

Investment Insights

UBS Asset Management

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The challenge facing all active managers is to deliver sustainable excess returns in a cost-effective way. *Investment Insights* asks Bryan Cross, Head of UBS Asset Management's Quantitative Evidence and Data Science team (QED), about the role of data science in the evolution of active investment processes.

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Can data science transform alpha generation?

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Q: What does the QED team actually do?

A: UBS Asset Management's role as investment managers is to deliver the outcomes our clients expect efficiently and effectively. However, this is a dynamic industry. What was considered efficient a decade ago doesn't meet clients' expectations now. Roll forward a decade and our clients' expectations are likely to have further evolved significantly.

Despite these on-going pressures to improve, the basic methodology of investment security selection has remained largely unchanged for the best part of a century. While the advent of computers and dramatic improvements in processing power have allowed some data intensive tasks to be performed more quickly than they were previously, the accuracy of financial forecasts has not improved. Why? Overall the approach still relies heavily on educated guesses, albeit from skilled investment professionals, and on the financial data provided by the company: the income statement, the balance sheet and the cashflow statement. Since the process has remained unchanged for so long, it is hardly controversial to suggest that there might be room for improvement. In particular, the building of individual security-specific models and forecasts is time intensive and subjective. This makes the generation of alpha in a consistent, scalable and predictable manner extremely difficult—yet this is precisely what our clients want and expect.

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Our job within QED is therefore to partner with our individual investment teams to incorporate data in a more effective way in their investment processes. In our view there are material and long-lasting gains to be made. Using traditional data more intelligently means we are able to cover more ideas than traditional analytical techniques at lower cost. Mining 'alternative' data sets offers a broader range of potential alpha sources as well as a higher quality, lower volatility and more sustainable source of alpha. We therefore exist to support UBS Asset Management's investment teams, to help improve outcomes by increasing the volume and quality of objective insights and by reducing the need to rely on subjective forecasts, however well informed those subjective forecasts are.

Since the skills that data scientists bring to the table are independent of asset class or industrial sector—a centralized approach to data science makes the most sense. More than anything, we are empowering highly skilled analysts across the research space to leverage more effectively their own considerable expertise and experience. Data science serves to enhance not replace analysts' skillsets. We see the combination of country, sector, industry and security expertise with data science as a sustainably powerful alpha engine.

Q: Alternative data: what is it, why use it?

A: 'Alternative' data is any data outside of the normal financial statements released by companies which can provide efficient insights into trends that impact company revenue and profitability over multiple time horizons.

The provision of alternative data is a fast growing specialist industry in itself. We have identified nearly 300 specialist providers of data covering an ever growing array of underlying industries and themes. These include debit and credit card data which provide insights into consumer spending patterns and growth rates, web traffic and mobile app usage data, as well as consumer sentiment indicators based on aggregated data across social and traditional media websites. Other alternative data sources include location data from

mobile phone signals, which can be used for behavioral insights, and satellite data which generates real time analysis of shipping cargo, weather patterns, agricultural trends and oil storage patterns, among others. There are also alternative data market places where vendors can seek to proactively monetize their data.

In combination with the data vendors we map this data to individual stocks—providing sales forecasts at the stock level from alternative data rather than from traditional sources. The evidence to-date is that alternative data provides more accurate and timely estimates for revenue as well as gross margins, which can be used for forecasting profitability.

Q: With so much data out there how do you determine what to look at and what not to?

A: Data is data; big or small, alternative or traditional. We are agnostic in this regard and focus on the application of data to potential alpha generation. Ex ante, we have to make judgments on the probable utility of the data. For example, for revenue forecasting, transaction data is much more likely to be useful than location data from mobile phone GPS signals. At the same time, it is not unusual to achieve better forecasts by combining datasets—which obviously can only be explored with access to multiple datasets.

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Q: Is there a risk of crowding in certain data sets?

A: It is hardly a secret that many investment firms are dedicating time and resource to exploring the potential benefits of data science. A common refrain we hear is that any unique alpha potential associated with data science has already been captured by early adopters or is likely to be eroded quickly. Considering the discipline is in its infancy, the growing number and scale of the datasets, multiple investment time horizons, infinite combinations of data, model and human interaction—the probability that investors have already exhausted or arbitrated away all of the potential information value seems very small. This is not high frequency trading where the ability to get an edge through improvements in order execution speed has been all but exhausted. Of course, the burden is justifiably on us to reject the null hypothesis and demonstrate that data science can deliver a sustainable improvement in outcomes. The reality to-date is that excess returns have actually been both significant and stable.

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Q: What are the other main risks?

A: Clearly the quality of our outputs relies on robust data and modelling. Due diligence on our data providers is therefore integral to the process—and this includes out-of-sample testing to gauge the accuracy of our models utilizing the data. We also build in a cross-validation procedure to further validate what we are doing.

Our approach to the inherent risks in our models is no different to any analyst in that we apply a proper risk-based haircut in order to build in conservatism. After all, no algorithm is perfect—a human writes it. We seek to understand the precise value in a signal or piece of data. This starts with fundamental economic concepts and with understanding the way data is being delivered to you. There are a number of biases to avoid when running simulations—just as there are when modelling any data. Our motto is “Trust but verify”.

Perhaps a little surprisingly, issues can arise from lack of data just as much as from too much. We recently looked at some location data from mobile phones to identify patterns and trends in the retail industry. The data was based on the GPS movements and data traffic of some 10 million mobile phone users, pinpointing where each user was located within a

couple of feet and their movements over time. As comprehensive as the data was, the provider had only six quarters of such data—i.e. very little with which to make the sort of year-on-year comparisons that tend to drive share prices. In truth there are as many ‘small’ data problems as ‘big’ data problems.

That said, where there is risk there is also opportunity. We employ a number of cutting edge statistical modelling techniques that are not widely used by our peers. These can help to develop insights faster and to extract insights even from ‘small’ data which other investors tend to overlook. We also believe the QED has a strong balance of skillsets—blending decades of fundamental expertise with the core quantitative skills. It is this blend of skillsets that allows us to recognize signals that perhaps a team consisting purely of quantitative skillsets might take longer to identify or might not recognize at all.

Q: Is the opportunity for better use of data equal across asset classes? To what extent have you permeated investment processes within UBS-AM?

A: Logically, the opportunity set increases with risk—so is likely larger for equities. To-date we have focused much of our efforts within equities where internal demand is at its highest. Adoption by our hedge fund teams has been quicker and more

comprehensive than the uptake in long-only portfolios thus far. To a degree, that simply reflects that the use of data science is already well established in the hedge fund community—and that our current datasets can better inform the shorter investment time horizons of some equity long/short funds. However, we are already very focused on expanding the duration of our forecasts in order to predict behavior over multiple horizons that will better suit our long-only equity teams.

Outside of equities we see credit investment processes as a particularly data sparse environment that is likely to offer significant opportunities for improved risk-adjusted returns through the use of data. We expect to start work here in 2019.

For fixed income and multi asset there are opportunities in improving the forecasting of key macroeconomic variables and we are already working with the asset allocation team to build macroeconomic nowcasting models that will help to inform their tactical asset allocation positioning and decision making.

Q: How do you currently interact with the individual investment teams across UBS Asset Management?

A: There are two distinct forms of engagement between QED and our investment teams across UBS Asset Management. First, we look at a

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number of different data sets on a regular basis with a particular focus each quarter. We then push out to the investment teams the results of our analysis so that it can be reviewed and incorporated into forecasts. Last quarter we were looking at credit card data with a view to forecasting retail sales. This quarter we are looking specifically at car sales data.

As our investment teams become more familiar and confident with QED's output we are increasingly being asked by analysts across Asset Management's investment teams to corroborate a hypothesis using alternative data. This gives us confidence that analysts are already beginning to think differently and proactively embracing data science as a core part of their toolkit.

Q: How do you see the role of data evolving within the investment process over time?

A: To the extent that data science improves outcomes and demon-

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strates clearly that it enhances the traditional approach, one would expect the data science skills to become more pervasive and diffused across investment teams in the future.

While relatively new in the context of, for example, security selection—we see the use of data science evolving into a core part of the analytical framework that is embedded seamlessly in investment processes. In much the same way as ESG has gone from being a stand-alone analytical concept on the periphery of mainstream asset management to being integrated—we see data science becoming a

similarly fundamental part of the investment process mosaic, a core and value-adding tool within analysts' armory.

One of the most common misconceptions about QED is that we are trying to replace the traditional investment process. We're not. Data science is not about machine replacing man, but rather about helping investment teams leverage their own expertise more effectively to deliver on clients' expectations in a more efficient way. Where we have integrated our analysis into investment processes we've already had some very powerful results. In our view, this is just the beginning.

Further reading

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