



PORTFOLIO CONSTRUCTION

Little Things Mean a Lot

September 15, 2017

My colleagues have [produced a paper](#) on something we call, perhaps pretentiously though we can't come up with a better word for it, "craftsmanship" — what we believe to be a necessary part in creating successful factor portfolios. What factors (value, momentum, small, quality, others?) you believe in, or dismiss, gets much of the attention. That's understandable and appropriate. But we think there are many smaller decisions that each can matter some, and collectively can matter a lot. I won't repeat the analysis and examples from the paper here (please read it!). But, I will use this essay as an excuse to discuss, in brief, two separate topics that I'd been planning to write about for a while (I still might expound upon these more in the future).

Fees

The first one is factor investing fees. Yes, I'm now the fox writing an essay on how much to pay the henhouse guards. That's your last warning — the rest will be my honest opinion, but it's obviously impossible for me to be completely unbiased. Of course, if "craftsmanship" (again, read the paper!) ex-ante matters and if it varies across managers, then it is rational to have variation in fees across managers even if they espouse the same factors and philosophy. Thus, you can accurately take away from the craftsmanship paper that you should rationally be willing to pay factor managers who have better craftsmanship slightly more than others. One may also take away the implicit and self-aggrandizing belief that we fall into that category.

Still, I want to make an even more obvious point about fees, one that I think surprisingly gets lost sometimes. Magnitude matters, and fees for factor based investing are, in general, already much lower than traditional active management. Basically, a move from fees like 150 basis points (e.g., traditional active management) to fees like 30 basis points (e.g., factor tilted long-only portfolios) is pretty huge.¹ By contrast, a move from 30 to 20 basis points, not so much.³ Make no mistake, all-else-equal, lower fees are better! But the plausibility of all-else-not-being-equal gets substantially higher when the absolute differences in fees get much lower. For example, on 500 basis points of active risk the reduction in fees from 150 to 30 basis points is equivalent to a Sharpe/information ratio pickup of 0.24 (a 120 basis point reduction divided by 500).⁴ That may seem low to those used to the Sharpe ratios so many managers claim, but it's a reasonably big number. It's a non-trivial fraction of the Sharpe ratio of the whole stock market over modern history. So, in that sense it's a very big savings. Now, an additional fee reduction from 30 to 20 basis points is worth 0.02 Sharpe ratio "points." This 0.02 may seem trivial, but if you think there's any non-trivial difference in craftsmanship among implementers it's far more plausible that it's worth 0.02 rather than 0.24 Sharpe points. This means if you think the manager charging 30 basis points has a better than 0.02 Sharpe advantage you'd happily take them over the manager charging 20 basis points. Yes, this is all kind of obvious, and all I've proven here is that big numbers matter more than small numbers. But in a world where we have seen major fee reductions for some types of management over the last, say, decade, I think this perspective indeed gets lost sometimes as the numbers have indeed all gotten smaller.

The Tyranny of Small Decisions

Even if (if!) you're making a large collection of small decisions correctly there can be long periods in which these decisions hurt instead of help you. This is true collectively, looking at the net of all these choices, and even more so when each decision is viewed standalone. Getting your time horizon lined up with some rational expectations is always a huge issue in investing. But, it's perhaps more of an issue here as the edge to "small decisions" is almost by definition smaller. And, there are often a lot of them to make. One important subtlety is that one cannot avoid at least attempting some form of craftsmanship as [choices have to be made](#).⁵

Let's just make up an example. Imagine there are ten independent (uncorrelated) sources of "craftsmanship alpha" and that each adds 2 basis points of expected return at the cost of 20 basis points of tracking error from each (against some idea of a super simple "non-crafted" alternative).⁶ Each is thus a 0.10 Sharpe ratio viewed alone. Together they are expected to add 20 basis points to the overall factor implementation inducing 63 basis points of tracking error (20 basis points times the square-root of ten). That's a Sharpe ratio of 0.32 from the collective craftsmanship (in addition to the basic factor returns).

This is not a bad deal particularly, say, continuing the example posited above where this craftsmanship costs an extra 10 basis points in fees.

But, as many have noted in other contexts, a Sharpe ratio like 0.32 can be hard to live with. Its chance of subtracting from your performance in a given year is about 37%. Its chance of subtracting over five years is about 24%. And, wait for it... over twenty years the chance it subtracts is still about 8%. That's right. There's a non-trivial chance your craftsmanship is every bit as good as you think, and it

subtracts over two full decades, perhaps the lion's share of your career. Such is the unforgiving, uncaring math.⁷

Now, if you think those stats are bracing for the full set of ten unrelated additive pieces of craftsmanship, each with a 0.10 Sharpe ratio, then you are entering a special kind of hell if you are evaluating each on their own. Sharpe advantages of 0.10 have a 33% chance of losing over twenty-year periods. That means an individual minor improvement you believe in, and you are right about, could quite easily let you down over your career.

Of course, a remaining question is how one can ever be confident in each individual piece of craftsmanship if they are 0.10 Sharpe ratios viewed standalone. There is no magic answer (and please remember that you do have to choose!), and it is similar to getting comfortable with any strategy. We consider basic economic sense ("diversify across equally intuitive ways to measure a factor", "don't take unintended risks", "trade as cheaply as you can"), and we look at evidence from very long periods, importantly and hopefully obtained in many places (geographies and assets classes). Despite them all being small advantages when viewed alone, we are confident enough, for instance, in the examples highlighted in the [craftsmanship paper](#) to make these many small decisions and to believe our strategies may be enhanced (slightly) long-term as a result of them. But we also know that even assuming we're right we might have some explaining to do for long periods. [This is the business we have chosen](#).⁸

Back to the Craftsmanship Paper

Whether or not you believe in factor investing, what factors you believe in, and how much you believe in each (for weighting your bets), are all first order in the factor investing world. But the things we call craftsmanship, detailed [in this paper](#) full of examples, matter too. They can matter at least as much as modest fee differentials — that is, [Little Things Mean a Lot](#) ♪. But, as with the factors themselves, they need to be based on economic common sense and as much in- and out-of-sample evidence as possible. This is true for most things in investing but perhaps even more so when the edges are smaller.

[View Craftsmanship Alpha: An Application to Style Investing](#)

[1] This very ballpark example is meant to be about traditional active management versus today's factor tilted long-only portfolios. If we were talking about alternative investments the example might be the old "2&20" for hedge funds against something more like "1" today for long-short multi-factor portfolios. Another issue in fee analysis is comparing fees on properly constructed market-neutral alternatives, particularly ones run at reasonably aggressive levels of expected return / risk, to those on traditional long-only tilted portfolios (which are best viewed as a blend of passive index exposures and small factor tilts). The fees per unit of factor exposure should be in the ballpark of each other. Meaning, the fee should be lower in many traditional long-only implementations as you are getting more benchmark exposure (which should cost less than factor exposure) and less factor exposure versus less traditional long-short implementations. But, backing out some idea of the fees per unit of factor exposure should reveal a closer correspondence in fees even between seemingly very different investment products. This is another topic I can't do justice to here but hope to return to at some point.

[2] Absolute, not relative, moves are what matter here. In other words, what matters is the reduction from 30 to 20 basis points saves the investor 10 basis points, not that it reduces the fees by 33.33%. Percentages get kind of silly the closer you are to starting at zero.

[3] My favorite example is some recent advertisements for index funds where one company shows their fees vs. another's and the upshot is "they are at 5.5 basis points but we're at 4.5!" OK, yes, if literally everything else is equal take the 4.5. Alternatively, if you think, based on analysis, intuition, or indigestion, that the 5.5 basis point manager might have the tiniest edge then you may want to choose them instead. Either way please keep in mind that we are talking about a 1 basis point difference on a 15-20% volatility asset so it really doesn't matter a hill of beans to ending wealth. We are all trained that small differences in long-term compound returns matter more than people generally think to ending wealth. That's generally true. But, not for 1 basis point differences...

[4] "Sharpe ratio" is usually used for absolute return while "information ratio" used for return relative to a benchmark. I'm just going to say Sharpe from now on here and trust it to make sense in context.

[5] Choices have to be made with traditional indexing also, but with factors we don't get to start with anything quite as ex-ante reasonable as market-cap weighting. For instance, while I worship at the altar of Fama and French, I don't think decisions like going long the lowest price-to-book third of the market and short the highest price-to-book third, separately among large and small caps, all cap weighted, has quite the same claim to ex-ante reasonableness relative to other possible alternatives to implementing a portfolio as the more Bogle-esque "go long everything at market cap weights."

[6] Admittedly without an agreed upon standard way of implementing factors I do face a bit of a "compared to what" problem. But, I think the basic idea that there are lots of decisions that can potentially add (or subtract) small value is well represented by this example.

[7] To be clear, the probability math in this example applies irrespective of the source of the gain — whether the said 0.32 Sharpe ratio is earned through the equity premium, through a good factor choice, or through many small craftsmanship decisions. The broader point is that many ex-ante advantages may disappoint at surprisingly long evaluation periods. It is all too common for investors, ourselves sometimes included, to implicitly expect any ex-ante edge to be realized consistently at shorter horizons than simple probability calculations indicate.

[8] If you combine many small craftsmanship decisions, each possessing a very small edge, with a modern quant's ability and predilection to measure all of their individual ex-post contributions, it's a recipe for certain "personality types" to always be in a bad mood. I'm not saying who.

This document is not intended to, and does not relate specifically to any investment strategy or product that AQR offers. It is being provided merely to provide a framework to assist in the implementation of an investor's own analysis and an investor's own view on the topic discussed herein.

This document has been provided to you solely for information purposes and does not constitute an offer or solicitation of an offer or any advice or recommendation to purchase any securities or other financial instruments and may not be construed as such. The factual information set forth herein has been obtained or derived from sources believed by the author and AQR Capital Management, LLC ("AQR") to be reliable but it is not necessarily all-inclusive and is not guaranteed as to its accuracy and is not to be regarded as a representation or warranty, express or implied, as to the information's accuracy or completeness, nor should the attached information serve as the basis of any investment decision. This document is not to be reproduced or redistributed to any other person. The information set forth herein has been provided to you as secondary information and should not be the primary source for any investment or allocation decision. Past performance is not a guarantee of future performance.

This material is not research and should not be treated as research. This paper does not represent valuation judgments with respect to any financial instrument, issuer, security or sector that may be described or referenced herein and does not represent a formal or official view of AQR. The views expressed reflect the current views as of the date hereof and neither the author nor AQR undertakes to advise you of any changes in the views expressed herein.

The information contained herein is only as current as of the date indicated, and may be superseded by subsequent market events or for other reasons. Charts and graphs provided herein are for illustrative purposes only. The information in this presentation has been developed internally and/or obtained from sources believed to be reliable; however, neither AQR nor the author guarantees the accuracy, adequacy or completeness of such information. Nothing contained herein constitutes investment, legal, tax or other advice nor is it to be relied on in making an investment or other decision. There can be no assurance that an investment strategy will be successful. Historic market trends are not reliable indicators of actual future market behavior or future performance of any particular investment which may differ materially, and should not be relied upon as such. Diversification does not eliminate the risk of experiencing investment losses.

The information in this paper may contain projections or other forward-looking statements regarding future events, targets, forecasts or expectations regarding the strategies described herein, and is only current as of the date indicated. There is no assurance that such events or targets will be achieved, and may be significantly different from that shown here. The information in this document, including statements concerning financial market trends, is based on current market conditions, which will fluctuate and may be superseded by subsequent market events or for other reasons.