Backtests, investment horizons and ESG quant dilemmas

In September, **Tell Media Group**, in cooperation with **Dimensional**, **Intech** and **Man Numeric**, invited institutional investors to discuss systematic equity investing. Tell Media Group founder Niklas Tell and Nordic Fund Selection Journal editor Caroline Liinanki moderated the roundtable.

By: **Niklas Tell**

The discussion started out with Caroline Liinanki asking the investors about their current systematic equity exposure.

CARL FREDRIK POLLACK: "We embarked on a journey of including equity risk premia a few years ago, which we saw as a diversifying step for the fund. We're a long-term pension fund but our set-up is different from many others due to the platform on which we operate. This means that we manage two separate funds – one global equity fund and a local fixed income fund, so as far as cross asset systematic strategies are concerned, that's currently out of scope for us. Within global equities, however, we're not limited to cash equity premia, so non-linear systematics strategies as well as FX could well be within our scope. Our main focus has, however, been on the equity risk premia."

THOMAS EKSTRÖM: "We started using systematic strategies some five years ago when we implemented a low volatility strategy. More recently, we've started implementing other types of strategies within the portfolio, such as momentum, quality, ESG and value."

NIKLAS TELL: THERE MIGHT BE SLIGHTLY DIFFERENT TAKES ON WHAT SYSTEMATIC INVESTING MEANS. HOW WOULD YOU DEFINE IT AND WHAT ARE SOME OF THE STRENGTHS OF SYSTEMATIC INVESTING?

DAVID SCHOFIELD: "When I attempt to differentiate what we do from more traditional quantitative approaches, I use the term mathematical rather than systematic. That's because our approach doesn't involve any analysis of fundamental data whatsoever and doesn't involve any attempt to identify which stocks will outperform or underperform. It's a process that was designed based on academic research done in the early 1980s on stochastic portfolio theory, which points out that diversification itself is a source of return. So it's about building more diversified portfolios and the only metrics you need to focus on in order to do that are volatility and correlation. Then you of course need to maintain that more diversified portfolio, because if you do nothing it will become less diversified. I think one of the strengths of our approach, but also of quantitative approaches generally, is the ability to approach equity management in a very disciplined manner with a high degree of risk control and the ability to generate a high level of consistency with controlled risk. I think that's one of the things that users of quantitative strategies should be demanding from their managers – a high level of consistency that's implied by high information ratios.

WES CRILL: "Dimensional was founded long before the term systematic investing had been coined. What it meant to us was taking some of the many benefits associated with passive index investing – diversification, low cost and transparency – and then finding a way to add to that. That means seeking to do better than the market without trying to outguess the market and then adding robust risk management. I agree with David that risk management is a key part of systematic investing and a key differentiator relative to traditional active stock picking. We rely on decades of academic evidence to identify drivers of expected returns. Not at all surprisingly, it turns out that how much you pay and what you expect to receive are the drivers of expected returns. Those issues are relevant for any purchase decision you make. Knowing those drivers means we can systematically over- and underweight certain groups of stocks as we seek to outperform the market and this process is repeatable. It's not subject to where we are in the market cycle or what has been happening in the economy. I think those are the main characteristics of a truly systematic investment process."

GREGORY BOND: "For us, it's really a combination of some sort of fundamental or behavioural anomaly that we can take advantage of in the market. That has been driving our investment philosophy and model design. Everything needs to be tied back to some fundamental or behavioural notion. The way you define that over time has of course grown, given the amount of new data and new technologies. I think another advantage of systematic investing is that you can incorporate these new ideas and new data sources in a very systematic way. Another benefit that we've seen, particularly over the last decade or so, is the ability to build customisable solutions for clients. A lot of clients have different needs and it's really about the ability to navigate and make your strategies fit with what the clients are looking for. Returns and risk are of course very important but there are also other values that are expressed by the portfolio, such as ESG."

NIKLAS TELL: WHAT WOULD SOME OF THE POTENTIAL SHORTCOMINGS OR DIFFICULTIES BE WHEN IT COMES TO SYSTEMATIC STRATEGIES?

THOMAS EKSTRÖM: "From an asset owner perspective and being a government fund, the big shortcoming is that we could be invested in a company through a systematic manager that might be construed as a really bad company. You don't really look at the name of the companies that you're buying with these types of strategies and that's a risk for us. What we're afraid of in terms of performance is quite insignificant compared to the risk of investing in the wrong type of stocks."

NIKLAS TELL: SO MORE OF A HEADLINE RISK?

THOMAS EKSTRÖM: "Yes. That would be one of the major shortcomings of using a systematic strategy."

CAROLINE LIINANKI: HOW DO YOU MANAGE THAT?

THOMAS EKSTRÖM: "We have a tight relationship with the ESG team and we do integrate ESG data. But from experience, I know that this type of data can be wrong and misleading and new things can pop up really suddenly. If you then sit with a big holding in a bad company, you're in trouble."

CARL FREDRIK POLLACK: "I think it's worth taking a step back when we talk about the academic side of things. If I take the traditional equity risk factors, I don't view them differently to the equity premium itself. For those who believe that the old alpha/beta sort of clustering has been replaced by something more granular, why should the equity premium be viewed differently? We know that we can have an equity drawdown period that's quite long but that doesn't mean that we don't believe in the equity premium. To me that's crucial and something we spend quite a lot of time on explaining to everyone – from the board all the way down in the organisation – to ensure that everyone is aligned on the

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investment horizon. The fact that we're not looking for return streams but rather looking for the premia means that we're equipped to weather these periods of negative performance. So alignment is super crucial and I think historically some asset owners have had evaluation periods that were far too short in relation to the premia characteristics. That obviously meant that they penalise them too early."

WES CRILL: "These are great points that Carl Fredrik makes, especially about the uncertainty around the premia. Higher expected return is not something that you get for free and investors should expect substantial uncertainty around when any of those premia are going to be delivered, much like the equity premium. We have had a 16-year period in the US where the equity premium was negative but I think most people would expect that equities will deliver higher returns than bonds over time. That uncertainty is always going to be there and that's why it's so important for a systematic manager to show that they've delivered what they said they were going to deliver. When Dimensional was founded, our first strategy was what is now known as the US Microcap Strategy, emphasising stocks in the smallest market-cap subset of the US market. That strategy was launched right at the beginning of the worst nine-year run in the history of the size premium for US stocks. But we were able to keep our clients confident in the strategy because they saw that we delivered the performance of microcap stocks and it was understood that the size premium was volatile and could be non-positive for a long period of time."

GREGORY BOND: "The strength of systematic investing, which has already been mentioned, is repeatability and these deep histories. But at the same time, the decision around how to and how much to evolve is a big one. We clearly feel there's some obvious decay in some of the more traditional models, even if they can still be an important part of your process. The question becomes how much of new content you need to bring in, which will obviously have a shorter history. I also think it's important to be able to prove added value above and beyond the more generic formulations of these traditional premia. The potential weakness is both not adapting enough and adapting too much. It's really trying to get the right trade-off between old and new."

DAVID SCHOFIELD: "I think one of the dangers and one of the potential shortcomings of quantitative approaches could be too much similarity between different approaches. Quite often when things go wrong, many things tend to go wrong at the same time and when stressed market conditions come along, as they inevitably do, the diversification tends to be less than you thought it would be. This was exposed in what later became described as the quant meltdown in 2007 and 2008 when the similarities between what were, on the surface, different approaches became all too apparent and many managers underperformed at the same time. That's something potential investors in quantitative approaches need to look closely at. Another potential pitfall is the never-ending search for new factors and new risk premia. I think it's important to be somewhat sceptical, at least initially, when somebody's making great claims about a new factor and to examine it more closely by looking at the underlying theoretical underpinnings of why this particular approach should generate excess returns."

CARL FREDRIK POLLACK: "I think the market has been pretty good at finding commonalities among some of the more traditional factors. Where some of the shortcomings come into this is when you move from the theoretical process into the practical implementation and introduce all the constraints we find in the real world. There's this feedback loop in the whole process that we need to look at. Once you get to the end and identify your systematic strategy, you need to ask how that ties back to your original objective. Is it clear that this is producing what I'm looking for? Because we all know that changing one parameter can have a huge impact. We tend to spend too little time on that and instead focus on identifying the next value metric or something similar."

WES CRILL: "To me, this just shines a light on how conversations should be going much deeper than just picking and defining the factors. I think that's where the majority of conversations usually land but with systematic investing, the whole implementation process matters. One example I often use is the Russell indices. For example, compare the Russell 2000 Index of US small caps with the Russell 1000 Index of large cap stocks. The data goes back to January 1879 and if we look over the whole return series, the small cap index has actually underperformed the large cap index. So it's not as simple as just picking the size premium for a strategy and hoping to deliver outperformance. There are other steps in the investment process, such as the design of the portfolio, how you rebalance and how you actually interact with financial markets when you trade, that separate on-paper profits from what we have been delivering to investors net of expenses. At the end of the day, the only way you can see how effective someone is in delivering real-world results is by looking at the track record."

GREGORY BOND: "I think you need to be hypothesis driven when you do your work and you need to be wary of the academic factors, research or new data that may be out there because the only things you're seeing are the things that worked, at least on paper. There's a strong selection bias when you're evaluating any of that stuff. You also need to be careful to examine the implementation concepts around transactions costs and in which universes it's going to work."

DAVID SCHOFIELD: "I think quantitative managers are very good at showing positive backtests. It's almost a sort of necessary evil. However, we must redefine what's meant by a long-term backtest because I've seen many examples out there where people show a 10 or 15 year backtest and call that long term. When you think about the market conditions we've seen over the last 10 years, it's been all pretty much one way. Not at all a full market cycle. We need to be more fussy about that sort of thing and investors need to be more fussy about demanding longer-term data from managers."

THOMAS EKSTRÖM: "The only problem with that approach is that it makes it difficult for a new manager that wants to enter the systematic arena. That also touches on the point Wes was making about the difference between paper alpha and portfolio alpha."

DAVID SCHOFIELD: "That's very true and that's why backtests need to be viewed with a certain amount of scepticism. I do think, however, that some backtests are more representative than others, depending on what the underlying process is and how many assumptions actually go into the underlying process. I think it's a reasonable claim to make that the fewer assumptions required for a particular quantitative model to work, the better."

CARL FREDRIK POLLACK: "From a commercial perspective, does a backtest have to look great?"

WES CRILL: "Have you ever seen a bad one?"

CARL FREDRIK POLLACK: "That's obviously what I'm getting at. If someone came to me and said we're launching this and it's going to do X, Y and Z and the whole story is very grounded with a robust process, I wouldn't have a problem if the backtest didn't look great.

WES CRILL: "You're making a really important point, which is that none of the simulation data is useful if you don't have a theoretical backstop for your assumptions. Why do you believe value will outperform growth over time? That's easy. I pay a lower price for expected future cash flows and that should be associated with higher expected returns. I really don't need a backtest to prove that. However, if I exclude XYZ accounting variables from the denominator of my valuation ratio and I'm forming a value strategy that appears to have done better, then I don't have that same theoretical backup and that's when you should treat the backtest results with serious caution."

DAVID SCHOFIELD: "I would agree. I don't think it should put people off. If you look at low volatility strategies over the last several years, it's not going to look terribly good. I think it's more important that a strategy has been consistent with what it's meant to do than if it happened to have outperformed the market over the last five or 10 years. Low volatility strategies are a good example because a lot of people piled into those over the last 10 years or so and of course the market has been going up pretty steadily over that period. These strategies are probably not outperforming in sharply rising markets and I think some people are already starting to question whether it was the right thing to embrace low volatility investing and some are even getting out of it. I don't think that's the right thing to do."

GREGORY BOND: "It's interesting to watch investor behaviour around these concepts. I think low volatility was studied as far back as the 1970s and it went through a similar problem during the internet bubble. So over long periods of time, it has been able to deliver market-like returns with lower risk but it does go through these phases and people fall in love with it and then they fall dramatically out of love with it and we end up with a lot of flows in the markets. As you're building the strategies, you will have to understand that there will be difficult times and hopefully we will find investors that are patient and don't need that fantastic backtest but are more hypothesis driven."

CAROLINE LIINANKI: TO WHAT EXTENT SHOULD YOU TRY TO TIME YOUR EXPOSURE TO DIFFERENT FACTORS?

WES CRILL: "This is an area to which as much research has been dedicated as to the discovery of the premia themselves. The gold standard would be if I could predict when these premia are going to be negative. We've conducted many studies where we were intentionally data mining and looking through all the signals that have been proposed. We found that there were fewer things that worked for timing

the premia than you would expect by chance alone. It really comes back to the opportunity cost of being even slightly wrong in your timing of the premium."

DAVID SCHOFIELD: "I would agree that it's extraordinarily difficult to time factors and I think our approach is slightly different to my colleagues on the panel here because effectively we spend a lot of time trying to control the factor risks and to exclude or mitigate the factor exposures to the extent that's possible. We have indicators of our own that will indicate when there's a high level of risk associated with particular factors and it's possible to have constraints that can be dynamic in order to control the degree of exposure. We're essentially trying to exclude factor risks from our portfolios."

GREGORY BOND: "Our view is consistent that it's a difficult thing to do but I also think there are things that you can add to help minimise some of the risks around the timing of those exposures. Our basic approach is that we can build a very well-diversified process that can manage any sort of major inflection in one of the underlying concepts in the portfolio."

DAVID SCHOFIELD: "I think what has become apparent in the marketplace in general over the last five years is an increased focus on factor investing. Maybe that began with the smart beta trend but there has been a big wave of increased interest in investing in individual factors as well as multi-factor portfolios. Everyone was looking at factors and there has been an increase in the number of available vehicles to express views on these factors, such as factor ETFs. The impact of that has been an increase in the frequency and the magnitude of large factor effects in the marketplace in general. Those can be beneficial if you happen to be lucky enough to be on the right side of it but they can also be very damaging if you're on the wrong side. So I think that's an increased danger that has arisen from an increase in volume of money chasing factor returns."

THOMAS EKSTRÖM: "I've done a lot of research on trying to time the factors and my conclusion is basically that you're better off having a static exposure and keeping that under control. We don't put any effort in trying to time the factors."

CARL FREDRIK POLLACK: "Everyone is pretty much aligned on this point but I understand why we're discussing it given the performance in single factor and multi-factor products over the past decade. From a sales side perspective, what do you do? I think it's a natural development that we're seeing dynamic approaches in this space. To me, it was a very obvious next step in terms of the product offering."

CAROLINE LIINANKI: DO YOU TREAT THE E, S AND G AS SEPARATE FACTORS AND HOW DO YOU MORE GENERALLY APPROACH ESG FROM A SYSTEMATIC POINT OF VIEW?

THOMAS EKSTRÖM: "If we take step back, this ties back to the discussion on factor returns because we do implement factors where we have zero expected return or even negative expected returns because we want that type of exposure in the portfolio. One example would be the carbon footprint, which we want to factor into our portfolio. We do, of course, also have ESG factors that historically have shown positive net returns."

DAVID SCHOFIELD: "From our perspective, we don't think that there's any evidence that tilting a portfolio to a higher ESG profile produces higher returns. However, we don't think there's much evidence that it produces lower returns either. So it's possible to incorporate ESG risk controls to ensure that the portfolios are not greatly different from the benchmark profile and we've incorporated these risk controls into a majority of our strategies. However, we also have clients who, for their own reasons, want to boost the ESG profile of their portfolios and have asked us to target an increase in ESG scores, which includes the aggregate ESG score but also the individual pillars of E, S and G as well as the carbon intensity. It's certainly possible, depending on the active risk budget of the portfolio, to boost those without impacting the expected excess return or risk of the portfolio. And if you can do that, why wouldn't you?"

WES CRILL: "E, S and G are probably not in and of themselves distinct drivers of expected return. Let me be clear on what I mean by that. If there's a firm with great sustainability characteristics, that probably has implications for future cash flows. Maybe that firm is likely to outlast its less green competitors so it will have higher cash flows in the future. All else equal, that would imply higher expected returns. But the firm might also have a lower discount rate associated with its expected future cash flows and that lower discount rate would give it a higher valuation compared to those less green competitors. However, what that implies is that if you have an integrated process that already considers market prices as well proxies for expected future cash flows, you should be capturing those expected return differences without having needing additional considerations for ESG variables – and this is what we see empirically. But implementation is the key issue. When we look at funds that are tagged with these ESG labels by Morningstar or other databases, the range of outcomes for the positioning of those portfolios is pretty massive. If you implement with a broadly diversified approach, where ESG incorporation is integrated with other drivers, such as size, value and profitability, you should see very similar outcomes with or without the ESG characteristics, while at the same time meeting the sustainability concerns of the clients."

GREGORY BOND: "I think one of the challenges when it comes to ESG is that people have different views of what ESG is and that's also true if you look at the data from the data providers. The correlation between different providers on individual companies and datapoints can be surprisingly low. There's still some consensus around what value means but in the ESG space, there's less consistency. Hopefully the data science side of systematic investing can bring this together and then bring the data providers and various

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> *– Carl Fredrik Pollack, AP7*

concepts together in an integrated approach. Climate is, of course, another related topic and it's obviously more difficult to test because arguably climate risk in the past is probably not as profound as we think it's going to be going forward. There has, however, been an explosion of data when it comes to both ESG in general and on climate in particular and there's a lot of academic literature around country risks and industry risks. The question is, of course, how we can tie that back into the assets."

DAVID SCHOFIELD: "The data challenge is considerable and ESG data is a relative newcomer compared to more traditional financial metrics. One of the things that we've tried to do in order to overcome this is to look for stable statistical characteristics of highly regarded ESG companies. So looking at other factors than ESG data, which are more available, more frequently updated and have longer histories. This allows us to come up with extrapolations of historical ESG data. Most ESG data doesn't go back much longer than 2007 and 14 years is really not enough. As I said before, to do backtests and to look at long-term market cycles you need to go back more than 10 or 14 years. Finding proxies for ESG data allows you to go back further in time and perhaps helps overcome some of these ESG data challenges that are a problem for all managers."

WES CRILL: "Let's try to quantify that inconsistency that both of you are speaking about. There was an academic study that showed the correlation between ESG scores for different companies and it was about 0.5 between different rating providers. Compare that to the correlation between credit ratings from Moody's and S&P, which is around 0.99. I think that puts the onus on us as managers to figure out what the sustainability concerns are on which we do have reliable data. We need to identify specific concerns of investors and carbon emissions is one of those. Emissions intensity data is nowadays reported by the vast majority of large firms and is at least imputed or modelled for almost every publicly traded company out there. So emissions data can be used in a very systematic way. I think that's a good example of how you can start with a specific goal and then figure out whether the data is going to get you there. In this case, the answer is yes."

DAVID SCHOFIELD: "But even there you didn't get much carbon data before about 2010 and even then, the early days of the carbon data is pretty spotty. It's not until about 2015 that you start to get more broad coverage of a wide range of companies with higher quality and more consistent carbon data, so it's really a very short period."

CARL FREDRIK POLLACK: "First of all, I think both the sell side and buy side should be quite thankful for all the emphasis that has been put into quant strategies and systematic implementations, because it ultimately means that both sides are far better equipped in terms of handling this. I would agree with what David mentioned about introducing it on a risk management level as opposed to a standalone factor. Most of you mentioned that you don't believe there's positive expected return from introducing ESG factors and I would agree with that. I think from our side, we've had a long history of ESG investing going back some 20 years and for us it has always been about real-world impact. On a more philosophical level, you need to find a link between what you believe in and what you do. If it's about real-world impact, you can of course question if you achieve that in a secondary market transaction where the asset is simply changing hands. For me, the key when it comes to ESG is that everyone needs to find their own objective as to why they do it and then stay true to that."

WES CRILL: "Even in a market with almost exclusively secondary market transactions, holders of equity securities can have real world impact – through their stewardship activities. You can vote on important issues like board diversity and executive compensation, which can improve the governance of the company and that obviously have benefits for returns as well. If you improve the company in those ways, maybe you increase the expected future cash flows while you're holding onto this stock or you decrease the discount rate of those cash flows. Either way, you're increasing the price of the company. It's win-win between companies and their investors."

CARL FREDRIK POLLACK: "We try to be a pretty active owner and we do a lot of projects with other institutional investors as well. What is very important is that your approach is consistent and what I mean by that is that you can't really say that you're an active owner and then do a lot of exclusions because then you can't be active any longer as

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you're not an owner. I don't think there's a right or wrong here and people will take different approaches but it needs to be consistent all the way."

CAROLINE LIINANKI: TO WHAT EXTENT CAN YOU CAPTURE THE GREEN TRANSITION WITH A MORE QUANTITATIVE APPROACH? IF YOU'RE ONLY LOOKING AT CO2 EMISSIONS, YOU'RE NOT REALLY CAPTURING THE COMPANIES THAT ARE CHANGING BUT RATHER THE ONES THAT ARE ALREADY "GOOD" COMPANIES.

GREGORY BOND: "This is exciting to us because it's a whole new series of data and a lot of interesting things are out there. I think what we have right now is version 1.0 when it comes to expressing carbon intensity in portfolios and I think that has been well understood for the last several years. As we're moving into version 2.0, there are a lot of interesting things you can look at. One area is that of the 2 degree alignment. You might have a company that's in the cement business and it's going to have carbon emissions and we will need cement for many years going forward. But maybe this company is doing a better job than others in reaching a 2 degree alignment. Maybe it's doing a better job relative to some benchmark and is actually reducing its carbon emissions on a relative basis. I also think there are things around looking at company revenues in a more quantitative way, such as green revenues versus brown revenues and trying to understand those. As a systematic investor, it's hard to get into the inner workings of a particular company and breaking out exactly their technologies but there are a lot of ways to infer who's on the leading edge and turning that into an investable signal. That's the opportunity side of it. Then there are, of course, risks you can model as well that aren't just about the green opportunity. There's a lot of interesting modelling about the impact if the world was to warm by 1 or 2 degrees. For example, what would the impact on earnings growth be for various companies? There's a multiple framework around balance sheets and income statements that you can tie climate back to and that's something that we're working on. It's a thorny problem but I think there's enough interesting data out there."

THOMAS EKSTRÖM: "We have a more fundamental approach with regards to ESG and we focus more on the shorter term. So within developed markets, we don't overweight the green leaders but rather exclude some of the really bad or non-green companies from the benchmark. In that regard, we take a step away from stewardship when it comes to oil, gas, tobacco and weapons and say that we basically don't want to set our foot within that frame. We therefore don't have a 'significant' quantitative approach with regards to the green transition but take a more fundamental approach."

WES CRILL: "When I think about the impact that the green transition might have on different businesses, I think of it similarly to what's going to be the sensitivity to certain companies' profits if there's higher than expected inflation, if interest rates go up or if we have slower than expected GDP growth. I think by and large, market participants are considering all of these different impacts on different companies when they're setting prices or setting discount rates for those expected future cash flows. To the extent that I think some companies are going to fare worse than others, we would believe that it's reflected in current market prices. Therefore, I think exclusions, in theory and in isolation, should not have an impact on expected returns. What the exclusions can impact is the emissions exposure in the portfolio. If you find companies that have very high carbon emissions and you underweight those companies, then your portfolio is going to have lower exposure to emissions than a benchmark. That's a very strong objective for many investors and I think that's something that you could accomplish through that type of exclusion."

THOMAS EKSTRÖM: "I remember one case from my previous employer AP2 where we tried to persuade Wal-Mart to be more like Swedish companies. However, after trying to push our agenda for a while, we decided to exclude the firm. As a small player in the big global scheme of things, it's hard to push the green values onto some companies and then it's better not to be invested at all due to headline risk."

DAVID SCHOFIELD: "It's not just headline risks, though. If the wave of public opinion, as it seems to me, is going against fossil fuel extraction, coal companies and so on, then there's a significant financial risk as well and we approach it from that point of view. We're just trying to manage that risk. We talked a bit earlier about low volatility investing and if you look at a lot of low volatility portfolios, you will see an almost universally large weighting to utility companies. The question then becomes if low carbon investing is compatible with low volatility investing. Yes, it's perfectly possible to build low volatility portfolios without massively overweighting, or even investing at all, in those most polluting companies. As I said before, if you could do that without changing the outcome, why wouldn't you? I think in some regards, many firms in the asset management industry have been a bit lazy about that and have walked down the path of least resistance without looking at other possible solutions."