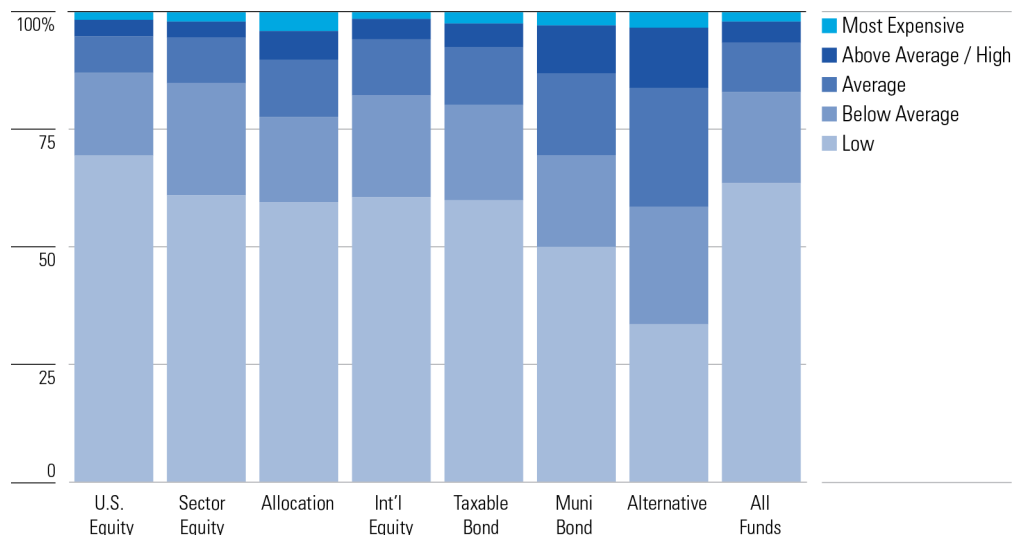
Of the \$605 billion that flowed into the cheapest 20% of funds in 2018, 97% of it went into the cheapest of the cheap, that is, the least costly 10% of all funds.

**Exhibit 8** Flows Are Going to the Cheapest of the Cheap

Source: Morningstar Direct. Data as of 12/31/2018.

Because of these trends, 83% of all assets are in funds whose fees rank among the least-expensive 40% of their respective Morningstar Category groups. Meanwhile, just 7% of investors' money is in the most-expensive 40% of funds.



**Exhibit 9** Most Investors Are in the Least Expensive Funds

Source: Morningstar Direct. Data as of 12/31/2018.

**How Fees Are Being Shaped by the Evolving Economics of Advice**

The shifting advice business is driving flows and, by extension, fee trends. As advisor compensation moves away from commissions and toward basis-point fees, advisors have come to avoid share classes that embed advice and distribution costs. In addition, amid a shift from investment management to planning, many advisors have redefined the way they advise clients, emphasizing asset allocation over security selection. These trends have spurred demand for cheap, wide-market exposure, which has favored low-cost passive funds.

In 2018, Morningstar introduced the "service-fee arrangement" data point in our U.S. funds database, which classifies fund share classes as "unbundled," "semibundled," and "bundled" based on whether and how they bundle in fees that pay for advice.

**Unbundled:** The share class charges investors for investment management and fund operating expenses only.

**Semibundled:** The share class charges investors for investment management and other operating expenses and indirectly charges for sales distribution (in the form of revenue sharing), but it doesn't levy 12b-1 fees.

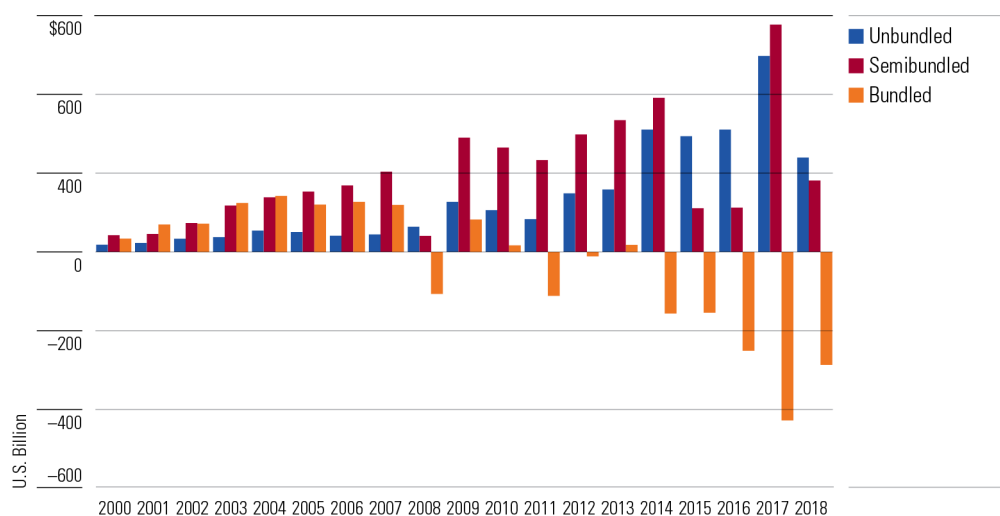
**Bundled:** The share class charges investors for investment management and other operating expenses, and it levies 12b-1 fees.

**Exhibit 10** Service-Fee Arrangements

Fee Type	Unbundled	Semibundled	Bundled
Management Fee	✓	✓	✓
Fund Operating Expenses	✓	✓	✓
Subtransfer Agency Fees	✗	✓	✓
Revenue Sharing, Platform, or Other Access Fees	✗	✓	✓
Distribution Fees (12b-1)	✗	✗	✓
Loads and Commissions	✗	✗	✓
Transactions and other Operational Fees	✗	✗	✓
Fees for Advice or Planning	✗	✗	✗

Source: Morningstar Direct. Data as of 12/31/2018.

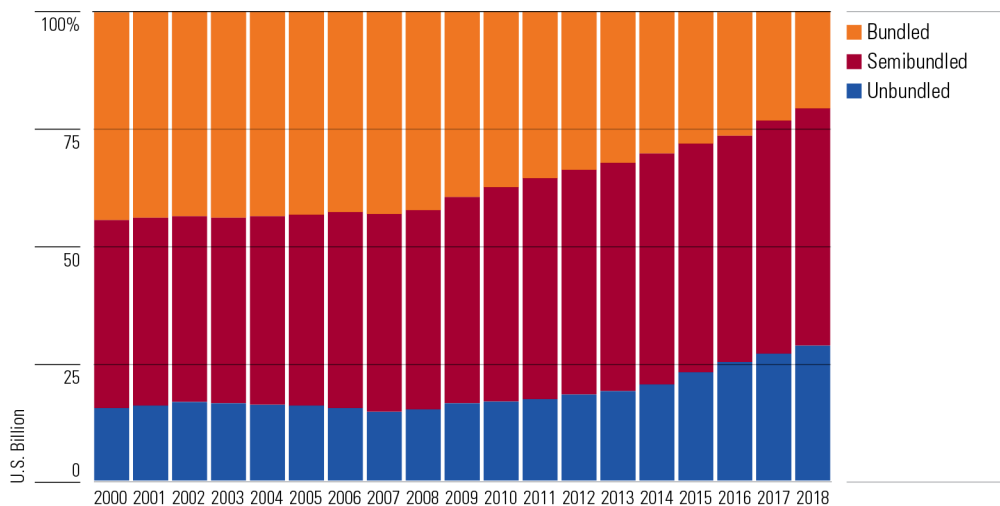
We can see that bundled share classes have been in outflows for the past five years while semibundled and unbundled share classes have seen steady inflows. This corresponds to the shift away from transaction-driven advice models and toward fee-based.

**Exhibit 11** Bundled Funds Have Been in Outflows

Source: Morningstar Direct. Data as of 12/31/2018.

Consequently, bundled share classes have seen their market share more than halved since 2000, when such funds accounted for 44% of fund assets<sup>1</sup>. By 2018, bundled share classes had declined to 21% of assets.

<sup>1</sup> Bundled funds' historical market share is likely understated here, owing to the fact that many funds that would have fit this description have since been closed or merged away. We do not account for dead funds in these figures.

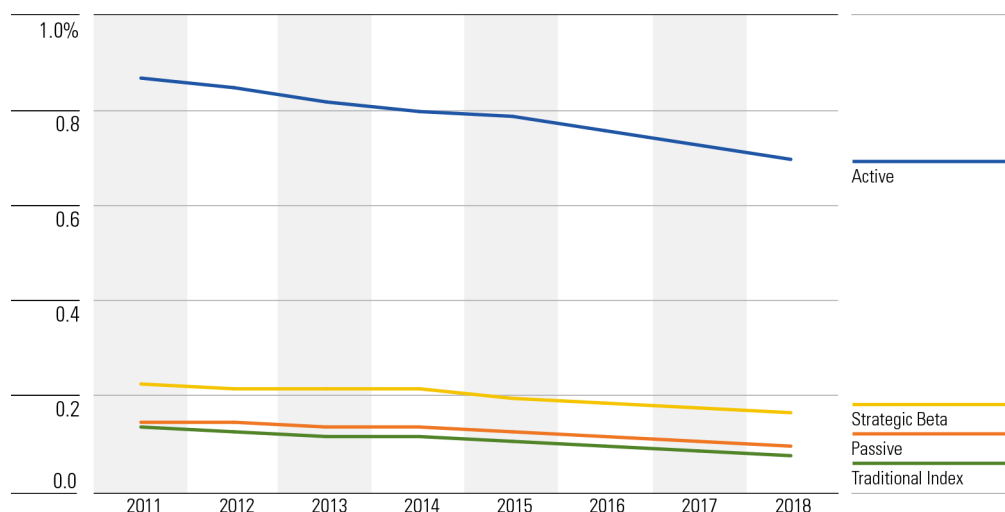
**Exhibit 12** Most of Investors' Money Is in Semibundled and Unbundled Funds and Share Classes

Source: Morningstar Direct. Data as of 12/31/2018.

### Strategic Beta, An Attempt to Marry the Best of Both Worlds

Strategic-beta funds attempt to marry the best attributes of active and passive approaches to portfolio construction. The indexes that underpin these funds attempt to codify strategies similar to those plied by active managers and deliver them in a format that is more transparent and less costly relative to most traditional actively managed funds. Out of 867 strategic-beta funds and share classes in Morningstar's database, 76% carry fees that rank within the bottom quintile relative to their Morningstar Category peers.

Most strategic-beta funds reside in U.S. equity categories. Last year, the asset-weighted average fee for U.S. equity strategic-beta funds was 0.17%, which is higher than that of traditional cap-weighted passive funds (0.08%) but well below that of active funds (0.70%).

**Exhibit 13** Strategic-Beta Funds Offer a Cheaper Alternative to Active Management

Source: Morningstar Direct. Data as of 12/31/2018.

**Vanguard Defends Its Position as the Low-Cost Leader**

Among the ranks of the largest asset managers, Vanguard continues to claim the low-cost crown. In 2018, the firm's asset-weighted expense ratio was 0.09%, down from 0.10% in 2017. Vanguard was followed by State Street (0.17%) and BlackRock/iShares (0.30%). However, Vanguard's competition continued to gain ground in 2018. While the firm remains the overall low-cost leader, its competitors have either matched or undercut the firm's fees for certain broad market-cap-weighted index funds. As these firms have jockeyed for position, investors have come out in front, benefiting from an ever-wider menu of ever-cheaper options offering wide market exposure. ■■

**Exhibit 14** Fee Competition Has Intensified Among the Largest Asset Managers

	Asset-Weighted Average Fees (%)			2018			
	2018	2017	Difference	Year End AUM (USD Bil)	Market Share (%)	Asset Growth (USD Bil)	Estimate Net Flow (USD Bil)
Vanguard	0.09	0.10	-0.01	4,208	24.7	11.0	138
BlackRock / iShares	0.30	0.33	-0.03	1,596	9.4	21.4	77
American Funds	0.61	0.64	-0.03	1,440	8.5	1.9	13
Fidelity	0.48	0.51	-0.03	1,415	8.3	8.6	117
State Street	0.17	0.18	-0.01	592	3.5	5.3	-3
T. Rowe Price	0.68	0.69	-0.01	550	3.2	-4.6	-15
Dimensional Fund Advisors	0.34	0.35	-0.01	372	2.2	11.8	16
PIMCO	0.62	0.64	-0.03	348	2.0	9.8	2
Franklin Templeton	0.83	0.86	-0.02	330	1.9	-16.9	-36
Invesco	0.60	0.66	-0.06	306	1.8	-2.0	-12

Source: Morningstar Direct. Data as of 12/31/2018.

## Appendix

### I. Clean Share - Service Fee Arrangement

The 'Clean Share - Service Fee Arrangement' attribute is an indication of the extent to which a fund share class pays third-party advisors, broker/dealers, and their affiliates for distribution or other services. One category is not inherently better than the other; each of these service arrangements can be appropriate for different kinds of investors. Rather, investors and advisors should use them as starting points to have better-informed conversations.

We think that most share classes fit into three broad buckets: unbundled, semibundled, and bundled.

1) Unbundled: An investor simply pays for investment management and fund operating expenses, and the fund and its advisor do not pay third parties who sell their funds to the public. Unbundled share classes reduce conflicts, but investors still need to ask if they are paying a reasonable amount for advice and for the services that their intermediary charges them directly.

2) Semibundled: No traditional distribution fees (or 12b-1 fees) or load-sharing, but this type can have revenue-sharing or sub-transfer-agency fees. Semibundled share classes could create some potential conflicts of interests that investors need to ask about.

3) Bundled: These are traditional share classes, where the investor pays a load and a 12b-1 to the mutual fund, which in turn pays the intermediary. Bundled share classes are purely transactional, which can work well for sophisticated investors who have done their homework and wish to pay up-front commissions. Advice associated with these share classes may ultimately cost less, particularly with rights of accumulation.

Additional details available at:

<https://www.morningstar.com/blog/2018/07/09/clean-shares.html>

### II. Investors' Cost Savings Calculation

To estimate the \$5.5 billion in annual cost savings, we multiplied the 2017 and 2018 active and passive asset-weighted average fees with 2018 average asset levels in active and passive funds, respectively. The difference from these calculations using 2017 and 2018 asset-weighted average fees is the estimated annual cost savings.

**Exhibit 15** Asset-Weighted Fees by Morningstar Category

	<b>Asset-Weighted Average Fees (%)</b>			
	2015	2016	2017	2018
Large Blend	0.32	0.28	0.24	0.22
Large Value	0.62	0.60	0.55	0.51
Large Growth	0.71	0.68	0.64	0.62
Mid-Cap Blend	0.43	0.38	0.33	0.32
Mid-Cap Value	0.78	0.75	0.67	0.60
Mid-Cap Growth	0.91	0.89	0.86	0.79
Small Blend	0.57	0.53	0.45	0.41
Small Value	0.77	0.72	0.67	0.63
Small Growth	0.87	0.86	0.81	0.78
Foreign Large Blend	0.49	0.44	0.39	0.35
Diversified Emerging Mkts	0.87	0.83	0.74	0.69
Intermediate-Term Bond	0.41	0.38	0.34	0.31
Corporate Bond	0.30	0.28	0.26	0.25
High Yield Bond	0.72	0.70	0.65	0.64

Source: Morningstar Direct. Data as of 12/31/2018.

**Exhibit 16** Percentage Change From Prior Year in Asset-Weighted Fees by Morningstar Category

	<b>Asset-weighted Average Fees: Change from Prior Year (%)</b>			
	2015	2016	2017	2018
Large Blend	-8	-11	-13	-9
Large Value	-3	-4	-8	-7
Large Growth	-1	-4	-6	-3
Mid-Cap Blend	-11	-12	-13	-6
Mid-Cap Value	-4	-3	-11	-10
Mid-Cap Growth	-2	-2	-4	-8
Small Blend	-10	-8	-14	-10
Small Value	-6	-7	-7	-5
Small Growth	-3	-2	-5	-4
Foreign Large Blend	-13	-10	-13	-11
Diversified Emerging Mkts	-2	-5	-11	-7
Intermediate-Term Bond	-9	-7	-10	-9
Corporate Bond	-8	-9	-8	-4
High Yield Bond	-2	-3	-7	-2

Source: Morningstar Direct. Data as of 12/31/2018.

**Exhibit 17** Asset-Weighted Fees by Morningstar Category Across Active and Passive Funds

	<b>Asset-Weighted Average Fees (%)</b>							
	<b>Active</b>				<b>Passive</b>			
	2015	2016	2017	2018	2015	2016	2017	2018
Large Blend	0.71	0.69	0.66	0.60	0.10	0.09	0.08	0.07
Large Value	0.71	0.70	0.66	0.63	0.21	0.20	0.20	0.18
Large Growth	0.77	0.75	0.72	0.71	0.20	0.18	0.18	0.17
Mid-Cap Blend	0.86	0.81	0.77	0.73	0.15	0.14	0.13	0.12
Mid-Cap Value	0.85	0.84	0.77	0.70	0.23	0.22	0.21	0.21
Mid-Cap Growth	0.97	0.96	0.93	0.86	0.26	0.24	0.23	0.22
Small Blend	0.93	0.90	0.84	0.80	0.17	0.16	0.14	0.13
Small Value	0.94	0.91	0.88	0.85	0.18	0.17	0.16	0.16
Small Growth	1.00	0.98	0.95	0.91	0.17	0.16	0.16	0.16
Foreign Large Blend	0.88	0.86	0.82	0.77	0.18	0.16	0.15	0.13
Diversified Emerging Mkts	1.10	1.07	1.01	0.94	0.34	0.32	0.29	0.27
Intermediate-Term Bond	0.55	0.53	0.49	0.45	0.09	0.08	0.07	0.07
Corporate Bond	0.39	0.37	0.36	0.35	0.15	0.14	0.14	0.13
High Yield Bond	0.76	0.74	0.69	0.68	0.45	0.45	0.44	0.42

Source: Morningstar Direct. Data as of 12/31/2018.

**Exhibit 18** Percentage Change From Prior Year in Asset-Weighted Fees by Morningstar Category Across Active and Passive Funds

	<b>Asset-weighted Average Fees: Change from Prior Year (%)</b>							
	<b>Active</b>				<b>Passive</b>			
	2015	2016	2017	2018	2015	2016	2017	2018
Large Blend	-4	-3	-5	-8	-5	-11	-11	-5
Large Value	-2	-2	-5	-5	-5	-4	-4	-7
Large Growth	0	-3	-4	-2	-7	-10	-3	-3
Mid-Cap Blend	-4	-6	-6	-5	-11	-8	-11	-5
Mid-Cap Value	-2	0	-9	-9	-2	-6	-3	-3
Mid-Cap Growth	-1	-2	-3	-7	-7	-8	-5	-2
Small Blend	-3	-3	-6	-5	-10	-9	-11	-7
Small Value	-2	-3	-4	-3	-10	-5	-2	-2
Small Growth	-2	-1	-4	-4	-3	-8	0	2
Foreign Large Blend	-3	-2	-5	-6	-11	-9	-11	-8
Diversified Emerging Mkts	-1	-3	-5	-6	-9	-4	-11	-5
Intermediate-Term Bond	-5	-4	-6	-8	-16	-13	-14	-4
Corporate Bond	-6	-5	-4	-2	-4	-7	-4	-7
High Yield Bond	-2	-2	-7	-2	-1	0	-2	-5

Source: Morningstar Direct. Data as of 12/31/2018.

**Exhibit 19** Equal-Weighted Fees by Morningstar Category

	Equal-weighted Average Fees (%)			
	2015	2016	2017	2018
Large Blend	1.01	0.97	0.94	0.89
Large Value	1.09	1.05	1.00	0.97
Large Growth	1.19	1.16	1.12	1.07
Mid-Cap Blend	1.11	1.05	1.04	1.01
Mid-Cap Value	1.16	1.13	1.09	1.07
Mid-Cap Growth	1.25	1.24	1.20	1.17
Small Blend	1.19	1.18	1.14	1.11
Small Value	1.28	1.27	1.22	1.19
Small Growth	1.33	1.31	1.28	1.21
Foreign Large Blend	1.13	1.08	1.04	0.99
Diversified Emerging Mkts	1.47	1.43	1.36	1.32
Intermediate-Term Bond	0.82	0.79	0.76	0.75
Corporate Bond	0.78	0.76	0.72	0.71
High Yield Bond	1.07	1.06	1.01	0.99

Source: Morningstar Direct. Data as of 12/31/2018.

**Exhibit 20** Percentage Change in Equal-Weighted Fees by Morningstar Category Versus 2017

	Equal-weighted Average Fees: Change from Prior Year (%)			
	2015	2016	2017	2018
Large Blend	-3	-3	-4	-5
Large Value	-1	-3	-5	-4
Large Growth	-1	-3	-3	-5
Mid-Cap Blend	-2	-6	-1	-2
Mid-Cap Value	-1	-2	-4	-2
Mid-Cap Growth	-2	-1	-3	-2
Small Blend	-1	-1	-3	-3
Small Value	0	-1	-3	-2
Small Growth	-1	-1	-2	-5
Foreign Large Blend	-4	-4	-4	-5
Diversified Emerging Mkts	-2	-2	-5	-4
Intermediate-Term Bond	-4	-4	-4	-1
Corporate Bond	0	-3	-4	-2
High Yield Bond	0	-1	-5	-2

Source: Morningstar Direct. Data as of 12/31/2018.



**Exhibit 21** Equal-Weighted Fees by Morningstar Category Across Active and Passive Funds

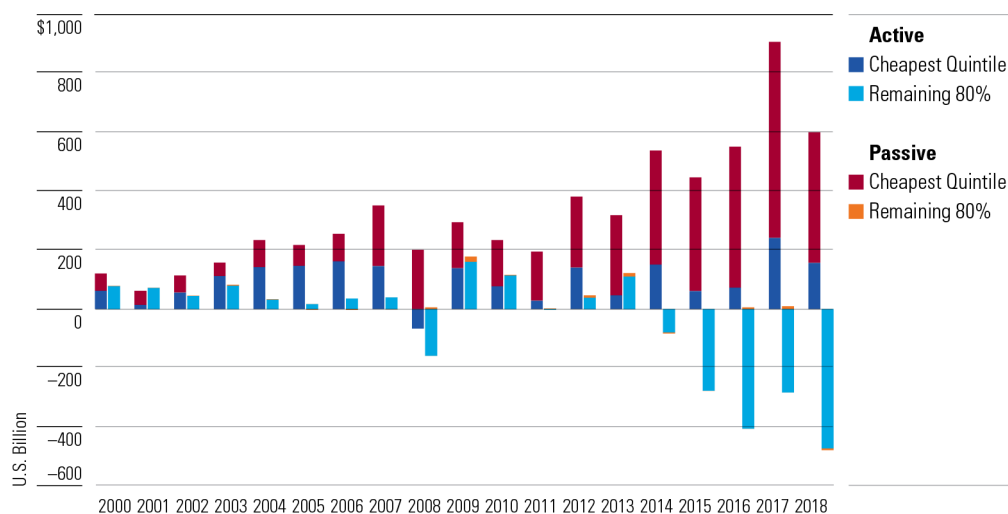
	Equal-weighted Average Fees (%)							
	Active				Passive			
	2015	2016	2017	2018	2015	2016	2017	2018
Large Blend	1.13	1.10	1.07	1.03	0.46	0.44	0.40	0.40
Large Value	1.12	1.09	1.05	1.02	0.56	0.56	0.51	0.50
Large Growth	1.21	1.18	1.15	1.10	0.92	0.83	0.72	0.69
Mid-Cap Blend	1.28	1.23	1.22	1.20	0.59	0.49	0.46	0.46
Mid-Cap Value	1.19	1.17	1.13	1.10	0.69	0.65	0.62	0.74
Mid-Cap Growth	1.28	1.27	1.22	1.20	0.69	0.71	0.71	0.70
Small Blend	1.29	1.29	1.25	1.23	0.64	0.55	0.48	0.46
Small Value	1.32	1.31	1.27	1.24	0.74	0.71	0.70	0.72
Small Growth	1.35	1.33	1.30	1.23	0.68	0.69	0.68	0.65
Foreign Large Blend	1.26	1.22	1.20	1.13	0.50	0.46	0.41	0.39
Diversified Emerging Mkts	1.55	1.52	1.46	1.41	0.56	0.52	0.50	0.47
Intermediate-Term Bond	0.86	0.83	0.79	0.78	0.34	0.33	0.32	0.31
Corporate Bond	0.89	0.88	0.84	0.84	0.16	0.15	0.15	0.20
High Yield Bond	1.09	1.08	1.03	1.02	0.41	0.50	0.41	0.46

Source: Morningstar Direct. Data as of 12/31/2018.

**Exhibit 22** Percentage Change From Prior Year in Equal-Weighted Fees by Morningstar Category Across Active and Passive Funds

	Equal-weighted Average Fees: Change from Prior Year (%)							
	Active				Passive			
	2015	2016	2017	2018	2015	2016	2017	2018
Large Blend	-2	-2	-3	-4	-7	-3	-9	0
Large Value	-1	-3	-4	-3	1	1	-9	-3
Large Growth	-1	-2	-2	-5	1	-10	-13	-5
Mid-Cap Blend	-2	-4	-1	-2	-1	-16	-7	0
Mid-Cap Value	-1	-2	-3	-3	-2	-6	-4	20
Mid-Cap Growth	-2	-1	-3	-2	-4	4	-1	-1
Small Blend	-1	0	-3	-2	4	-13	-14	-5
Small Value	0	-1	-3	-2	-3	-3	-2	3
Small Growth	-1	-1	-2	-5	-2	1	-1	-4
Foreign Large Blend	-3	-3	-2	-5	-8	-8	-12	-4
Diversified Emerging Mkts	-3	-2	-4	-3	-7	-7	-3	-6
Intermediate-Term Bond	-4	-4	-4	-1	-7	-3	-2	-2
Corporate Bond	0	-1	-5	0	-13	-5	1	28
High Yield Bond	0	-1	-4	-1	-3	20	-17	11

Source: Morningstar Direct. Data as of 12/31/2018.

**Exhibit 23** Expensive Active Funds Have Been the Epicenter of Outflows

Source: Morningstar Direct. Data as of 12/31/2018.

**Exhibit 24** Asset-Weighted Fees by Service-Fee Arrangement

	Asset-weighted Average Fees (%)											
	Bundled				Semi-bundled				Unbundled			
	2015	2016	2017	2018	2015	2016	2017	2018	2015	2016	2017	2018
US Equity	0.96	0.95	0.92	0.90	0.58	0.54	0.50	0.49	0.14	0.13	0.12	0.12
Sector Equity	0.81	0.78	0.68	0.61	0.71	0.70	0.68	0.65	0.20	0.22	0.21	0.20
Allocation	0.94	0.93	0.89	0.87	0.67	0.67	0.66	0.64	0.19	0.18	0.18	0.19
International Equity	1.02	1.03	1.00	0.99	0.76	0.74	0.69	0.64	0.25	0.23	0.23	0.22
Taxable Bond	0.89	0.86	0.80	0.80	0.49	0.47	0.46	0.43	0.12	0.12	0.12	0.13
Municipal Bond	0.79	0.79	0.79	0.79	0.49	0.48	0.48	0.45	0.15	0.12	0.12	0.15
Alternative	1.50	1.54	1.51	1.41	1.22	1.25	1.24	1.22	1.22	1.06	1.03	1.03
All Funds	0.96	0.95	0.92	0.90	0.58	0.54	0.50	0.49	0.14	0.13	0.12	0.12

Source: Morningstar Direct. Data as of 12/31/2018.

**Exhibit 25** Percentage Change From Prior Year in Asset-Weighted Fees by Service-Fee Arrangement

	Change in Asset-weighted Average Fees (%)											
	Bundled				Semi-bundled				Unbundled			
	2015	2016	2017	2018	2015	2016	2017	2018	2015	2016	2017	2018
US Equity	-2	-1	-3	-2	-3	-6	-8	-2	-6	-10	-3	-4
Sector Equity	-3	-4	-13	-10	-2	-2	-3	-3	-6	6	-3	-5
Allocation	-2	-1	-4	-3	-2	-1	-2	-3	-6	-9	5	5
International Equity	-4	1	-3	-2	-3	-2	-7	-7	-10	-6	-4	-2
Taxable Bond	-2	-3	-8	0	-4	-4	-3	-5	-10	-4	4	5
Municipal Bond	0	0	-1	0	-1	-1	-1	-6	-2	-19	2	17
Alternative	-1	3	-2	-7	4	2	0	-2	12	-13	-3	0
All Funds	-2	-1	-3	-2	-3	-6	-8	-2	-6	-10	-3	-4

Source: Morningstar Direct. Data as of 12/31/2018.

**Exhibit 26** Equal-Weighted Fees by Service-Fee Arrangement

	Equal-weighted Average Fees (%)											
	Bundled				Semi-bundled				Unbundled			
	2015	2016	2017	2018	2015	2016	2017	2018	2015	2016	2017	2018
US Equity	1.39	1.39	1.37	1.35	0.83	0.82	0.80	0.77	0.55	0.56	0.58	0.56
Sector Equity	1.64	1.65	1.64	1.61	0.86	0.86	0.84	0.83	0.43	0.45	0.51	0.52
Allocation	1.40	1.43	1.38	1.38	0.83	0.84	0.82	0.80	0.45	0.47	0.47	0.53
International Equity	1.59	1.58	1.55	1.51	0.96	0.94	0.92	0.88	0.74	0.76	0.78	0.80
Taxable Bond	1.18	1.17	1.15	1.15	0.61	0.60	0.59	0.58	0.38	0.39	0.41	0.41
Municipal Bond	1.10	1.09	1.09	1.08	0.55	0.54	0.54	0.53	0.33	0.30	0.39	0.41
Alternative	1.98	1.97	1.98	1.91	1.27	1.27	1.29	1.20	1.21	1.13	1.24	1.08
All Funds	1.39	1.39	1.37	1.35	0.83	0.82	0.80	0.77	0.55	0.56	0.58	0.56

Source: Morningstar Direct. Data as of 12/31/2018.

**Exhibit 27** Percentage Change From Prior Year in Equal-Weighted Fees by Service-Fee Arrangement

	Change in Equal-weighted Average Fees (%)											
	Bundled				Semi-bundled				Unbundled			
	2015	2016	2017	2018	2015	2016	2017	2018	2015	2016	2017	2018
US Equity	-1	0	-2	-1	0	-2	-2	-3	5	2	4	-4
Sector Equity	0	0	-1	-2	0	0	-3	-1	12	6	14	1
Allocation	-1	2	-3	0	-1	2	-3	-3	10	4	0	12
International Equity	-2	-1	-2	-2	-2	-2	-3	-3	0	4	1	3
Taxable Bond	-1	0	-2	0	-1	-1	-1	-2	8	4	4	1
Municipal Bond	1	-1	0	-1	-1	-2	0	-2	-2	-8	26	6
Alternative	0	-1	0	-3	2	0	2	-7	6	-7	10	-13
All Funds	-1	0	-2	-1	0	-2	-2	-3	5	2	4	-4

Source: Morningstar Direct. Data as of 12/31/2018.

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