ROBECO
The Investment Engineers

Quantitative Equities

Spring has to come simply because economic fundamentals require it

Sustainable Investing Expertise by ROBECOSAM

- Investors can benefit from targeting value and profitability jointly
- Strategies with valid economic rationales should recover from quant crisis
- Factors reflecting economic fundamentals are less prone to arbitrage

We interviewed Sunil Wahal on recent developments in the area of quant investing both in terms of research and practical applications.

In one of your research papers[1] you examine the profitability and investment premiums pre 1963. While the former is evident when controlling for value, does the failed out-of-sample test for the investment factor mean that it should be rejected?
"There are three reasons that suggest caution when evaluating the evidence on the investment or asset growth factor."

"First, in the post-1963 period, the relationship between value or profitability and returns is monotonic. For example, if one constructs five portfolios with increasing profitability, their returns increase uniformly from one portfolio to the next. That is not true for investment. In fact, most of the return differences come from the extreme underperformance of high-investment firms (especially small high-investment firms with low profitability). That lack of monotonicity should make one wary."

[1] Wahal, S., February 2019, "The Profitability and Investment Premium: Pre-1963 Evidence", Journal of Financial Economics.

Interview
For professional investors
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Sunil Wahal
Professor of Finance and Director of the Center for Investment Engineering at the W.P. Carey School of Business, Arizona State University.

"Second, the results seem to be sensitive to how one measures investment (e.g. Cooper et al., 2020). This suggests that the effects of investment are not clear cut as suggested by earlier studies. For a phenomenon to be robust, it should not be overly sensitive to measurement choices."

"Finally, the fact that investment generates no variation in returns prior to 1963 suggests that it is not nearly as stable as value and profitability. To be clear, the economic mechanism for investment/asset growth to matter is sound – it is the evidence that appears to be shaky. There could be many reasons for this, including the fact that investment implies the exercise of real options, or that it can be 'lumpy', requiring fixed amounts of capital (for example, you cannot build half of an automobile plant)."

Following on from the previous question, what does this mean for the more popular 'quality' factor (which is often considered by some as a combination of profitability and investment factors)?

"Different people seem to define quality differently. Some include earnings volatility, margins, operating leverage and financial leverage. Others include accounting quality (i.e. accruals), payout measures and other such variables. The consequence is that when an investment manager delivers 'quality', it is hard to know what is driving portfolio returns. To the extent that asset growth is included in the mix, it is not clear whether it improves investment outcomes or not; much will depend on the details of the implementation."

"The real issue, in my mind, is that quality is akin to mixing a wide variety of ingredients with unknown effects. Suppose you seasoned your favorite fish dish using salt, pepper, sugar, cardamom, cloves, honey, cumin, nutmeg, fenugreek, Sichuan peppers and fennel. Each spice's individual effects are attenuated by the others. I suppose it is possible that the dish turns out to be delicious, but you would not necessarily be able to discern what spices were used by just eating it. A more likely outcome is that it is inedible."

'Pure value and pure profitability strategies commit the sin of ignoring information relevant for each other'

What is your perspective on the assertion that the investment factor subsumes the classic value factor post 1963?

"The data are what they are: the research says that the investment factor subsumes the 'standard' value factor after 1963 in the US. The more important question is what this means both for the underlying economics, as well as for investors. My view is that this is a very sample-specific result and one should not make too much of it. As I mentioned earlier, investment does not subsume value prior to 1963, or outside the US. Moreover, from an investor's perspective, this result is not particularly meaningful – value remains one sensible way to think about variation in expected returns."

In another one of your papers,[2] you conclude that value and profitability are related and long-only investors can benefit from targeting both factors jointly. To this end, how do you view smart beta index/ETF providers that either offer pure value and/or pure profitability strategies?

"Economic primitives link value and profitability. The evidence linking the two is pervasive in three different data sources: pre-1963 in US data, post-1963 in US data and post-1990 in international data. The implication is that considering these jointly makes a lot of sense for investors."

"Suppose one thinks of the long-only value strategy as buying cheap assets. When you just buy cheap assets (i.e. value only), some fraction of them could be cheap for a reason – some value firms will inevitably go bankrupt. In other words, value-only portfolios ignore the information in profitability. Similarly, when one implements a long-only profitability strategy, one ignores the information in prices – you are simply buying productive assets but perhaps overpaying for them."

"Therefore, in isolation, pure value and pure profitability strategies commit the sin of ignoring information relevant for each other. Of course, that does not prevent investment managers from delivering such products, nor should it. Caveat emptor applies. But Eduardo Repetto and I point out in our work that this is false choice – there really is no reason for investors to ignore useful and implementable information."

Quant investors have been subjected to a cold and dark winter in recent times. How do you perceive and frame the significant drawdown they have been experiencing since 2018?

"All investors have been subject to a cold and dark winter. But investors who have focused on factors, particularly

[2] Wahal, S., Repetto, E., June 2020, "On the Conjoint Nature of Value and Profitability", working paper.

arbitrary factors with limited economic content, have had a tougher winter. Some of the drawdowns have been quite large, but it is best to view them in the context of historic volatility."

"There are two things that investors would be well advised to remember. First, realized portfolio volatility (and drawdown) is likely to be higher than factor volatility because it includes liquidity premiums. In other words, realizations are likely to be worse than expectations. Second, how one develops expectations of volatility and drawdowns matters. Relying on normal distributions is not a good idea. In my work with Eduardo Repetto,[3] we use bootstrapping approaches (rather than the normal distribution) to get a sense for what the true distribution of portfolio returns might look like."

"If you have a better idea of how cold and dark the winter could get, then you can better prepare. As to the question of if and/or when the winter will end, that is very much strategy dependent. For investment strategies with valid economic underpinnings, spring has to come simply because economic fundamentals require it. But when spring comes remains an open question."

Leading on from the previous question, do you believe that factors will be arbitraged away in the foreseeable future?
"Whether factors are arbitraged away or not depends on whether the factors are (a) genuine, and (b) they reflect mispricing or risk. If they are not genuine (i.e. if they are generated via willful or inadvertent data mining), they will disappear. If they represent mispricing, they can be arbitraged away so long as the cost of arbitrage drops sufficiently. But if they reflect economic fundamentals and risk, then arbitrage cannot change the expected return series. Key factors in academia (like value and profitability) can represent mispricing and/or risk and it is very hard to tell the difference."

On numerous occasions you have focused on trading in your research. In your view, how important is the role of trading and implementation in the investment value chain for quant strategies given that these are typically cognizant of transaction costs?
"Proper implementation, which includes portfolio construction and trading, is vital for converting the science that is in asset pricing to live portfolios. Decades of research and experience tell us that ignoring these frictions is hazardous to a portfolio's health and an investor's wealth. Unfortunately, there is a lot of misleading and misguided information on the subject."

[3] Wahal, S., Repetto, E., November 2020, "The Joint Distribution of Value and Profitability: International Evidence", working paper.

"Equity markets are extraordinarily liquid and investors around the world have benefited from that liquidity. For all the bad press they receive, electronic market makers provide extraordinary services to investors, including the management of the in-kind process that powers ETFs. That said, for institutional portfolios, management of portfolio capacity and trading remains an area that is critical and yet underappreciated."

How best could you use technology (quantitative techniques) to improve performance within quant strategies in the current trading climate given how markets have transformed (e.g. switch to high frequency quoting and high frequency trading in some markets), while keeping transaction costs in mind?
"Algorithmic trading has really come into its own. It has transformed the market place and rightly so. The key economic decisions that an algorithm makes are the same decisions that a manual trader used to make: price, quantity, time (or patience), venue. But these decisions are now expressed electronically."

"A sensibly constructed algorithm that has a deep understanding of markets can make the appropriate tradeoffs. In doing so, it must operate like the textbook rational economic agent devoid of behavioral biases, constantly assessing the marginal cost and marginal benefit of each decision in the context of the overall goal."

"In my experience, there is tremendous diversity in algorithm providers in the marketplace. Some really know what they are doing, especially when they combine knowledge of technology and markets with clear economic thinking. Investors who can separate the good from the bad and the ugly can really benefit, because ultimately these frictions are monetized in portfolio returns."

Lastly, what research topics do you intend on working on in the coming years?
"There are two topics (beyond my existing papers that are already available at www.ssrn.com) that might be of particular interest to your readers. The first has to do with opportunity costs in trading – in other words, measuring the cost of the ability or unwillingness to trade. This is a cost that is particularly relevant for large institutional investors (such as sovereign wealth funds) as their portfolios move prices. The second is ongoing work that looks at the role of intangible assets. We already know from existing work that goodwill adjustments are important to value portfolios. But preliminary evidence suggests that there is other information that is also informative. Stay tuned."

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