July 24, 2019

"The first principle is that you must not fool yourself – and you are the easiest person to fool."
- Richard Feynman

Dear Partners and Friends,

The fund returned 2.8% net of all fees and expenses in the second quarter, bringing the YTD return to 19.0% net.[1]

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Highlights and announcements:

- I had the pleasure of interviewing Warren Kanders, chairman of Clarus Corp (CLAR), our largest position, at the Casulo Symposium in New York City during the second quarter. I look forward to sharing a transcript of the event with all limited partners in the near future.
- I believe that my process is working well. I am continually attempting to make it even better (see: **The Most Important Mental Model**).
- No surprise, but compounding capital at a rate of "five-year doubles" over long periods of time is powerful (see: **Three-Year Doubles, Five-Year Doubles**).
- If total partnership capital under management continues to grow at historical rates, I expect to start limiting inflows in the next two to three years.
- Our current *Founders Share Class* fee structure has limited additional capacity; I expect it to close by year end.
- This was an above-average quarter in terms of portfolio activity, with several changes to our top five positions (see: **Portfolio Update**).
- I attended VALUEx Vail in June, which is a fantastic buy-side idea-sharing event hosted by my good friend, Vitaliy Katsenelson. I presented a case study on Westlake Chemical (WLK) and its wonderful CEO, Albert Chao, who has compounded capital at truly impressive rates in a cyclical industry (see **Westlake Chemical**).
- Despite being four years into running this partnership, and sixteen years into my career as an investor, I remain on Square 1 (see: **Square 1**).

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[1] Individual results may vary based on timing of investment and share class/fees. Please see important disclaimers on p 14.

The Most Important Mental Model, or On Being a Fallibilist

On a brisk day last October in Manhattan, I had the opportunity to spend a day with Annie Duke, former professional poker player (the only woman to have won the World Series of Poker championship), and author of *Thinking in Bets*: *Making Smarter Decisions When You Don't Have All The Facts*. While Duke has extensively studied the literature on behavioral psychology (she dropped out of a PhD program in the field to play poker full time), she is first and foremost a successful practitioner of decision-making under uncertainty. She had skin in the game as a professional poker player for two decades.

While wide-ranging, our discussion centered on optimizing processes in domains in which there is some element of randomness in outcomes. As Duke writes in *Thinking in Bets*, "Poker is a game of incomplete information. It is a game of decision-making under conditions of uncertainty over time…valuable information remains hidden. There is also an element of luck in any outcome."[2]

Like poker, investing is a domain with incomplete information and decision-making under uncertainty.[3] In poker as well as investing, you can have a bad process (bluffing randomly, acting on hot stock tips), but still be rewarded with positive outcomes in the short term. Additionally, the possibility exists that one can have a sound process, and make good decisions, yet still have a negative outcome.

I have been honing and refining my process over the 15+ years I have been a professional investor – I think that for the most part it would garner Annie Duke's approval. But I am constantly trying to improve upon it.

Duke reinforced the importance of many elements of my process that I consider essential, including the use of an investment checklist, the practice of pre-mortems, the use of "organized skepticism" or "red team" decision groups (actively seeking disconfirming evidence), the use of precise probability assignments to forecasts (decision trees), and the tracking of past decisions.

Ultimately, I think, in a domain in which you can't always assess the quality of a decision by the outcome, a good process is one that makes it hard for you to fool yourself.

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In 1994, Charlie Munger spoke to a class of business school students at the University of Southern California. The transcript of his talk was printed in Outstanding Investors Digest the following spring, under the title "A Lesson on Elementary, Worldly Wisdom as it Relates to Investment Management and Business." Five years later, Robert Hagstrom's *Investing, the Last Liberal Art*, was published (title of Chapter 1: "A Latticework of Mental Models"), which brought more attention to the idea. The transcript

[2] p 21.

[3] Of course investing deals with risks and uncertainties of greater magnitudes as well as of different kinds. Poker, unlike investing, does not have an element of epistemic uncertainty. The rules of the game are well-defined. Sure, there is more of an element of skill in poker than there is in Blackjack, dice rolling, or coin tossing, but the framework of the game is still well defined. Consider a poker game in which you didn't know, a priori, the number of cards in the deck, or which cards were wild, or whether a friendly casino manager would come around on a random schedule and replace a few cards from the game with different ones. This is more akin to the type of uncertainty and risk present in investing. We investors face not only aleatory uncertainty, but epistemic uncertainty as well.

of the talk was finally reprinted in *Poor Charlie's Almanack: The Wit and Wisdom of Charlie Munger* in 2005.

The thesis of the talk is captured in a few short lines from the speech:

> What is elementary, worldly wisdom? Well, the first rule is that you can't really know anything if you just remember isolated facts and try and bang 'em back. If the facts don't hang together on a latticework of theory, you don't have them in a usable form.
>
> You've got to have models in your head. And you've got to array your experience—both vicarious and direct—on this latticework of models. You may have noticed students who just try to remember and pound back what is remembered. Well, they fail in school and in life. You've got to hang experience on a latticework of models in your head.

He goes on to discuss a number of such mental models from the fields of math, engineering, biology, psychology, accounting, and more. It is a great speech, and I recommend that you read it if you haven't.[4]

The ideas in the "latticework" speech have become value investing orthodoxy, having permeated the field over the past 25 years. The concepts have endured for good reason; they are indeed wise. The mental model framework is absolutely the right approach to thinking about many types of problems. Having a large toolkit of mental models is powerful; I believe that it is worth spending time on their acquisition and study. Without a range of good theories, it is difficult to begin analyze what we need to analyze: businesses, industries, competitive dynamics, human behavior.

As Munger went on:

> The first rule is that you've got to have multiple models—because if you just have one or two that you're using, the nature of human psychology is such that you'll torture reality so that it fits your models, or at least you'll think it does…It's like the old saying, "to the man with only a hammer, every problem looks like a nail…"
>
> And the models have to come from multiple disciplines—because all the wisdom of the world is not to be found in one little academic department.

It is worth having inch-deep knowledge of a broad array of mental models, and much deeper knowledge of a few dozen of them, learned through repeated application. Every investor, executive, entrepreneur, bartender, and matador is going to have their own toolkit of mental models that they know better than others. And this is perfectly reasonable.

I utilize and apply sound mental models (good theories) where appropriate, and try to avoid the misapplication of mental models (or the application of faulty mental models) as well. This is a core element of my process. A few examples that I utilize frequently: Bayes Theorem ("inside view vs. outside view" – see Bayes, Kahneman, Maouboussin), "jobs to be done" (Christensen), reverse engineering, price umbrellas, the ideas of Cialdini, etc; I could go on and on.[5] I believe that there are scores of mental models that are worth having in one's toolkit, and I read broadly in an effort to acquire more.

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[4] Link.

[5] For more on mental models, see Farnam Street's compendium of 109 mental models - https://fs.blog/mental-models/, as well as Scott Page's new book, *The Model Thinker*.

But I am going to let everyone in on a little secret. There is one mental model that is *the single most important* mental model, period. In a way, it is the ur-model, and the ultimate meta model.

I say this despite Munger's correct assertion that we need a diverse toolkit of mental models, and wary about falling prey to man with a hammer syndrome. I don't feel that I am going out, even a little bit, on a limb in saying that one mental model is the *most* important. It is, of course, scientific rationalism (or, alternately, the scientific method). This mental model catapulted humanity from centuries, indeed millennia, of slow progress, into rapid and open-ended growth in knowledge and wealth, in a period of a few decades, during a period we now call the Scientific Revolution, or The Enlightenment.

The scientific method is based on conjecture and falsification. In plain English: you make a guess, and then try to prove it wrong. If you *can* prove it wrong: congrats! Your theory is wrong. (On to the next one.) But if you can't prove it wrong, and others can't prove it wrong, and it fits the data and is not easily varied, then maybe your hypothesis – your conjecture, your guess – becomes the best theory for the time being.

Notice I didn't say that your hypothesis is proven "right." The idea that we can never be certain about our theories is called fallibilism. Physicist David Deutsch, who has had as much influence on my thinking as anyone in the past few years, writes, "Fallibilists expect even their best and most fundamental explanations to contain misconceptions in addition to truth, and so they are predisposed to try to change them for the better."[6] [7]

Physicist Carlo Rovelli also highlights this distinction:

> The reliability of science is not based on the fact that its answers are certain. It is based on the fact that its answers are the best available ones. They are the best available ones because science is a way of thinking in which nothing is considered certain, and therefore remains open to adopt better answers if better ones become available. In other words, science is the discovery that the secret of knowledge is being open to learning, not believing that we have already tapped into ultimate truth. The reliability of science is based not on certainty but on a radical lack of certainty.[8]

Without using the term itself, Annie Duke propounds fallibilism via her advice to shift one's thinking away from certainty to a state of "I'm not sure." She suggests having the mindset of "I believe this to be true, and I'm 80% on it," rather than *knowing* that something is true.

Knowing that there are likely errors in what we believe to be true, with the idea that we should be constantly seeking better explanations, is a fundamentally optimistic worldview. It is a growth mindset.

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[6] Deutsch, *The Beginning of Infinity*, p9.

[7] Gravity – gravitational force – was humanity's best *theory* (on the topic of, well, gravity) for over 200 years until Einstein disproved its existence over 100 years ago (replacing it with general relativity – curved space-time – as an even better theory). He was clearly a fallibilist.

[8] Rovelli*, Anaximander*, p 124-5.

Ultimately, an honest, open-minded (fallibilist) application of the scientific method (conjecture and falsification seeking good explanations that fit facts/evidence/reality and are hard to vary) makes it harder to fool oneself. Applied to our domain: making an investment process more "scientific" sounds like it might involve more computers, algorithms, or quantitative methods. But that is not the case. Scientific rationalism, and the associated fallibilist mindset, are simply an approach to epistemology which can be applied to business, investing, and life.

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Three-Year Doubles, Five-Year Doubles

I have written previously about underwriting for what I call three-year doubles – stocks that I think can double (or better!) in three years, yet that also have limited risk of permanent capital loss (for our core positions[9]). This is a high bar, but one I aspire to, and a good forcing function to ensure that there is an appropriate margin of safety.

A three-year double is obviously a mid-20% hurdle rate. A five-year triple or a 10-year 10x are other ways to frame a similar annualized rate of return. And I think that it is interesting to evaluate the types (and number) of situations that may sift through each of these analytical filters.

Fifty cent dollars that don't grow at all but re-rate to fair value are included in the realm of potential three-year doubles. Valuation can do all of the heavy lifting for you (though rarely does; the market rarely prices something at half of intrinsic value at one time, and then prices it at 100% of intrinsic value a few years later, if value doesn't change at all – unless, perhaps, there is a buyout).

As one starts to think more about five-year triples and 10-year 10xs, the growth in intrinsic value (rather than valuation) becomes a more important driver of results. Essentially, changing one's view from three-year double to 10-year 10x is a way of applying a quality filter, without changing the underlying required hurdle rate.

I believe that several of our holdings have the potential to be 10-year 10xs, while others may *just* (perhaps) be three year doubles. And other investments that fall into our special situation buckets may have 15-25% upside with very small chances of any loss over a very short period of time (our Swedish hotel company mandatory tender offer situation, for example).

To be clear, I don't expect every stock that I purchase to achieve a mid-20% rate of return; I will certainly continue to get some wrong along the way. And of course, fees and expenses will be taken out of our gross results. But I think that underwriting for three-year doubles with limited risk of permanent capital loss (or various permutations of a mid-20% hurdle) will hopefully continue to produce satisfactory net results.

In all of my communications to you, I am very clear to speak only about net results (and then only net results based on our most onerous fee share class, which a distinct minority of limited partners are paying – the vast majority of our partners are in the three- and five-year lockup share classes with commensurately reduced fees). But you can do the math to back into our gross returns. Our three-year

[9] Special situations are great too, and hopefully resolve more rapidly.

trailing net results (based on our highest fee share class, a 1% management fee and 20% incentive allocation) are a CAGR of 20.75%.

While I aspire to replicate these results going forward, the math on even five-year doubles (just under 15% net per year) is incredibly powerful. As Einstein is (likely apocryphally) reported to have said, compound interest is the eighth wonder of the world.

I'm 38, so for the sake of conservatism (I hope!), let's assume that I have another 30 years of managing money in me. That is, six five-year periods. If one were to compound capital at the rate of five-year doubles, and keep it up for thirty years (six five-year periods), then one million dollars would turn into two, then four, then eight…16…32…and finally $64mm[10].

This would be a good place to pause and remind you to read our disclaimers and risk factors. This is not a projection of our future results! This example simply shows the power of a continuous application of a superior, but not unfathomably heroic, rate of compounding, applied over long periods of time. If I am up to this task, then our results should be satisfactory. But again, as always, past performance is not indicative of future results.

I will also remind readers that I intend to close the partnership to new capital (and perhaps return capital as warranted), when size starts to become a headwind to performance. I still don't think we are very close to those levels – we are very much "open for business." That said, partnership capital has grown at around 100% per year (doubling each year, off of a small base, due to inflows as well as through appreciation). If this keeps up, I expect to start limiting inflows to the fund in the next two to three years.

Our current *Founder's Share Class* fee structure will likely be closing around year end. Capacity in the fund, as well as in any co-investment special purpose vehicles, will continue to be given to existing investors on a priority basis.

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Portfolio Update

As of June 30, our top five positions were Clarus (CLAR), an undisclosed holding, Westlake Chemical (WLK), BlueLinx (BXC), and Atento (ATTO). Our top ten longs accounted for 82% of our long exposure, and our overall net exposure was 70%. There was more activity in the portfolio this quarter than usual. I have continued to find value in off-the-beaten-path corners of the market, including several smaller companies that I believe many investors are shunning at least partly because they are cyclical. I believe that our portfolio is fresh and well-positioned. Further, I have a very full and interesting on-deck circle – plenty of quality companies are still falling below the radar of larger funds.

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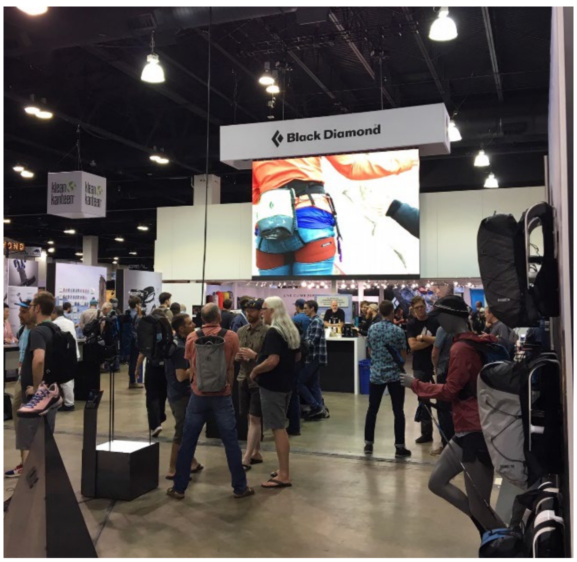
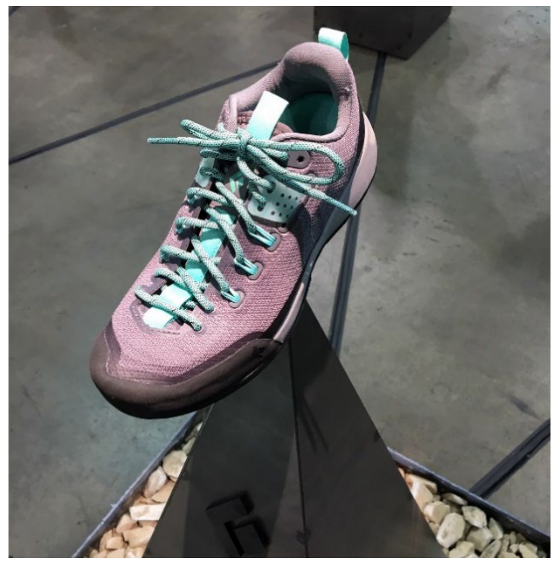
[10] And if one were to keep this up for just an extra three and a quarter years longer, the $64mm would turn into $100mm. 15% compounded for ~33 years turns one million dollars into a hundred million dollars. Wondrous, indeed!

Clarus (CLAR)

Clarus, parent company of Black Diamond Equipment, continues to exceed expectations, having reported another very strong quarter (on both sales and margins) in early May.

I attended the Outdoor Retailer trade show in June to continue my due diligence on Black Diamond (BD) and its ecosystem (competitors, customers, suppliers, etc). BD formally announced their new footwear line at the trade show, which will launch at REI this fall and more broadly in early 2020. I believe there are a number of exciting catalysts to play out in the next 12-18+ months (including numerous new product launches, climbing in the Olympics in 2020, and continued margin improvement due to mix and procurement).





As I mentioned above, I had the pleasure of hosting a fireside chat with Warren Kanders, Clarus' chairman, at the Casulo Symposium in NYC in April. The title of the session was "The Anatomy of a Hundred-Bagger." Kanders and I discussed the 100+ bagger that he achieved in his prior public company, Armor Holdings, as well as his broader philosophy and framework, and tied it to the approach he is taking at Clarus today. It was a fantastic, informative discussion; I continue to believe that we are in good hands with Mr. Kanders and the entire Clarus management team. Thank you, Warren!

Position #2

I am going to wait to disclose our second largest position, for the following reason: it is on the smaller side, somewhat illiquid, and the management team just announced a buyback of 10% of the float of the company. I think the stock is extremely cheap (trading somewhere between 2x and 3x my estimate of the current FCF run rate). It will benefit us, other shareholders, and the company if they can buy back as many shares as possible before the stock price moves higher. Indeed, they could pay up to 50% more than the current price and the stock would still have a ~25%+ FCF yield, which is likely a better and safer return than any alternate investment opportunities that they have. If the company can quickly work through this buyback authorization, they easily have the capacity to follow it up with another authorization for another 10% of the float – after all, at these prices, each authorization is just a month or two of FCF.

The company is levered at less than 1x, and, while in a cyclical industry, has a number of multi-year contracts that give me confidence in its ability to thrive in a cyclical downturn. The management team are top-notch operators, and the recent announcement of the buyback further demonstrates that they and the board are savvy capital allocators, seeking to take advantage of what appears to be a very large disconnect between trading prices and fundamental value.

I expect to provide more details on this position over time.

Westlake Chemical (WLK)

In his 1996 letter to shareholders, Warren Buffet wrote, referring to "gyrations in Berkshire's earnings," that he and Charlie Munger "would much rather earn a lumpy 15% over time than a smooth 12%." Many investors seem, implicitly or explicitly, to prefer the reverse. Now more so than ever, investors are crowding into companies that offer smoother earnings streams. Valuations are high for what some call "bond proxies." There is even an ETF of "low-vol" companies (ticker: USMV; average P/E ratio of holdings: 26x).

What if we could buy a great company, run by a fabulous owner-operator, with low leverage, high returns, and bright prospects, for roughly ~7x normalized earnings, but whose earnings stream is *lumpier*?

As I have discussed previously, the chairman of our largest position (Warren Kanders of Clarus), had previously overseen a 100x+ return in a public company, and I am thrilled for us to be partnered with him as a minority holder of the stock. Albert Chao, of Westlake Chemical, has similarly overseen a 100x+ return to date in Westlake (though the early part of this return occurred when the company was still private), and I am likewise thrilled to be partnered with him. Chao is a fantastic capital allocator, conservative, patient, and opportunistic. The Chao family still owns over 70% of Westlake (over $6bn worth). They are the consummate owner-operators and I believe interests are 100% aligned with those of minority shareholders.

Chao moved to the United States with his family in the mid-80s, and in 1986 they purchased a single chemical plant from Occidental Petroleum. It had well under 1bn pounds of production capacity, and did $66mm of sales in 1987. From this start, utilizing a "buy and build" philosophy grounded in extremely savvy capital allocation (including organic expansions, friendly deals, and a hostile deal), WLK has grown sales at a 17% CAGR and capacity at a 16.3% CAGR over the past 30+ years, to over 40b pounds of capacity and almost $9bn in revenues last year.

The company IPO'd in 2004. Since then, earnings per share have compounded at a 33% CAGR, and book value per share has grown at a 17% CAGR, from ~$5/sh at the IPO, to almost $50/sh at last check.

Yes, the company's earnings stream has been lumpy – its ROE has ranged from -2% to 30%. But overall it has been very good: it has averaged in the high-teens for the last 15 years. Partly because of this lumpiness (and the fact that 2019 is a downward *lump*), I think the stock is as attractive as it has been perhaps only two other times in the last decade.

WLK is a low-cost producer of many of its products, and I think the business is well-positioned cyclically and from a capital-cycle viewpoint. Prices for one of its key products, caustic soda, are likely to increase over the coming quarters, as demand picks up (especially in Brazil and India, following specific issues in each country), and industry capacity additions lag forecasted demand growth. Westlake's 2019 ROE is likely to be below its long-term average, but I believe that in the next few years it will be back to near its recent highs. Regardless, I believe there is a large margin of safety in paying ~7x mid-cycle earnings for a business with this track record, management team, and quality.

BlueLinx (BXC)

Careful readers of these letters will recall that we purchased a homebuilder in December of last year. At that point, I felt that it was pricing in a major homebuilding (or broader) recession, while having a number of favorable bottoms-up attributes, and thus that the stock's risk/reward ratio was favorable. Despite the market (and homebuilding sector) rally since then, I believe the setup in BXC is currently similar.

We owned BlueLinx once before (after Cerberus exited their position via a block trade, but before BlueLinx announced the acquisition of Cedar Creek). It is a company I know fairly well, having followed it and its peers for most of my career (recall prior to launching Maran I spent a decade-plus focused mostly on basic material companies, including lumber, timber, building products, and homebuilding). It is well-run, and I believe it is currently inexpensive.

I believe BXC is mispriced because it is misunderstood across a number of vectors. The company made a transformative acquisition last year, and the integration has taken time and has not been without noise. On a backwards-looking basis, the company has reported a series of losses. Compounding this, the company is small, uncovered, and has a complex balance sheet. It certainly does not screen well.

But as one-time integration costs roll off (removal of negatives) and synergies from the acquisition are fully realized (introduction of positives) in the coming quarters, I believe investors (including those of the quantitative variety, who do engage in screening) will begin to see a more accurate reflection of what BXC should look like going forward. And I think they will like what they see.

Beyond the Top Five Positions

Scheid Vineyards (SVIN) remains a core position; we did not sell any during the quarter. Recent operating results have been weak, although the asset value which provides a large margin of safety remains intact. The company released new appraisal values in their recent shareholders letter, which confirmed my base case liquidation value between $160-200/sh. Additionally, the company seems to be getting closer to monetizing their ancillary Greenfield residential/commercial real estate, which I think is worth $10+/sh. Over time, the operating results will ultimately have to inflect in order for my upside scenarios to be realized, but in the fifteen year build-out of the branded wine business (from 2010-2025, say), it isn't surprising that they would run into a hiccup during one year.

Biglari Holdings (BH) is extremely cheap (recent price: $96/sh, liquidation value: $300+/sh), yet has no catalyst as the management team doesn't seem interested in narrowing the gap to intrinsic value in the short term (though the chairman did buy a reasonable amount of stock personally late in Q2). I sold half of our position during late 1Q/early 2Q, and given the decline in the shares since then, it has now become a small position.

Despite being cheap and unlevered, it did not meet all of my risk management criteria for averaging down, and thus I did not add to the position over time. While BH was a mistake and has detracted from results, the pain was not compounded.

Special Situations

We fully exited one special situation investment during the quarter, and trimmed another. We exited a third in early July. Two of the three were the result of our companies being acquired by/merging with larger companies, neither of which was fully expected at the time of our investment (ie, these were not merger arbitrage situations; this brings the number of take-outs that we have had since fund inception to five). The third was a company trading at a large discount to book/liquidation value, and in which there was a catalyst (a management team intent on narrowing the discount via large share repurchases), which we wound up owning for around one month before the discount closed substantially.

In general, our special situation investments have been solid contributors to our returns, and the data indicate that I should continue to spend time searching for and evaluating them. I am.

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Conclusion – Square 1

I have enjoyed studying the processes of journalists and narrative nonfiction writers, as I believe there are a number of similarities between the investment process and the investigative reporting process. Writing well is a close cousin of thinking well; I try to continually improve at each.

I will never be able to write as well as John McPhee, though, and I am O.K. with that, as he has been honing his craft for over a half century, and has attained mastery thereof. I frequently find myself in a state of awe at the lucidity, and seeming facility, with which McPhee writes. But he admits, even for him, it is not easy.

He writes in his excellent, brief, *Draft No. 4*: *On the Writing Process*:

> In some twenty months, I had submitted [to the New Yorker] half a dozen pieces, short and long, and the editor, William Shawn, had bought them all. You would think that by then I would have developed some confidence in writing a new story, but I hadn't, and never would. To lack confidence at the outset seems rational to me. It doesn't matter that something you've done before worked out well. Your last piece is never going to write your next one for you. Square 1 does not become Square 2, just Square 1 squared and cubed.[11]

He could very well have been writing about investing. Of course, knowledge compounds, and experience and networks grow, but as even the most successful investors know (and may even admit!), getting a stock right in the past doesn't guarantee that you will get the next one right. You can't rest on your laurels. You can never take short cuts on your process.

I continue to attempt to enhance, refine, improve, and advance my process, to reduce mistakes, minimize risk, and ultimately to protect and grow our capital in ever-changing environments and markets.

I may be on Square 1 squared or cubed, but with each new idea, and each time I re-underwrite existing ideas, I still begin on Square 1.

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[11] McPhee, *Draft No. 4*, p 19.

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Thank you to all of the partners who have joined me on Square 1, and thank you for the referrals that you have made to like-minded investors – they are very much appreciated. We welcomed a New York-based family office, as well as a number of individuals and families, in the past few months. Our limited partnership base punches far above its weight for a fund of our size.

I continue to have the majority of my family's capital invested alongside yours in the fund. I look forward to reporting to you again in October.

Sincerely,

Dan Roller

Bibliography

(or perhaps, summer reading ideas)

David Deutsch, *The Beginning of Infinity*

Annie Duke, *Thinking in Bets*

Richard Feynman, *Surely You're Joking, Mr. Feynman*

Robert Hagstrom, *Investing: The Last Liberal Art*

Peter Kaufman, ed., *Poor Charlie's Almanack*

John McPhee, *Draft No. 4*

Scott Page, *The Model Thinker*

Carlo Rovelli, *Anaximander*

Carlo Rovelli, *Reality Is Not What It Seems*

Select Quotations from David Deutsch and Carlo Rovelli

On Good Explanations:

"The quest for good explanations is, I believe, the basic regulating principle not only of science, but of the Enlightenment generally. It is the feature that distinguishes those approaches of knowledge from all others, and it implies all those other conditions for scientific progress…:It trivially implies that prediction alone is insufficient. Somewhat less trivially, it leads to the rejection of authority…and hence it also implies the need for a tradition of criticism. It also implies a methodological rule – *a criterion for reality* – namely that a particular thing is real if and only if it figures in our best explanation of something." Deutsch, *Infinity*, p 23.

"A good explanation is an explanation that is hard to vary while still accounting for what it purports to account for." – Deutsch, *Infinity*, p 31.

"That is what a good explanation will do for you: it makes it harder for you to fool yourself." Deutsch, *Infinity*, p 27.

On the Scientific Method:

"Science works because, after hypothesis and reasoning, after intuitions and visions, after equations and calculations, we can check whether we have done well or not: the theory gives predictions about things we have not yet observed, and we can check whether these are correct, or not." Rovelli, *Reality*, p 210.

On Fallibilism:

"The reliability of science is not based on the fact that its answers are certain. It is based on the fact that its answers are the best available ones. They are the best available ones because science is a way of thinking in which nothing is considered certain, and therefore remains open to adopt better answers if better ones become available. In other words, science is the discovery that the secret of knowledge is being open to learning, not believing that we have already tapped into ultimate truth. The reliability of science is based not on certainty but on a radical lack of certainty." Rovelli, *Anaximander,* p 124-5.

"In order for us to understand the world, we must be aware that our worldview may be mistaken and we can redraw it…This is the main characteristic of scientific thinking: what seems most obvious to us about the world can be false…Knowledge is born from a respectful but radical act of rebellion against what we currently think. This is the richest heritage the West has bequeathed to today's global culture, its finest contribution." Rovelli, *Anaximander*, p 180.

"The central insight of Karl Popper, the great philosopher of science, is that science is not a collection of verifiable propositions; rather, it is a set of theories that, at best, can be wholly falsified." Rovelli, *Anaximander*, p 114.

On Evidence:

"We must distinguish between clues and strong evidence. Clues are what set Sherlock Holmes on the right track, allowing him to solve a mysterious case. Strong evidence is what the judge needs to sentence the guilty. Clues put us on the right path toward a correct theory. Strong evidence is that which subsequently allows us to trust whether the theory we have built is a good one or not. Without clues, we search in the wrong directions. Without evidence, a theory is not reliable." Rovelli, *Reality*, p 213.

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Prior to investing, investors are strongly urged to review carefully the Offering Memorandum and related documents, including the risks described therein associated with investing in the Fund, to ask additional questions and discuss any prospective investment with their own advisers. Additional information will be provided upon request.

The statements of the investment objectives are statements of objectives only. They are not projections of expected performance nor guarantees of anticipated investment results. Actual performance and results may vary substantially from the stated objectives. Performance returns are estimated pending the year-end audit.

An investment in the Partnership involves a high degree of risk and is suitable only for sophisticated and accredited investors. Investors should be prepared to suffer losses of their entire investments. The Offering Memorandum contains brief descriptions of certain of the risks associated with investing in the Fund.

Certain information contained in this document constitutes "forward-looking statements," which can be identified by the use of forward-looking terminology such as "may," "will," "should," "expect," "anticipate," "target," "intend," "continue" or "believe," or the negatives thereof or other variations thereon or comparable terminology. Due to various risks and uncertainties, actual events or results or the actual performance of the Partnership described herein may differ materially from those reflected or contemplated in such forward-looking statements.

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In 2Q 2019, the total return of the S&P 500 was 4.3%, and the total return of the Russell 2000 was 2.1%. YTD through 2Q, the total return of the S&P500 was 18.5%, and the total return of the Russell 2000 was 17.0%. The S&P 500 and Russell 2000 are indices of US equities. They are included for information purposes only and may not be representative of the type of investments made by the fund. The fund's investments differ materially from these indices. The fund is concentrated in a small number of positions while the indices are diversified. The fund return data provided is unaudited and subject to revision.

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