

**ROUNDTABLE**

# APPLYING QUANT METHODOLOGY TO BEAT THE BANK

**PWM hosted a discussion with Professor Robert Haugen, inventor of the Minimum Variance quantitative investment concept, at the end of June in London. Professor Haugen's discoveries shook the world of portfolio management from the 1960s onwards, but were never popular with the investment and business school establishment. Today, his quantitative methodology is becoming increasingly accepted by the post-crisis global investment community. We invited leading portfolio management thinkers to a debate with the Professor to determine the current state and future of quantitative investment strategies. Yuri Bender directs the discussion**

**Yuri Bender:** Professor Haugen, you are widely credited as being the man who cast a dark shadow over Eugene Fama's efficient market hypothesis. But your discovery of a market abnormality in 1967 appeared to fall on deaf ears. Can you simply explain the Minimum Variance concept you discovered together with Jim Heinz, and why your discovery was ignored for at least 25 years and in some ways still flies in the face of conventional portfolio theory taught in US and European business schools?

**Robert Haugen:** I was trained under the "old finance" of the early 1960s in the legal ramifications of bankruptcy, mergers, and consolidations, to understand accounting numbers, standardise them across different kinds of companies and value the companies.

At graduate school, I heard rumours about something stirring at the University of Chicago, leading to a paradigm shift in the finance field. Gene Fama, a graduate student around 1963, came up with the idea that markets are efficient, with the price of every stock at all times reflecting a company's true value. This rendered obsolete everything I was trained to do, because if that were true, the market peered through the veil of accounting numbers, standardised everything already and what we were doing was redundant.

My professors became obsolete. They were slowly replaced by professors trained under the new paradigm of efficient markets and eventually I went to the University of Wisconsin and accepted the new paradigm at first, but over the years began assessing the evidence, which appeared highly inconsistent.

With economics professor Jim Heinz at the University of Illinois, we looked at the performance of randomly constructed, equally weighted stock portfolios going back to 1926 and found in most periods the lowest risk portfolios had the highest realised returns. This seemed to be consistent all the way through the middle 1960s. Since then, I've done studies that follow this up and it continues to be true to this day. Low risk portfolios of stocks tend to produce higher returns.

Finance departments in business schools across the world are trained to theorise on the basis of rational economic behaviour and if they're confronted with

## Opinions from the inside

Emerging markets roundtable, 21 June 2010, Roundtable participants:

- **James Bevan**, Head of Investments, CCLA
- **Matteo Campi**, Head of Quantitative Management, AllianzGI Investment Group
- **Professor Robert Haugen**, CEO Haugen Custom Financial Systems and Academic Adviser to Alfred Berg
- **Ben Palmer**, Head of Portfolio Construction, Schroders Private Bank
- **Professor Amin Rajan**, CEO, Create Research Consultancy
- **John Ventre**, Portfolio Manager, Skandia Investment Group
- **Adam Wethered**, Co-founder, Lord North Street - Private Investment Office
- **Yuri Bender**, Editor in Chief, Professional Wealth Management

**“WE FOUND IN MOST PERIODS THE LOWEST RISK PORTFOLIOS HAD THE HIGHEST REALISED RETURNS”**

ROBERT HAUGEN, ALFRED BERG



evidence totally inconsistent with the way markets perform, they become obsolete, just as my old professors became obsolete. It wasn't a pleasant experience for them, it's not going to be a pleasant experience for the professors of the paradigm of modern finance either and they're going to resist this with all their might; and they're doing that.

**John Ventre:** Does the research stand up using arithmetic average returns rather than compound returns, ie if portfolio managers rebalance frequently to overcome the geometry effect, does it still work or are you effectively arguing 'buy and hold'?

And if beta is a negative predictor, perhaps there's more than just one beta and once you move to a multi-factor model, what you're actually seeing is other betas drowning the effect of the main market beta?

**Robert Haugen:** Arithmetic mean return versus geometric mean return was initially brought up by Michael Jensen in his PhD dissertation around 1968, published in the early 1970s, and has to do with 'volatility drain'.

If you have two portfolios with identical expected return, but one has higher volatility, and you look at multiple periods of time into the future, they have the same expected return over multiple periods, but the distribution for the high volatility portfolio gets skewed in the sense that the expected return become increasingly dominated by very high returns that are very unlikely.

So if you look at the median average return on a high volatility portfolio, against a low volatility portfolio, the median average for the low volatility portfolio begins climbing relative to the median average for the high volatility portfolio and this is one possible explanation as to why we see low volatility portfolios outperforming.

In terms of multiple betas, I have a paper that I recently wrote called *Case Closed*, where we re-iterate that high expected return portfolios have a very interesting characteristic. They tend to be relatively large companies, low risk in terms of all the measures of market risk, but going beyond market risk and looking at fundamentals, they tend to be profitable companies on the uptrend in terms of profitability, selling at cheap

prices, with positive momentum. So in terms of aggregate characteristics, they look absolutely spectacular in terms of everything.

And then if you go to the other end of the spectrum to the stocks with low expected return, they look the exact opposite: really scary looking companies, with profitability low and getting worse, relatively illiquid companies with high volatility. They are truly scary.

This is totally inconsistent with all the tenets of modern finance, which would say the scary portfolio should have the highest expected returns because investors are risk averse and the attractive portfolio should have the lowest expected returns because they're the most attractive and most comfortable to invest in, but it turns out to be the opposite.

**James Bevan:** This concept of Minimum Variance is well-established and accommodated by many leading quantitative houses of today. But there is a far more blurred line between what we described as quantitative and more qualitative decision taking and I would argue from first principles with evidence that most qualitative managers also accommodate these quantitative principles and recognise the value of Minimum Variance in portfolio construction and instrument selection.

**Yuri Bender:** Why have you in the past favoured groups such as Goldman Sachs Asset Management which have used quant methodology in equity investment?

**James Bevan:** What draws me to managers with quantitative styles is the absolute clarity and transparency as to how decisions get taken, portfolios constructed and risk constrained, and I absolutely accept there can be judgmental and qualitative managers who say, "trust me, I'm brilliant!"

But if I cannot understand the theory and the practical steps taken in portfolio construction, I cannot be comfortable that the results will be repeatable in the future in the pattern that is consistent with the requirements that I may have.

**John Ventre:** The challenge to me is what we saw through 2008-2009 was effectively a breakdown in historical risk

measures being a good indicator of future risk. So the low risk portfolio of June 2008 didn't turn out to be the low risk portfolio of September of 2008.

The historical covariance matrix wasn't a good indicator of how stocks were going to behave and that's part of the reason that quant returns were so bad, or some quant model returns were so bad in August, September, October and November 2008. It was not just that the markets were abnormal, but effectively they were taking more relative risk, more absolute risk than they actually thought they were. So we need to be a little bit careful that there is this dependence on historical data which has shown to have a problem in crisis.

**James Bevan:** If you said to a judgmental manager, how does he get comfortable about an individual security or the role of that security in a portfolio, he or she will almost always resort to some form of data to prove or support the argument and therefore, they necessarily are employing some form of quantitative process in supporting a judgmental decision.

I would share your view that in abnormal market conditions there is a herding or clustering risk, which we certainly saw across the banking world, not just in portfolio construction, and that if managers make the same decisions at the same time, this leads to an accentuation of market risks and extreme behaviours.

**Amin Rajan:** I would go slightly further than that and say it wasn't just 2008 when we saw these problems. Something was going on throughout the last decade where risk-return features of most asset classes were becoming unpredictable and the time period over which risk premium was going to be materialising was unpredictable as well. Fund managers have become far more pragmatic as a result.

Few of them ever bought into the efficient market hypothesis, despite the fact that regime was there. They started doing in the 1990s what professional economists began in the 1980s.

We were brought up on the tradition of the rational expectations hypothesis in the 1970s. I was working in the UK Treasury, where we were practically forced to model the entire economy on this hypothesis because

**“WHAT DRAWS ME TO MANAGERS WITH QUANTITATIVE STYLES IS THE ABSOLUTE CLARITY AND TRANSPARENCY AS TO HOW DECISIONS GET TAKEN, PORTFOLIOS CONSTRUCTED AND RISK CONSTRAINED”**

JAMES BEVAN, CCLA

the IMF stated we were now in a completely different economic paradigm.

I was modelling inflation and unemployment and however hard I tried, whichever sophisticated methods we used – bearing in mind we had three Nobel Prize economists on our team – we couldn't find any evidence for what those guys from Chicago were saying. Our attitude percolated down in the 1990s and during the last decade to fund managers as well.

So they are far more pragmatic now, they use the quant screens as a first stage rocket, or as a second stage rocket. It takes them up to here, but it doesn't take them that far. They apply far more economic reasoning now than ever was the case and even those 100 per cent quant guys, the likes of BGI five years ago, jettisoned that paradigm a long time ago and basically use an unusual degree of judgement now in what they do compared with what was the case before or what the model was telling them.

Now they look at stocks on their own merits, rather than simply saying there is a body of theory which really supports what they are doing.

The key question from institutions putting money with active managers, and you need to be with one to plug a deficit with decent returns, is: "how are you going to do it and where are you going to get that special insight to generate alpha?"

This past theoretical approach was very useful. It helped discredit many things, and if the efficient market



**“WE NEED TO BE A LITTLE BIT CAREFUL THAT THERE IS THIS DEPENDENCE ON HISTORICAL DATA WHICH HAS SHOWN TO HAVE A PROBLEM IN CRISIS”**

JOHN VENTRE, SKANDIA INVESTMENT GROUP

hypothesis was valid, a change of more than 5 per cent in the S&P would only happen once every 350 years. But we have had 48 changes in the last 100 years. So that's enough to say that that hypothesis doesn't work.

**Yuri Bender:** The new breed of family and private investment office typically chooses some more 'off the beaten track' managers to run clients' funds rather than the usual Fidelity or Franklin Templeton. Do quant funds ever get a look-in?

## “FUND MANAGERS ARE FAR MORE PRAGMATIC NOW, THEY USE THE QUANT SCREENS AS A FIRST STAGE ROCKET, OR AS A SECOND STAGE ROCKET”

AMIN RAJAN, CREATE RESEARCH

**Adam Wethered:** A lot of it goes back to the question of timeframes; in what period you expect things to come right. That involves a judgement about the tolerance of the family or client. How long will they wait for everything to come right? Secondly, there is a question of how you define quant. We take a long term approach for clients with a long-term view of their wealth when designing the strategic asset allocation they should have. We then make moderate tactical adjustments.

We try to find managers differentiated in style. If you choose a number of managers, you can take some with a higher degree of risk in portfolios because you have diversification amongst managers.

Personally, I am something of a sceptic about over-dependence on quantitative theories in the short term. If you find clever hedge fund managers who can do that, then you give them some of your money, but not all. To bet too much on any quantitative approach has risk to it.

The extreme example was LTCM, which blew up. My overall sense of quantitative theory is that if everyone believes in a particular thing being true, by definition it won't be. It's like everyone saying it is safe to go skating on the ice. How many people fell through in the last 100

years? Answer: three. Okay, let's all go on this afternoon, and the ice cracks. And even those who are playing it safe and close to the shore go down with it. So that's my philosophy.

**James Bevan:** When selecting and managing funds at Allianz, how much stationarity do you observe in the way managers behave in funds and how does this affect your behaviour?

**Matteo Campi:** This is a very important question because at the end of the day this is the core of the matter. If you are able to find an alpha that is stable, you're done. If not, it's very difficult. I would say that there is some kind of persistence in the alpha if you are checking for the right betas, basically. This is just ten to 20 per cent of the decision to select a fund. I am not a big believer of purely quantitative analysis on funds. But I think that at least in the short-term there is some persistence of alpha if you are able to choose the right factors, basically.

**Yuri Bender:** If we look back to the 1970s, Professor Barr Rosenberg was the darling of the sun-kissed Californian quant shops with his tie-dyed T-shirts and tantric chanting, but at the same time had a very systematic view of the world. He was looking for some kind of merger between art and science, and this acceptance of quantitative investing was a central part of it. Do you feel this same kind of movement perhaps taking root 40 years later in the private banking world?

**Ben Palmer:** There are no hard and fast rules. It is a case of deciding which mix of exposures we want and which products provide most reliable access to those factors and actually being flexible in terms of assessing those as we go through time and manage portfolios.

Every investment should be considered on its own merits. There's no doubt that Professor Haugen has added to the academic pool of knowledge that says there are certain characteristics that achieve attractive long-term returns. If one wants to pursue those using some form of quantitative approach then, subject to some level of pragmatism or otherwise, that's entirely valid.

But the most important thing is to understand where



“THE MOST IMPORTANT THING IS TO UNDERSTAND WHERE THOSE RETURNS COME FROM AND WHAT SYSTEMATIC FACTORS OR RISKS YOU'RE GETTING EXPOSURE TO”

BEN PALMER, SCHRODERS PRIVATE BANK



“THIS IS A VERY GOOD MOMENT TO CREATE AND SELL QUANTITATIVE PRODUCTS, NOT ONLY TO THE INSTITUTIONAL WORLD BUT ALSO TO RETAIL”

MATTEO CAMPI, ALLIANZGI INVESTMENT GROUP

those returns come from and what systematic factors or risks you're getting exposure to.

**Yuri Bender:** Bearing in mind your central premise that low-risk stocks potentially trigger the highest returns, why is it so difficult for active managers to outperform?

**Robert Haugen:** Many years ago, I was asked to go on a tour of the United States by First Interstate Bank Corp. They wanted to find out what their managers were doing. The analysts had to come and make the case for their stocks. Each specialised generally in an industry or a sector. It was a very intellectual discussion, very competitive, lots of egos were involved.

And you can imagine what would happen if, week after week at the investment committee meeting, you failed to make your case. Well, you'd be out the door. So these people had a preference for certain kinds of stocks and these were stocks that were in the news. These were exciting stocks, intriguing stocks, stocks that people were talking about, writing about, stocks that were on television, on the radio. And to a great extent, their cases came from plagiarising these stories. These are 'story stocks.'

Story stocks tend to be volatile stocks and what I saw is that investment managers have a preference for these stocks. These people were all subjective managers. They didn't know what a standard deviation was. There was no volatility management. They wanted to be at the head of the table eventually as chief investment officer.

They didn't want to be out the door so they were driven toward these stocks.

The prices of these kinds of volatile stocks get driven up and they have lower expected returns. That is one of the reasons why professional managers have a difficult time outperforming the market, because the kinds of stocks they want, because of this agency problem, tend to be more volatile and tend to have lower returns.

**Matteo Campi:** This is a very good moment to create and sell quantitative products not only to the institutional world but also to retail. We are a good example of that. Especially if you can combat fears of black box investing, put simply, by not being a black box. This is very

important for a retail customer, even more so than for institutional clients. They need to be able to have some reasonable framework that is understandable, but which is quantitative and can be reliable and independent.

## “MY OVERALL SENSE OF QUANTITATIVE THEORY IS THAT IF EVERYONE BELIEVES IN A PARTICULAR THING BEING TRUE, BY DEFINITION IT WON'T BE”

ADAM WETHERED, LORD NORTH STREET

**Adam Wethered:** For private clients, you go down the sequence of making the big decisions of asset allocations strategically and then tactically and then manager selection and understanding what you've bought and why you've bought it and then, importantly, adapting both managing your clients expectations but also explaining what's going on.

And in many black boxes of quantitative products explaining what's really, really going on is difficult and the test of that, perhaps, is that the quantitative models that worked ten years ago or five years ago are not necessarily the ones of today. So what are the models of tomorrow – they involve judgement, so I don't think one should put too much faith in single ideas in quantitative boxes.

Video coverage of this roundtable will shortly appear on [www.pwmnet.com](http://www.pwmnet.com)



A BNP Paribas Investment Partner