



SPS IIS Conference

Understanding the Link between «Active Share» and Future Performance in Equity Portfolios

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Structure of my talk

- Active Management
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- General Comments
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Active Management

Definition

Active management involves taking a position different from that would be held in a passive portfolio, based on a forecast about the future.

- Any **difference from the proportions of a benchmark** represents **a bet** based on **a forecast**.
- According to Elton, Gruber, Brown, and Goetzmann (2007), there are three groups of active managers:
 - **Market Timers**
 - **Sector Selectors** (industry, product, characteristics)
 - **Security Selectors**

Active Management

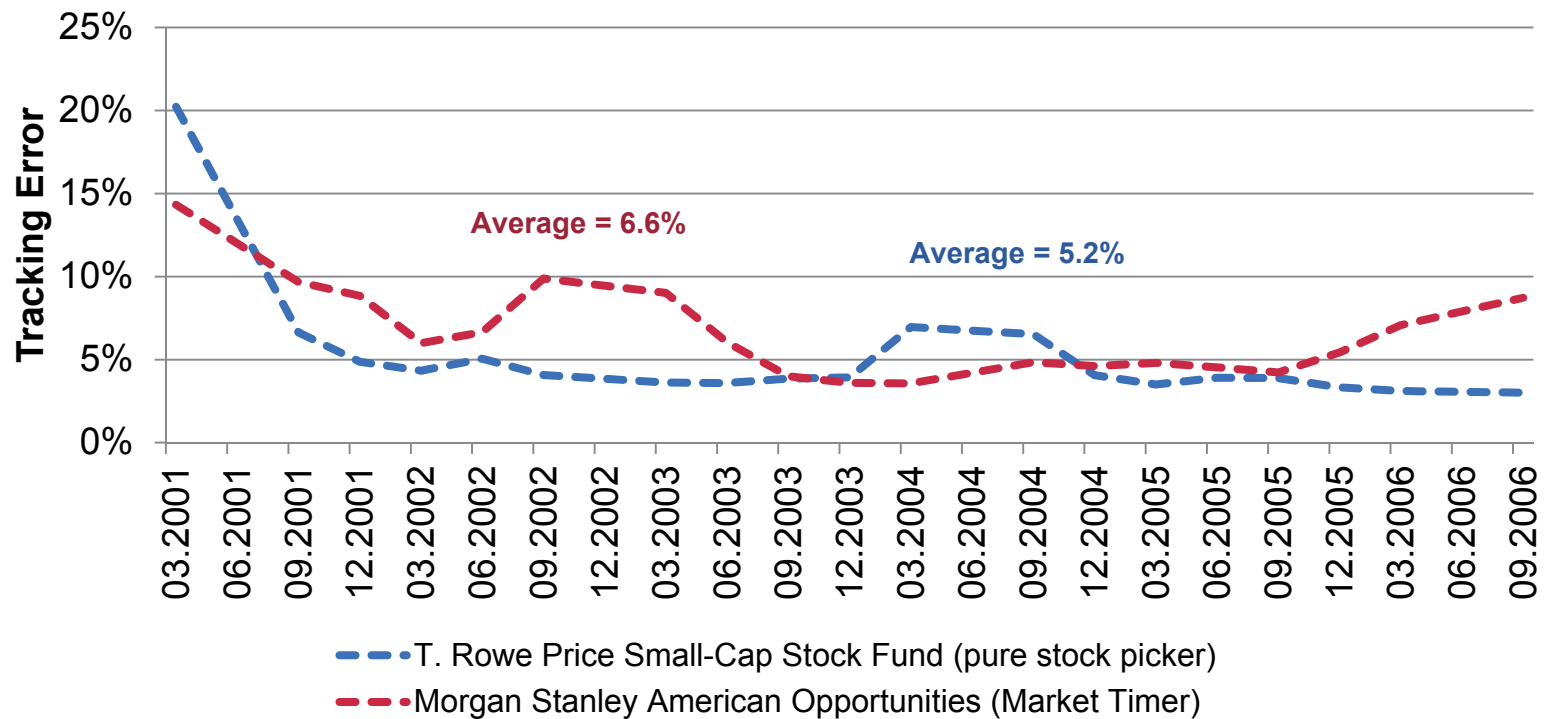
Tracking Error

- Put differently, to generate a positive risk-adjusted return, **active equity managers** have to deviate from the benchmark through **stock selection** and **factor timing**.
- A typical measure to **quantify the activity level** of a manager is the **tracking error**.
 - Volatility of the difference between a portfolio return and its benchmark return.
- Cremers and Petajisto (2009) claim that the **tracking error is not a sufficient** measure to classify active managers.

Active Management

Insufficient Measure: Tracking Error

- According to Cremers and Petajisto (2009), the tracking error of the diversified stock picker is substantially lower than that of the sector rotator, suggesting that the former is much less active.



Source: Own figure with data from Petajisto's website (<http://www.petajisto.net>)

Active Share

Definition

- Equally important to the tracking error is to **compare the holdings of the fund to its benchmark index.**

Active share is a fraction of the portfolio that is different from the index.

- An active fund has two components:
 - Passive component: Investment in the index
 - Active component («active share»): Deviations from the index
- **Active share** (for an unleveraged fund) is always **between 0% and 100%.**
- Active share is a **proxy for the «level of stock picking».**

Source: Petajisto (2013)

Active Share Example

	Index	Portfolio	Difference	Active Share
Stock 1	25.0%	0.0%	25.0%	12.5%
Stock 2	25.0%	15.0%	10.0%	5.0%
Stock 3	25.0%	5.0%	20.0%	10.0%
Stock 4	25.0%	30.0%	-5.0%	2.5%
Stock 5	0.0%	25.0%	-25.0%	12.5%
Stock 6	0.0%	25.0%	-25.0%	12.5%
Sum	100.0%	100.0%	0.0%	55.0%

- According to Cremers and Petajisto (2009), a fund with 60% of active share is «Closet indexing», while above 90% is highly active.

Active Share

Evolution of Active Share (Mutual Funds)

Active Share

Characteristics of Funds with high active share

- According to Cremers and Petajisto (2009) as well as Cremers, Ferreira, Matos, and Starks (2013), funds with high active share...
 - ... tend to be **smaller**.
 - ... tend to be **younger**.
 - ... tend to have **higher costs**.
 - ... tend to have **higher capital inflows**.
 - ... tend to have **higher portfolio turn-over**.¹
 - ... tend to have **(slightly) higher industry bets**.
 - ... tend to be fund with a **high active share in the following periods**.

¹ minimum of aggregate purchases of securities or aggregate sales of securities, divided by the average Total Net Assets of the fund.

Active Share

Why should we care?

- Any **positive (or negative) return** compared to the index **has to come from active share.**
- And active share **helps to categorize active managers:**

Active Share

Another Categorization

- Petajisto uses another categorization in his forthcoming Financial Analyst Paper. However, it is a bit arbitrary...

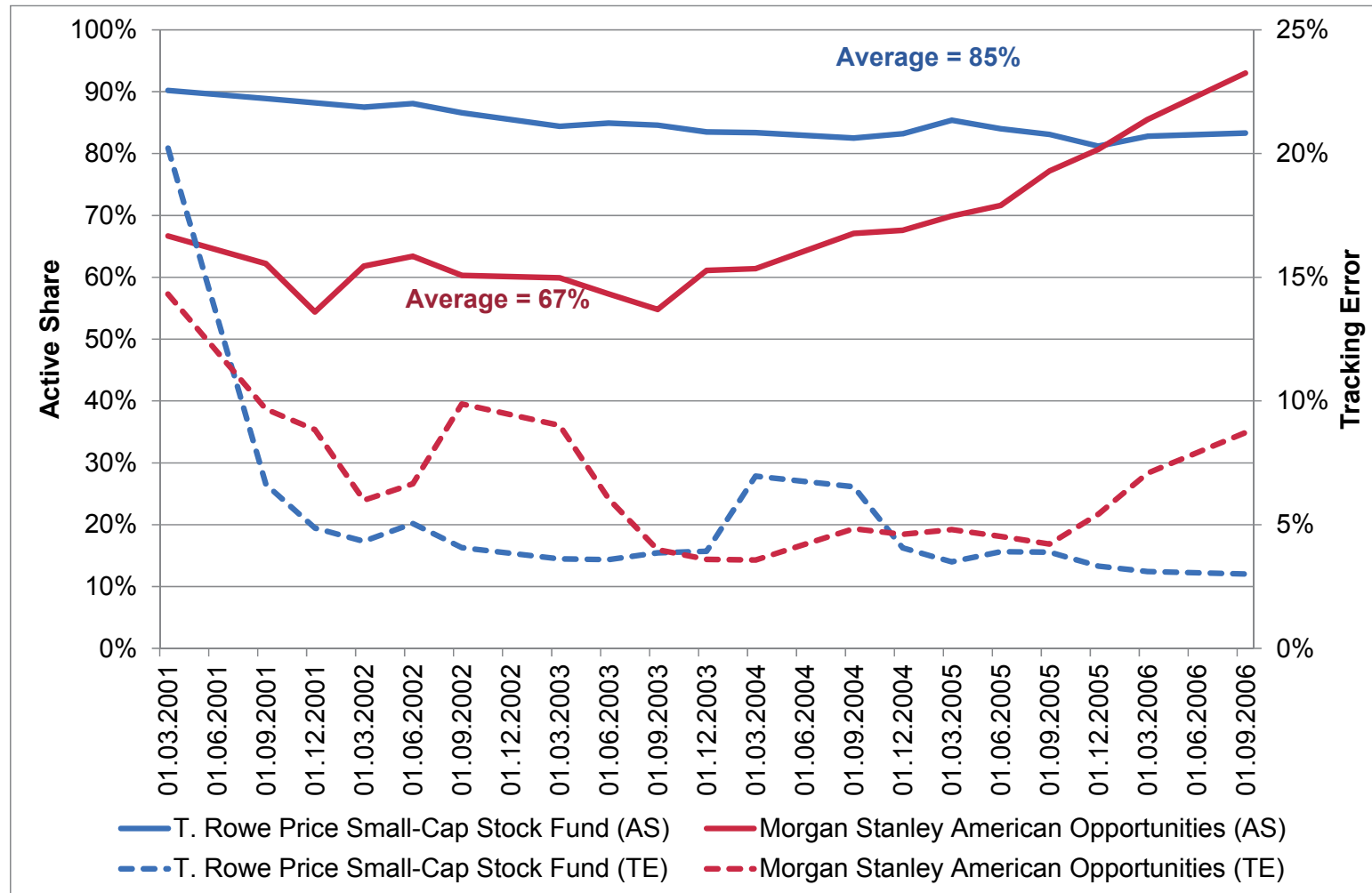
Active Share

Tracking Error vs. Active Share

- **Positive relationship between active share and tracking error**

Active Share

Persistence of Active Share (1)



Source: Own figure with data from Petajisto's website (<http://www.petajisto.net>)

Active Share

Persistence of Active Share (2)

- **Active share seems to be far from stable.** There are even switches from «Concentrated Stock Picking» to «Closet Indexing» and vice versa. This is consistent with the findings of Huang, Sialm, and Zhang (2011).¹

¹ They show that mutual funds change their risk significantly over time.

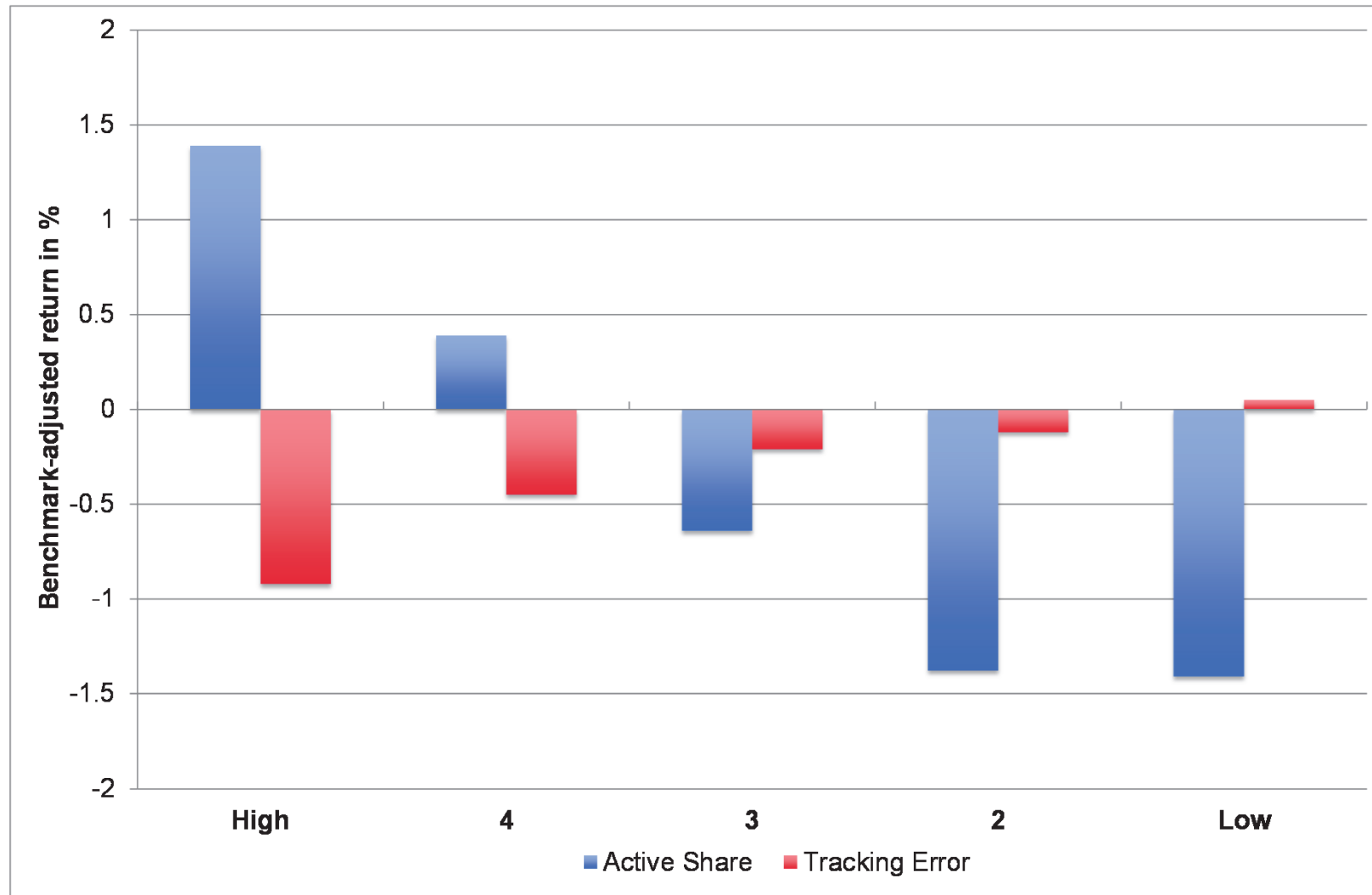
Performance and Active Share

Introduction

- Prior studies found that the average active equity fund outperforms before expenses and underperforms after expenses (beginning with Sharpe (1966) and Jensen (1968)).
 - Cremers and Petajisto (2009) find similar results with their sample of 2,647 mutual (equity) funds between 1990 to 2003, i.e., the **average fund loses to its benchmark index by 0.33% per year (after costs)**, and the loss increases to 0.91% when controlling for the four-factor model (market, value, size, and momentum factor).
- ▶ **But do our two measures of active management help to identify good active managers?**

Performance and Active Share

Tracking Error, Active Share, and Relative Return



Source: Own graph with numbers of Cremers and Petajisto (2009)

Performance and Active Share

Multivariate Setting

Variable	Effect on Outperformance
Active Share	Positive effect
Tracking Error	Negative to no effect
Turn-over	No effect
Size of the fund	Negative nonlinear effect
Number of stocks	Positive effect
Fund age	Negative effect
Manager tenure	No effect
Past fund inflow	No effect
Past outperformance	No effect
Past index return	Negative to no effect

- However, the R2 of the regressions are quite low, indicating that there are a lot more important variables...

Source: Cremers and Petajisto (2009)

Performance and Active Share

Other Studies: Vanguard Research

- **With a sample of 903 mutual funds (with survivorship bias), Vanguard finds that active share does not necessary lead to outperformance.**

General Comments

Incomplete Measure and Controls?

- Probably, fund with a high active share have ...
 - ... **more off-benchmark securities** (bonds? unlisted? derivatives?).
 - ... , on average, **less liquid shares**. As we know from Pastor and Stambaugh (2003), illiquid stocks outperform liquid stocks by 7.5% p.a. (controlling for market, size, value, and momentum).
 - ... a positive **leverage ratio** (either through direct debt or derivatives; could be controlled through the market factor)
- What about **endogeneity**, i.e., the egg and the chicken problem?
 - Good bets might lead to higher active share.

General Comments

Generalization Possible?

- The result, that active share predicts outperformance, holds for mutual funds. However, **does it also hold for institutional funds and segregated accounts?**
 - The average fund in the sample of Cremers and Petajisto (2009) has the size of USD 1,030 million.
 - Evans and Fahlenbach (2012) show that mutual funds with a similar institutional funds outperform their peers annually by 1.5% on a risk adjusted level.
 - Goyal and Wahal (2008) show that institutional investors exercise market governance and punish poorly performing managers by withdrawing their assets.¹

¹ On the contrary, mutual fund investors use raw return performance to evaluate funds and flock disproportionately to recent winners but do not withdraw assets from recent losers (Sirri and Tufano (1998)). This convexity leads to incentives for the fund managers to alter the risk of their portfolios if they are close to being among the winners (Chevalier and Ellison (1999)).

- **Since active share seems to lead to better performance, is it really helpful in selecting institutional funds?**
 - The higher performance is probably caused by **less liquid shares**. This illiquidity premium can be **harvested more cheaply** (e.g., small cap fund).
 - Not clear if it **holds for institutional funds** as well.
 - If so, there would be even **an easier measure...**
 - Amihud and Goyenko (2013) show that a **lower R2** of a fund performance, obtained from a regression of its returns on a multifactor benchmark model, **predicts also better performance**.

Bottom-line: Active share can't be used as a stand-alone measure to identify good active funds.

Thank you!

‘We don't get paid for activity, just for being right.’

Warren Buffet



Source: Mark Hirschey

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