Dushyant "D" Shahrawat, CFA
Director, Investment Banking
dshahrawat@rblt.com

Vikas Shah
MD, Investment Banking
vshah@rblt.com

Rosenblatt Securities
40 Wall Street
New York, NY 10005
+212 607 3100

www.rblt.com

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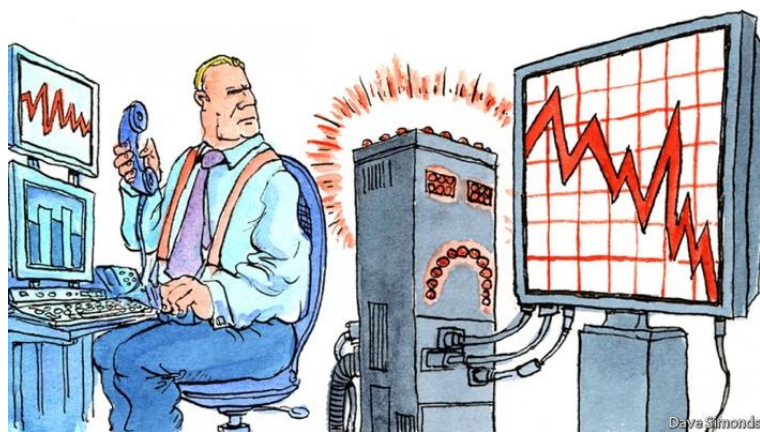
FinTech Investment Banking Viewpoint

AQR's Reality Check About Machine Learning in Asset Management
Exploring Benefits Beyond Alpha Generation

At Rosenblatt, we are believers in the long-term potential of Machine Learning (ML) in financial services and are seeing first-hand proof of new and innovative ML-based FinTechs emerging, and investors keen to fund and grow such companies. But when Cliff Asness's AQR sheds light on the limitations of ML and why applying traditional ML techniques to active investment management is tough, we pay careful attention. AQR's report "Can Machines Learn Finance" is available at https://www.aqr.com/Insights/Research/Alternative-Thinking/Can-Machines-Learn-Finance

Here are our key takeaways from the report.

1. While ML has had tremendous success in many industries, the investment management business poses unique challenges for successfully applying the technology.

   - The data required to train ML algorithms to successfully predict asset price returns either doesn't exist or isn't available in sufficient quantity from a single source. Furthermore, most firms don't have the infrastructure and skilled staff to fully exploit the scant data that exists.

   - The *'signal to noise'* ratio is much higher in the stock market than in other industries. That means you need a lot more data to train quantitative models and ML algorithms to distill unique investment insights from them. To the extent there *are* signals, they get rapidly diffused in the market as more investors discover them, leading to a rapid erosion of such signals. This is the basis of the Efficient Markets Hypothesis (EMH). Further, alternative data (Social media traffic,

Satellite imagery, etc.) that is often touted as the hidden opportunity to drive incremental alpha has a short history or time series, which means there's not enough of it to be statistically significant or it is inadequate for proper backtesting.

2. Unlike previous quantitative or algorithmic investing, and trading models that were mostly black boxes, ML models in asset management need to be interpretable. I.e., investment advisors operating under the fiduciary standard must understand the inner workings of these models, so they can first comprehend and then convey to clients the risks and unintended consequences of using these models. Doctors using algorithms must understand the adverse side effects of using automated models, or they risk violating health, medical, and liability laws. Similarly, banks using ML-based lending models must test and understand the inherent biases baked into the models to ensure no one is unfairly treated.

3. Looking beyond AQR's reality check of ML, we find that they are actually firm believers in its long-term potential to improve portfolio management, and they think it will take quantitative investing to the next level. Instead of previous approaches in quant investing that involved humans applying statistical techniques to pick stocks and assemble portfolios, ML provides a systematic technique to extract insights from new sources of data rapidly and drive alpha. So despite AQR's healthy skepticism around ML in asset management, it is bulking up on ML talent and is very optimistic that these investments will bear fruit in the long-term.

4. Our final observation from the report – and something we strongly believe in – is that there are more powerful applications of ML in asset management beyond alpha generation. While the report does not delve into these applications, the next section describes the top ways we think ML and related technology will transform asset management beyond improving alpha.

AI/ML's Potential to Transform Asset Management Beyond Alpha Generation

<u>Create personalized portfolios and customized experiences</u>: Today's attempts by investment firms to understand customer needs are simplistic and not customizable enough, which translates into solutions that are generic and not sufficiently tailored to the needs of specific customer segments. AI/ML enables firms to better understand customer preferences, investment outcomes, risk preferences, and then offer bespoke products. Innovative FinTechs are using AI/ML and enabling all of these processes. For example, **Clarity AI** provides data about the social responsibility of public firms which asset managers managing socially responsible funds can use. **ForwardLane** provides an API through which retail investors can check how certain market events will impact their portfolios. Other FinTechs enabling these trends are **Clever Nudge, Decipher, and Fountain.**

<u>Create differentiated products that are uncorrelated to current strategies</u>: AI/ML creates opportunities to use unique data sets and employ modern architecture to drive investment insights from this data, which can then be packaged into new products that are uncorrelated to current investment strategies. The first wave of such new products was pioneered by hedge funds such as **AQR** and **D. E. Shaw**, but now long-only funds like **BlackRock** and **State Street Global Advisors** are jumping in. FinTechs are also jumping in, either directly offering products or white labeling them for asset managers. Wealthfront has an AI-based risk parity fund for investors with a much lower investment limit than what hedge funds like **Bridgewater** require for similar strategies. **Eagle Alpha** sorts through 24 different categories of alternative data and provides them to asset managers who create investment strategies based on it. Other FinTechs we are tracking in this category are **Harvest, iQuantifi, and WilmotML.**

<u>Offer a lifeline to active management by lowering costs</u>: Active managers are in a tight squeeze, facing the double whammy of benchmark under-performance and the pressure to reduce fees to compete better with passive products. AI/ML can lower costs across the investment process: by automating compliance, reducing onboarding costs, and cheaply processing unstructured data. Take **Fortia Financial Solutions**, which reduces compliance costs for investment firms using AI. Or **Onfido**, a FinTech which helps asset managers lower onboarding costs by using image recognition that is built on AI/ML.

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