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«In the future, machines will be trading against machines»

Marcos Lopez de Prado, Quant of the Year 2019, and Thomas Stämpfli, CEO of Tom Capital, say it's only a matter of time until algorithms take over finance.

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Marcos Lopez de Prado (left) and Thomas Stämpfli. (Bild: ZVG)

Mr. Lopez de Prado, Mr. Stämpfli, what does the future of finance look like?
Thomas Stämpfli: Algorithms can process vast amounts of information at a speed humans cannot even imagine. On the other hand, the experience a human investor can draw from is limited. That's why in the future, we'll see machines trading against machines.

Will humans be replaced by algorithms?
Marcos Lopez de Prado: It's not replacement in the sense that people are losing their jobs. It just means that job descriptions of humans will become more interesting. Like in the '90s, when stock traders had to be on the floor, making hand signs and shouting at each other. Technology has enabled all of us to trade much more efficiently, at a much lower price. Technology has replaced traditional floor traders, but these people are still around, they're just doing a more interesting job.

What is the role of humans in this scenario where machines are taking the bulk of the investment decisions?
Lopez de Prado: You have to think of it like an assembly line: Different experts in all the relevant fields – specialists in data curation, computing infrastructure, software development, execution

simulation etc. Unlike silos of portfolio managers, teams of experts create an algorithm which will then in turn do the investing for us.

What do you think is the timeframe of this transformation?
Lopez de Prado: It's already happening. The world's most successful hedge funds are the ones that apply machine learning. Their success lies in their consistency. Unlike when humans invest, there's no reliance on or interference of mood and discretionary decisions.

Quants have been criticized for distorting the markets, causing high volatility and extreme events like a flash crash.
Stämpfli: Some algorithms are trying to exploit panic, which is a momentum driven strategy. They are destabilizing the system. If you build your algorithm correctly, it is a liquidity provider which helps stabilize the system. In my opinion, that's the only sustainable strategy in the long term.

So the criticism isn't justified at all?
Lopez de Prado: Like any technology it can be misused. Those who misuse it will be penalized, and those who use it properly will be rewarded. The system self-corrects. Quants today are not a reflection of what quants will be in ten years. They are not perfect now and they will never be perfect, but they can only get better. Critics of quant theories don't want scientific findings to be used in finance. That's nonsense.

How do you resist the temptation to withdraw your money when times get rough?
Stämpfli: Whenever I went against the algorithm, I lost. I had to learn the hard way that the algorithm is a better judge than I am in a panic situation. Unlike humans, emotions do not interfere with the investment decision. But of course, ideally you design your algorithm in a way where you'll only face that sort of situation once in a blue moon.
Lopez de Prado: I'm a proponent of the Darwinian Theory: If someone fails to adapt their algorithm, or even worse, invests a lot of money in a faulty strategy, they will eliminate themselves. Respectively lose a lot of money and either learn something from it or be replaced by more efficient market participants.

Some people in the investment community argue that quant is just a hype.
Lopez de Prado: Eventually those kinds of funds will no longer be around. It will take some time but progress cannot be stopped.
Stämpfli: Algorithms will make the whole financial universe more efficient.

Mr. Lopez de Prado, you have openly criticized theoretical models that don't work in practice. If you had the power, what would you like to change about how finance as a science currently works?
Lopez de Prado: In finance, only a few scientific articles include an analysis of the potential selection bias. We need to align the interests of the journals and the academics with the validation of the theories. Right now, they are not allowed, as scientific articles are mainly published to get tenure.

How could the alignment of the incentives be ensured?
Lopez de Prado: One solution to make academic findings more useful would be that every professor has to invest part of their pensions into the ideas their promulgating. Unlike other sciences, finance has no access to laboratories. In order to test our theories, we need asset managers and hedge funds.

Is this the reason for you to continue to teach at Cornell University in New York, in order to have students learn from practitioners?
Lopez de Prado: I do it for a variety of reasons. First of all, it's a great recruiting tool. You can train your own talent. Additionally, it's a great way to validate your theories. I'd rather have a colleague or a

student tell me I'm wrong than the market telling me I'm wrong. In the first case, I'm embarrassed, in the second case, I'm out of business. So I'm a professor for selfish reasons (laughs).

How does the new model differ from the old way how hedge funds operated?
Lopez de Prado: Just look at fee compression. Bevor quants entered the scene, it was normal for hedge funds to charge 5% and then another 30% on your profits – I'm talking about the '80s and '90s. When quants came in, fees compressed considerably and they delivered much better performance at a lower cost. I'd say that's a win-win situation. A discretionary hedge fund manager will set a minimum investment of 10 Mio. $. It's like a non-transparent club, a closed system. The new scheme is that you have access to public information, better models and anybody with a computer can participate.

Do you encounter a lot of resistance?
Lopez de Prado: Not at all, my personal experience is that people are eager to embrace progress. They realize that you cannot stop the unavoidable and once you show them that you can provide a better service at a fraction of the cost, they want to be part of the transformation.
Stämpfli: Of course it's sometimes hard to win people over. It's easier to tell a story using an anecdote than scientific rigor. In our world, we work as a team, there's no longer the portfolio manager who's the superstar. While putting off some people, it also makes it attractive for young people who are open minded and just want to use the available tools and create something new.

How will finance change if quants and not superstar bankers are making the decisions?
Lopez de Prado: The excesses of individuals making wild bets will disappear. Algorithms follow a well-defined program. An algorithm won't lie – unless you program it to do so. But in that case, regulators can take care of the problem. And the most important point is that algorithms can always be improved.

What does the technological change mean for Switzerland as a financial centre?
Stämpfli: Maybe Zurich loses a bit of its appeal. Or maybe not, if they manage to grasp the opportunity and to be part of the change.
Lopez de Prado: At the moment, Switzerland still has a competitive advantage. To be afraid rather than embracing progress is a missed opportunity.