

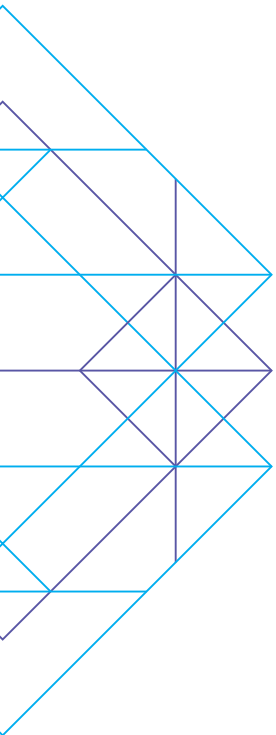


Alternative Thinking | 2Q18

Companion Report to 2Q18 Alternative Thinking

Executive Summary

The main *Alternative Thinking* report studies the historical long-run performance of delegated active managers. At face value, its results challenge the notion that these managers underperform as a group, though we emphasize that any positive results can at least partly reflect voluntary reporting biases. This companion report covers related myths and misconceptions: that passive investors already dominate in terms of market share, that active managers must underperform passive ones based on mere arithmetic, that all slow-trading or systematic investors are by definition passive, and that there is a unique active return we can measure for each investor. In all of these cases, more careful thinking is needed to separate facts from fiction.



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Introduction

The main *Alternative Thinking* report studies the long-run performance of active managers and asks whether certain investor types, market contexts, or time periods are more conducive to active management. In this companion report, we address several further questions about active versus passive investing.

We challenge the myths that passive managers have already begun to dominate and that they must outperform active managers as a mere matter of arithmetic. The market share of passive investing is somewhere between 20% and 40%, depending on the asset class, region, and manager universe, as well as on definitional questions (e.g.,

how to treat ETFs or the large group of non-delegated active investors?). We then poke holes in the arithmetic of active management dictum, which dooms active managers to underperform by definition.

Finally, we show that it is important to be careful with definitions that are often used loosely, as we drill into the precise meaning of “active investing” and “active return.” Boundaries are often fuzzy: for example, how low a tracking error would classify as passive investing? Fortunately, our analysis shows that the key empirical results in the main *Alternative Thinking* are robust to another metric of active return (CAPM alpha instead of simple excess return over the benchmark).

Growing Share of Passive Investing

Passive investing is undoubtedly on the rise, but some estimates of its current popularity are overstated. Reports attribute a 70% market share to passive investing in Japan and near 50% for the United States.¹ Before taking these numbers at face value, we stress the importance of asking more precise questions — which country, asset class, investor type (mutual fund or institutional) are being studied, whether ETFs are counted as passive or whether non-delegated investors are included — to provide more accurate answers.

Taking a broad view gives a surprisingly low market share for passive investing, as low as 18%. A recent study by BlackRock estimates that out of \$68 trillion of global equities, only \$12 trillion, or 18%, are passively managed. This includes \$2.3tr index mutual funds, \$2.7tr ETFs (all counted as passive), \$5.4tr institutional indexing, and \$1.4tr internal indexing.² If we focus on the more commonly

cited universe of external or delegated equity management, 38% (\$10.5tr out of \$28tr) is passive. The share is somewhat higher (42%) for institutional investing than for mutual funds (and would be only 22% for mutual funds if ETFs were excluded).

There are regional and asset class differences, which are perhaps most consistently documented in the Morningstar Global Asset Flows report. This report focuses on worldwide mutual funds and ETFs (the latter are again counted as passive) and also provides a useful historical perspective. **Exhibit 1** (left panel) shows that the passive market share exceeded 40% in Asia³ and the United States while still remaining about 25% in Europe. The right panel shows that the passive market share has been clearly lower for fixed income than for equities — almost 30% in the United States but nearer to 10% in other regions.

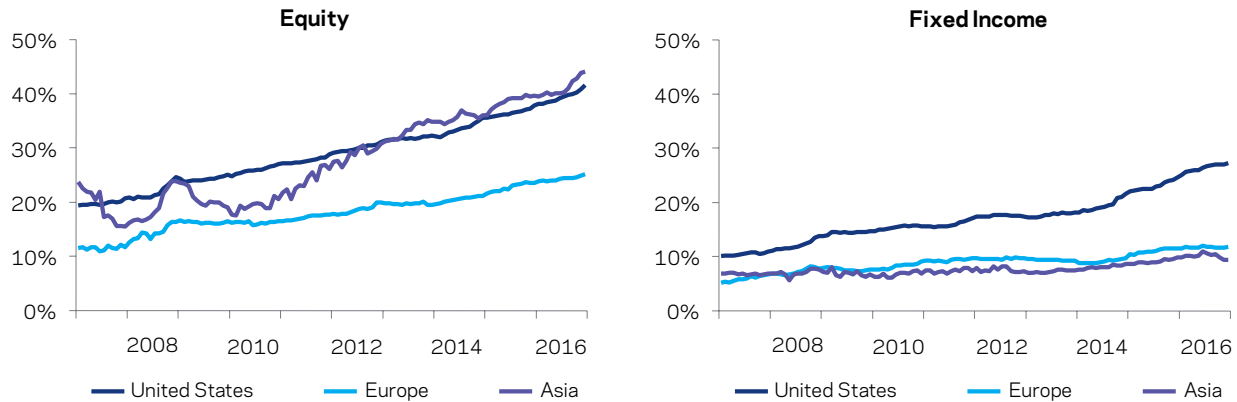
1 “Japan index investors go with the flow,” Nikkei (4/2017) by Matsuzaki and Miyakawa. “Some Markets Are More Passive Than Others,” *Barron’s* (7/2017) by Kim.

2 In “Index Investing Supports Vibrant Capital Markets” (10/2017), BlackRock estimates total ownership levels of stock market capitalization using data from World Federation of Exchange Database, Securities Industry and Financial Markets Association, European Central Bank, Bank for International Settlements, HFR, Cerulli Simfund, iShares Government Bond Index, and McKinsey. All data as of 12/2016. The study finds that the majority (\$40tr out of \$68tr) is managed internally (including retail, corporate, insurance, pension and official institution direct holdings), so its treatment matters. We stress that the 18% answer for global passive share hinges on counting as active all \$40 trillion of internally managed equity AUM, except for the \$1.4tr of internal indexing. This low estimate for internal passive seems debatable, but there is limited data on internal investing. For example, CEM Benchmarking data suggest that a substantial portion of large institutions’ internal investing is passive.

3 The Asian and especially Japan’s passive share estimates are boosted by the official institutions’ decision to buy large amounts of equities in ETF format; perhaps that can explain the 70% estimate mentioned earlier. This is a good time to question the common industry practice — which we skeptically follow here — of counting all ETFs as passive, even though they are often used as active vehicles. For example, Ben-David, et al. (2017) find that in late 2016, the market share of ETFs exceeded 10% of the total market capitalization traded on U.S. exchanges while representing more than 30% of overall trading volume — implying surely far more active than passive use!

Exhibit 1**Percentage of Mutual Fund and ETF Assets in Passive Funds**

January 2007 – December 2016



Source: Morningstar Global Asset Flows Report, April 2017. The chart above uses all worldwide open-end mutual funds and ETFs as categorized in Morningstar. Regional allocations reflect the fund domicile; cross-border funds are excluded. For illustrative purposes only. Past performance is not a guarantee of future performance.

Visually, the most important feature of these Morningstar graphs is the uptrend in every line during the past decade. Passive investors remain a minority, albeit a growing one. Other universes and data sources display similar trends.⁴

Let us recap the key facts from the data in Exhibit 1. For delegated managers, the passive market share has approached 40% for equities but remains much lower for fixed income. The share is somewhat higher for institutions than for mutual funds, and it

is clearly higher in the United States and Asia than in Europe and emerging markets. Finally, the headline figure for equities, near 40%, roughly halves if we focus just on mutual funds and exclude ETFs or if we include all kinds of funds and all kinds of investors — and treat internally managed assets as mainly active. Thus, whenever you hear estimates of passive market shares, be careful to consider which manager universe is studied, whether ETFs are counted as passive, and how internally managed assets are treated.⁵

4 Casey Quirk (private correspondence) gives current estimates broadly in line with Morningstar and BlackRock: that the passive share of externally managed global (U.S.) equities is 35% (36%) but clearly lower for all asset classes. The Investment Company Institute Factbook shows that among U.S.-based domestic equity mutual funds, the market share of passive managers rose from 6% to 41% over the past 20 years (if ETFs are counted as passive; if they are ignored, the rise was from 6% to 28%). However, Mauboussin, et al. (2017) estimate that the market share of passive has risen from near 20% to as high as 60% for institutional U.S. equities over three decades ending in 2016.

5 Another quibble is that trends in the nominal shares of active and passive managers can be misleading if the goal is to measure the evolving amount of active risk taking. Any decline in actives' market share could conceivably be offset by remaining active investors becoming more active, e.g., a shift from low-tracking-error long-only funds to high-tracking-error hedge funds. However, we know that hedge fund industry's idiosyncratic volatility has edged lower over time while its market beta has stayed stable. Thus, this quibble may have more theoretical than practical bite; the market trend toward less active management appears real.

How Binding Is the Arithmetic of Active Management?

We challenge here the argument that no empirical evidence is needed to judge active managers' collective performance and that mere arithmetic is enough. Nobelist Bill Sharpe (1991) has famously argued that active managers' higher costs mean that these managers must, as a group and as a matter of arithmetic, have lower net returns than passive managers (since each group collectively holds the market). Active management is a zero-sum game before fees, a negative-sum game after fees.

Pedersen's (2018) arithmetic counters that even passive investing is not "buy and hold" but involves turnover due to new issuance, index changes, etc. There is meaningful annual turnover for equity and bond markets as well as for major indices, and the related trading costs in passive investing need to be considered. Therefore, active managers are not necessarily doomed to underperform passive ones.

Another problem with Sharpe's arithmetic is that it is mislabeled if active managers are seen to only include delegated managers. A better name might be "the arithmetic of active *investing*." Active investing also includes most

of retail and institutional investors' large internal investing. The performance of these non-delegated active investors is not publicly measured, and as a group they may plausibly be negative-alpha earners (since they may not be as well-incentivized or as well-resourced as delegated managers). This would allow delegated active managers to outperform as a group (which is consistent with the evidence in the main report).

Despite the above problems in Sharpe's arithmetic, the zero-sum game nature of active investing within a fixed set of assets is worth keeping in mind. Active managers must earn sufficient gross alpha from other investors (or from changes in the market portfolio) to cover their costs and fees and to offer any positive net alpha. Greater awareness of these facts has helped counter the common investor overconfidence in active management (in general or in their own investing or manager selection skills) and has likely contributed to the ongoing shift to passive.

We now step back and address some definitional questions, which turn out to be surprisingly elusive.

What Is Active Investing?

In our view, anything that deviates from market-cap weighted investments is active. Conversely, the best definition of passive investing is that it involves market-cap weights. Passive/index investing is inactive in many ways, as it implies low turnover, no deviations from the average investor, and little discretion (just follow the main finance theory, CAPM). Everyone can do it.

Sounds simple. Actually, this definition mainly works within an asset class.⁶ And even for cap weights, we can debate investability and liquidity criteria for what is included in the global equity market (what about microcaps? frontier markets? China A-shares?). For other asset classes, things get even fuzzier.

Overall, the active/passive distinction is not binary but involves many shades of gray. Important borderline debates include: (1) Cap-weighted ETFs on market segments (as passive vehicles are often used actively); (2) Home-biased index portfolios (is anything other than global market portfolio active?); (3) Funds with very low tracking error (how low a TE qualifies as passive?).

- For illustration, some large active institutions have a TE of 0.3% to 0.4% versus their equity benchmark, comparable to the SPDR index fund TE versus S&P 500. In fact, both numbers are lower than the 0.5% TE of S&P 500 versus the Top 500 (nonjudgmental cap-weighted largest 500 stocks in the United States), let alone its 1.1% TE versus a broader market index.⁷
- Thus, benchmark design choices can matter more than active bets. Customized benchmarks may be useful for judging manager skill, but they make comparisons harder between managers with different benchmarks, and any TE versus the market portfolio can reflect more the specialist mandate (gap between the benchmark and market) than active risk taking (gap between the actual portfolio and the benchmark).

So the distinction is not binary and is not even a continuum in one dimension. Other relevant dimensions include at least strategic versus tactical, diversified versus concentrated, low versus high turnover, transparent versus proprietary — and possibly even systematic versus discretionary.

6 End-investors typically make two levels of decisions: first allocate strategically across asset classes (ideally setting a benchmark for each), and then select (external or internal) managers within each asset class to either actively outperform or passively match the benchmark. For the first step, there is no unique baseline portfolio of global wealth that everyone uses (given differing investability and liquidity criteria and base country effects; here, we don't get to questions about human wealth, natural resources and private assets).

7 For example, Norway's sovereign wealth fund is one of the largest pension funds in the world by AUM (according to Willis Towers Watson 2016). Norges Bank Investment Management's equity benchmark is a customized version of the FTSE Global All Cap Index and is detailed in the NBIM Annual Report (2016). Top 500 is a market cap weighted portfolio of the 500 largest stocks in the Russell 3000 by market cap alone, rebalanced monthly. Broader market index is the Russell 3000. TEs calculated using overlapping annual returns over the common period of 8/2001 to 8/2017.

Many overly simplistic definitions of passive investing are easy to refute with counterexamples.⁸ Low turnover implies passive: Does that make Warren Buffett passive? Any rules-based strategy is passive: So would a high-frequency trader, who clearly has to set rules because humans can't trade at those speeds, be considered passive? More generally, the idea that all systematic strategies are passive is plain wrong.

Rules-based investing can include proprietary signals, high turnover, low capacity, factor timing — all atypical characteristics of passive investing. Even factor portfolios involving strategic and systematic tilts to publicly known styles are hardly passive when they target clear and consistent deviations from market weights. The market portfolio is the only one that requires no “other side.”⁹

What Is Active Return?

Active return is always defined as excess return over a specified benchmark or factor model. Factor models try to adjust return for risks, but that leaves us with many choices. We can measure 1-factor (CAPM) alphas or any number of multi-factor alphas (where alpha is the average return left unexplained by the chosen factor model). The bottom line is that *there is no unique measure of alpha for any fund/strategy*.

To be consistent with our active investor definition, which in turn is consistent with the CAPM, we should arguably link the term “active return” specifically to CAPM alpha. However, most practitioners associate the term “active return” with the simple difference (excess return to benchmark without beta

adjustment). This is why the main report focuses on that metric. We complement that evidence below by reporting similar results for the CAPM alpha. Unlike the simple difference, the CAPM alpha penalizes (compensates) each fund for any above-market (below-market) beta.

Besides these two options, academics increasingly focus on the Fama-French 3-factor or 5-factor alpha or some other multi-factor alpha. These differences matter; for example, if we study the 40-year history of Buffett's Berkshire Hathaway, we find simple excess annual return over the S&P 500 of 9% and a CAPM alpha of 14% (higher due to a market beta near 0.7) and a much lower multi-factor alpha.¹⁰

8 See Asness et al. (2015).

9 Bill Sharpe emphasizes that only the market-cap weighted portfolio is macro-consistent in the sense that it does not need an “other side.” Admittedly, the argument (as well as the arithmetic of active management) fits best in the CAPM world and becomes more ambiguous in a multi-factor context where the market portfolio may not be optimal. While it is challenging to identify a precise “other side” for each factor, market clearing still requires that for every buyer (or overweight versus market cap), there must be a seller (or underweight). We will focus on this topic in a forthcoming white paper.

10 AQR Alternative Thinking 4Q 2016 studies Berkshire Hathaway returns from CRSP from 1/1977 to 5/2016. Past performance is not a guarantee of future performance; please read important disclosures at the end of this presentation. For illustrative purposes only and not intended to be investment advice or a specific recommendation

In general, the difference between CAPM alpha and multi-factor alpha can be attributed to other market risk premia or alternative risk premia (long/short factors included in the factor regression, such as style premia). However, there is little consensus on which factors (and which specifications of each factor) to include or on how to treat trading costs (these are rarely subtracted) and varying craftsmanship in design and implementation. For simplicity, when we study active returns here, we will focus on the simple excess return or the 1-factor (CAPM) alpha.

Any judgment of active return estimates should also consider the impact of fees, reporting/selection biases, and the role of sample-specific luck. For example, mutual fund and hedge fund databases often report net-of-fee returns, while institutional fund databases report gross returns. Fair comparisons thus require adjusting for fees (ideally also on index funds or adjusting for trading costs in regressions using academic factors as explanatory variables). Biases related to managers' voluntary reporting have been studied most extensively for hedge fund databases where they can overstate industry returns by several percentage points.

- Many hedge fund databases have since 1994 allowed adjusting for survivorship bias (by including both live and dead funds) and backfill bias (by documenting when the manager actually began to file reports, even if earlier returns are included); see for example Ibbotson-Chen-Zhu (2011) for industry-level estimates of such biases. Yet, some biases may still remain after typical adjustments (Jorion-Schwarz, 2017). Such biases influence both the overall estimate of alpha and some cross-fund inferences, such as the apparent outperformance of small and young hedge funds, likely caused by backfill bias.
- Beyond hedge funds, the main mutual fund databases may be better adjusted for voluntary reporting biases than institutional fund databases.

Finally, it is worth remembering that luck can trump skill even over quite long evaluation periods. That is, ex-post randomness often overwhelms ex-ante edges. For example, a manager with a decent information ratio (0.25) should be *expected* to underperform the benchmark one third of the time over three-year evaluation periods, simply due to a bad draw. This is why we focus on 20-year evidence in our empirical analysis.

Are Conclusions in the Main Report Affected If We Use Another Measure of Active Return?

Exhibit 2 reproduces results of Exhibit 1 in the main report using the beta-adjusted CAPM alpha instead of the simple excess return over the benchmark.

The impact of beta adjustment on average active return varies across universes, but the main messages seem unaffected by its use. For equity mutual funds whose average market beta was 0.96 (reflecting the cash drag), beta-adjusted return exceeds the simple excess return. For institutional equity

funds, the beta is so near 1 that the impact is negligible. For institutional bond funds, adjusting for the typical positive equity beta eats up the simple excess return, so here the adjustment really matters.¹¹ For hedge funds, the equity market beta was near 0.3 while the T-bill benchmark assumed zero beta, so the adjustment cuts almost half of the active return (but had little impact on the information ratio). For private equity, the estimated beta is below one, so the beta-adjustment clearly boosts the active return.¹²

Exhibit 2 Average Active Manager Performance in Five Broad Universes January 1997 - June 2017

	Mutual Fund Equities	Institutional Equities	Institutional Fixed Income	Hedge Funds	Private Equity
Net/Gross	Net	Gross-50bp	Gross-25bp	Net	Net
Universe	Morningstar: U.S. & Intl	eVestment: U.S. & Intl	eVestment: Core Plus & Global Agg	CS & HFR	Cambridge
Market	MSCI World	MSCI World	MSCI World	MSCI World	Russell 3000*
Avg. Alpha (percent p.a.)	0.31	1.16	0.01	2.85	6.57
Active Risk (percent p.a.)	1.65	1.42	0.82	4.29	7.17
Information Ratio	0.19	0.81	0.02	0.66	0.92

Sources: AQR, Morningstar, eVestment, Credit Suisse, HFR, Cambridge Associates. Notes: All histories are from January 1997 to June 2017, except for the mutual fund series that ends in December 2016. All manager composites are equal-weighted except for the CS HF index. Two large manager composites are averaged (except for in PE) to give the total universe for each column. Institutional manager returns are originally reported as gross returns, so we make them comparable with other net return series by subtracting assumed fees. The beta-adjustments use rolling 24-month betas, except for PE (see below). For institutional funds, we use full-sample betas for 1997-98.* For PE, we calculate the beta-adjusted CAPM alpha using rolling 20-quarter returns. The raw PE returns are artificially smooth, so the contemporaneous market beta is only ca. 0.5. If we had instead used 1.3 to 1.5 beta for PE, the average alpha would have been near zero. As a partial remedy, our beta adjustment for PE includes two lagged quarterly exposures (and for hedge funds, one lagged monthly exposure). Studies that use methods that better suit PE data, such as Harris et al. (2014), find that U.S. buyout funds have outperformed S&P500 by about 3% annually since the 1980s but have not outperformed since 2006. Past performance is not a guarantee of future performance. For illustrative purposes only.

- 11 We use the equity market beta even for these fixed income funds in order to illustrate how adjusting for the typical high loading of these active managers on credit risk (which is highly correlated with equity market risk) brings the average alpha to near zero (see AQR (2017)). This choice is clearly debatable. If we had instead beta-adjusted fixed income with a bond index (the Barclays Agg benchmark, which contains more interest rate risk than credit risk), the average alpha would have been 0.38% (and IR 0.32).
- 12 The raw PE returns are artificially smooth (reflecting appraisal- and IRR-based quarterly estimates), so the naïve contemporaneous market beta is only ca. 0.5. More logical risk estimates suggest that PE industry's true beta is well above 1. As a partial remedy, our beta adjustment for PE in Exhibit 2 includes two lagged quarters. Even this adjustment for smoothed returns leaves the average PE beta too low (still below 1), and thus an overstated alpha.

Conclusion

The market share of passive is lower than some headlines suggest, but growing. We remind readers that when it comes to drawing conclusions on active versus passive investing, definitions and nuances matter.

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