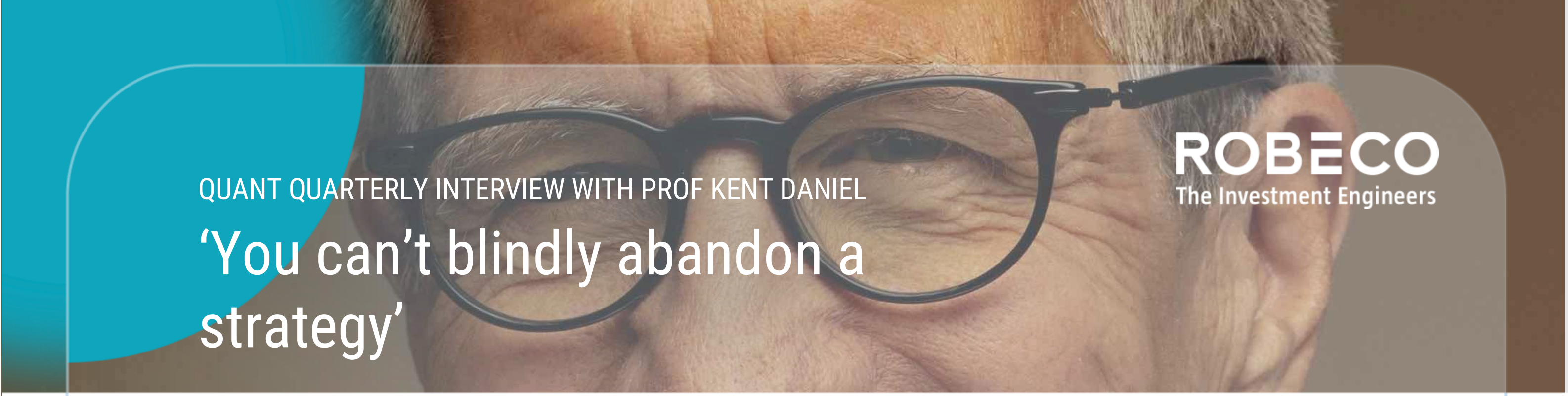

QUANT QUARTERLY INTERVIEW WITH PROF KENT DANIEL

'You can't blindly abandon a strategy'

Kent Daniel is professor at Columbia Business School. He was with Goldman Sachs' Quantitative Investment Strategies group, and his research specializes in behavioral finance and asset pricing research. We spoke to him in the summer about factors, bias and his ongoing research.

Do you have a favorite factor model, and if so, which one?

"I'd say it's evolving all the time. We've gone a long way past the original factor models like the Fama-French 3- or 5-factor model plus momentum, with even more changes to come.

A reasonable approach to understanding securities would be to take a valuation or long horizon factor, probably the Fama-French value factor, based on the book-to-price ratio. But this is a little bit obsolete, because it hinges on how accurately the book value captures a firm's fundamental value, while we know now book value isn't a perfect proxy for a firm's intrinsic value.

It should encompass all relevant information, forecasting a firm's future returns on invested capital, market growth potential, and other variables that contribute to its value. So the question remains: should we keep adding separate factors, or refine the book value to better encapsulate a firm's fundamental value?

I'm coming around towards the latter – adjusting the book value to reflect the fundamental value more accurately. Ideally, our models should build a value measure incorporating all available information to an investor, juxtaposing it against the market price. Furthermore, these models should account for short-term investor biases, such as inattention. This motivated my work with David Hirshleifer and Lin Sun on the short and long horizon factors model, which is a step in that direction. While it's not perfect, it's a promising beginning. I think we'll see a lot of innovation in developing and enhancing those factors going forward."

Are there any anomalies in particular that this model doesn't cover yet?

"I've been collaborating with two co-authors, Simon Rottke and Alex Klos. Simon's affiliated with the University of Amsterdam, while Alex is with Kiel in Germany. Our focus is on the insights you can glean about investor beliefs from short selling market data.

Here's the thing: If you want to short a stock, the typical process involves borrowing the stock at around 25 basis points per annum as borrow costs. You then sell that stock, establishing a negative position. However, we've noticed that many equities now fall under the 'hard to borrow' category, where the borrowing fee exceeds the typical 25 basis points. In some extreme cases, especially in the US but also internationally, the annual borrowing cost for certain firms can surge over 100%. This dramatic fee suggests significant disagreement among investors

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– some going long and others shorting the same securities. The question arises: Where does this divergence in interpretation of information stem from?

Our observations indicate that firms with these high borrow costs consistently register very negative returns. A bit more intricately, we've tracked firms that have seen substantial returns over the past year yet become 'hard to borrow.' Astonishingly, over a five-year span, such a portfolio plummets by around 50% in returns.
This scenario hints at substantial mispricing. Because of the unique characteristics of the short selling market, this mispricing often remains uncorrected. For quantitative investors, this is a noteworthy phenomenon. Moreover, as academics, it offers us profound insights into how investor beliefs form. It compels us to delve deeper into understanding the origins of belief formation, the emergence of bubbles in specific firm prices, and the pace at which they're rectified. So this is an area I'm super excited about."

Can you tell us more about your findings on overreaction and how it creates a longer-term bias?

"Here's what we found: We constructed two portfolios – one containing past winners and the other past losers. In our study, we labeled them as 'constrained winners' and 'constrained losers'. The basic idea is that these are firms that are challenging to borrow.

For the 'constrained winners', they're arguably really overpriced – a conclusion we draw from witnessing a 50% drop in their value over five years. Similarly, 'constrained losers' seem, interestingly, overpriced too. This overpricing stems from the difficulty in borrowing them. When a stock is hard to borrow, it often comes with a hefty fee to short it.

Now, potential investors who believe the stock is overpriced might be deterred by this fee and opt out. This skew makes the stock's price predominantly reflect the views of its most optimistic supporters. Following the 'wisdom of crowds' principle, a stock mainly influenced by its strongest optimists is likely overvalued. And sure enough, that's exactly what we see.

The fascinating part of this is that for stocks that have risen over the past year and are now hard to borrow, the mispricing takes about five years to adjust. We confirmed this by tracking such portfolios over four years and still predicting negative returns on them in the fifth year. It's a striking result that astonished us. But on some level, it's reminiscent of trends seen in value strategies' return timelines.

For instance, when a firm transitions into a 'growth' or what some might call a 'glamor' firm, it tends to underperform for about five years. In contrast, the 'constrained losers' show negative returns only for a year, after which their pricing seems to stabilize without further predictability.

Our recent paper suggests that this pattern is consistent with the period in which momentum strategies work. It's also consistent with research by David Hirshleifer, Lin Sun and myself which introduced the idea of long and short horizon factors. However, using short-selling data in our analysis provided deeper insights into belief formation driving these phenomena. The strongest patterns emerge where there's a lot of disagreement, which is interesting."

In your paper on momentum crashes, you mentioned this dynamic strategy to help mitigate such crashes. How has your thinking evolved on that, especially in the light of your recent work?

"To me this was a fascinating paper. I noticed that momentum doesn't seem highly effective in Asian markets, particularly in Japan. In research with Toby Moskowitz, the Momentum Crashes paper, we used a crash detection algorithm tailored for the US. But when we applied it to Japan, it revealed some unexpected results.

Many academics have tried to assess whether there's momentum in Japan and concluded there wasn't. But our algorithm highlighted certain periods as probable crash periods. When we excluded these, we found momentum does actually work in Japan.

The other thing is that momentum is resilient across various asset classes. Once you try and eliminate those potential crash periods, it shows solid performance. So it's really a robust thing. But a static momentum strategy might not be the way to go. Instead, gauging the current market conditions and determining if it's the right moment for momentum is crucial. This was the core essence of our research.

Factor timing is always frowned upon, and for good reason because it opens you up to problems with data mining, but from a model-driven Bayesian perspective, a little bit of factor timing can be a good thing."

Regarding your research on inattention and short-term factors, how do you view the short-term reversal effect, analyst revisions, and flow data? Do these account for some of the short-term dynamics you discussed?
"I have a working paper in collaboration with Pierre Caland from Lausanne, Switzerland, where we explored short-term reversals. I think it's distinct from the short-horizon factors that Lin, David, and I discussed in our work, which were related to momentum. From my perspective, short-term reversal is more related to liquidity provision.

Historically, it's striking that a short-term reversal factor, when rooted in sound economic analysis and ignoring transaction costs, going back to the 1980s, yields an annualized Sharpe ratio close to 8. It's ridiculous. Implementing such a strategy back then, with today's knowledge, would have been exceptionally profitable. Although I'm not sure that hindsight always offers a valid analysis!

Essentially, with short-term reversal, you're identifying buy or sell actions that aren't linked to relevant news. For instance, if a company's stock price rises significantly on an earnings announcement day, there's typically no short-term reversal. It continues to rise. The same holds if the company's industry or other relevant news supports the price movement. To predict a short-term reversal, you have to analyze a price movement against all available information. If there's still a large residual – after accounting for all known factors – no reversal is expected.

But, in the last few decades, the potential profits from this approach has gone way, way down. Only firms with advanced technology might find this strategy worth it due to trading costs. For others, it's more of a tool to gauge when to trade – like waiting to buy a stock after it peaks and before its anticipated drop. But on the other hand, this is something that's very distinct from momentum or post-earnings announcement drifts."

You mentioned the book-to-price signal possibly becoming less effective recently. What are your thoughts on the current trend, both in academia and practice, of factoring in intangibles and capitalizing R&D expenses for valuations?
"A lot of papers these days on the academic perspective capitalize R&D expenses, take some fraction of SG&A, and try to determine its contribution to brand, knowledge, and organizational capital. By calculating these capitalization measures and making adjustments to the book value, it turns out that metrics such as book-to-price or book-to-market prove to be much more effective.

Alongside colleagues like Tano Santos, Lira Mota from MIT, and Simon [Rottke], we're on a mission to reconcile what traditional value and fundamental investors are doing. Because when you think about it, what they do is a fancier version of this, right? They assess the real value a firm has built up, including its organizational and knowledge capital, and consider the potential of these assets to generate high returns.

The concept of 'moats' – that is, the barriers to entry protecting a firm – is also critical. You really want to adjust the book value not just for the worth of the intangible capital but also for its potential to churn out high returns, because that's what's going to really determine a firm's value.

Reflecting upon the standard quantitative methodologies, they indeed were revolutionary for their time – take Fama and French's work with the book-to-price ratio, for instance. But, as powerful as it was, it didn't capture everything. Merely tacking on factors like profitability and investment leans more towards a statistical rather than a good economic approach.

What we're trying to do is get a more precise measure of fundamental value – one that very carefully thinks about intangibles, the protective 'moat' a firm has, its potential to realize unusually high returns for an extended period, and its capacity to penetrate its market. This involves evaluating its total accessible market, potential for growth, and the profit margins it can command. This holistic approach mirrors how value investors think; and as quants, we want to be thinking more along those dimensions as well."

When considering investment decisions and evaluating what's worked or hasn't, how do you guard against action bias? For instance, value was considered ineffective before 2021, but then it rebounded. If you had shifted strategies prematurely, you might've missed out. How do you navigate such scenarios?
"I think you can be aware of these biases; everything you do has to be scientifically based. So when you see value not working, there are several potential explanations. Maybe the strategy is flawed. Maybe market dynamics have shifted unpredictably. Or maybe technologies took off in a way that we couldn't have anticipated.

If you evaluate your model and find strong evidence that it's defective, it would be rash to just discard value investing or flip it around to growth investing. You also want to consider other explanations. It's crucial to thoroughly understand what happened and incorporate those findings into your strategy.

Looking back, not factoring in intangibles was an oversight we should have addressed earlier. Some firms, showing remarkable resilience, persisted with traditional value investing but adapted their approach. I kind of admire their courage. One firm experienced massive outflows – over 50% – due to consistent underperformance from their bet on value. However, in recent years, they've flourished as value investing regained traction. This is something we saw in the late 90s when many firms got clobbered from value strategies but rebounded over time. And I think that what you can't do is just blindly abandon a strategy.

To answer your broader point, while you need to be aware of behavioral biases, particularly those stemming from gut reactions, it's equally vital to critically evaluate and refine your models. For example, when assessing if a company is a value or growth firm based on book-to-price, what are we overlooking? If we're not accounting for intangibles, then we should adjust for that. Adopting a systematic, scientific approach can help mitigate the effect of behavioral biases."

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