Active Share and Closet Indexing in Emerging Markets

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According to William Sharpe:

1.before costs, the return on the average actively managed dollar will equal the return on the average passively managed dollar and

2.after costs, the return on the average actively managed dollar will be less than the return on the average passively managed dollar.

This seems to rule out the very notion of active management as a style meant to beat some relevant market index. However, it is key to stress that this claim addresses the average manger/fund, therefore individual managers can still outpeform those oriented toward a passive style.

A truly actively managed fund involves substantial costs in collecting financial information and consequently more effort in security analysis. This simple fact created a florid market in the asset management industry, where investors are willing to pay higher fees to reward the more skilled active managers.

Unfortunately, this paves the way to subtle agency problems where some managers may feign an active style in order to charge higher fees to their clients. Instead, they will deviate scantly from the benchmark. While these type of managers are unlikely to deliver their investors terrific performances, they are not taking the big bets implied by a truly active management and so are relatively safe from large loss and furthermore they will not easily fall behind the index, which will give them an unfair competitive edge. These undisclosed and unethical strategies are usually known as closet indexing.

Closet indexing might be difficult to detect at level of individual funds, despite it can be more apparent at industry level. While scholars are starting to investigate this issue, there is still little or no research targeting emerging markets. Insteade merging markets show more opportunities of exploiting inefficiencies through active strategies and therefore more room for passive management approaches disguised as active ones. In this study, we aim to shed some light on managemen styles with regards to emerging markets.

In reasoning about active management styles, it is crucial, to identify proper measure of managers' activism. A well-known measure is the Active Share, which weights the amount of holdings misaligned from the benchmark portfolio. This measure can be compared with more traditional concentration indices –such as Gini and Herfindahl index – aiming to identify those funds taking big betsin individual stocks in order to exploit private information and specific security analysis.

We will present evidence concerning Russian asset management industry. In particular, relating the measures of active portfolio management with funds' performance, delivered both in terms of excess returns and in terms of generation of alphas. The latter if often recognised as a tool to quantify the mangers' skills.

As regards the closet indexing, following Cremers, Ferreira et al., we assume the cutoff for an active fund to be classified as a closet indexer to be an active share below 60%. More in general, given relevant market indices, by analysing the tracking error and R-squared with respect to of overall funds marketed as actively managed, with those of the explicit indexed funds we can assess how significant is their median difference and whether its magnitude justify the active-vs.-passive taxonomy.

The study takes also into account the difference in terms of fee charged by active funds or closet funds, falsely marketing themselves as such. An explicit indexing, opposite to closet indexing, is key for a more competitive environment, which in turn favours a fair and transparent fee system.

Motivation and Scope

- Study style and structure of Russian Mutual Funds Industry
- Test some of the standard approaches in the Russian context

- Focus on holdings analysis
  - Measures of active management
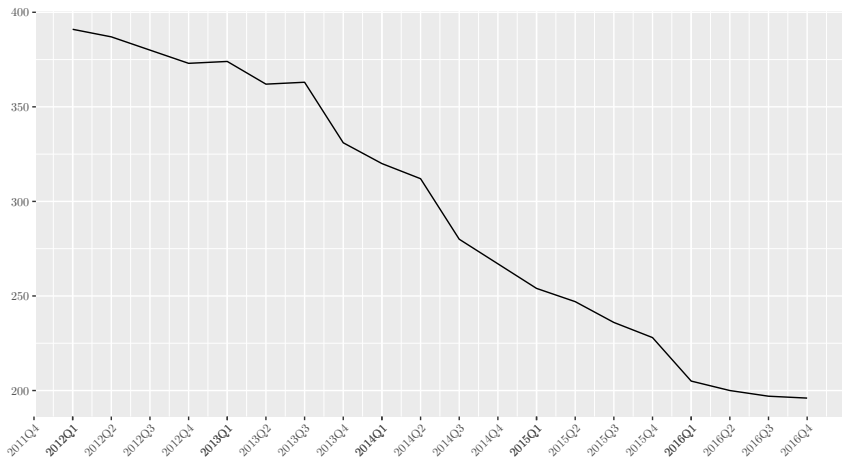- A behavioural framework for assessing performance

Russian MF Industry

Mutual funds numerosity by quarter

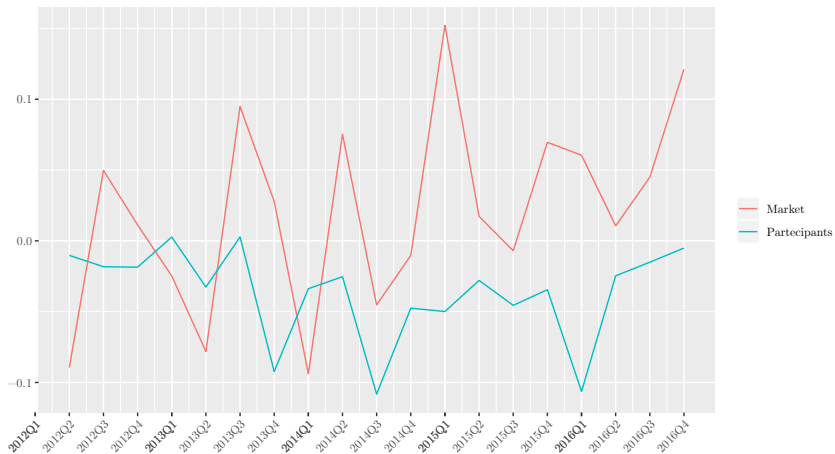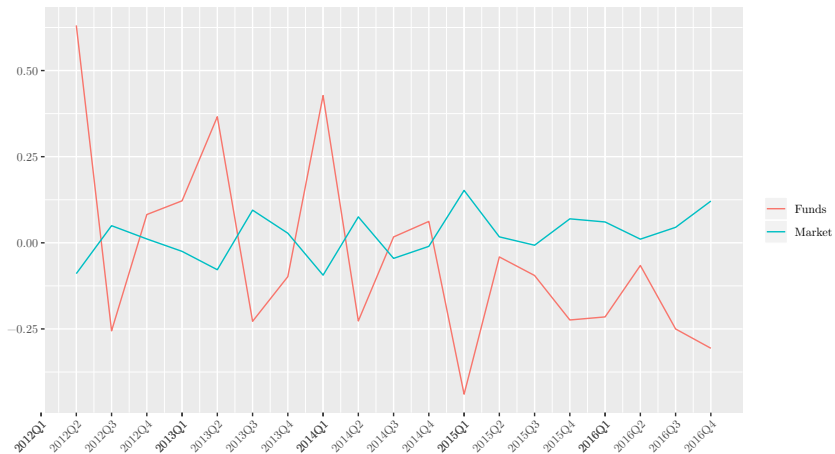|	Q1	Q2	Q3	Q4	Max
2012	391	387	380	373	391
2013	374	362	363	331	374
2014	320	312	280	267	320
2015	254	247	236	228	254
2016	205	200	197	196	205
Mean	**309**	**302**	**291**	**279**	**309**

Source: investfund.ru

Russian MF Industry

Net Market Participants

Russian MF Industry

Average survivor returns and mortality rate of participants.

Market returns vs. survivor returns.

Management Style

We focus on Active vs. Passive style analysis.

- Passive styles befittingly apply Markowitzian diversification to balance the risk and return profiles of the investment, using the market index as a benchmark.
- Managerial Activism tries to profit from overweighting the holdings with respect to market index constituent.

Managerial Activism and Closet Indexers

Active managers leverage their skills and experience in portfolio selection to focus on specific securities or sectors where they have relevant expertise

Closet Indexing:

- While charging more customers' fee for their active strategies, managed portfolios might replicate the features of some major index.
- Quantifying management styles is essential to detect closet index trackers.

Famous Advocates of Focused Investments

> ❝The right method in investment is to put fairly large sums into enterprises which one thinks one knows something about [...] It is a mistake to think that one limits one's risk by spreading too much between enterprises about which one knows little and has no reason for special confidence. ❞

> ❝One's knowledge and experience are definitely limited and there are seldom more than two or three enterprises at any given time in which I personally feel myself entitled to put full confidence. ❞

John Maynard Keynes. "Letter to F. C. Scott, 15 August 1934".
(The Collected Writings of John Maynard Keynes. CUP)

Measuring Manager Focus

A traditional measure of activism is the tracking error

$$TE = \sqrt{\text{Var}\left(r_p - r_b\right)} = \sqrt{E\left[(r_p - r_b)^2\right] - (E\left[r_p - r_b\right])^2}$$

where r_p, r_b denote resp. portfolio and market.

- However the tracking error measure stresses the volatility side
- It measures of index replication at a possibly smaller scale,
- but it does not speaks clearly about management focus on specific sectors/securities.

Practitioners' voice

A manager can take a big bet on a single asset while still keep portfolio low in terms of tracking error.

> *"As of September 30, in the energy sector, we were 80% unique at the stock level, with only 2% tracking error.* "

Laton Spahr OppenheimerFunds, Forbes 2013

So, TE does not tell the whole story on management focus.

Holdings Analysis

TE is simple, but we can get more thoroughly information about management strategies looking at their fund holdings.

When a manager take directional bets to improve returns,

C1 they overweight one ore more securities relative to the index weights.

C2 as a consequence they underweight one ore more securities relative to the index.

Holdings Analysis

For each security

1. under condition C1): $w_{fj} > w_{bj}$,
   where w_{fj}, w_{bj} are the share of the j-th security as a fund holdings an as an index constituent.

2. under condition C2): $w_{fj} < w_{bj}$.

w_{fj} can be zero or the manager can take a short position: $w_{fj} < 0$

Distance Index

At given point in time we may set:

$$D_i = \frac{1}{N} \sum_{j \in B} |w_{0,j} - w_{i,j}|$$

The set B denotes the N securities which are constituents of the reference index (the benchmark), s.t. $w_{i,j}$ is the share of j-th constituent held by the i-th fund.
The 0-th fund stands for the reference index.

Of course, there can be different $w_{i,j}$ at different observation times and therefore different D_i. I am considering a single date here.

Fund Example

As of 2016-12-30 the fund *Alpha Capital* has the following weights relative to the MOEX:

MOEX Constituent	Const. Weight	Fund Weight	Abs. Diff.
NORILSK NICKEL	5.05%	3.26%	1.79%
GAZPROM	14.68%	3.40%	11.28%
LUKOIL	12.90%	2.80%	10.10%
SBERBANK	14.42%	7.30%	7.12%
NOVOLIPETSK STEEL	0.92%	3.91%	2.99%
SEVERSTAL	1.36%	4.84%	3.48%
MAGNITOGORSK ISW	0.46%	2.69%	2.23%
TRANSNEFT	2.94%	5.93%	2.99%
NOVATEK	6.20%	5.90%	0.30%
Total	58.93%	40.03%	42.28%

Active Share Index

$$A_i = \frac{1}{2} \sum_{j \in U} |w_{0,j} - w_{i,j}|$$

$$U = B \cup F$$

The set F denotes those securities which qualify as fund holdings.

In this case therefore we consider also securities which are fund holdings but not an index constituent. If j is such a security, then $w_{0,j} = 0$

cf. Cremers, Petajistoy (2009)

Squared Complement Index

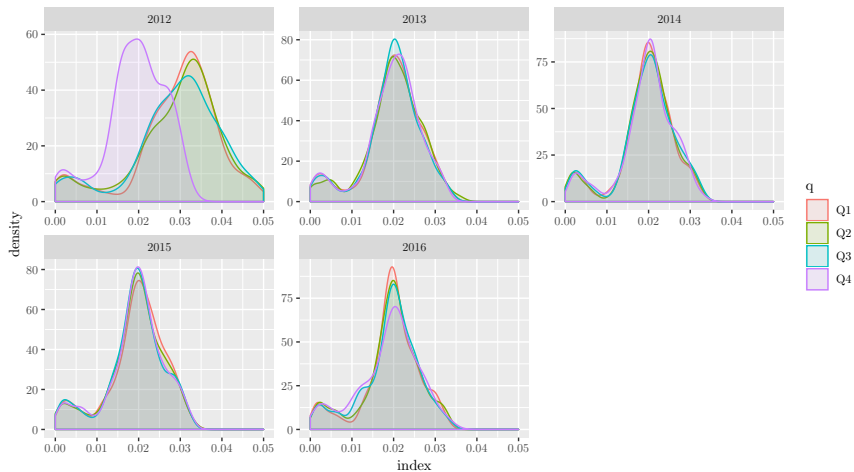$$S_i = \sum_{\substack{j \in F \\ i \neq 0}} w_{i,j}^2 + \left(1 - \sum_{\substack{j \in F \\ i \neq 0}} w_{i,j}\right)^2$$

In this case we only consider the holding shares of the fund and disregard the index.

This is similar to the Herfindahl-Hirschman Index

cf. Giuzio, Paterlini (2016)

Kernel Density: Distance Index

Kernel Density: Active Share
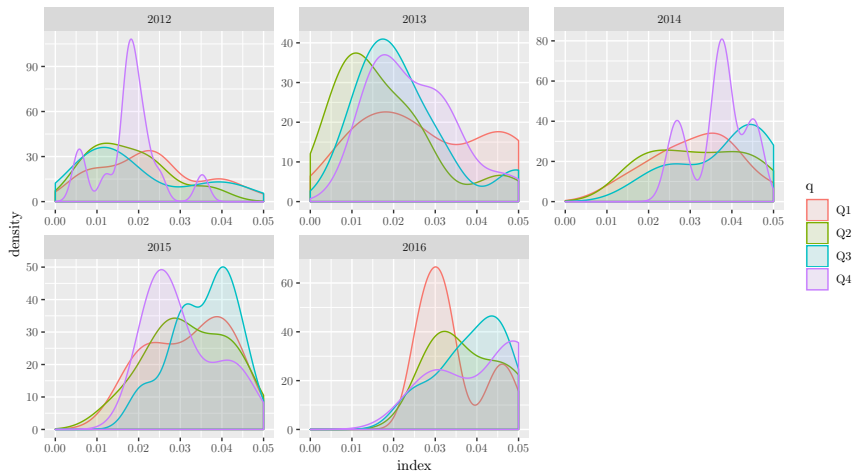
Kernel Density: Squared Complement Index

- What is the contribution of the activism indices to the fund performance?
- Can they be significant in explaining the returns?

Our model can be represented like follows:

$$R_{it} = \alpha_i + Index_{it}$$

where:

R_{it} is the return of the i-th fund in t and $Index_{it}$ is the related index.

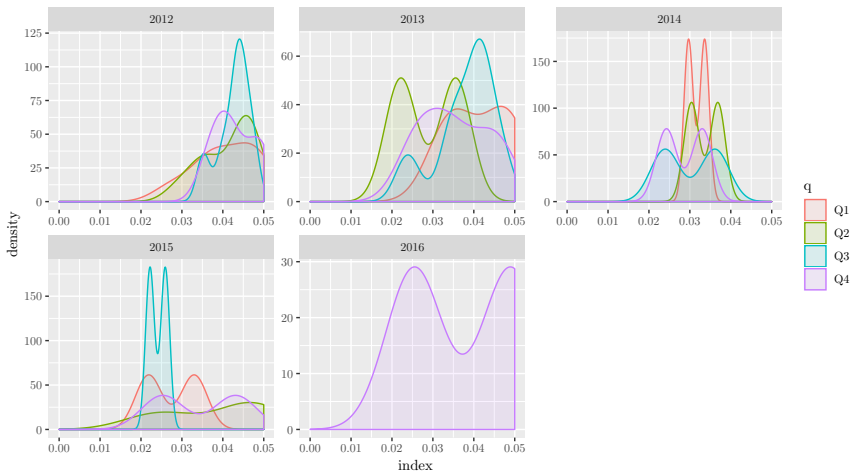| **Distance Index**				
	Estimate	Std. Error	t value	Pr(>|t|
2012 Q2	21.6227	1.3022	16.6049	2.0131e-34	***
2012 Q3	-7.8254	0.3726	-21.0045	2.2511e-44	***
2012 Q4	4.6878	0.5821	8.0535	3.7389e-13	***
2013 Q1	6.1778	1.0011	6.1709	7.4121e-09	***
2013 Q2	18.4334	1.5819	11.6525	3.7898e-22	***
2013 Q3	-8.5828	1.1368	-7.5502	5.8383e-12	***
2013 Q4	-4.4113	0.7920	-5.5701	1.3275e-07	***
2014 Q1	21.2935	1.2360	17.2272	6.8163e-36	***
2014 Q2	-10.4132	0.5621	-18.5260	6.7593e-39	***
2014 Q3	0.6601	0.7692	0.8581	3.9238e-01	
2014 Q4	3.0988	1.5040	2.0603	4.1286e-02	*
2015 Q1	-19.8679	0.8622	-23.0434	1.2514e-48	***
2015 Q2	-1.9100	0.6186	-3.0874	2.4510e-03	**
2015 Q3	-4.3148	0.6906	-6.2481	5.0597e-09	***
2015 Q4	-10.5382	0.7482	-14.0842	2.7996e-28	***
2016 Q1	-10.2913	0.7937	-12.9661	1.7785e-25	***
2016 Q2	-3.6019	0.6324	-5.6957	7.3614e-08	***
2016 Q3	-12.5364	0.6424	-19.5162	3.9916e-41	***
2016 Q4	-14.1425	1.0078	-14.0328	3.7582e-28	***

Active Share Index

	Estimate	Std. Error	t value	Pr(>|t|	
2012 Q2	1.0928	0.0651	16.7964	7.0689e-35	***
2012 Q3	-0.3929	0.0190	-20.6700	1.1803e-43	***
2012 Q4	0.1681	0.0191	8.8124	5.3504e-15	***
2013 Q1	0.2191	0.0348	6.2935	4.0370e-09	***
2013 Q2	0.6687	0.0533	12.5364	2.1678e-24	***
2013 Q3	-0.2747	0.0415	-6.6142	8.0097e-10	***
2013 Q4	-0.1335	0.0287	-4.6476	7.8938e-06	***
2014 Q1	0.7625	0.0441	17.2909	4.8327e-36	***
2014 Q2	-0.3719	0.0207	-17.9447	1.4555e-37	***
2014 Q3	0.0286	0.0279	1.0244	3.0746e-01	
2014 Q4	0.1316	0.0537	2.4479	1.5652e-02	*
2015 Q1	-0.7123	0.0335	-21.2832	5.7201e-45	***
2015 Q2	-0.0823	0.0220	-3.7330	2.7800e-04	***
2015 Q3	-0.1374	0.0258	-5.3289	4.0325e-07	***
2015 Q4	-0.3650	0.0281	-13.0080	1.3940e-25	***
2016 Q1	-0.3884	0.0272	-14.2978	8.2430e-29	***
2016 Q2	-0.1346	0.0226	-5.9531	2.1488e-08	***
2016 Q3	-0.4606	0.0209	-22.0809	1.1970e-46	***
2016 Q4	-0.5111	0.0346	-14.7622	5.8583e-30	***

Square Complement

	Estimate	Std. Error	t value	Pr(>|t|)	
2012 Q2	1.6981	0.2868	5.9216	2.5021e-08	***
2012 Q3	-0.7975	0.0939	-8.4937	3.2243e-14	***
2012 Q4	0.2151	0.0680	3.1647	1.9188e-03	**
2013 Q1	0.1632	0.0876	1.8634	6.4584e-02	.
2013 Q2	0.6979	0.1555	4.4884	1.5233e-05	***
2013 Q3	-0.5381	0.0864	-6.2303	5.5262e-09	***
2013 Q4	-0.3099	0.0567	-5.4676	2.1359e-07	***
2014 Q1	0.8063	0.1202	6.7083	4.9485e-10	***
2014 Q2	-0.4075	0.0519	-7.8542	1.1183e-12	***
2014 Q3	-0.0232	0.0472	-0.4910	6.2420e-01	
2014 Q4	0.0322	0.0930	0.3466	7.2941e-01	
2015 Q1	-0.8023	0.0862	-9.3113	3.1144e-16	***
2015 Q2	-0.0588	0.0382	-1.5387	1.2623e-01	
2015 Q3	-0.2420	0.0422	-5.7379	6.0263e-08	***
2015 Q4	-0.5531	0.0511	-10.8209	4.9124e-20	***
2016 Q1	-0.2934	0.0663	-4.4270	1.9547e-05	***
2016 Q2	-0.0732	0.0441	-1.6617	9.8901e-02	.
2016 Q3	-0.4458	0.0702	-6.3491	3.0585e-09	***
2016 Q4	-0.4983	0.0961	-5.1823	7.8106e-07	***

Regret

> **"**A sense of responsibility in human decision making operates through a process of counterfactual reasoning that enables us to relate the outcome of a previous decision with what we would have obtained had we opted for a rejected alternative.**"**

Coricelli, Critchley, Joffily, ODoherty, Sirigu1, Dolan (2005)

Regret is not the same as *disappointment*, which is still due to an unexpected negative outcome, but we don't feel responsible for it.

Regretful Thinking in Investing

Markowitz reports that he used this rule himself. He justifies his choice on psychological grounds:

> *My intention was to minimize my future regret. So I split my contributions fifty-fifty between bonds and equities*

(Zweig 1998)

A *Regret-Rejoice* function is formally introduced by Loomes and Sugden.
See Loomes and Sugden (1982) and Baddeley (2018)

The prospect f is preferred to g if:

$$f \geqslant g \Leftrightarrow \sum_{i=1}^{n} p_i Q\left(u(f_i) - u(g_i)\right) \geqslant 0$$

- p_i is the probability of state i and f_i, g_i are the related prospect outcomes.
- u is the subjective utility function and the
- Q captures the *attitude toward regret*.

The Maths of Regret

- Under a linear Q, the investor is not exposed to regret: their choice is equivalent as under EUT preferences.
- A convex Q implies *regret aversion*, which can explain a number of EUT violations
  The more the Q convexity the more the investor would regret the missed alternative.

Cf. Diecidue, Somasundaram (2017)
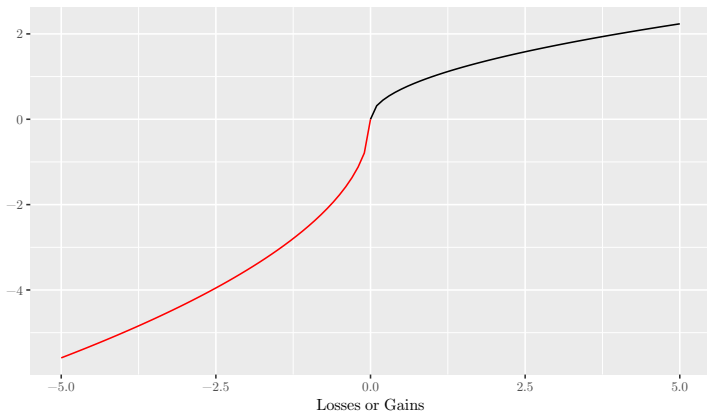
To account for Q convexity we set:

$$Q(f_i, g_i) = (u(f_i) - u(g_i))^2$$

For consistency with the behavioural nature of the framework we choose Kahneman and Tversky value function as utility.

$$u(x) = \begin{cases} x^\alpha & \text{if } x \geqslant 0 \\ -\lambda(-x)^\beta & \text{if } x < 0. \end{cases}$$

S-shaped Value Function

Red part (convex) implies preference for risk, rather than sure loss.
Black part (concave) implies preference for the sure gain.

More Implementation Details

Sever scholar found fitting parameters for the value function, for the investment context, recent tests by Barberis, Mukherjee, Wang (2014) suggest:

$$a = 0.88; l = 2.25; b = a$$

The regret alternative is identified in the market index (MOEX)

Holdings Analysis Through Regret Based Performance

We re-propose the previous linear model, using the the a regret based performance

Our model can be represented like follows:

$$Q_{it} = \alpha_i + Index_{it}$$

Q_{it} captures the regret by measure the difference between the utility of the fund return less the utility of the market return.

Active Share and Regret-Based Performance

	Estimate	Std. Error	t value	Pr(>|t|)	
2012 Q2	1.9598	0.1742	11.2512	3.9673e-21	***
2012 Q3	0.9908	0.0573	17.2957	4.7071e-36	***
2012 Q4	0.0975	0.0098	9.9920	6.1354e-18	***
2013 Q1	0.3035	0.0331	9.1565	7.5522e-16	***
2013 Q2	1.0496	0.0968	10.8470	4.2167e-20	***
2013 Q3	1.0435	0.1019	10.2406	1.4480e-18	***
2013 Q4	0.4413	0.0456	9.6763	3.8123e-17	***
2014 Q1	1.1488	0.0664	17.3020	4.5508e-36	***
2014 Q2	0.9396	0.0614	15.3000	2.8133e-31	***
2014 Q3	0.2224	0.0231	9.6133	5.4839e-17	***
2014 Q4	0.6737	0.0769	8.7611	7.1500e-15	***
2015 Q1	2.8079	0.1477	19.0042	5.5837e-40	***
2015 Q2	0.2796	0.0270	10.3438	7.9438e-19	***
2015 Q3	0.3369	0.0335	10.0448	4.5163e-18	***
2015 Q4	1.0309	0.0929	11.1004	9.5869e-21	***
2016 Q1	1.1712	0.0770	15.2157	4.5177e-31	***
2016 Q2	0.3890	0.0519	7.5005	7.6309e-12	***
2016 Q3	1.2900	0.0733	17.5910	9.6177e-37	***
2016 Q4	1.8847	0.1254	15.0288	1.2959e-30	***

Conclusions

Key Takeaways

- Activity indices are highly significant in explaining cross-section fund returns.
- They work less so with short time series
- The utility based assessment model finds a perfect fit with activity based indices, leveraging on investors' regret.
- The regret-based model shows stable (in sign) regression estimates.