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Hares with Tortoise Genes

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MAY 2016

Executive Summary

Are factor exposures or informed stock picks more effective in driving outperformance? Quantitative investors have been criticized for being "closet indexers" because they tend to form broadly diversified portfolios that gain exposure to factors and aim for consistent excess returns. We suggest that a more interesting question is whether fundamental managers that outperform are "closet quants." We find, on average, successful fundamental managers with the largest exposure to Fama-French factors outperform successful fundamental managers with more idiosyncratic returns, both in subsequent one year excess returns and in the probability of beating their benchmarks during the next year. This is the case for the entire universe of US managers based on eVestment and CRSP data, and separately for large cap and non-large cap strategies. If investors are seeking consistent excess returns, perhaps the best question is why choose a closet quant fund, i.e., factor-based fundamental, when you can have the real thing, an actual quant fund?

It is often argued that quantitative investors are closet indexers. This is because they tend to own portfolios with a relatively large number of holdings (typically in excess of 100), and because their tracking error is typically low. However, these characteristics are usually a consequence of the fact that quantitative investors are taking factor-based risks, such as value, momentum, and size. It is the exposure to these factors that drives their basic characteristics and is the primary source of their returns.

In contrast to quantitative investors, the case for fundamental investors is that since they target company-specific information, their returns are more idiosyncratic and therefore more desirable. However, given that the basic factors — value, momentum, and size — have been shown to explain the cross section of portfolio returns (Fama and French, 1993; Jegadeesh and Titman, 1993; Carhart, 1997), a natural question to ask is the degree to which the returns of fundamental investors are driven by these factors. So, are they in fact closet quants?

By and large, quantitatively built portfolios tend to have — by design — lower return targets than their fundamental counterparts, but a higher degree of consistency. Thus, the debate about the superiority of factor-driven, i.e., quantitative, investments relative to fundamentally-driven investments, is reminiscent of the fable about the race between the tortoise and the hare, where the tortoise is rewarded for its steady, incremental progress. Our basic question is: do the hares that perform best have tortoise genes?

In this note, we take the population of hares, i.e., those fundamental investors who have demonstrated skill based on a positive Fama-French five factor intercept, and split them into two groups. The first group – pure hares – is made up of funds whose returns are mostly attributed to idiosyncratic information. The second group – hares with tortoise genes – is made up of funds whose returns are mostly explained by active tilts to the common Fama-French factors. Surprisingly, we find that fundamental investors with significant factor tilts, i.e., the hares with tortoise genes, outperform the fundamental investors without factor tilts, i.e. the pure hares. In other words, the fundamental managers you would want to own are closet quants.

To perform our analysis, each December we identify all investment managers in the eVestment database that are classified as fundamental and have reported 36 months of returns. For each of these managers, we regress their trailing 36 monthly returns (in excess of Rf) on the five Fama-French factors of Market (minus Rf), Size (smb), Value (hml), Momentum, and Short-Term Reversal. The intercept of this regression shows the part of the manager's return that cannot be explained by the Fama-French factors. A positive intercept suggests skill, i.e., that the manager is able to earn an "abnormal" return — a return in excess of the factors that determine security returns. Motivated by Amihud and Goyenko (2013) to examine whether the manager returns can be attributed to idiosyncratic information or to factor tilts, we run two additional regressions. In the first, the manager's alpha, i.e., the return minus the benchmark, is regressed on the five Fama-French factors mentioned above. In the second, the manager's alpha is regressed on the Market (minus Rf) factor alone. If the manager's returns are generated by tilting their portfolios away from their benchmark and toward the Fama-French factors, the R-squared (R^2) of the five-factor regression will be much higher than the R^2 of the single-factor market regression. To test the significance of the improvement, an *f*-statistic is constructed as follows:

$$f\text{-statistic} = \frac{(R_e^2 - R_r^2)\,/\,4}{(1 - R_e^2)\,/\,30}$$

where R_e^2 is the R^2 in the first regression of the expanded model with all five regressors, and R_r^2 is the R^2 in the second regression of the restricted model with the Market factor as the only regressor. There are four more regressors in the expanded model than the restricted model, which are used to scale the improvement in R^2 between

the two regression models, and 30 degrees of freedom in the expanded model, 36 observations minus the intercept and five factor coefficients. This f-statistic with (4,30) degrees of freedom can be used to test whether there is a statistically significant improvement in the expanded model over the restricted model. If the f-statistic is high, say with the probability of observing such a value at 99%, it means that there is only 1% chance that the manager's alpha is **not** at least partly due to factor tilts that are beyond the benchmark tilts. If the f-statistic is low, the probability that the manager's alpha is due mainly to idiosyncratic information is much higher.

Each December during the period from 1996 to 2014, we identify all fundamental managers with prior 36 monthly returns and that have a positive Fama-French intercept, i.e., those that have a positive abnormal return. Among those, we focus on those that have f-statistics with a probability above 99% (the factor-based fundamentals) and those that have f-statistics with probabilities below 80% (the pure fundamentals). We examine the average alpha (return minus the benchmark return) in the following year, as well as the proportion of managers in each group that have a positive alpha. We test the differences between the two groups using a standard two-sample t-test.

Panel A of Exhibit 1 shows the results of the above tests. We identify 4,971 observations (manager-years) as pure fundamentals, i.e., those whose returns are not highly associated with factor tilts (beyond the benchmark tilts), and 6,698 as fundamentals with factor tilts, i.e., those whose alphas are very strongly associated with the non-market Fama-French factors. The pure fundamentals manage to earn 102BP on average in the subsequent year above their benchmarks, whereas the factor-based fundamentals earn an above-benchmark average return of 213BP, outperforming the pure fundamental managers by an average of 111BP per year, a statistically significant difference at the 0.0001 level. Similarly, we find that the pure fundamentals, as a group, manage to beat their benchmark about 53% of the time in the subsequent years, whereas the factor-based fundamentals manage to beat the benchmark 58% of the time, again a difference that is statistically significant at 0.0001.[1]

As is well known in finance research, many anomalies are stronger for smaller equities than for larger companies. In Panels B and C of Exhibit 1, we break the observations into managers with a large-cap benchmark and all others (which include small, smid, mid, and all-cap mandates). We show in Panel B that the pure large-cap fundamentals have an average alpha of only 41BP and on average are able to beat their benchmarks 49% of the time. We show in Panel C that the pure non-large-cap fundamentals, i.e., those funds with mandates that include smaller-cap equities, have an average subsequent one year alpha of 140BP. However, both groups are significantly dominated by the factor-based fundamentals with 195BP and 229BP, respectively. Another

interesting observation about the comparison of Panels B and C is that the factor-based fundamental managers have performance that is similar in magnitude, irrespective of the benchmark market-cap. This is intuitive if one believes that the market is more efficient for large-cap firms and opportunities for idiosyncratic information about these firms are harder to uncover. However, if a manager exploits the Fama-French factors, the outperformance is similar for the large and smaller portions of the universe.

It may be argued that the above results do not take into account three potential deficiencies in the eVestment data. Managers self-report their styles and returns and can decide to suspend reporting bad results. Also, returns are gross of fees, so we cannot adjust for an adequate comparison of returns net of fees. Although intuition suggests that factor-based fundamental managers might have lower fees and more consistent returns, which would affect the survivorship bias against finding the above results, we can turn to a similar analysis based on the CRSP survivorship bias-free database of mutual funds.

An issue with the CRSP database is that it does not clearly allow us to classify a fund as fundamental. We therefore use a crude measure that is reported in the database, the number of equity positions that the fund holds in its portfolio. We assume that funds with fewer positions are fundamental investors, and we define any fund with a below-median number of positions for that year as fundamental. This is equivalent to fewer than 79 positions on average per year.[2] As before, we focus on those funds that have a positive intercept in the regression of the fund net return minus the risk-free rate on the five Fama-French factors. We then estimate the f-statistic in an analogous manner to that of the eVestment data above, and classify funds into pure fundamentals and factor-based fundamentals each year if they fall into the bottom and top quartile of f-statistic, respectively.

Panel D of Exhibit 1 contains these results. We are able to identify 661 pure fundamental observations and slightly fewer 507 factor-based fundamental observations. The pure fundamentals have an above benchmark average return of -124BP in the subsequent year, and only 39% managed to beat their benchmark in the subsequent year. This performance is worse than the average fund during that time period, which is -82BP. Recall, however, that the CRSP returns are net of fees, and this result confirms the well-documented finding that the typical fund has negative net returns. In contrast, the factor-based fundamentals have a net above benchmark return of -41BP, which is 83BP better than the pure fundamentals and significantly better at the 0.0476 level. They also beat their benchmark 45% of the time in the subsequent year, significantly better than the pure fundamentals by 6% at the 0.0351 level. Thus, the CRSP results are consistent with those of the eVestment data, increasing our confidence about the superiority of the factor-based fundamentals over the pure fundamentals.

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[1] The group of managers who had an f-statistic with a probability between 80% and 99% consisted of 7,071 observations, and had an average next-year alpha of 114BP, with a 54% proportion of beating their benchmark in the subsequent year. Thus, it fell neatly between the two groups reported in the exhibit.

[2] Data about the number of positions is available in the CRSP database for 2002-2013, so the CRSP results are for a shorter time period than those of the eVestment data.

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It should be noted that the superiority of the factor-tilting, successful fundamental managers over their idiosyncratic, successful peers in the eVestment and the CRSP universes is based on average performance. Of course, there are some idiosyncratic fundamental managers that outperform the average factor-tilting fundamental managers, just as there are factor-tilting fundamental managers that underperform the average idiosyncratic fundamental managers.

What could be the reasons for the superiority of the factor-based fundamentals over the pure fundamentals? One possible explanation is exploiting the Fama-French factors in the investment process leads to more consistent returns over time, which although smaller than those obtained using idiosyncratic information in any given year, builds up to better performance over time. To explore the tortoise and the hare analogy further, a consistently advancing tortoise with small steps can reach the finish line faster than the volatile hare who begins fast, but gets distracted.

In a different, but related study using the CRSP database, we have found that funds which are well-diversified (determined by the number of positions in the top quartile) and that had good performance in the prior 36 months (either in terms of momentum, or better yet, information ratio) tend to have statistically significant better performance than concentrated funds (Livnat, Smith, and Tarlie, 2015). Contrasting with Cremers and Petajisto (2009), we attribute this superiority in performance to the more consistent returns of diversified funds versus the concentrated funds. It is comforting to see that those results, which essentially compare fundamental investors with skill (i.e., hares) to quantitative investors with skill (i.e., tortoises), carry over to the comparison of pure hares and hares that have tortoise genes. These results also raise a question for further research: why choose a closet quant fund, i.e., factor-based fundamental, when you can have the real thing, an *actual* quant fund?

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EXHIBIT 1

Future Returns of Fundamental Managers

The exhibit reports results of our tests. To select our sample, we identify all fundamental managers that had prior 36 monthly returns, and that had a positive Fama-French intercept each December during the period 1996-2014 in *eVestment* database. Panel A shows the results of tests comparing *Hares with Tortoise Genes* (the factor-based fundamentals managers whose alphas are very strongly associated with the Fama-French factor tilts beyond their benchmark tilts: *f*-statistics with a probability above 99%) and *Pure Hares* (the pure fundamentals managers whose returns are not highly associated with factor tilts: *f*-statistics with probabilities below 80%). Average excess return is return minus the benchmark return in the following year. We separate our sample into two groups and report the results of our tests for managers with a large-cap benchmark (Panel B), and all others, which include managers with small, smid, mid, and all-cap mandates (Panel C). We repeat our tests using CRSP survivorship bias free database of mutual funds for 2002-2013: Panel D presents the results.

Panel A: Pure Hares vs. Hares with Tortoise Genes

Manager Type	Manager Type Explanation	N	Avg. Excess Return (BP)	Outperforming Benchmark (%)
Pure Fundamentals	F-Stat prob. < .80	4,971	102	53
Factor-Based Fundamentals	F-Stat prob. > .99	6,698	213	58
		Difference	111	5
		Significance	0.0001	0.0001

Panel B: Managers with a Large-Cap Benchmark

Manager Type	Manager Type Explanation	N	Avg. Excess Return (BP)	Outperforming Benchmark (%)
Pure Fundamentals	F-Stat prob. < .80	1,912	41	49
Factor-Based Fundamentals	F-Stat prob. > .99	3,181	195	57
		Difference	154	8
		Significance	0.0001	0.0001

Panel C: Managers with a Non-Large-Cap Benchmark

Manager Type	Manager Type Explanation	N	Avg. Excess Return (BP)	Outperforming Benchmark (%)
Pure Fundamentals	F-Stat prob. < .80	3,059	140	55
Factor-Based Fundamentals	F-Stat prob. > .99	3,517	229	58
		Difference	89	3
		Significance	0.0002	0.003

Panel D: Pure Hares vs. Hares with Tortoise Genes (CRSP sample)

Manager Type	Manager Type Explanation	N	Avg. Excess Return (BP)	Outperforming Benchmark (%)
Pure Fundamentals	F-Stat prob. bottom quart.	661	-124	39
Factor-Based Fundamentals	F-Stat prob. top quart.	507	-41	45
		Difference	83	6
		Significance	0.0476	0.0351