Spotlight: AE Capital

CIO and co-founder Lyle Pakula shares his journey from weather scientist to fundamental trader

BY MATT SMITH

Lyle Pakula has been fascinated by the weather since he was a child. Growing up in Melbourne, south east Australia, and later as a researcher in Colorado, his two main hobbies were snowboarding and chasing storms.

Aged 17, he started a weekly blog forecasting the weather for the Victorian Alps, the snow-capped Australian mountain range which becomes a winter sports destination each year.

Twenty years later Pakula is still in the forecasting business, but he has switched from a career in atmospheric science to trading global currencies as the co-founder and CIO of AE Capital.

The systematic global macro manager has just passed $100m in AuM and will reach a three-year track record this September.

When he ventured into investment management he discovered that the techniques that are used to model them are very similar. "I've been studying natural systems all my life and really financial markets are just another form of natural system, except it's a human system rather than one governed by physical laws," Pakula says.

Lyle Pakula

From storm chasing to hedge funds

Pakula graduated in computer science, maths, and physics. His first role, in 1997, was as a scientific officer in the computational fluid dynamics group at Australia's national science agency, the CSIRO.

In 2000, he won a scholarship to Colorado State University where he took a master's degree and PhD in atmospheric science and worked as a researcher within the NASA CloudSat research group.

Chasing down tornadoes was a pastime. The pursuit took him across the midwestern US, with Pakula making a cameo appearance in one of the early episodes of the Discovery Channel's extreme weather documentary series *Storm Chasers*.

Pakula remained a researcher with the CloudSat group until 2007, before returning to Melbourne for a lectureship in the maths department at Monash University.

However, Pakula had become disillusioned with science. "Even though I loved weather, I didn't love academia. It wasn't working for me. I had been at it for a decade," he says.

He needed a new career. He was introduced to quant finance by a PhD student who was studying atmospheric science as a pathway into the field. Pakula left academia in 2008 to take a position as a quantitative analyst at the Sydney-based hedge fund Boronia Capital.

"I had never really heard of quant finance," Pakula says. "I looked around and there were two jobs going in Australia. One of them was at Boronia Capital. It turns out that Boronia was one of the biggest CTAs in Australia. It was great place to learn and a great time to jump into finance," he adds.

"I've only ever known it to be hard to make money. You've got to keep being more and more accurate and efficient. There is no fat in the market these days. When you do simulations you can go back and see how much easier it was in the early 2000s. Now it is tough for the industry. It's good to have grown up in tough times," he says.

At Boronia he was exposed to finance though the R&D team, but says he was most strongly influenced by the trading floor. "It really shaped in my mind; how you have to think of things," he says.

Pakula would do his research job in the day then return to the offices in the evening to sit with the night trading desk. While the traders understood the technical aspects of markets, Pakula recalls that was not what they were talking about.

"At that time the discussion was always about what the Fed was going to do, what the bond market was going to do. And that was much more interesting to me. I didn't like the idea of technical trading. It never made me feel satisfied to look for a market breaking out of a range, for example. I wanted to know the reasons why."

Pakula co-founded AE Capital in September 2011 with Jess Morecroft, the firm's CTO, who also previously worked at Boronia after several years

in London as senior developer and team leader for Barclays Capital's BARX FX platform. The "AE" represents the middle initials of their names.

The pair set about creating a dynamic FX strategy that adapts to changing macroeconomic themes and market conditions, drawing upon their scientific and engineering backgrounds.

While its trading strategies are systematic, unlike traditional systematic and CTA managers, AE Capital does not focus on technical price data. Rather, it starts with top-down fundamental market analysis.

"We believe that themes drive markets and that these themes change over time. Whether it be the eurozone sovereign debt crisis, QE, or commodities, etc. Whatever is driving markets today, probably won't be driving markets tomorrow. So you need to build a model that adapts to changing themes. And that's what we've done."

The investment team identifies potential new themes through fundamental market research. A potential new theme is systematised and put through rigorous testing. If it's found to be statistically robust and of added value to the existing portfolio of themes, it may be incorporated into the live systems. Since AE Capital started trading, it has introduced an additional two new themes: Abenomics, QE tapering, and now "Fed rate rise".

Machine learning and its limitations

"Macroeconomic themes tend to evolve slowly" Pakula notes. In the selection of themes to trade, AE uses an ensemble approach – sometimes also called machine learning. "You've got to know what you are doing as machine learning techniques are just tools," says Pakula, who points out that machine learning is a "misnomer". He likens it to driving home after work. People tend to find the fastest path based on traffic. Machine learning could replicate that but only if it knows the rules. It's not very good at working out the rules for itself.

AE Capital's risk control is VaR-based, and it uses both proprietary and classic risk management tools such as leverage limits, VaR limits and drawdown limits. Ensemble methods are also used as part of this process in order to improve risk control. Trades vary from a few hours up to one month in duration.

We're looking into using weather as another theme and potentially launching a standalone product

Summing up AE Capital's approach Pakula says: "We like to say we're old school but in a new school way. We look at top-down fundamentals to determine what trades to put on. But we have a new school approach in that we use algorithms and computers models to do it 24 hours a day in a fully systematic, non-emotional way."

At the heart of AE Capital's approach is cutting-edge technology. The firm monitors worldwide fixed income, equities, FX and commodity markets around the clock out of a New York data centre.

Morecroft led the development of the firm's proprietary trading platform and IT infrastructure, which was built from scratch. Pakula says they could not find an off-the-shelf solution that was efficient or fast enough in the handling and storage of the large data sets they use.

AE Capital's approach is to bring together its research and development teams, so the trading platform is built with the research platform and data is freely shared. "If you do these things right, and you do them well, you can keep things very lightweight and very efficient, from cost, storage and speed points of view," says Pakula.

Currently, AE Capital is trading only the most liquid seven FX markets. "It was natural place to go," says Pakula, given the founders' backgrounds.

But while AE's fund has performed well, Pakula says the firm plans on expanding the trading program into futures markets – indices and bonds.

"It's a natural extension," he says, explaining the same themes in FX are expressed in other markets.

Pakula says that although the current set of themes may be fruitful when applied to commodities, these markets are heavily influenced by weather. "I think we're going to have a very strong edge there," he says. "That's something we're looking into – using weather as another theme and potentially launching a new standalone product."

AE Capital has been busy integrating new hires, including a COO Darran Goodger who joined in February from Kaiser Trading Group, a fellow Australian systematic manager. The firm now employs 11 people, including six in R&D.

Pakula admits the firm would have would have grown faster had it been based New York. But he has no regrets about setting up in Melbourne. "Sure, there are limitations here... there is that barrier of distance. But we're are not the first people to try this. There are other funds that have done well in Australia in less globalised times." CTA