



Financial Data Professional Institute

Usage of Alternative Data and ML in Asset Classes.

Panel discussion with

Michael Oliver Weinberg, Managing Director, Head of Hedge Funds and Alternative Alpha, APG

Peter Strikwerda, Global Head of Digital & Innovation, APG

Hosted by

Aaron Filbeck, Associate Director of Content Development CAIA Association

Mehrzaad Mahdavi, Executive Director, FDP Institute

Mirjam Dekker, Project Manager, FDP Institute

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March 25, 2020

Agenda

- Welcome
- Introductions



Michael Oliver
Weinberg
Managing Director,
Head of Hedge Funds
and Alternative Alpha,
APG



Peter Strikwerda,
Global Head of
Digital &
Innovation,
APG



Aaron Filbeck
Associate Director of
Content Development
CAIA Association



Mehrzad Mahdavi
Executive Director
FDPI



Mirjam Dekker
Project Manager
FDPI

- Panel discussion: Usage of Alternative Data and ML in Asset Classes.
- Q & A *(please add your questions to the chat!)*



The Times They Are – A – Changin’

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A Conversation with Michael Oliver Weinberg, CFA

The Times They Are A-Changin’ – A conversation about Autonomous Learning Investment Strategies

An interview with Michael Oliver Weinberg by Mehrzad Mahdavi, Executive Director, FDP Institute

Recently, FDP Executive Director Mehrzad Mahdavi interviewed Michael Weinberg, founder of Autonomous Learning Investment Strategies (ALIS), regarding investment trends in investing, which we refer to as the third wave of investment strategies. The first and second waves were characterized by the discretionary approach to investing. ALIS, is traditional quantitative investing that leverage recent advances in artificial intelligence (AI) and machine learning, the explosion in data availability and inexpensive cloud computing to generate alpha at lower costs.

The focus of this interview, *The Times They Are A-Changin’*, pays homage to Nobel Prize winning poet and song-writer, Bob Dylan. The theme exemplifies the mega trend of disruption in the finance sector driven not just by the Wall Street but by academia and Silicon Valley. Many published articles by CAIA, CAIA, CFAI, P&I and others speak of the disruptive forces of AI/Data Science in the industry; therefore, we will assume readers can reference those for background. For this interview, I have curated the most frequently asked questions and Michael’s responses.

Mahdavi: What are your current thoughts or key messages on the direction of hedge funds with respect to Artificial Intelligence?

Weinberg: My current thoughts on AI have not changed. The application of machine learning (ML) to hedge funds, finance and all business for that matter is to use a baseball phrase—in the first inning. Just as ML revolutionized Go, it will revolutionize industry.

I was a research contributor to a World Economic Forum paper on AI, which they include as a key factor in the fourth industrial revolution, and I don’t disagree with that. In his book, *AI Superpowers* by Kai Fu-Lee, which though I believe is not unbiased towards the author’s home country, nonetheless makes a few valid points regarding the impact of AI on future opportunities in the workplace. I do believe there is a solution for society to co-exist peacefully with AI, and

that will require massive education (and re-education) in Science, Technology, Engineering and Mathematics (STEM). Jim Simons at Renaissance Technologies had the right idea decades ago, long before most of the rest of Wall Street, hiring scientists and mathematicians as investors. The world’s future investors are likely to be educated in STEM and investing rather than the status quo, often purely educated in business.

Mahdavi: Are there any material changes or additions to your perspective/key messages? If so, what are they?

Weinberg: I would say more evolution than revolution in my thesis on the future of investing. For example, more than ever, discretionary managers are beginning to appreciate the importance of data. The best discretionary managers have been sourcing alternative data for some years now; however, many others are now starting to appreciate the need to do this. The funds that formerly were not paying attention to alternative data are increasingly hiring data scientists to source and incorporate this data. However, just as many are finding there are at least three primary challenges: 1) It is difficult to find data that has not experienced alpha decay to the point beyond its cost and that has sufficient duration to be statistically significant, 2) shortage of [and growing] professionals that can fill the gap between data scientists and financial professionals and 3) to incorporate Big Data into a discretionary research process. Although systematic managers also are up against the first two challenges, the third is not an issue for them. And as we have stated historically, in the future we believe these managers will have an advantage in the new era of alternative data and machine learning.

Mahdavi: In your Data De Groove article, published by CAIA, you mention that ALIS managers “may philosophically believe that data should be gratis.” How do you (and they) square their use of alternative data with growing privacy and ethical concerns?

Weinberg: Data procurement and usage must be entirely ethical. First, no data with Personal Identification Information (PII) may be used by managers. Second, even if there isn’t PII data, managers may not integrate multiple data sources to triangulate data and determine PII. Third, data may not be procured in a way that is inconsistent with the data sources’ requirements of distribution or usage. There’s a lot more to it, but this is all to ensure that managers act ethically and without infringing on rights to privacy. To this extent, regarding paid for data,

FDP Leadership Team
Dr. Mahdavi, Ph.D.,
Executive Director
FDP Institute

Dr. Mahdavi is a technology entrepreneur with focus on breakthrough digital transformation for the Fintech and the energy sectors. He is a recognized expert and frequent keynote speaker on application of AI, IoT, and Cloud computing in financial sector and industries.

Dr. Mahdavi managed major global businesses in the energy sector. He is currently the executive director of the Financial Data Professionals Institute (FDPI), a non-profit organization founded with CAIA. Mehrzad holds a PhD in Nuclear Science and Technology from the University of Michigan a Bachelor of Science in Electrical and Electronics Engineering from the University of Illinois at Urbana-Champaign.

Michael Oliver Weinberg, CFA,
Managing Director,
Head of Hedge Funds
and Alternative Alpha,
APG

For 25 years Michael has invested directly at the security level and indirectly as an asset allocator in traditional and alternative asset classes. He is a Managing Director, Head of Hedge Funds and Alternative Alpha, at APG. Michael is also an Adjunct Professor of Economics and Finance at Columbia Business School, where he teaches Institutional Investing, an advanced MBA course that he created. Prior to that, Michael was CIO at Protege Partners and MOV37, a portfolio manager at Soros and Credit Suisse and an analyst at Dean Witter. Michael has a BS from New York University and an MBA from Columbia Business School.

The Financial Data Professional Institute (FDPI) was established by the CAIA Association to address the growing need in finance for a workforce that has the skills to perform in a digitized world where an increasing number of decisions will be data and analytics driven. The FDP curriculum introduces candidates to central concepts of machine learning and big data, including ethical and privacy issues, and their roles in various segments of the financial industry to boost and integrate quantitative knowledge into analytics’ skills.

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A Conversation with Michael Oliver Weinberg, CFA

the best managers we know have their own multi-page checklist that data sources must fill out to ensure the usage meets all ethical and privacy standards. In fact I have been encouraging one of the not-for-profit, non-asset management organizations I’m affiliated with to come up with a list of ethical standards in the procurement and deployment of alternative data for hedge fund managers.

Mahdavi: How transparent are AI/ML strategies to institutional investors?

Weinberg: Transparency of ML strategies ranges from very little to extreme openness. Although some of the most largest managers are not always the most transparent, smaller and more transparent managers are often quite transparent with non-disclosure or confidentiality agreements because they have to be if they are to attract investors, raise assets and grow their funds and businesses. Some of these managers will even go as far as showing investors the code. Though Python or R, or even better, have a PhD to go through it. Aside from the code, I use some ML to analyze and evaluate email managers using ML, the due diligence process is not materially different it is for a discretionary manager.

Mahdavi: Who is accountable for any unintended consequences of an algorithm and/or AI gone rogue?

Weinberg: Though there are some high-profile views in the world about AI going rogue and threatening humanity, with AI driven funds this is not likely to be the case. Ultimately these AI driven systems are programmed and may learn from data, both old and new data, but what they will be a function of a data. They will have a basis for making decisions. That basis may be right or wrong, good or bad, profitable or unprofitable, but they will not ‘go rogue.’ In the case of hedge funds using AI, the investors would risk losing their capital if there is ‘overfit’ or other technical issues. But this is unlikely because the better AI driven investment systems all have strict constraints, just as discretionary systems do. These constraints typically include net, gross, sectoral, factor, position, market cap and other limits, as discretionary funds have. Logical constraints typically limit adverse or unintended mismatches and may force returns to be driven by alpha rather than beta. Moreover, if these constraints are set well ex ante, they may result in higher quality returns, i.e. more up than down returns and higher up than down returns and limiting losses, whilst maintaining upside capture.

Mahdavi: How do we close the gap between data scientists and financial professionals to come up with a financial professional of the future?

Weinberg: Shortage of data scientists and talent is real. This has been identified as the main barrier in scale deployment of AI/ML in the financial industry. According to the report by McKinsey, there will be a

understand what the fund is doing and why. The more of the latter, you understand less of what the fund is doing, but even there, depending on how much data, the dimensionality and the machine learning techniques, you may still have a sense as to why the system is doing what it is doing. Even in the formerly most opaque machine learning techniques, such as deep learning or neural networks, progress is being made in understanding, visualizing and explaining what they are doing and why. For example, we know of doing with competing theories on explaining neural nets. And there are companies in Silicon Valley that we have met with who are developing pictorial explanations of why neural networks do what they do.

Mahdavi: Can ALIS accommodate Responsible Investing (RI)?

Weinberg: There are multiple ways ALIS could accommodate Responsible Investing. Let us start with the basics, exclusion. For starters, the system could exclude companies that manufacture cluster bombs, nuclear weapons and tobacco manufacturers. Similarly, any other undesirable industries could be excluded. Alternatively, ALIS managers may optimize their system such that these excluded industries may be shorted, under the premise that society would be better off if these businesses were no longer economically viable.

An ALIS manager could also optimize a portfolio such that companies that contribute to the United Nations Social Development initiatives, SDIs are the opportunity set for the longs and companies that do not contribute, or worse are antithetical to the SDIs are either not invested in or are shorted. Yet another way ALIS managers could accommodate RI is through scoring names based on attributes, such as Environmental, Social and Governance, ESG. ALIS managers could long the best ESG companies and not invest in or short the worst. With all of these RI proposals, the ALIS manager would also account for other factors, including fundamental and possibly technical factors.

As Bob Dylan album and song, *The Times They Are A-Changin’*, the financial markets are going through the disruption over the next few years for better efficiency. We should provide means to re-skill / skill-up the industry to successfully make the transition.

Disclaimer: The information presented in this article is current as of the date noted and is for informational purposes only. Nothing should be used or taken as business, financial, tax, accounting, legal or other advice. This article to be a record of the conversation.

Q & A

Kind reminders of upcoming webinars as we go through the Q & A.
Add your questions in the chat room please.

Click any of the webinar descriptions to register!



WEBINAR SERIES
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Mike Chen, Ph.D.
PanAgora



George Mussalli, CFA
PanAgora

“An integrative Approach to Quantitative ESG Investing”
April 1, 2020 @ 12noon



WEBINAR SERIES
A Conversation With...



Ganesh Mani
Adj. Faculty Carnegie Mellon

Managing the Data Supply Chain

April 7, 2020
1pm EDT



WEBINAR SERIES
A Conversation With...



Rick Roche, CAIA
Man. Dir. Little Harbor Advisors

“Evolution of Machine Learning in Investment Mgmt.”

April 22, 2020
1 pm EST



Financial Data Professional Institute



The Global Charter for
Investment Professionals
with Data Science Skills,
Leading the Future of Finance



• Online Requirements

- Choose between two (2) Python or two (2) R programming classes (4-6 hours each).
- The online classes can be completed before or after FDP exam.
- No programming background is needed to complete the online classes or the FDP exam.

• FDP Exam

	8 Topics	Approximate Weight %
1.	Introduction to Data Science & Big Data	5-10
2.	Data Mining & Machine Learning: Introduction	5-10
3.	Data Mining & Machine Learning: Regression, LASSO, Predictive Models, Time Series & Tree Models	10-20
4.	Data Mining & Machine Learning: Classification & Clustering	5-15
5.	Data Mining & Machine Learning: Performance Evaluation, Back testing & False Discoveries	5-10
6.	Data Mining & Machine Learning: Representing & Mining Text	5-10
7.	Big Data, Data Mining & Machine Learning: Ethical & Privacy Issues	5-10
8.	Big Data and Machine Learning in the Financial Industry	30-50

- **Next exam window:**
October 26 – November 8, 2020
- **New curriculum available May 10th**
- **Registration opens May 10th**
- **More info: www.FDPInstitute.org**



In Closing

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