Active Share Doesn't Live Up to the Hype

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Summary

Academic research tying high active share—a measure describing how different a fund's stock picks are from a benchmark—with future outperformance quickly popularized its appeal. In reality, active share hasn't been the Holy Grail its boosters often claim.

Using data from January 2001 through December 2015, we examined historical active share levels among actively managed funds in the Canadian equity category relative to the bellwether S&P/TSX Composite Index. On average, active share changed little over the period aside from a one-time drop early on. Canadian equity managers exhibited lower active share than their counterparts in other categories, but the benchmark's sector and stock concentration help explain why.

We tested active share's predictive power in two 10-year periods, 2001-10 and 2006-15. We then divided each in two five-year periods. The first half provided an in-sample observation period in which we calculate active share and other measures of activeness, and the second half an out-of-sample evaluation period where we measured the results. Using gross-of-fee returns, we found higher active share was associated with relative underperformance in the 2001-10 period and relative outperformance in the 2006-15 period. These differences virtually disappeared after adjusting for the market, size, value, and momentum factors.

Higher active share may not ensure better results, but it is likely to lead to more-extreme ones. We found a positive relationship between active share and a wider range of performance outcomes, though surprisingly there was no relationship between active share and volatility or maximum drawdowns. We detected a strong relationship between active share and tracking error, but it was not perfect. Thus, using them in tandem provides a fuller picture of a fund's active bets versus its benchmark. Last, even if higher active share were to lead to better outcomes, investors may not be able to reap the benefit. We found that funds with higher active share had higher fees, which means investors may not reap the reward that higher active share could bring.

Introduction

In medieval mythology, or at least in Monty Python movies inspired by it, King Arthur's knights endure numerous trials, including giants and beasts, in pursuit of the Holy Grail, a magical cup promising happiness, health, and abundance. In medieval lore, Sir Galahad finds the cup and ascends to heaven, though the 1975 movie ends when police cut the search short. As a myth, the latter tells a truer tale: The quest for a simple, single solution to life's problems is futile.

Fund investors search in vain for a Grail of their own, one that reliably identifies skilled active managers. Returns-based measures of all sorts have been poor indicators of future success because strong performance rarely sustains itself. Fundamentals-based metrics like turnover, manager tenure, portfolio concentration, and fund size have mostly fallen short as well.

In a 2007 paper, researchers Martijn Cremers and Antti Petajisto hailed active share, a clever new measure quantifying how different a fund is from a benchmark, as the exception. The paper, "How Active is Your Fund Manager? A New Measure That Predicts Performance," tied high active share to future outperformance.[1] The professors presented evidence demonstrating active U.S. equity funds with the highest active share—that is, those most unlike their benchmark—outperformed those with the lowest active share over the 1983-2000 study period. Petajisto's 2013 follow-up paper updated the study with data through 2009 and found similar results.[2] In a 2015 paper, Cremers detected another positive link between high active share and better performance, this time among highly active funds with low portfolio turnover.[3] This is as close to a Holy Grail as it gets.

Not only did the measure make active share appear effective as a forecasting tool, it had the added appeal of being easy to understand conceptually: Funds with 100% active share look nothing like the index, those with 0% look exactly like it, and those in between look something like it. A fund with 60% active share exhibits 40% overlap with the benchmark, while 40% active share signifies the opposite. Next to tracking error, the standard deviation of excess returns relative to a benchmark, the math of active share is less difficult to grasp. Lastly, there is an intuitive explanation for why funds with high active share should outperform: Funds that look too much like the benchmark are unlikely to beat it.

Although a distinctive portfolio may be a necessary condition for outperformance, it alone is not sufficient. If it were, then unskilled investors could improve their odds by making bigger bets against their benchmark. Giving these investors a longer leash would likely result in worse outcomes. Even in the hands of skilled managers, a highly active portfolio is no assurance of success. William Sharpe's arithmetic of active management reminds us that every winning bet must be matched with a losing one and must underperform in aggregate after fees. This is true no matter the active share. While some highly active managers will outperform after fees, they can't do so as a whole.

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1 Cremers, Martijn and Antti Petajisto, Jan. 15, 2007. "How Active Is Your Fund Manager? A New Measure That Predicts Performance."
2 Petajisto, Attni, July/August 2013. "Active Share and Mutual Fund Performance." Financial Analysts Journal, pp 73-93
3 Cremers, Martijn and Ankur Pareek, Dec. 1, 2015. "Patient Capital Outperformance: The Investment Skill of High Active Managers Who Trade Infrequently."

Our Methodology

Using data from January 2001-December 2015, we examined the relationship between active share and performance through actively managed Canadian Equity funds. We tested active share's predictive power in two 10-year periods, 2001-10 and 2006-15. We then divided each in two five-year periods. The first half provided an in-sample observation period in which we calculate active share and other measures of activeness, and the second half an out-of-sample evaluation period where we measured the results. two 10-year periods, 2001-10 and 2006-15. We then divided each in two five-year periods. The first half provided an in-sample observation period in which we calculate active share and other measures of activeness relative to the S&P/TSX Composite Index, and the second half an out-of-sample evaluation period where we measured the results using gross-of-fee returns. As Exhibit 1 details, we use the first half—the observation period—to collect our five performance- and portfolio-based measures of activeness for each fund in our data set. We use the second half—the evaluation period—to examine the relationship between these measures and subsequent performance.

Exhibit 1 Study Periods, Data Points Used

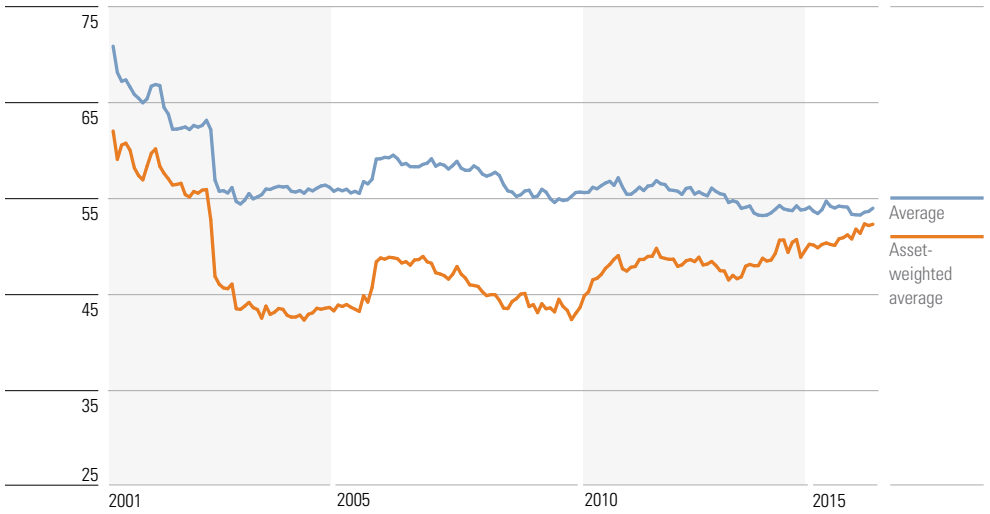
Observation Period	Evaluation Period	
2001-06	**2006-11**	**2011-16**
	Observation Period	Evaluation Period
Observation Period	Evaluation Period	
Active share	Excess return	
Stock concentration	Tracking error	
Sector bets	Alpha	
Excess return	Active share	
Tracking error		
Alpha		

Source: Morningstar, Inc. Data as of 12/31/2015.

Have Canadian Equity Fund Managers Become Less Active?

Average active share was considerably lower at the end of the study period than at the beginning, falling from a high of 73% in January 2001 to 54% by December 2015, as Exhibit 2 demonstrates. Had our study period begun in 2003, changes in active share would appear more modest. Nearly the entire fall took place in the first two years of the study as one-time tech darling Nortel Networks went from 21% to 3% of the index. As the stock fell to earth, so did active share.

Exhibit 2 Average Active Share, 2001-2015



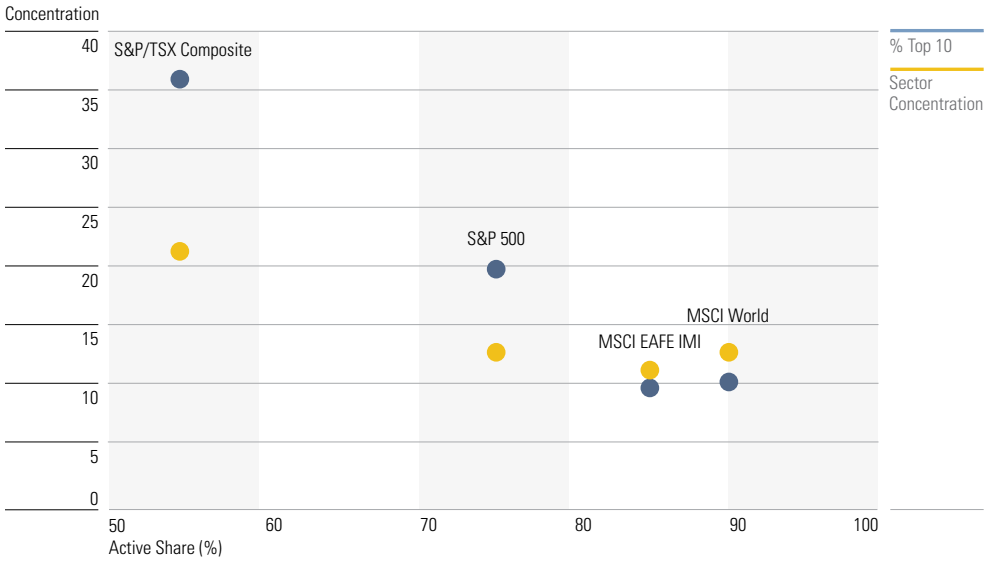
Source: Morningstar, Inc. Data as of 12/30/2015.

The funds that Canadian investors held were less active on average over the 15-year period: While active share averaged 57% on an equal-weighted basis over the period, it averaged 41% on an asset-weighted basis. The difference has shrunk in recent years, though, with the asset-weighted active share at 47% in December 2015.

Canadian equity funds appeared less active than foreign equity funds over our study period. That is at least partly thanks to quirks in the Canadian benchmark. Funds with less-concentrated benchmarks tend to have higher active share as Exhibit 3 illustrates. The Canadian market was significantly more concentrated by stock and sector relative to broad foreign-market benchmarks, helping explain why Canadian equity funds had lower active shares on average. (We measured stock concentration using the percentage of assets in top-10 holdings and sector concentration using the Herfindahl-Hirschman Index,[4] which is commonly used to measure market concentration.) The data suggest investors should evaluate active share within the context of funds of similar type.

4 Hirschman, Albert, September 1964. "The Paternity of an Index." The American Economic Review, p. 561.

Exhibit 3 Active Share and Concentration, Major Market Benchmarks (January 2011–December 2015)



Source: Morningstar, Inc. Data as of 12/31/2015.

Active Share: A Fair-Weather Friend

Active share proved a weak and inconsistent predictor of future returns in our study, whether judged by excess returns (versus the S&P/TSX Composite) or four-factor alpha. Active share explained around 10% of the variability in excess returns and alpha (as measured by R-squared) in both periods, meaning other factors drove performance to a much greater degree.

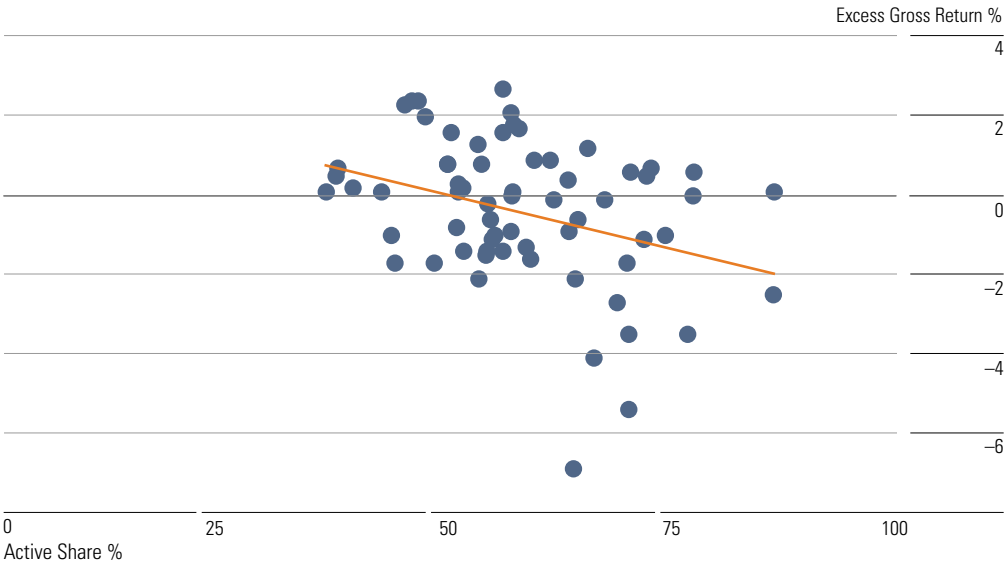
To the extent it mattered, active share was associated with diametrically opposed outcomes. Performance was about as negatively correlated with higher active share in the first evaluation period (2001-05) as it was positively correlated in the second evaluation period (2011-15). These relationships, which we plot in Exhibits 4a and 4b, weren't especially strong—correlations were around negative 30% in the first period and about 30% in the second—but they were statistically significant.[5]

Higher active share did not foretell better returns but it helped explain performance extremes. One might have expected wider outcomes in a period punctuated by the 2007-08 financial crisis and its immediate aftermath. This period was also marked by the worst recession since the Great Depression and unprecedented intervention by central banks. With broad, macroeconomic themes driving returns, stocks fell and rose together. With relatively high correlation and low dispersion across market sectors, the payoff from stock-picking was relatively low. The TSX Composite proved tough to beat: As Exhibit 5 illustrates, funds in four of five active share quintiles lagged the index on average, with the least active outperforming modestly. (After adjusting for exposure to the market, value, size, and momentum factors, all active share quintiles added virtually no value, as measured by alpha, on average.)

5 T-statistic was -2.8 for excess returns in the first period, 2.7 for excess returns in the second period.

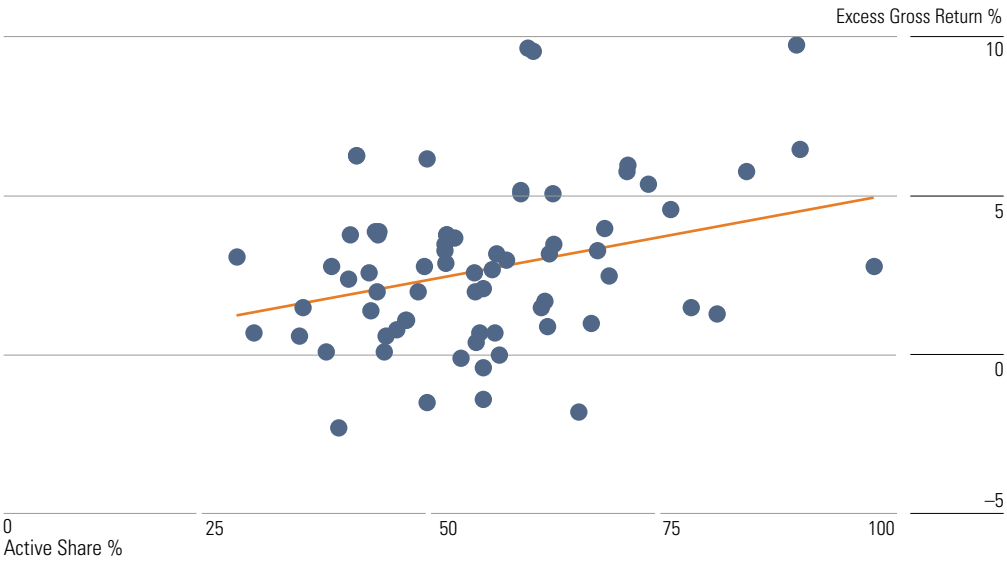
Active managers found the 2011-15 evaluation period to be more fertile ground. As correlations weakened and dispersion grew over this stretch, more differentiated portfolios generated a wider range of results. Put another way, the potential payoff from high active share was stronger in the second period than in the first. Funds delivered positive excess returns on average across all active-share quintiles, with the most active delivering the widest margin of outperformance. Investors benefit from higher active share in periods of high dispersion and vice versa.

Exhibit 4a Period One: Active Share (Observation Period) and Excess Return (Evaluation Period)



Source: Morningstar, Inc. Data as of 12/31/2015.

Exhibit 4b Period Two: Active Share (Observation Period) and Excess Return (Evaluation Period)



Source: Morningstar, Inc. Data as of 12/31/2015.

Exhibit 5 Excess Return and Alpha by Active-Share Quintile, 2001-2010

	Observation Period			Evaluation Period		# Funds	
Active-Share Quintile	Active Share (%)	Excess Return	Alpha	Excess Return	Alpha	Obsevation Period	Eval Period
1	43.88	1.69	0.00	0.62	0.00	14	14
2	53.01	1.58	0.11	–0.48	–0.01	13	13
3	57.27	1.54	0.00	0.36	0.00	13	13
4	65.31	2.52	0.00	–1.39	–0.02	13	12
5	75.06	2.70	0.00	–1.22	–0.02	14	12

Source: Morningstar, Inc. Data as of 12/31/2015.

Active Share Doesn't Mean Active Risk

Describing activeness only in terms of how different a fund's holdings are from its benchmark's leaves out the possibility of other distinguishing characteristics, such as the style and factor bets discussed above, in addition to differences in sector or country exposure. A positive active share also tells us that a fund is different from its benchmark, but it does not say how.

We should be able to observe the cumulative effects of stock, style, sector, or other factor bets in performance. Tracking error, a measure of the volatility of a fund's excess returns, describes how much past performance deviates from benchmark results. The less a fund looks like its benchmark, the more its returns should deviate: A near-benchmark clone should behave a lot like the index, while a concentrated portfolio with heavy sector concentrations likely will not.

Because tracking error and active share both describe how different a fund is from its benchmark, we would expect the relationship between the two measures to be strong. And it was: Tracking error and active share were 66% correlated in the first evaluation period and 67% in the second. This relationship was not perfect, though, suggesting each measure brings different qualities to an investor's tool kit. If the measures were driven by the same things, they would have moved in lock step. Together, active share and tracking error give a fuller picture of how funds differentiate themselves from their benchmarks.

Higher Active Share, Higher Volatility, Bigger Losses?

While higher active share went hand in hand with higher tracking error and wider swings in relative performance, it didn't necessarily contribute to higher volatility or vulnerability to losses. In fact, there appeared to be no relationship at all between active share and standard deviation or maximum drawdown in either evaluation period, as Exhibit 6 illustrates. In both periods, the most- and least-active quintile of funds exhibited similar levels of volatility and suffered nearly identical maximum drawdowns.

This finding is somewhat counterintuitive. We might expect the odds of a blow-up to increase along with active share. Low active share limits risk relative to the benchmark but not to the risks of the benchmark itself. Because the S&P/TSX Composite is highly concentrated by sector, funds with low active share will be, too. The benchmark's heavy exposure to the cyclical financials, energy, and basic-materials sectors makes less-active portfolio susceptible to high volatility and large losses.

The most-active funds were significantly underexposed to the TSX Composite's dominant sectors. Our sector bet measure, the ICI score, was 7 times higher in the highest active-share quintile than that of funds in the lowest quintile. Treading lightly in major market sectors requires heavier weightings in minor ones, such as telecom and staples, which tend to be more defensive in character. Rather than magnifying volatility, sector bets may moderate it. This effect is difficult to see in the data—more-active funds weren't less volatile—but overweighting defensive stocks may have helped tame other potential sources of volatility like heavier exposure to value stocks.

Exhibit 6 Standard Deviation and Maximum Drawdowns, 2006-10, 2011-2015

	Evaluation Period 1		Evaluation Period 2	
Active-Share Quintile	Standard Deviation	Max Drawdown	Standard Deviation	Max Drawdown
1	16.9	–44.0	9.3	–19.4
2	15.5	–41.8	9.6	–18.0
3	16.3	–43.2	10.3	–21.6
4	16.4	–45.1	9.8	–18.3
5	16.2	–43.9	9.4	–20.0

Source: Morningstar, Inc. Data as of 12/31/2015.

Don't Forget About Fees

We used gross-of-fee returns in our study because we wanted to examine active share as a purely as a gauge of manager skill. What matters to investors, though, is whether managers deliver good enough returns to overcome their costs.

As Exhibit 7 demonstrates, Canadian equity funds become more expensive the more active they become. (The table breaks down management expense ratios by distribution channel using the most recent management expense ratio data. Active-share quintile data uses a five-year average. We excluded do-it-yourself funds because the sample was too small to be meaningful.) Higher active share may increase the potential for stronger excess returns, but the investor won't benefit if higher costs eat the surplus. Because fund costs and future performance are negatively correlated, funds with high active share may be more likely to underperform after fees.

Some managers have used high active share as a justification for high fees. These managers, the argument goes, are truly active and worth the added expense. There may be instances where this is the case, but it also may be these managers take more risks relative to their benchmark because they must overcome their fee hurdles.

Exhibit 7 Management Expense Ratio by Active-Share Quintile

Active-Share Quintile	Commission-Based Management Expense Ratio (%)	Fee-Based Management Expense Ratio (%)
1	2.2	1.0
2	2.4	1.2
3	2.4	1.3
4	2.4	1.3
5	2.6	1.6

Source: Morningstar, Inc. Data as of 12/31/2015.

Active Share Isn't a Holy Grail. So What?

Active share may not be the "new measure that predicts performance" as Cremers and Petajisto claimed in the title of their 2007 paper, but just because it is less useful than promised does not make it useless. It has given fund investors a simple way to understand the extent of a fund's active stock bets. Active share gives us no easy answers, but it can help us ask good questions about strategy, portfolio construction, and a fund's value proposition next to cheaper passive alternatives.

Flawed as active share may be as a gauge of future performance, other measures investors commonly use to identify skilled managers, such as the Sharpe or information ratios, turnover, or manager tenure, also suffer from having little predictive value on their own. Measures like these are more meaningful together than apart. Similarly, using active share in concert with performance-based measures like tracking error and portfolio-based analysis of stock and

sector concentration gives a better picture of how different a portfolio is from its benchmark. Incorporating these considerations with other research concerns, such as the depth of management's resources and the strength of its research and risk management practices, historical performance, and costs, paints a more vivid picture of investment skill.

Lastly, investors should resist the temptation to make holding less-active and more-active funds together an either/or proposition. If low (or in the case of index funds no) active share is beneficial in some markets and high active share in others, investors could reap diversification benefits from holding them in concert. They may be better together.

Note: This article is an annotated version of a January 2016 Morningstar paper on active share. Morningstar Direct users can view the full paper, which offers a detailed explanation of our methodology and a more in-depth look at our findings, here.