A strange title.

Focusing on a lack of harmony between the way we manage portfolios and the way we analyze them and measure their performance through time.

This may seem a bit cryptic but I hope what I mean will be clear soon.
Summary of the topics to be presented.

The central theme of my presentation is “What is Theme-Based Investing? Recognizing where it is appropriate, and then working within a Theme-Based or a non-Theme-Based environment.”

And then I would like to work with some real world applications.
What is Theme-Based Investing?

- Investing in diversified portfolios to capture broadly shared performance characteristics rather than the specific performance of individual securities themselves.
- Some candidates:
  - Industrial Sectors
  - Size Categories
  - Styles
  - Financial Factors
  - ESG Factors

First a definition:

And some obvious examples of what we believe are Themes. But how can we determine what are and what are not usable Themes? And what do we mean by “usable”?

But before I try to answer this, I would like to look at a few examples.
These sector returns look like they are good candidates. There appear to be identifiable trends in the return patterns of several sectors, perhaps even the UK market as a whole, so we might be tempted to consider these as usable Themes.
Other examples are also clearly possible:

One sector in Europe— Basic Materials  
Also in Europe— the Mid Cap sector  
Also in Europe— Large Value  
Also in Europe— MSCI Good for the Environment

But, some serious questions about their exploitability:

1. Are these investible?  
2. Are they just random patterns?  
3. Are the patterns representative of something else?  
4. Are the patterns reliable?  
5. Do you have to buy the whole sector to benefit?

Let’s look at the Style returns, just to get some bearings on these questions.
Just to deal with the most basic questions first:

Non randomness – The number on the top left.

This measure addresses the concern that an investment Theme could very easily be defined according to nonsense criteria (such as, say, the colour of the finance director’s nephew’s car). A true investment Theme must be somehow distinguishable from such nonsense criteria. Random selections of stocks are likely to have risks closer to that of the overall market than portfolios selected according to genuine investment Themes.

Here this 100% shows that the market relative risk attached to Large Value in Europe are greater than 100% of the randomized portfolio constructions used in the test. So we can reasonably expect that Large Value is a genuine investment characteristic. But it may fall foul of other criteria.
The turnover figure is the one-way number. i.e., selling 10% of the portfolio and then reinvesting that 10% represents a 10% measure of turnover.

Here the 30% number is border line. This Large Value strategy might be too costly to implement.
But there are also other problems.

If we blindly follow the Large Value portfolio construction methods we might be getting a peculiarly constructed portfolio; and the returns of the portfolio might reflect the peculiarity of the construction rather than being a consequence of the intended Large Value orientation.

Here it is clear that the Large Value portfolio (defined as the cap weighted top 40% of Book to Price within top 70% of the market by Size) is particularly overweight in the Financials and Oil & Gas sectors.
And this diverges dramatically from the much more balanced sector composition of the overall European market.
And this sector imbalance has had a dramatic influence on the differences in performance.

Sector Adjustment (a process of portfolio construction based on selecting Large Value stocks on a sector by sector basis – rather than across the market as a whole) all but removes the appearance of trending. So a considerable amount of the observed performance pattern must have been due to the sector imbalances, not the Style characteristics of the portfolio.
Another key feature we should require before we can declare a strategy to be a Theme is performance regularity through time. i.e., we need some measure of confidence that the pattern of return might be predictable or “rideable”.
The statistic we use is a variation of a Variance Ratio test, a test used by academics to demonstrate non-randomness in time series performance. It has been used to demonstrate trending in currency markets and randomness in equity markets. Significant positive figures suggest mean averting trending while significant negative figures suggest mean reversion. And figures below the Significance Levels suggest that the pattern of performance is random. The 3M, 6M and 12M estimates (and Significance Levels) assess trending/reversion/randomness over these specific horizons.

This example shows clear trending over all time horizons. This would suggest that there may be some hope of being able to predict and ride this Theme. This is not surprising since it is based on the performance of companies trading in real assets.
In the second example, however, there is no statistical evidence of regular trending or mean reverting performance. So it would appear difficult if not impossible to predict the performance of this strategy.
Performance regularity within markets is also very important. It tries to answer the question:

“It looks like I could do well by following that Theme, but can I benefit from the Theme’s performance by buying a representative selection of stocks from the Theme or do I have to buy the whole basket?”
We construct a statistic that measures the dispersion across the performances of securities displaying the Theme characteristics we are looking for. It is based on regression analysis across the entire market and tries to assess how exposure to the Theme “systematically” influences performance over a test 10 year horizon. This statistic is used regularly by academics. But there might well be a more intuitive way to establish more or less the same thing.
Empirical verification is often more convincing.

In this European example, looking within the Large Cap sector there is a clear monotonic relationship between Book to Price and Performance. And this is Country and Sector Adjusted as well!

I don’t think there is a technical word for this characteristic, but I call it “fanning”. Perhaps one day we will develop a statistic that measures the degree to which a factor “fans”.

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Identifying Exploitable Themes

♦ Basic considerations:
  – Proper specification
  – Performance regularity through time
  – Performance regularity within the market
  – Competitor confirmation

It may not be a genuine necessary condition, but it is always comforting to see factors systematically related to the performance of peer groups of similar funds.
Identifying Exploitable Themes

♦ Basic considerations:
  – Proper specification
  – Performance regularity through time
  – Performance regularity within the market
  – Competitor confirmation

» Analysis of mutual funds with common theme exposures

Here there is clear evidence that in the peer group of Pan European equity manager, 3 year fund performance is loosely related to fund exposure to Book to Price and Cash Flow Yield. Note the negative. The European markets have been in a negative Value (positive Growth) phase over the 3 years to March 2013, and this has been clearly reflected in fund performance.
Two other things to watch out for are: Isolated or narrow security dominance. This is mostly covered by the Performance Regularity within Market condition. But we need to know how to address this so I thought it was worth considering separately.
And a general concern that for some other reason – perhaps the calculated risk exposure, Theme based analysis might not be relevant.

These concerns will be considered as part of the worked examples.
I wanted to look at 3 real life European examples, demonstrating the detection of eligible Themes around which an investment strategy might be sensibly constructed.

Often this sort of fanning is all you might get. Not perfectly order preserving but it looks promising.
Investment Strategy and Portfolio Analysis

Identifying Exploitable Themes

A worked example – further evidence

And the statistics bear that out.

Strong Identity.
Performance regularity within the market (|t| above 2 75% of the time.
Mean Reverting trending.

The turnover looks crippling. But this Theme could form a sensible basis for investment of income or new money.
Volatility not too high
Identifying Exploitable Themes

- A worked example – initial evidence

This is probably the grandfather of all Styles.

The first 2 deciles of Value look to be fanning well, and in this example cycles and phases are clearly visible. But the lowest decile (basically high priced companies) has made a “break for it” over the past 3 to 4 years. This corresponds with our understanding that premium priced (generally “Growth”) companies have been outperforming over the past year.
Looking more closely at the top 2 deciles the cyclicality is clearly evident and the Theme relevance tests are encouraging:

Very strong “Identity”.
Regularity within market is good.
Regularity through time suggests strong mean averting tendencies (confirming regular cycles).
Turnover not too high.
Volatility is getting high.
High Beta.
And now for something completely different. Carbon Footprint is defined as metric tonnes of CO2 equivalent per USD 1 million of revenue. And CO2 equivalent is calculated from the contributions of the 6 basic greenhouse gases (Carbon Dioxide, Methane, Nitrous Oxide, Sulphur Hexafluoride, Hydrofluorocarbons, and Perfluorocarbons), each converted to CO2 equivalent using its Global Warming Potential factor. Trucost measures the Carbon Footprint of several thousand companies. Here we are constructing portfolios of company securities ranked according to the Carbon Footprint of the company itself; and we calculate the performance of each decile.

In this European example it looks clear that (Country and Sector Adjusted) cleaner companies have done better and there is “reasonable” fanning.
Identifying Exploitable Themes

A worked example – further evidence

Isolating the top 2 deciles for further analysis, we can assess the validity of this Theme as a basis for an investment strategy. And it is not too bad.

The identity is quite low – meaning that the tracking error is low and that the performance of this portfolio doesn’t depart very much from the market as a whole. A bit disappointing, this level of risk could have been reasonably expected from random portfolio construction so perhaps there is nothing from the risk assessment that makes Carbon Footprint appear as a distinguishing Theme.

Regularity within the market is quite low (across the market as a whole this factor is not significantly related to returns). We saw this from the Fanning; but it shouldn’t be alarming. The key is that we are focusing on just the best 2 deciles and these look more convincing.

Reassuringly the Regularity through time shows strong adherence to the trend.

Portfolio Beta is very manageable.

Turnover is OK

So maybe this is worth exploring further as an investment Theme. I’ll return to this in a moment.
But just for good order, I feel that I need to describe the process of analyzing Theme based investments.

I’ve spent a lot of time just laying the groundwork for the very first point. Once you know that you are looking at genuine Themes all of these considerations then need to be examined.
I won’t go into this in any detail right now, but this is the sort of analysis that examines exposures to Themes, recognizes the risks to basic Theme exposures and goes on to assess portfolio performance in terms of these Theme exposures and to measure security selection skill within the basic Themes as well.
But for now, just after leading to the conclusion that Environmental considerations can lead to a reasonable investment Theme, and showing how Theme-based investing can be analyzed, I would like to break from just showing the mechanics for analysis and for a short while talk about ESG investing altogether. Is Strategic ESG investing important?

What is most important from the standpoint of “Human Life on Earth”

Clearly the Environment is the most important. If the temperatures rise by more than 5 degrees C, all life would be threatened.

Then our Social Responsibility towards other people must be next.

But do real people outside of the financial centers deeply care about how a company’s poison pill is structured or whether a rapidly growing and successful IT business has separated the roles of CEO and Chairman.
But the market values these services differently. And we can see this easily by looking at the prices of the services in each area. And better still we can look at the prices of the companies themselves that offer services in these areas.

First, when ISS, a leading company selling corporate governance information was bought by RiskMetrics in January 2007, it was acquired for $542 million. And when RiskMetrics (which, did more than corporate governance) itself sold to MSCI in 2010, the figure was $1.55 billion.

Now what about Social Responsibility.

When KLD (which specialized in measuring company’s social responsibility) sold to RiskMetrics in November 2009, it was for $10 million. And when Innovest also sold to RiskMetrics, also in 2009, it was understood to be only for a little bit more $16 million.

And I understand that even these relatively low values and valuations (KLD was valued at $10 m on $6 m of sales; Innovest was valued at $16 m on $7 m of sales) look attractive to some of the major suppliers of data on companies’ environmental impacts.

So the market assesses the values these data services in exactly the reverse order to their relevance to overall humanity. Curious – but understandable. Perhaps one reason for this is that research in company corporate governance is closely akin to stock analysis; it sounds like just getting a deeper understanding about how companies operate; and we all know how much many houses pay security analysts.

But now let’s look at performance.
Does ESG Matter?

This chart shows the overall 5 year performance of Good and Bad companies (top quintile and bottom quintile) on ESG criteria in a number of major market regions.

In the next slides I try to show this same information a bit more clearly.

But a bit on methodology.

First, all analysis is done with Country and Sector Adjustment so that sector or country imbalances in the test portfolios do not impact on the results. Second, I am only looking at the performance of the extreme quintiles. The “Good” are the highest scoring companies according to Social Responsibility and Corporate Governance, and the lowest scoring companies according to their Carbon Footprint. The “Bad” are the lowest .... The analysis is of market capitalization weighted sub-portfolios comprised of stocks in the top and bottom quintiles (again by market capitalization), rebalanced semi-annually. The numbers quoted in the table are index values based the total market relative return of these sub-portfolios. Note these returns are benchmark relative – so the 117.03 (the first data item) indicates that the Clean Companies portfolio in the US, outperformed the total market over the 5 year history by 17.03%.
Nothing complicated here. Looking first at the Environment (and using Carbon Footprint as the measure), I have just coloured in red where the Good companies (i.e., low Carbon Footprint) outperform the Bad (high Carbon Footprint).

In almost all cases it is clearly advantageous to select the “Good” companies, i.e., those with the lowest Carbon Footprint.
The same can not be said about Social Responsibility.
Nor about Corporate Governance.

So it looks like *Strategic* Environmental investment is a good thing but that investing strategically to favour socially conscientious companies or those implementing sound corporate governance standards is doomed to failure.
Looking simply and very superficially at the results, it seems that however we might value the services of the providers of the E, S and G data, the basic performance we can achieve using their data is:

1. In an inverse relationship to the value we place on the services (Environmental service providers are less valued than the others yet the performance of portfolios selected using environmental data is superior to portfolios selected simply on the basis of Social Responsibility or Corporate Governance criteria); and

2. In alignment with what is most valuable from the perspective of the people who live on our planet (our physical and moral existence).

There is, of course, some comfort in this. And it is tempting to get lyrical about the way there seems to be some “natural order of things” that defies human recklessness and shortsightedness. But …
THIS WOULD BE A SERIOUS ERROR.

Data on Social Responsibility and Corporate Governance are characteristics that in the main are useful in revealing individual companies to avoid rather than to establish a class of potential investments. This is a very important distinction. Environmental characteristics seem to be establishing a class of investment opportunities; S and G are probably entirely stock specific.

While Environmental considerations may provide a usable investment factor for Strategic Investment, the same cannot be said for investing according to broad Social Responsibility factors or according to Corporate Governance considerations.

But that certainly doesn’t mean these issues should be ignored. Just that they must be examined from a different perspective, and more closely.

Let’s look a little closer at that.
Contrast the fanning decile charts that we saw before for Carbon Footprint (and Forecast Earnings Revisions and Book to Price) with the returns to deciles of Corporate Governance ratings portfolios. While there might be just something in the idea that the lowest decile has underperformed over the past 2 1/2 or so years, the rest is a jumble and leads to the conclusion that this is really not an investment theme that is likely to be exploitable through diversified exposure to the factor itself. The factor is really best used on a stock by stock basis to enable investors to avoid disappointments (disasters).

And for this type of analysis we need a more focused analysis.
Just as an example, let’s look at 1 particular factor in this greater focus. I could have looked at any other S or G factor, but I chose Ownership and Control – no particular reason.

This factor will tell if the share structure of the company and its control might be subject to abuse insofar as shareholder rights and voting authority might not be as strong as would normally be expected in a PLC.

To try to isolate the awkward situations, I have selected the worst 5% of companies in the UK over the period and I have plotted the relative return of these companies against all companies in the UK that provide data on this measure. So it is a fair test.

But note the particularly low Identity statistic, the low Attribution (regularity across the market) and the low Regularity through time. Definitely not a Theme.

This sifting results in the selection of around 21 companies, though the number will have varied slightly over the period of the analysis. And, as we expect, these companies have underperformed.
This is our typical Skyline showing portfolio tilts with respect to key Value, Growth, Risk Momentum and some other factors. This is useful in going beyond the usual high level Style analysis in that it is more suited to showing nuances in investment. E.g., This manager is happy to buy high priced securities since it appears that he is buying into companies with strong current P/Ls and upgraded forward looking earnings forecasts; but he is not concerned about buying shares in companies that have grown well over the past 3 years. A variety of Growth manager.

But this kind of analysis is capable of more.
It is possible to add many more factors to the analysis – in our case about 70 different factors including: More Forward Looking Value and Growth Factors, Quality, Economic Sensitivity, and, of course ESG.
Here we have added quite a few. This analysis shows how a portfolio compares against its benchmark with respect to the exposures or scores on ESG criteria. In our case we use Environmental data from Trucost, Corporate Governance Data from GMI Ratings and a full range of ESG data from MSCI. Each provider offers data on thousands of globally traded securities and looks at things from a slightly different perspective.
Looking more closely at the ESG profile of this manager we can see that there are some significant (Tilt is above 1 or below -1) exposures.

I’ll get back to this manager soon and focus on one of its key ESG benchmark relative Tilts.
And now, looking back at our previous portfolio, we can recognize that there is a strong negative Tilt to this factor in the ESG Skyline. This means that the average score of companies in the portfolio is very significantly (statistically) lower than that of the benchmark, here the FTSE 350.

So, first, let’s try to figure out why? Where does this come from?
An easy click-through provides the answers. It comes from a variety of positions listed in the bottom of the screen list.

Four positions stand out where the portfolio is currently overweight in securities with low Ownership and Control ratings.
Investment Strategy and Portfolio Analysis

Just to pick out the most noticeable one.
We can see what the rating is for this company and notice how it might have changed through time. Note here that things seem to be improving.
And we can explore other characteristics relating to this security, including all key factors, and its recent stock price performance.
And, despite recent gains, interestingly corresponding with the recent improvement in the Governance score, the stock has underperformed over the past few years. This was to be broadly expected given what we know of the recent history of companies with low Ownership and Control scores, but nothing really ensured that this would be the case on an individual security basis.
So now we should really broaden the review to do a proper analysis of performance and performance attribution.

The portfolio outperformed. This is encouraging and even the allocation to “Styles” showed benchmark relative gains.

But here I have enabled the user to redefine things so that “Style” means something different from what it does normally.

I have defined Styles according to Size (usually a good idea) and also by ratings on Ownership and Control.
I have defined Large, Mid and Small Cap sensible size breakpoints (70%, 20% and 10%) and also High, Mid, Low and Bad Ownership and Control (according to 40%, 30%, 20%, 10% tranches) within each Size category.

This enables us to carry out a performance attribution analysis in accordance with our key interest in Ownership and Control.
The portfolio has been, on average, noticeably overweight in Large companies with Bad ratings in Ownership and Control. This category of companies has underperformed so, not surprisingly, it would seem, the allocation contribution to return from the exposure to this group of companies was negative.
Clicking through, you can see what happened in more detail through the time horizon.

The relative performance of Large Bad Ownership and Control companies is in the bottom graph and the benchmark relative weight of the portfolio to this category of companies is in the middle. Note that the commitment to sector has been increasing through time.

And the cumulative allocation effect is recorded on the top chart. It could have been much worse had the manager built up his positions in this category earlier on. It looks like the manager has chosen to increase the weight in this segment after it has already underperformed.

BUT THIS IS JUST A COINCIDENCE!

We know that this factor doesn’t define a Theme since it fails to satisfy our basic conditions. Appealing as this must seem, this is the wrong way to look at performance in a category that doesn’t fulfil the proper conditions. I am sure that others will continue to look at things this way but, as I hope to have demonstrated, when factors don’t define Themes, this type of attribution analysis just represents misleading coincidences.
But there is a correct way to examine this manager’s investments in the Large Bad sector. It focuses on the characteristics of the stocks and looks at the stocks in the portfolio and the benchmark.

Stock selection looks to have been good. So, perhaps the manager has deliberately taken a position in this murky group of companies because he feels that in this environment he has good company knowledge and stock selection skill.

Let’s look into this.
A click through shows a few things.

Firstly, the performance has been quite consistent. There have been no periods of sharp underperformance over the 3 year history. This is a good thing since it might lend some credibility to the existence of stock selection skill in this category of securities.

However, the outperformance appears to have been mostly due to one position. A dramatic underweight position (in fact a zero holding) in one company that figures significantly within the benchmark.
A closer look at the company reveals that while this stock initially had a very poor Ownership and Control rating it has recently dramatically improved its score on Ownership and Control. So it was in the correct category for attribution analysis through the period – but now it would not be considered to be in this category.

But we can go further into the analysis as well.
The company has still significantly underperformed over the period from August 2010 to the present. Over this period the UK market rose by 25%; this stock was volatile and virtually flat. So not having this company in the portfolio contributed strongly to the manager’s overall positive stock selection over the period. It is possible that this was a deliberate ESG-inspired stock selection, perhaps not; but in any case it certainly introduces a useful line of reasoning and discussion between the manager and his client.

This is just an example of the kind of performance attribution analysis that is now possible with respect to ESG factors. This type of analysis enables managers to explain their overall performance and their ESG performance in the light of their ESG strategies and ESG stock selection. And it opens up the way for ESG principles to be properly considered in an investment process and review environment.
These are the high level conclusions or, perhaps more naturally, the key observations.

- Strategic Theme-Based opportunities can be detected from market research
- Verified using statistical and empirical techniques
- Managed with smart portfolio analysis
- Non Theme-Based investment strategies require something different ... smart portfolio analysis and deep excavation and focused analytical capabilities.
Some important results from additional research in Environmental investing.
Investment Strategy and Portfolio Analysis

Managing Theme-Based Portfolios

◆ Working with an environmental factor

The market is easily divided between the Clean Sectors (at the top of the list – where we show the average Carbon Footprint of stocks in the sector) and Dirty Sectors (towards the bottom).

What we do next is to determine how buying clean stocks in Clean Sectors and buying clean stocks in Dirty Sectors has done. Not, research reported on the www.StyleResearch.com website has shown that previously clean companies within Clean Sectors outperformed (where it didn’t really matter because most of the Carbon Footprint scores were low), but that clean companies in Dirty Sectors underperformed (which was really very upsetting – since in these sectors the difference between clean and dirty company Carbon Footprints was very significant. And it is in these sectors that the potential for improvement or environmental damage is greatest.)
This is looking at the performance of the Good and the Bad quintiles of companies (Country and Sector Adjusted, as before), using only the Carbon Footprint criterion, and looking independently within the Clean sectors and the Dirty sectors.

Just as background:

3. And recall that in previous studies (on the Style Research website www.StyleResearch.com) research showed, broadly, that while clean companies in clean sectors tended to outperform, in the dirty sectors (i.e., where it really mattered) clean companies tended to underperform.

But now things look different. Clean companies “tend” to outperform in the Clean sectors (with the Emerging Markets and Asia Pacific as exceptions).
And, most significantly:

Clean companies in Dirty sectors now seem to outperform the Dirty companies. This is where it matters most and now this is very hopeful.