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Risk management research

Nowcasting and financial wizardry

Ineichen Research & Management ("IR&M") is an independent research firm focusing on investment themes related to absolute returns and risk management.

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"One day your intuition will fail, and you will finally understand that logic is primary above all else. Instinct is simply another term for serendipity."
—Tuvok, Star Trek: Voyager, Rise, 1997

Executive summary

- Nowcasting is to forecasting what astronomy is to astrology. At the beginning of 2014, 72 out of 72 economists "predicted" that US interest rates would rise throughout the year. They fell. One ought to know what one doesn't know. It's always experts—often well-educated professionals who do not suffer from a lack of self-confidence— who do the silly forecasts. It's like the silly people know better.

- Expert failure extends far beyond the investment scene. The problems often reside in man's information processing capabilities. The expert is a serial or sequential processor of data who can only handle information reliably in a linear manner. Experts can not only analyse information incorrectly, they can also find relationships that are not there – a phenomenon called illusionary correlation.

- Research indicates that subjective models are better than an expert's view and objective models are better than subjective models.

- Nowcasting is the economic discipline of determining a trend or a trend reversal objectively in real time. Nowcasting is fact-based, focuses on the known and knowable, and therefore avoids forecasting. Nowcasting is the basis of a robust decision-making process.

- A 'nowcaster' does not try to predict the future but focuses what is known today, i.e., know now in real time. Forecasts are an integral part of orthodox asset allocation and are essentially guesswork. In other words, guessing is an integral part of how assets are allocated and risk is taken. There is an alternative; a focus on facts rather than forecasts. A trend is a fact, whereas a forecast isn't; it's someone's intuition. An institutional investment process focussing on facts seems more logical than an investment process that focusses on intuitions.

- Risk is exposure to change. Nothing lasts forever. The situation will change eventually. Forecasting the change is a mug's game. Nowcasting the change in real time will elevate the investor's conviction in the change and allow for more disciplined and robust—and therefore more intelligent—decision making.

Content

On a personal note

"We are experiencing not only an economic crisis but also a crisis in economics. Most economists failed to predict the current crisis and the economics profession itself has fallen into a state of complete disarray in its attempt to answer the question of what should be done."
—Richard Koo, economist[1]

Introduction

Financial wizardry – a subject easily ridiculed[2]

At the beginning of 2014, 72 out of 72 financial wizards *predicted*, according to Barry Ritholtz, the American *Big Picture* blogger, that interest rates would rise throughout the year. They fell. One ought to know what one doesn't know. Wizards err. Economist John Kenneth Galbraith put it most eloquently:

> *One of the greatest pieces of economic wisdom is to know what you do not know.*

"They will make it through the storm."
—Ben Bernanke, "they" being Fannie Mae and Freddie Mac two months before they collapsed[3]

This means, with regards to the future, we are blind and it is very important that we know we are blind. As Daniel Kahneman (2011) warns in relation to the fascinating *Invisible Gorilla*:

> *Two important facts about our minds: We can be blind to the obvious and also blind to the blindness.*

"The only function of economic forecasting is to make astrology look respectable."
—Ezra Solomon (1920-2002), American economist

(In all modesty, and with only a miniscule trace of pride, your author actually did indeed see the Gorilla—as do about 50% of viewers—when the film was presented by Professor Andrew Lo in Oxford in 2006.) [4]

I like to think that forecasting is to nowcasting—defined and discussed in the second part of this report—what astrology is to astronomy. In an article titled *Cracks in the crystal ball* John Kay, a visiting Professor of Economics at the London School of Economics and op-ed writer, who often hits the proverbial nail squarely on its head by ridiculing the more comical parts of the financial profession, wrote the following in 1995:

Nowcasting is to forecasting what astronomy is to astrology

[1] The Economist, 20 December 2014
[2] Parts of this section draw on material from Ineichen (2011).
[3] "Fannie And Freddie Are Fine, Bernanke Says," Forbes, 16 July 2008.
[4] "The Adaptive Markets Hypothesis: Market Efficiency from an Evolutionary Perspective," Said Business School Finance Symposium, Oxford, UK, 8 November 2006.

Economic forecasters… all say more or less the same thing at the same time; the degree of agreement is astounding. [But] what they say is almost always wrong.[1]

Speaking of crystal balls, a Robert N. Veres has an idea how forecasters should be perceived:

Personally, I think everybody who predicts the future with a straight face should be required (by federal law) to change out of the business suit, wrap him/herself in a gypsy shawl, wear one of those pointed wizard's hats with a picture of a crescent moon on it, and make conjuring sounds over a crystal ball. That way, everybody would know exactly what's going on and how much credibility to give the answer. [2]

"Ignorance per se is not nearly as dangerous as ignorance of ignorance."
—Sydney J. Harris (1917-1986), American journalist

This is 'applied wisdom' at its best. (If an EU bureaucrat were to see this quote, forecasting would be either heavily taxed or regulated away; clearly. It would take years and many summits at taxpayers' expense though.) The practical relevance is that a forecast might or might not turn out to be correct and of value. It is more intelligent to know what one doesn't know (the future) and it is more conservative for most investors to act accordingly, i.e., treat the forecast as a form of entertainment. As Ms. Becky Quick of CNBC's Squawk Box fame put it close to market lows in 2008:

"I should note that the cemetery for seers has a huge section set aside for macro forecasters."
—Warren Buffett[3]

Bottoms are better to watch than to try and catch. [4]

Hindsight allows us to ridicule forecasts that went horribly wrong. Some one hundred years ago it was the automobile that changed everything. One of the all-time greatest forecasts is:

The horse is here to stay, but the automobile is only a novelty—a fad.[5]

The car turned out to be the most important item of the whole industrialisation, changing not only industry and business practice but society by revolutionising its' mobility too. The quote is attributed to the president of the Michigan Savings Bank advising Horace Rackham (Henry Ford's lawyer) not to invest in the Ford Motor Company in 1903. Rackham ignored the advice and bought $5,000 worth of stock. He sold it several years later for $12.5 million. Potentially management consultant Peter Drucker was on to something when we said:

"All truth passes through three stages. First, it is ridiculed. Second, it is violently opposed. Third, it is accepted as being self-evident."
—Arthur Schopenhauer (1788-1860), German philosopher

Forecasting is not a respectable human activity, and not worthwhile beyond the shortest of periods. [6]

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[1] "Cracks in the crystal ball," John Kay, Financial Times, 29 September 1995.

[2] "The Vision Thing" in "Investment Advisor," June 1997.

[3] Berkshire Hathaway, 2003 annual report, 27 February 2004.

[4] "Why Risk/Reward Favors Investors," CNBC Guest Blog, Vince Farrell, 30 September 2008.

[5] Replace the word 'horse' with 'buy-and-hold long-only strategy' and 'automobile' with 'alternative investments' and you pretty much get the attitude of most of academia and traditional asset management from the time around the year 1999, i.e., a time prior to most equity markets halving for the first time in the decade.

[6] Warwick, Ben (2000) "Searching for Alpha – The Quest for Exceptional Investment Performance," John Wiley: New York.

An associate of David Sarnoff (RCA) said in the 1920s that "the wireless music box (radio) has no imaginable commercial value. Who would pay for a message sent to nobody in particular?" In 1940, Theodore van Karman, of the National Academy of Science, said jet engines and rockets would be of no future use because there was no material tough enough to stand up under their high combustion temperatures. Karman changed his mind five years later. In 1955 he said of his 1940 prediction, "What I did wrong was to write it down." In 1943, IBM President Thomas Watson's view was that "there is a world market for maybe five computers." In the same year, Admiral William Leahy of the Manhattan Project said "The bomb will never go off. I speak as an expert in explosives." So much for expert opinions; Peter Ustinov (1921-2004) comes to mind:

"An economist is an expert who will know tomorrow why the things he predicted yesterday didn't happen today."
—Evan Esar (1899–1995), American humourist

> *If the world should blow itself up, the last audible voice would be that of an expert saying it can't be done.*

I could go on; and I will: "Castro will last a year. No longer." Those were quite literally the famous last words by Fulgencio Batista who was deposed by Fidel Castro in 1959. "Reagan doesn't have that presidential look" was the argument of a United Artists Executive rejecting Ronald Reagan as the lead in the film 'The Best Man' in 1964. Margaret Thatcher, quoted in 1974, thought that "it will be years—not in my time—before a woman will become Prime Minister." She became Prime Minister five years later. In 1977, Ken Olson, president, chairman and founder of Digital Equipment Corp., thought loudly that "there is no reason for any individuals to have a computer in their homes." In 1981, Bill Gates, founder of Microsoft, thought that "640K ought to be enough for anybody." Speaking of Microsoft, in 2007 Steve Ballmer, then CEO of Microsoft, mused about the market potential of Apple's iPhone in an interview at a conference:

"There's no chance that the iPhone is going to get any significant market share. No chance."
—Steve Ballmer in 2007

> *Q: People get passionate when Apple comes out with something new—the iPhone; of course, the iPod. Is that something that you'd want them to feel about Microsoft?*
>
> *Ballmer: It's sort of a funny question. Would I trade 96% of the market for 4% of the market? (Laughter.) I want to have products that appeal to everybody. Now we'll get a chance to go through this again in phones and music players. There's no chance that the iPhone is going to get any significant market share. No chance. It's a $500 subsidized item.*[1]

Analysis of the track record of forecasters over the past several decades shows that their long-term technology predictions have been wrong about 80% of the time.[2] Another study quoted by Sherden (1998) found that nearly every prediction was wrong. One bizarre thing about "forecasting" is the following: Nearly all of Captain Kirk's gadgets in the original *Star Trek* series from the 1960s, then science fiction, are in existence today: wireless communication, food replicator, scanners including health scanners, computer tablets, lasers, voice activation, etc. (Teleportation and the warp drive being two exemptions.) This is bizarre because many experts from that time who predicted how the world would look like in the year 2000, made, by the year 2000, complete fools out of themselves. Sherden on the topic:

Kirk: What makes you so right and a trained psychiatrist wrong?
Spock: Because she feels. I don't. All I know is logic.
—*Star Trek*, *Where No Man Has Gone Before*, 1966

[1] 2007 exchange between Microsoft CEO Steve Ballmer and David Lieberman of USA Today at their sixth CEO Forum.
[2] Sherden (1998), p. 169.

> *The main difference between technology forecasting and science fiction is that the former is sold under the pretense of being factual.*[1]

The ultimate and heavily quoted and re-quoted forecast related to investments is from Irving Fisher, Professor of Economics at *Yale University* who was quoted in 1929: "Stocks have reached what looks like a permanently high plateau." With the benefit of hindsight we know today that stocks halved in the years after that piece of scholarly "wisdom" and then halved again and then halved once more before all was said and done. Speaking of scholarly wisdom: A weekly newsletter from the *Harvard Economic Society* from 16 November 1929 argued:

"Forecasting is not a strong side of economics."
—Jan Tinbergen (1903-1994), Dutch economist, awarded the first Bank of Sweden Prize in Economic Sciences in Memory of Alfred Nobel in 1969

> *A severe depression like that of 1920-21 is outside the range of probability.*

This is in clear violation to the wisdom from Galbraith quoted above; one really needs to know what one does not know. Educated (as in book-smart) and successful people can experience ego-inflation throughout their careers. This can cause, apart from arrogance, the lack of open-mindedness and intellectual integrity, i.e., a propensity to dogma and materially reduced tolerance and imagination towards alternative outcomes, views and perspectives. A portfolio manager "who falls in love with his own ideas" is robbed of the ability to cut losses short. This reduces survival probability, i.e., the ability to fight another day. The letter mentioned above ceased publication in 1931, broke because of The Great Depression. Will Rogers; too, recommends caution when it comes to forecasts by economists:

"Jan, the bottom line is, before the end of the year, the NASDAQ and Dow will be at new record highs."
—Myron Kandel, Financial Editor and Anchor CNNfn/Cofounder, CNN April 4, 2000[2]

> *An economist's guess is liable to be as good as anybody else's.*

There is arguably great wisdom and wit in this simple one-liner. This is despite the fact that the economist's presentation of the forecasts is often conducted with great conviction and oratorical brilliance. (We live in a world where you can even talk yourself into Presidency.) It's a show; a form of entertainment. John Kenneth Galbraith distinguishes between two types of forecasters:

"Mostly they [economists] are employed in the financial sector – for their entertainment value rather than their advice."
—John Kay[3]

> *We have two classes of forecasters: Those who don't know – and those who don't know they don't know.*

This quote is obviously a witty variant of Galbraith's wisdom mentioned earlier. (Galbraith was essentially paraphrasing Confucius. The wisdom arguably passes the test of time.) There is much to say that there is great wisdom for an investor to know what he doesn't know. The future is one of these things we do not know. However, we can observe prices, identify trends and assess risk. I believe it makes more sense to base investment decisions on observables rather than pies in the sky and other illusions.

"Real knowledge is to know the extent of one's ignorance."
—Confucius

[1] Ibid., p. 190.
[2] From Covel, Michael (2004) "Trend Following," New Jersey: Prentice Hall.
[3] "Economics – Rituals of rigour," John Kay, *Financial Times*, 25 August 2011.

Illusionary correlation[1]

Forecasting is done by experts. However, experts err. As a matter of fact, experts err predictably and often.[2] The problem of expert failure can be traced to man's capabilities as an information processor. Every human organism lives in an environment that generates millions of new bits of information every second, but the bottleneck of the perceptual apparatus does not admit more than 1,000 bits per second. We react consciously to only a fraction of the information which is given to us.

"Always listen to experts. They'll tell you what can't be done and why. Then do it."
—Robert A. Heinlein (1907-1988), American science fiction writer

Dozens of studies discrediting experts have made it clear that expert failure extends far beyond the investment scene. And the problems often reside in man's information processing capabilities. Current work indicates that the expert is a serial or sequential processor of data who can handle information reliably in a linear manner – that is, he can move from one point to the next in a logical sequence. However, a solution to a complex problem can require configural (or interactive) reasoning. In a configural problem, the forecaster's interpretation of any single piece of information changes depending on how he evaluates many other inputs. The configural relationships of a company or the market place itself are extremely complex. In addition, research in configural processing has shown that experts can not only analyse information incorrectly, they can also find relationships that are not there – a phenomenon called *illusionary correlation*.

"We spend so much time, resources and money trying to see the future. Really, we're spending money to delude ourselves. You have no chance of seeing the future. It's better to recognize that."
—Hugh Hendry, investor[3]

The complexity of the marketplace naturally leads to an attempt to simplify and rationalise what seems at times to be reality. Often investors notice things that are simply coincidental, and then come to believe that correlations exist when none are actually present. And if they are rewarded by the stock going up, the practice is further ingrained. The market thus provides an excellent field for illusionary correlation.

"Fools ignore complexity. Pragmatists suffer it. Some can avoid it. Geniuses remove it."
—Alan Perlis (1922-1990), American computer scientist

Much research indicates that subjective models are better than an expert's view and objective models are better than subjective models. With an intuitive prediction, the expert analyses the case and, intuitively, weights the factors. Subjective models use the expert's skill in making judgements but ignore biases. The subjective model uses the expert's analysis of the factors but derives the weights of the factors through regression analysis. This regression analysis will show how much weight, on average, the experts put on each of the underlying factors. The idea behind this is as follows: When a person makes a prediction, one gets wisdom mixed with random noise. Intuitive judgements suffer from serious random inconsistencies due to human biases and heuristics. The ideal decision process would eliminate the random noise but retain the real insights that underlie the prediction. A subjective model, therefore, eliminates the noise, and retains the core wisdom of the human expert. The objective model goes one step further. Instead of inferring the weights from the subjective predictions of an expert, the weights are inferred statistically from actual past results.[4]

"Wisdom is what's left after we've run out of personal opinions."
—Cullen Hightower (1923-2008), American salesman and sales trainer

Table 1 shows some comparisons between experts' intuition, subjective models, and objective models. Based on the research in Russo and Schoemaker (1989) the

[1] Parts of this section draw on material from Ineichen (1999).
[2] Dreman (1979)
[3] Interview with Steven Drobney at LSE, 31 Oct 2011, from contraryinvesting.com
[4] Russo and Schoemaker (1989)

subjective model is superior to the expert's intuition and inferior to an objective model. Note that the skill of an oncologist estimating life expectancy of cancer patients is actually negative. It's safer to just guess.

Table 1: Different decision models

	Degree of correlation with the true outcomes		
Types of judgements experts had to make	**Intuitive prediction**	**Subjective model**	**Objective model**
Changes in stock prices	.23	.29	.80
Business failures using financial ratios	.50	.53	.67
Life-expectancy of cancer patients	-.01	.13	.35
Academic performance of graduate students	.19	.25	.54
Performance of life insurance salesman	.13	.14	.43
Mean (across many studies)	.33	.39	.64

Source: Russo and Schoemaker (1989)

Nowcasting is more objective than an expert's intuitive prediction

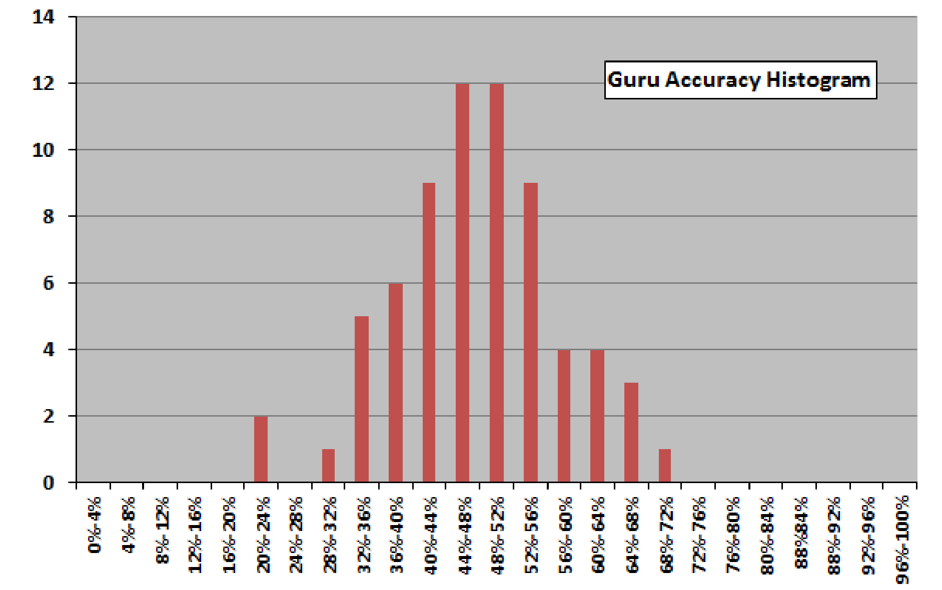
If experts err so badly and are wrong so consistently, will the experts be relieved of their duty to forecast? Probably not. When dealing with volatility and uncertainty, an expert's view is likely to be considered in the decision-making process. Consulting an expert is better than the next best alternative. What is the next best alternative? Alternatives to an expert's view are the view of a non-expert or a fortune-teller. Those might not be considered alternatives at all. However, there is a further alternative: nowcasting. Nowcasting is close to the logic behind what Russo and Schoemaker (1989) call the 'objective model.' A strong point could be made that decision making in finance will become more systematic, disciplined and oriented towards risk rather than returns. Nowcasting might be an important stepping stone on that path.

Making fun of the wizards

It would be entirely inappropriate for me to make fun of forecasters. But someone else did. CXO Advisory, an investment-strategy-testing firm, collected 6,582 forecasts for the U.S. stock market offered publicly by 68 experts, bulls and bears employing technical, fundamental and sentiment indicators during 2005 through 2012.[1] Collected forecasts included those in archives, such that the oldest forecast in the sample is from the end of 1998. For the final report, they have graded all these forecasts.

"By 2005 or so, it will become clear that the Internet's impact on the economy has been no greater than the fax machine's."
—Paul Krugman in 1998

Figure 1: Guru Accuracy Histogram



Source: CXO Advisory

The end results are very consistent with the practitioner's intuition: the accuracy of the forecasts is all over the place. Figure 1 shows a histogram of the accuracy, based on a given methodology and a set of assumptions which are beyond the scope of this report. The distribution is leaning towards the left hand side, i.e., towards failure. The average accuracy *by guru* is 46.9% while the average accuracy *by forecast* is 47.4%. In other words, flipping a coin is actually the more conservative method to forecast.

"You don't need a weatherman; To know which way the wind blows."
—Bob Dylan, "Subterranean Homesick Blues," 1965[2]

The best a guru can do is to predict an extraordinary event, for example a crash. The fame and fortune from that one call can last a lifetime; well, nearly a lifetime. The trick is to make many predictions. By chance, some of them will turn out correct. And if you're lucky, there's a *Big Short* among them. As William Sherden, picking on just one guru instead of many, put it in 1998:

"Only fools, liars, and charlatans predict earthquakes."
—Charles Richter, inventor of the Richter scale[3]

> *A prime example is the stock market guru Elaine Garzarelli, who is said to have predicted the 1987 stock market crash—the worst since the Great Depression. At no time before or after this famous forecast has she ever made any similar long-shot forecasts that proved to be true. In fact, her long-term stock*

[1] Guru Grades, CXO Advisory
[2] John Mauldin, Thoughts from the Frontline, 14 October 2014
[3] Sherden (1998), p. 259.

prediction track record is rather poor, judging from the performance of a mutual fund she ran for seven years.[1]

Sherden also notes that Garzarelli remained bearish far too long; something that arguably sounds rather familiar to contemporary investors. He also analysed the number of correct calls relative to the total and found that Elaine Garzarelli was correct in 38% of the time. This is better than the 72 rates-savvy economists mentioned earlier, but it is still worse than coin flipping.

"The problem with macro (economic) forecasting is that no one can do it."
—Michael Evans, founder of Chase Economics[2]

It's a bit harsh to measure a strategist just by their hits. Personally, I, like most investment professionals, consume a lot of research, much of which adds something to the bottom line in one form or another. Many strategists and gurus are worth paying attention to for their experience (in watching markets, rather than predicting them), knowledge, analysis, and insight. Robert Shiller and Alan Greenspan for instance started to talk about the equity market becoming a bit frothy with their "irrational exuberance" remark in December of 1996. The S&P 500 was around 750 then and doubled to 1500 after the remark. Their analysis was not without merit. It's just that highly educated people are often too bearish too early prior to a major correction and often too bearish for too long after a big correction. It's the same today. Many students of history have been too bearish for equities and bonds over the past 3-4 years. The incentive for a bear to get a *Big Short* correct could be worth the humiliation until it potentially occurs.

"Permabears create high anxiety-but perhaps that is what some customers secretly want."
—William A. Sherden[3]

Whatever the case, following the line of argument of those people is worth most investor's while. (Shiller's irrational exuberant book was published very close to the market peak, a marketing bliss, despite his original call being 4-5 years too early.) However, one of the first things I learnt when doing my CFA was to distinguish between fact and opinion. My recommendation today is to focus on the former and make fun of the latter. Sherden (1998) wrote:

"One of the great mistakes of the past 30 years of economic policy has been an excessive belief in the ability to forecast."
—Martin Feldstein, Harvard economist[4]

Our propensity to believe in predictions consistent with our own beliefs is often exploited by charlatans using what is called the Barnum effect, named in honor of the master showman and trickster who advised other tricksters to 'have a little something in it for everyone.' This tactic is central to the art of astrology, where the believability of predictions or personality analysis is enhanced by including general observations in which customers can see themselves.[5]

A piece of advice that I came across when revisiting Sherden's 1998 book (one of my favourite) is the following by Peter Drucker in 1954. Instead of relying on forecasts, Drucker suggests that management should stress-test their business plans to see if they remain viable under varying economic conditions.[6] While Drucker was referring to investment decisions in business rather than investment decisions in finance, I believe we can adapt that thinking to decision-making in finance easily. Sherden wrote:

[1] Ibid., p. 6.
[2] Ibid., p. 68.
[3] Ibid., p. 123.
[4] Ibid., p. 82.
[5] Ibid., p. 265.
[6] Ibid., p. 80.

> *The best we can do in making such important decisions is to assume that the future economy will be just like it is today (this naive forecast is at least as accurate as economic forecasts) and to be ready to adapt to any radical departure from today's economic conditions, if it occurs.*[1]

This, quite naturally, brings us to nowcasting.

Bottom line

A forecast is biased by definition because it is an opinion. An investment process focussing on facts seems more logical than an investment process that focusses on opinions. Leonardo da Vinci would probably agree with this line of argument where he in risk management research today. In a section with the subtitle *On foolishness and ignorance* Leonoardo wrote:

> *The greatest deception men suffer is from their own opinions.* [3]

"Opinion is ultimately determined by the feelings, and not by the intellect."
—Herbert Spencer (1820-1903), English philosopher[2]

An egomaniac, obviously, would want to beg to differ. What is quite fascinating is that it is nearly always experts (often well-educated people who do not suffer from a lack of self-confidence) who do the silly forecasts. It's like the silly people know better.

[1] Ibid., p. 79.
[2] Social Statics, 1851, Pt. IV, Ch. 30, General Considerations.
[3] The Notebooks of Leonardo Da Vinci, Chapter XIX, Philosophical Maxims. Morals. Polemics and Speculations: On foolishness and ignorance.

Nowcasting

A brief definition

Nowcasting is a reasonably new word; at least in economic finance. It is either the opposite of forecasting or simply a pun on the word 'forecasting'. The term nowcasting is a contraction of 'now' and 'forecasting'. The term is used in both economics and meteorology. A forecaster tries to predict the future. Empirically, this has proven as quite a challenge in many endeavours related to human action; as alluded to in the previous section and as Mark Twain put it in the side text. Table 2 shows some descriptions related to nowcasting. The last one is our own.

"Prediction is very difficult, especially if it's about the future."
—Mark Twain

Table 2: Description of the term 'nowcasting'

Term	Description/definition	Source
Nowcast	Etymology: now + forecast Noun: (meteorology) A weather forecast predicting the weather for a very short upcoming period, usually of a few hours.	wiktionary.com
Nowcasting	('nau̇ˈkast·iŋ) (meteorology) The detailed description of the current weather along with forecasts obtained by extrapolation up to about 2 hours ahead. Any area-specific forecast for the period up to 12 hours ahead that is based on very detailed observational data.	answers.com
Nowcasting	When people wait under a shelter for a downpour to end, they are making a very-short-range weather forecast. They are assuming, based on past experience, that such hard rain usually does not last very long. In short-term predictions the challenge for the forecaster is to improve on what the layperson can do. For years the type of situation represented in the above example proved particularly vexing for forecasters, but since the mid-1980s they have been developing a method called nowcasting to meet precisely this sort of challenge. In this method, radar and satellite observations of local atmospheric conditions are processed and displayed rapidly by computers to project weather several hours in advance.	britannica.com
Nowcasting (economics)	Nowcasting has recently become popular in economics. Standard measures used to assess the state of an economy, e.g., gross domestic product (GDP), are only determined after a long delay, and are even then subject to subsequent revisions. While weather forecasters know weather conditions today and only have to predict the weather tomorrow, economists have to forecast the present and even the recent past. Nowcasting models have been applied in many institutions, in particular Central Banks, and the technique is used routinely to monitor the state of the economy in real time.	wikipedia.com
Nowcasting	1) Select a wide array of indicators that collectively represent the major influences on the economy through history; and 2) combine the signals to estimate and analyse the business cycle in real time.	Picerno (2014)
Nowcasting (finance)	Nowcasting is the economic discipline of determining a trend or a trend reversal objectively in real time. Nowcasting is fact-based, focuses on the known and knowable, and therefore avoids forecasting. Nowcasting is the basis of a robust decision-making process.	IR&M

Source: as stated

A 'nowcaster' does not try to predict the future but focuses what is known today, i.e., *know now in real time*. Many investors are hooked on forecasts. Forecasts are an integral part of orthodox asset allocation and are essentially guesswork. In other words, guessing is an integral part of how assets are allocated and risk is taken. However, when I listen to for example trend-followers, it seems to me that many of them do very well without a forecast entering their investment approach. Trend followers look at prices, not forecasts. A price is a fact, whereas a forecast is not; it's someone's opinion that might or might have merit. A forecast is biased by definition because it is an opinion. An investment process focussing on facts seems more logical than an investment process that focusses on opinions. A fact is a fact whereas an opinion is rather fluffy by comparison, and its merit often only assessable with the benefit of hindsight. (Forecasting is more entertaining than nowcasting though.) James Picerno (2014) wrote:

"If science is defined by its ability to forecast the future, the failure of much of the economics profession to see the crisis coming should be a cause of great concern."
—George Akerlof and Joseph Stiglitz[1]

[1] "Let a hundred theories bloom," Commentary, Budapest, 26 October 2009.

> *Given our limited knowledge about the economy (especially when it comes to the economy's future performance), the main goal is less about predicting what's going to happen vs. reducing the doubt about the current state of macro conditions. This seemingly minor bit of intelligence can provide significant value for estimating the current and near-term threat of a new recession.*[1]

A trend is a fact and is determinable. Momentum is one approach by which a trend can be determined. A trend is either positive or negative; up or down, essentially. This makes investment life a lot simpler. Currently the economic trend in the US is positive and the economic trend in emerging markets isn't. At one level, it's that simple. The odds favour the former and not the latter.

We look at three types of momentum: price, economic (top-down), and earnings (bottom-up). In the following three sections, some aspects related to these three approaches are discussed, starting with price momentum.

"The primary trend is a law unto itself. It will continue until it dies of exhaustion."
—Richard Russell, author of the *Dow Theory Letters*[2]

[1] Picerno (2014), p. 114. Emphasis in the original.
[2] Big Picture, blog, 22 October 2012.

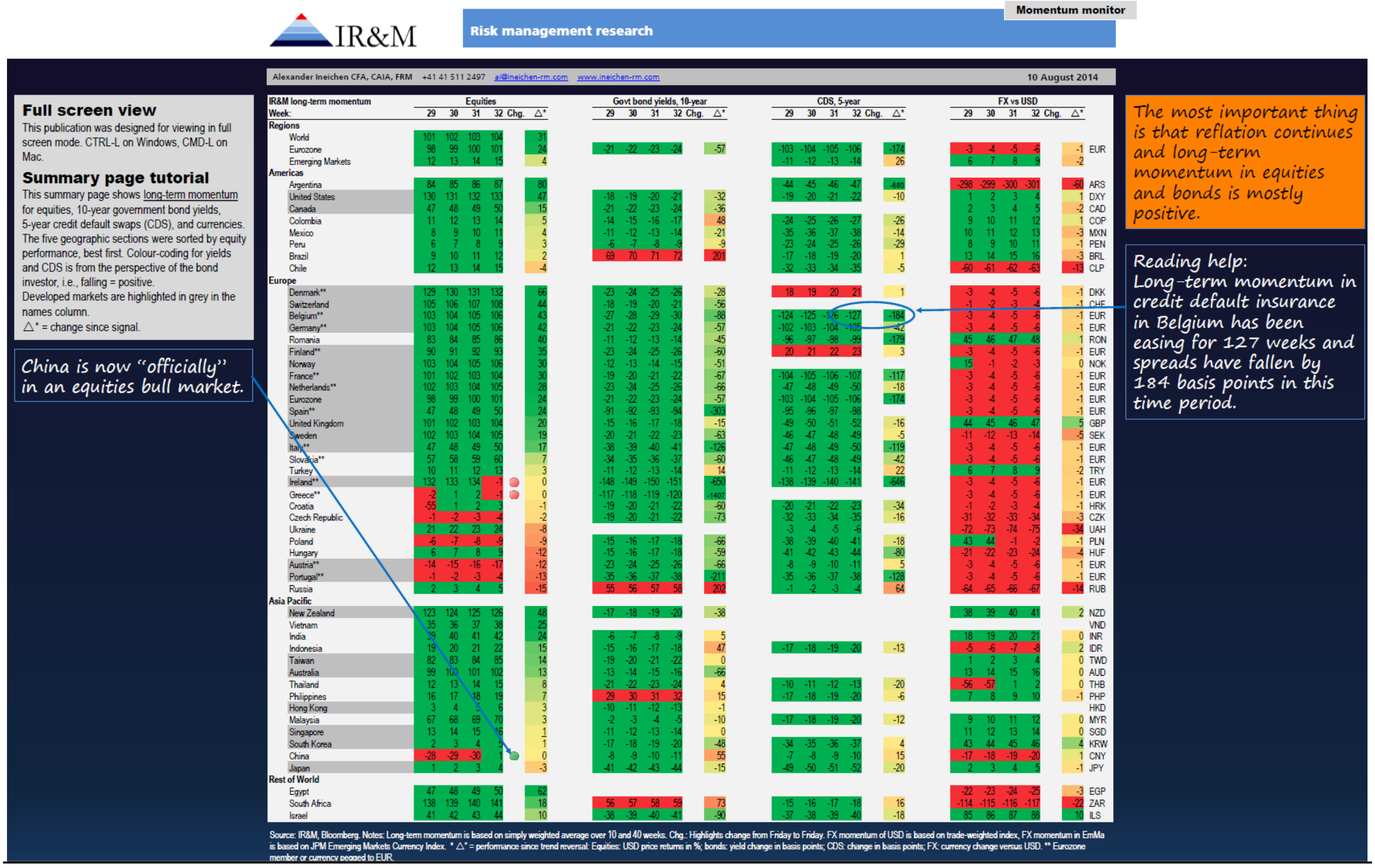
Price momentum

"It ain't over 'til it's over."
—Yogi Berra[1]

Pattern recognition is as old as humanity itself, i.e., depending on ones' beliefs, around 200,000 years old. The distinction between night and day might have been the first pattern to be recognised, it's either or: there's light to hunt or there isn't. Pattern recognition is an important part of learning. Price trends are just a sub-category of pattern recognition. Some of the patterns used by investors today can be traced back to rice futures trading in Osaka in the 17th century.

Figure 1 shows a screen shot from page 1 of our momentum monitor ("MOM") from 10 August 2014. The monitor shows night and day, or, in financial rather can cave-man parlance, positive and negative price momentum. (Methodology of MOM is shown in the Appendix of this report.)

Figure 2: Screen shot of page 1 of momentum monitor from 10 August 2014



Source: IR&M

- China ended a 30-week bear market and entered a long-term bull market in week 32. The Greek stock market entered a long-term bear market around the same time. From 8th August to the end of 2014, the Shanghai Composite gained 47% and the Athens SE General lost 21%.

[1] Howard Marks, Memo to Oaktree Clients, 19 March 2012. In July 1973, when Berra's Mets trailed the Chicago Cubs by 9½ games in the National League East; the Mets rallied to win the division title on the final day of the season.

If the China/Greece example sounds like bragging; it shouldn't. There is still a long way from producing a couple of pages with a lot of numbers and a couple of coloured dots to implementing an investment strategy successfully. Although we all should have bought China A-shares and sold Greek stocks short early August, the main purpose of the momentum monitor is as a tool that adds system and, ideally, an element of discipline to the investment decision making process. (Successful investing is a lot more difficult than producing the momentum monitor every week. I know this from experience.) The first page of the momentum monitor from 10th August informed us that, going forward, we shouldn't be long Greece and shouldn't be short China. The risk management perspective is where *not* to invest. The momentum monitor can add perspective from this angle. The sample above can be thought of as a "go-ahead" for long investments in equities (and bonds) except Ireland, Greece, Czech Republic, Poland, Austria and Portugal.

"We don't have to be smarter than the rest. We have to be more disciplined than the rest."
—Warren Buffett

The monitor also gave a "go-ahead" for Russian equities. The MICEX Index gained 4% from 8th August to the end of 2014. This is true in nominal terms in which the momentum is measured. However, the performance in the fifth column is measured in USD. The index lost 33% in USD in that period. It is for this reason there is a FX section on the right hand side of the page. By week 32 the RUB had been in a long-term bear market for 67 weeks. This is a negative and means, from a practical perspective, one ought to be careful or hedge FX risk or both. In week 32, long-term momentum in Russian (and Brazilian) yields was negative (from the bond investor's perspective) and yields had risen by 200 basis points since the signal, telling us then that "not all was well." Again, the monitor was more helpful in pointing out where not to go (long).

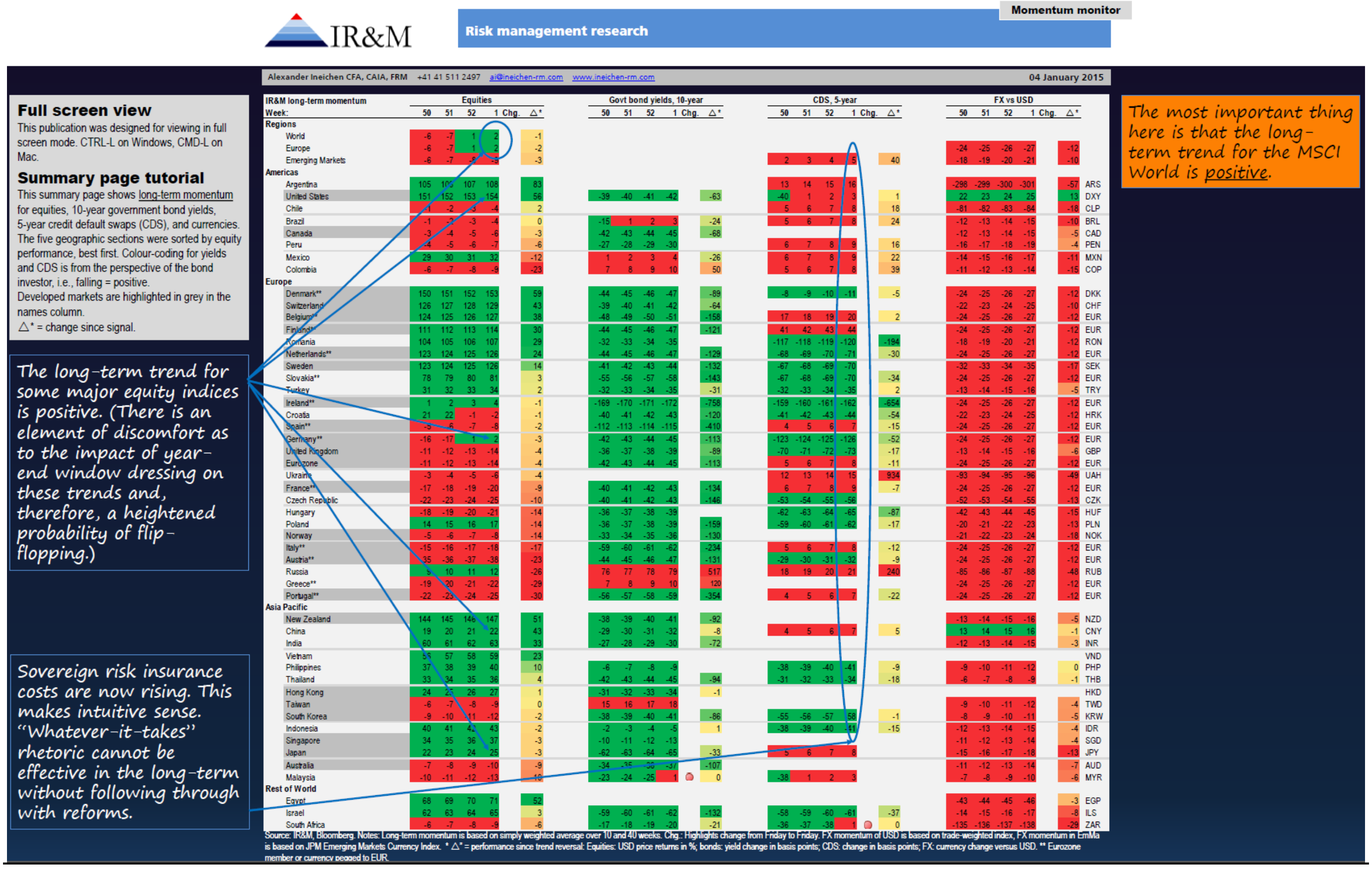
"I took a speed reading course and read 'War and Peace' in twenty minutes. It involves Russia."
—Woody Allen

A further practical use, especially for the speed reader, is the general colour of the whole page. Nearly everything was green; equities going up, yields going down, as well as default insurance premiums falling. The last section, FX, has been mostly red because the various currencies are shown against the USD that entered a bull market (when measured by DXY – a proxy for the trade-weighted value of the USD) in week number 29.

"I took a speed reading course and read the momentum monitor in twenty seconds. It involves markets."
—Nobody

Figure 3 below shows the same page from MOM, as shown in Figure 2, just 21 weeks later, i.e., with closing prices from week 1 of this year.

Figure 3: Screen shot of page 1 of momentum monitor from 4 January 2015



Source: IR&M

- All currencies, except CNY, are in a bear market when measured against USD.

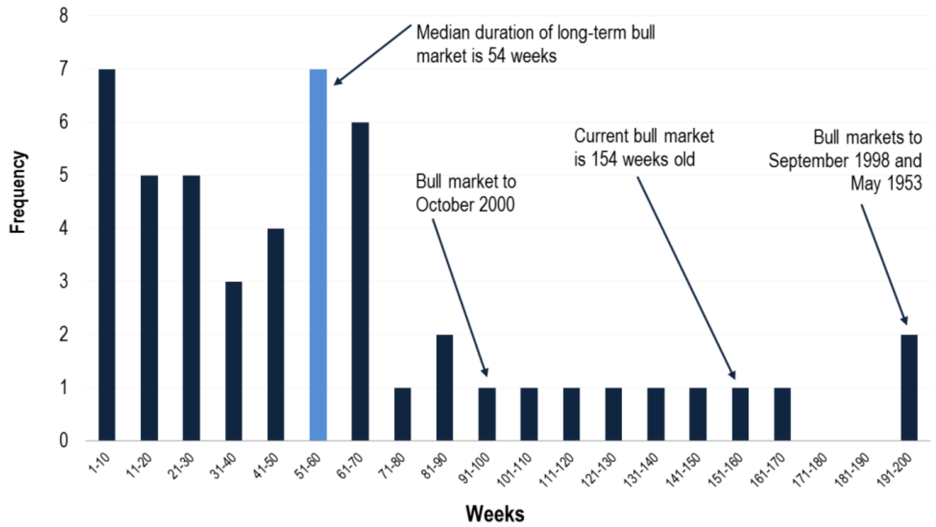
The more recent screen shot is much redder than the one from week 32 shown earlier. For the speed reader this means that not all is well. Some equity markets are in a bear market. This doesn't mean we can predict where prices are going. It means we can determine that the trend is negative. We also do not know how long a bear market will last, for example with the Athens General or the FTSE 100. It tells us though—and this is the practical risk management relevance—that the odds are not 50:50; the odds are stacked against the long investor and are in favour of the short seller. Furthermore, it also tells us that there is differentiation among markets. For a long time this was not the case as centrally planned liquidity infusions lifted all boats. This is relevant for all investors who can go long and short or who can over and underweight regions, markets, asset classes, and sectors.

"The race is not always to the swift, nor the battle to the strong, but that's the way to bet."
—Damon Runyon (1884-1946), American author and journalist

The momentum monitor does not tell us how long a trend lasts unfortunately. One reason why knowing of the trend is still valuable is because trying to forecast the reversal is such a foolish endeavour, as illustrated in the first section of this report. Here's what we know when it comes to a trend, for example the current bull market of the US stock market: We know it's a bull market. We know—and this is important—that we don't know when it ends. Figure 4 shows the frequency distribution of US bull markets of the S&P 500 price index since 1930.

"The bull market will end when it ends, but that is certainly not now."
—Dennis Gartman, The Gartman Letter, 19 September 2013

Figure 4: Duration of positive long-term trends* in weeks since 1930 (S&P 500)



Source: IR&M, Bloomberg
* Long-term trend as defined in IR&M's momentum monitor publication. (Tutorial is reprinted in the Appendix)

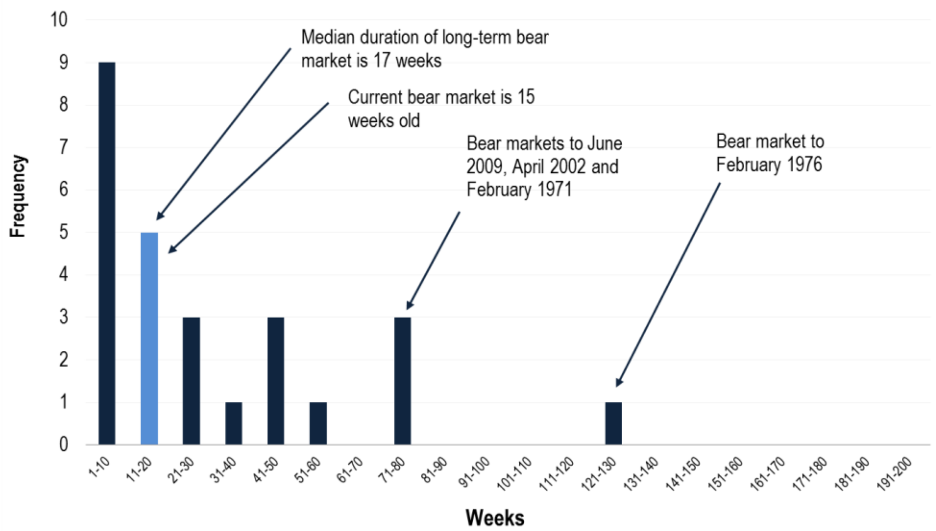
- There were 50 bull markets as per our definition. The median duration of a long-term bull market is 54 weeks, i.e., roughly one year. 25 were 54 weeks or shorter and 25 bull markets were 55 weeks or longer than that.
- The current bull market is in its 154th week as per Friday 2nd January.

"If you're already walking on thin ice, you might as well dance."
—Gil Atkinson (1827-1905), businessman and inventor of the automatic sprinkler

There were only three bull markets that were longer than the current one: 193 weeks to May 1953, 191 weeks to September 1998, and 165 weeks to April 1994. So, statistically speaking, we could argue that the ice is getting thinner (which is a statistical fact, not an opinion or a forecast).

The same logic applies to bear markets. It is foolish to try and predict when they end. They end when they end. The UK equity market has been in a bear market for 15 weeks. Figure 5 shows the frequency distribution analogously to the chart before.

Figure 5: Duration of negative long-term trends* in weeks since 1963 (FTSE All-Share)



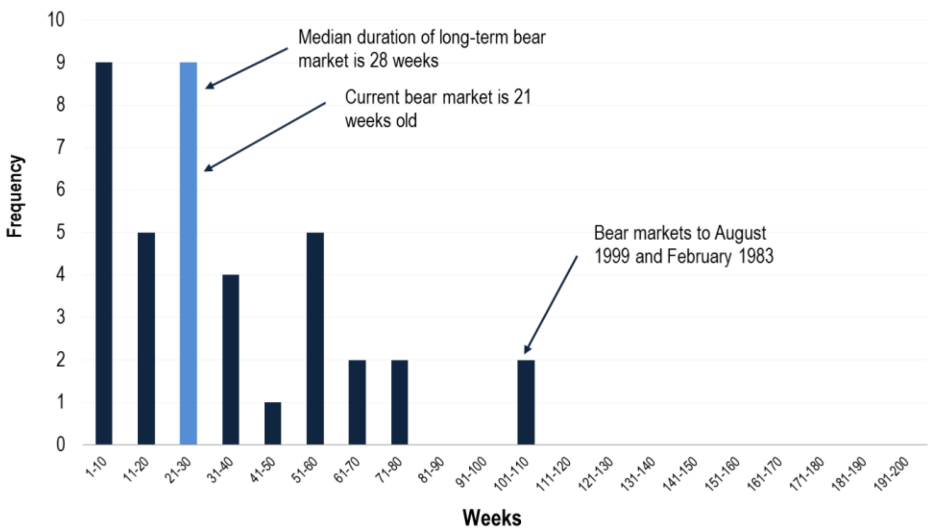
Source: IR&M, Bloomberg
* Long-term trend as defined in IR&M's momentum monitor publication

The current bear market could last a lot longer. Who knows? The practical relevance is that one ought to be more conservative (or hedged or not long at all) in a bear market. In a bear market bad news can have a large impact on price. This is different in a bull market. In a bull market bad news might cause small corrections that are used by the bull crowd to add stock in a generally rising market at lower prices. In a bear market this is much less likely to occur. No one is currently buying oil or Russian Rubble [typo was left as a pun] to add to their falling positions. Yes, at one stage bottom fishing normally kicks in. However, we do not know when. When doing nowcasting, we don't need to know. We will be able to determine when the bottom fishers have become a force to be reckoned with, i.e., we can measure the price reversal, as with the Chinese stock market in week 32 of last year. The price reversal in oil or the Ruble (or anything else) could be in a week, a month, or in 2-3 years, or at any other time.

"Theory is knowledge that doesn't work. Practice is when everything works and you don't know why."
—Hermann Hesse (1877–1962), German born Swiss novelist

Figure 6 shows the frequency distribution of the duration of bear markets in commodities.

Figure 6: Duration of negative long-term trends* in weeks since 1956 (Commodities**)



Source: IR&M, Bloomberg
* Long-term trend as defined in IR&M's momentum monitor publication; ** Based on Thomson Reuters/CoreCommodity CRB Commodity Index and predecessor indices.

- The current bear market in commodities is 21 weeks old. The reversal is anyone's guess.

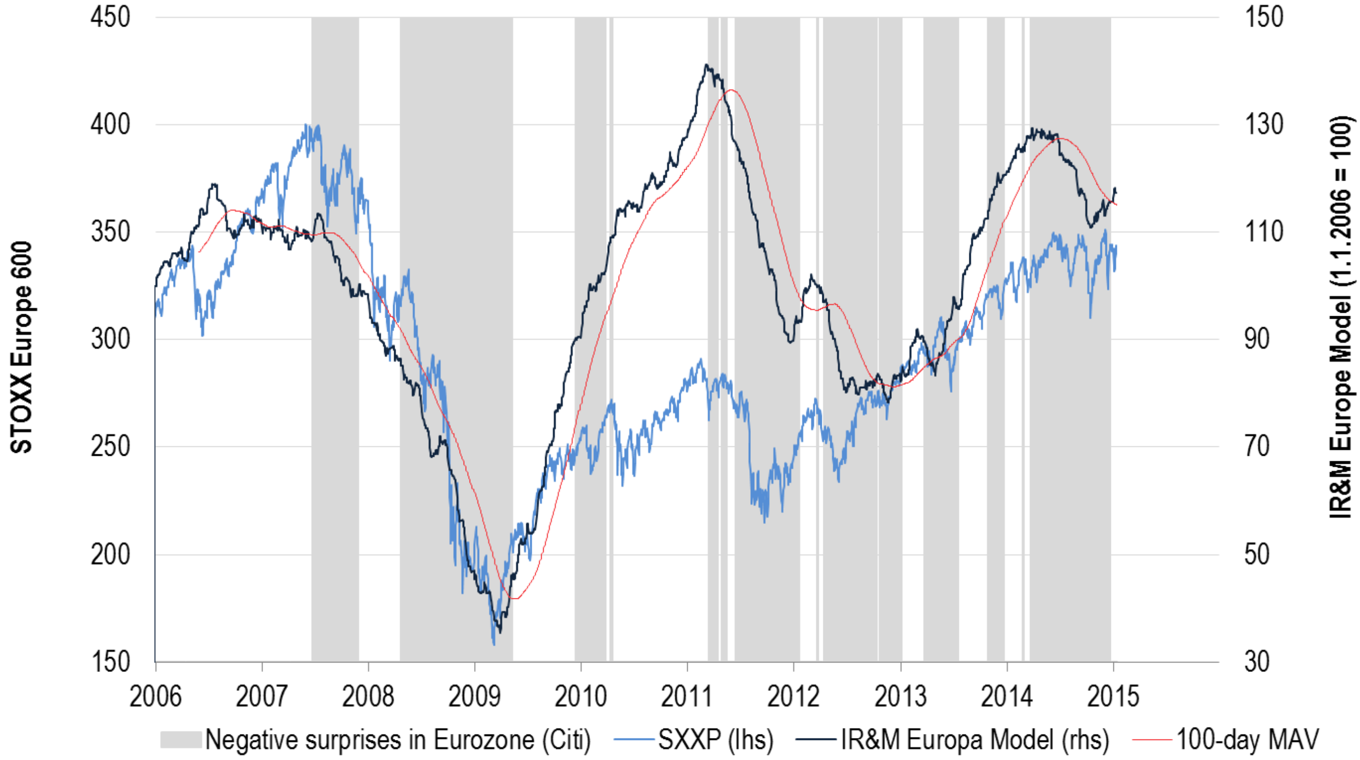
This brings us to economic momentum, rather than momentum that is simply based on price.

Economic momentum

The best way to think about economic momentum is with a sailing analogy in combination with Minsky's instability idea. Every sailor knows that a storm requires a different trim than calmer weather. Our gauge for economic momentum (the thin red line in Figure 7) is designed to indicate whether the economic environment is calm or a storm is brewing. The key is not to predict the next storm but to respond when circumstances start changing. Rough weather at sea doesn't change from one minute to the next. The same is true for a change of the economic winds; normally. There is time to trim the sails. In finance this means being more conservative or hedged when things start to change for the worse, i.e., the red line in the chart starts to fall. The storm's zenith or magnitude and potential damage cannot be predicted in a continuous and robust fashion. However, changing circumstances can be measured and assessed at all times, making decision making more robust. The practical relevance to Minsky's instability hypothesis is that, both at sea and in economics, the current calm is nothing else than the build-up of the next storm.

"Man cannot change the direction of the wind....he can only adjust his sails."
—Sailing wisdom

Figure 7: IR&M Europe (economic) model with STOXX Europe 600 (as of 13th January 2015)



Source: IR&M, Bloomberg

One aspect of economic modelling and our economic momentum approach is that it fails with, or doesn't capture (or is slow to capture), political intervention. Monetary policy has "gained" as a market force under Greenspan and has become more important ever since. Various central banks are battling a currency war; a *race to the bottom*, as some pundits put it. A central bank is not independent but is a part of the administration; it's a political authority. (Central

"It's pointless to bet against the euro. It's pointless to go short on the euro. It's pointless because the euro will stay."
—Mario Draghi, August 2012[1,2]

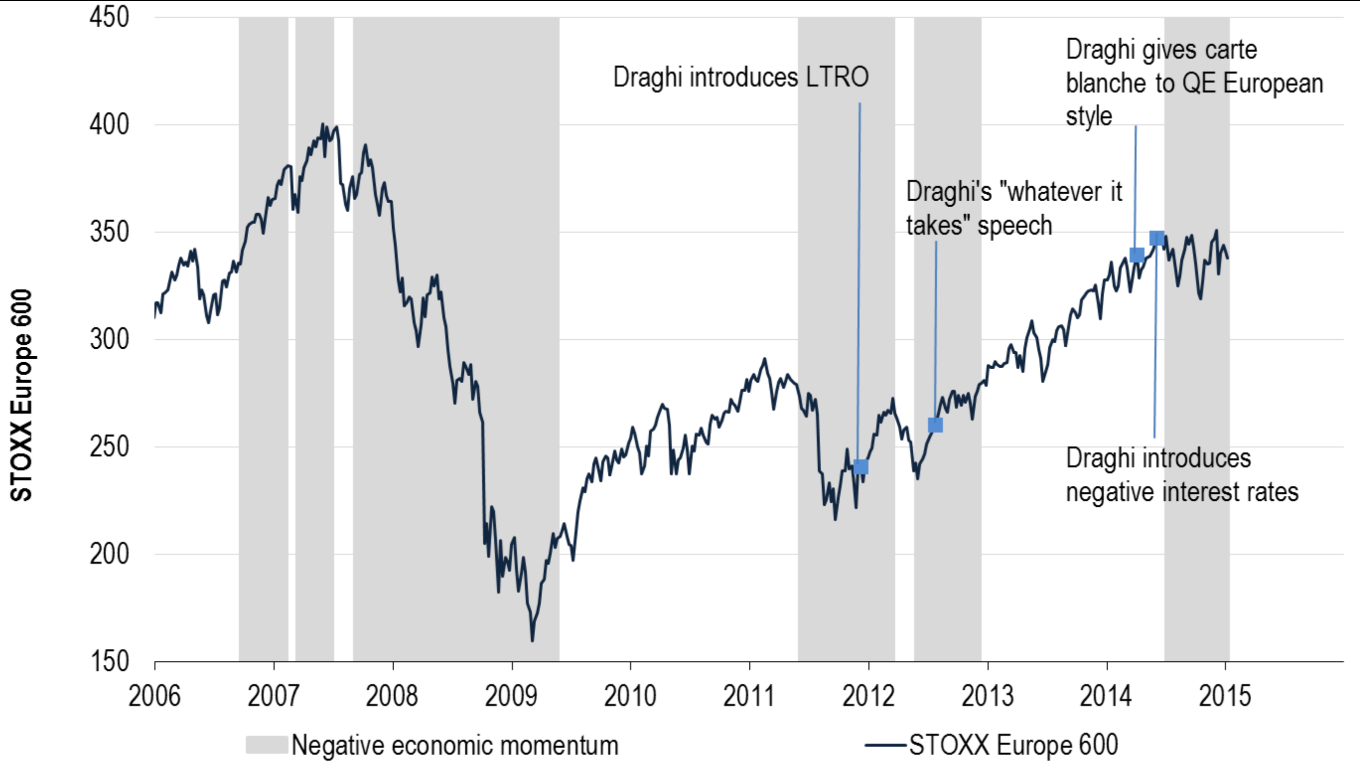
[1] "European Central Bank President Draghi News Conference," Bloomberg, 2 August 2012.
[2] In Ineichen (2011) I recommended "lie watching." If the authorities deny something, the opposite is probably true.

banks are independent in a sense that, if, for example, they run out of paper-clips, they can restock without involving the legislature officially.)

The 'don't fight the Fed' dictum is potentially more important than the economic business cycle or economic momentum for that matter. Furthermore, the dictum is of course applicable to most regions, not just to the US. We pick up this kind of don't-fight-the-Fed momentum with price momentum, not economic momentum. Figure 8 below shows the STOXX Europe 600 Index from Figure 7 where the periods of economic momentum (falling 100-day moving average of economic model) is marked in just one shade of grey. Four important Draghi-limelight dates were highlighted.

"To me, the 'tape' is the final arbiter of any investment decision. I have a cardinal rule: Never fight the tape!"
—Martin Zweig (1942-2013),
US investor

Figure 8: All about Draghi (as of 9th January 2015)

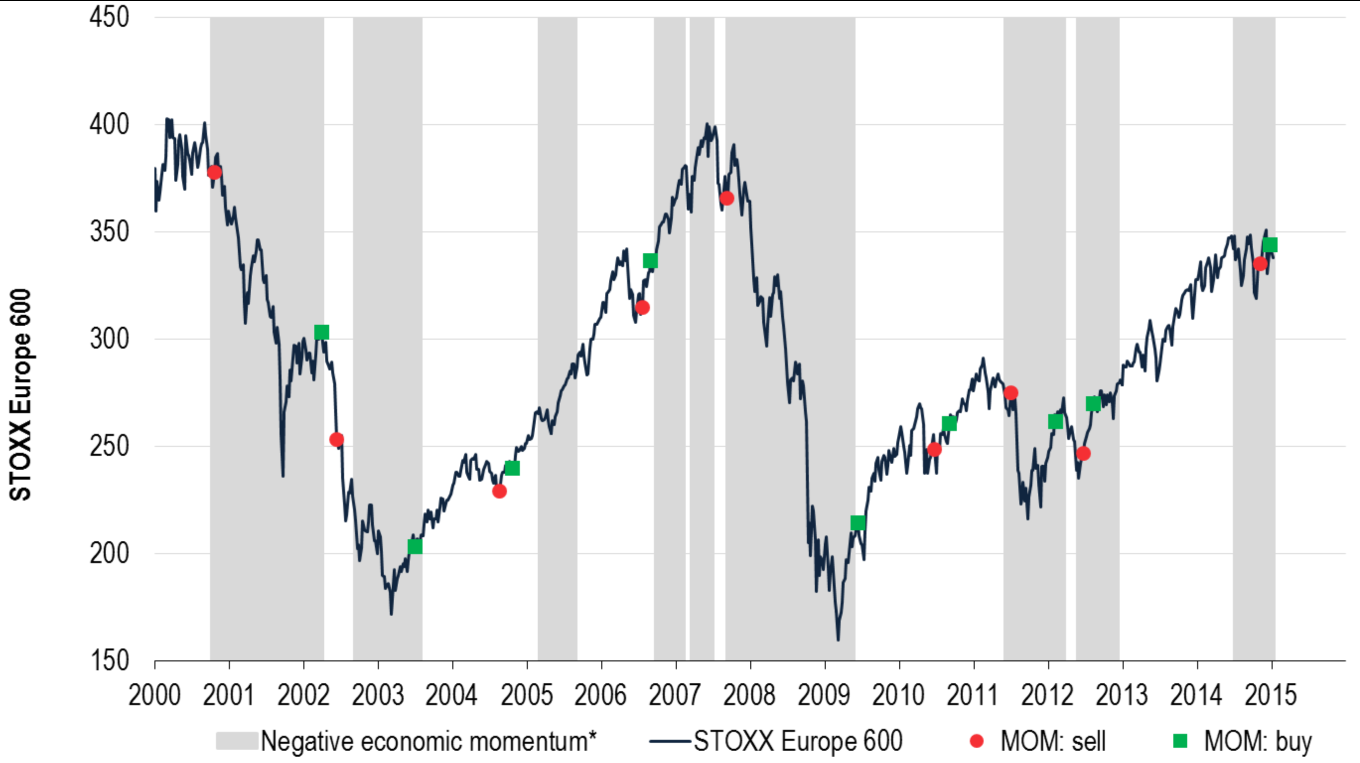


Source: IR&M, Bloomberg

- Economic momentum in Europe turned negative in June 2014 when the STOXX Europe 600 index was around 350. The index was still around 350 at the time of writing, thereby underperforming the US where economic momentum remained positive.

In Figure 9 below the Draghi-limelight dates from Figure 8 are replaced with signals from MOM's long-term price momentum. Figure 9 includes two bear markets instead of just one.

Figure 9: STOXX Europe 600 with buy and sell signals from long-term momentum (as of 2nd January 2015)



Source: IR&M, Bloomberg
MOM stands momentum monitor and the dots represent buy and sell signals of long-term momentum. (See Appendix for methodology.)
* Negative economic momentum from 2000 to 2006 is based on the four-month moving average of the EC Economic Sentiment Indicator Eurozone falling, thereafter our own.

- No system is perfect of course. A price momentum approach never buys or sells at the peak. It captures the middle part. In the bear market of 2008 and the recent bull market this worked well. The best signal was from June 2012 to November 2014, picking up the Draghi-whatever-it-takes bull market very well.
- The best signal on the downside was the 2008 bear market where the sell signal occurred in September 2007 and the re-entry signal in June 2009.
- The worst signal pair was in 2002, buying the index at 300 at the end of March 2002 and selling at 250 mid-June of 2002.

"Investing is an art form that requires probabilistic decision-making using imperfect information about an inherently unknowable future."
—Barry Ritholtz[1]

The most recent signal is a buy signal from 26th December at around 343. This is in conflict with economic momentum falling. In cases like this I like to use a 'tick-the-box-approach to risk management.' When looking at price, economic and earnings momentum, the US has more ticks; 'ticks' as in positive. This means the US is in better shape as it has more ticks. This tick-the-box approach is briefly mentioned in the summary of this report and will be the subject of a future report.

Here's another observation worthy of a mental note: Whenever a long-term price momentum sell signal occurs when economic momentum is negative, it is probably—but not definitely—a good signal one ought not to ignore.

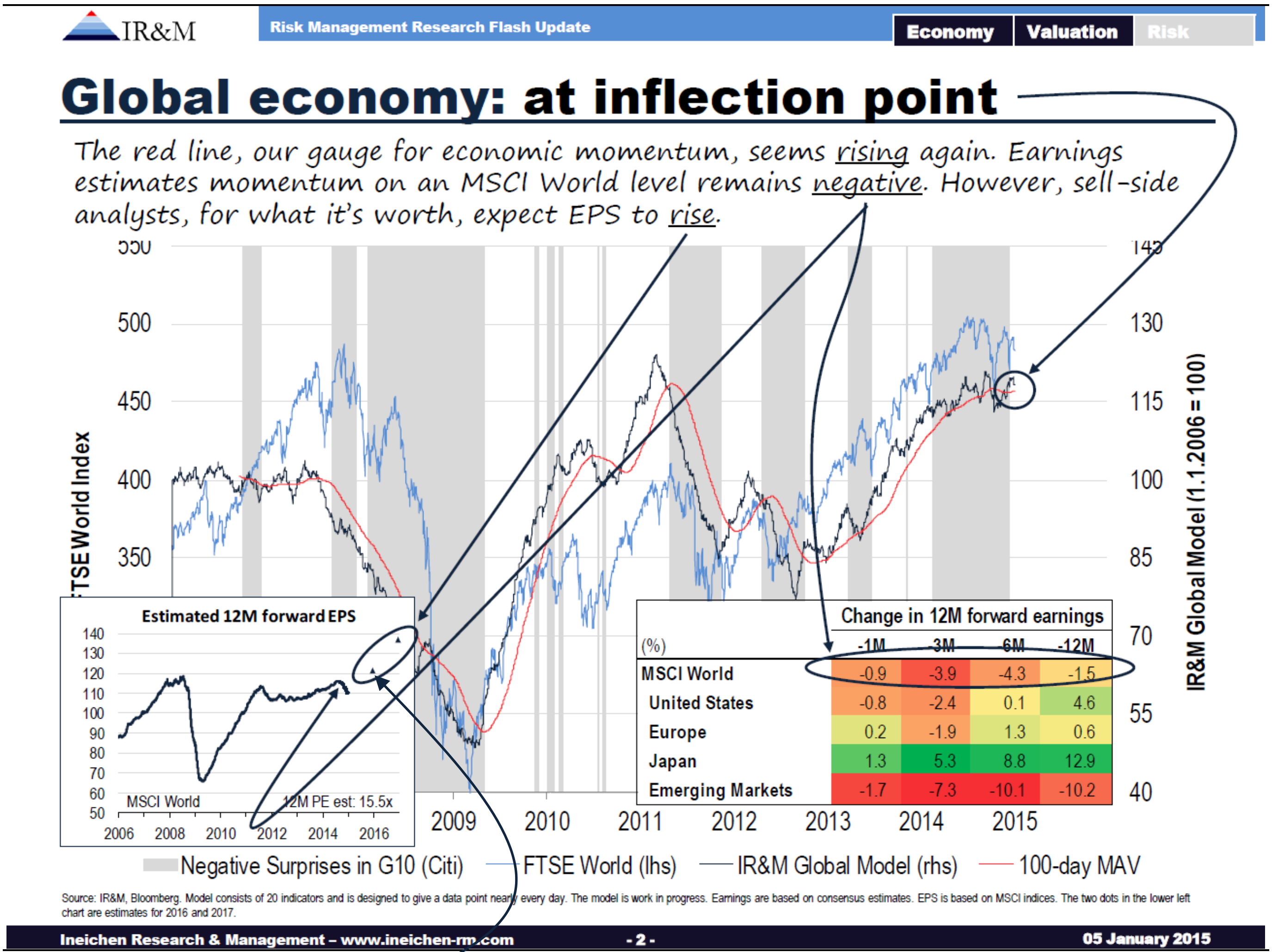
Below earnings momentum is discussed. Earnings momentum is essentially the bottom-up counterpart of the top-down economic momentum idea just discussed.

[1] Athrasher.com, blog, 26 October 2012.

Earnings momentum

The third part of the puzzle is earnings momentum and is based on consensus earnings estimates from sell-side analysts via Bloomberg. More precisely, it's actually a momentum of *earnings estimates*, rather than trailing earnings. The preferred measure is the estimates for the next twelve months on a rolling basis, always hoping that the data provider gets the aggregation right. When looking at estimates it is important to distinguish between fact and opinion, i.e., nowcasting and forecasting. Sometimes we show both at the same time which might or might not be confusing. Figure 10 is a screen shot from our flash update from 5th January showing the economic momentum, earnings momentum as well as some forecasts.

Figure 10: Screen shot from the 5th January 2015 flash update



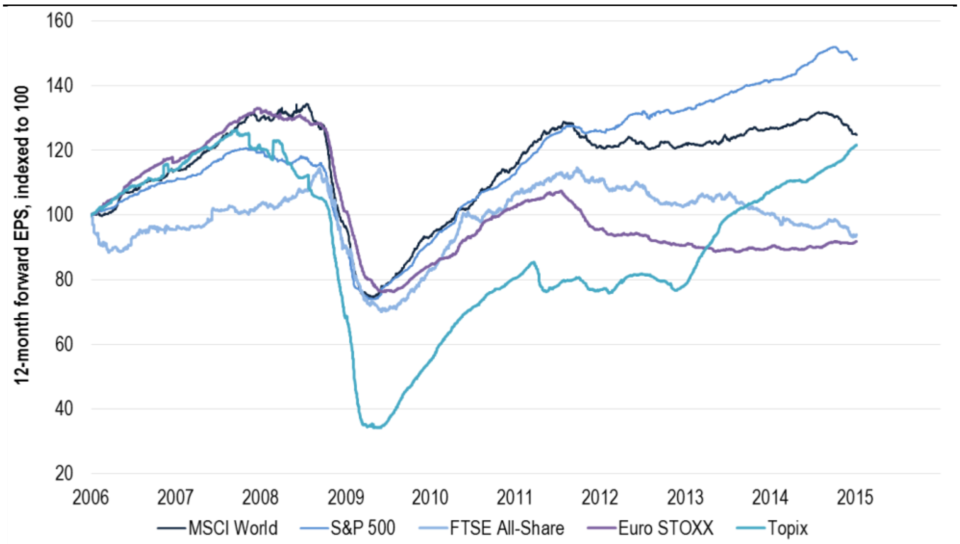
Source: IR&M

The current EPS (earnings per share) forecast (consensus estimate) for the MSCI World Index is 120.8 for the calendar year 2016. This is shown by the first small triangle in the inserted EPS chart in the lower left of Figure 10. The estimate for 2017 is 136.9 which is shown by the second triangle. The line in the inserted chart shows 12-month forward EPS. The 12-month forward earnings per share estimate stood at 110.0 when the chart was done. This means the estimate from 5 January 2015 to 4 January 2016 was 110 resulting in a 12-month forward P/E ratio of 15.5x (as the index was at 1704.7) which is also shown in the chart. I consider the line in that chart as earnings (estimates) momentum and as well as factual. That doesn't mean that the estimates will materialise or that sell-side analysts are good at what they're doing. However, it is a fact that 12-month forward EPS stood at 110.0 on 5th January and at 111.0 one month earlier and at 114.3 three months earlier. This means over one and three months, this measure has fallen by 0.9% and 3.9% respectively. It's a fact, not an opinion or estimate. The trend is down, not up. The percentage changes are also visible in the inserted table in the lower right of the (a bit cramped) slide. (The inserted table also shows changes for some sub-indices and applies a colour-coding that is based on standard deviation, i.e., high standard-deviation falls/rises are red/green while immaterial changes are yellow.) The fall is visible by the line in the inserted chart falling. I consider this as negative earnings momentum.

Earnings estimates trend

Personally I find the top-down analysis more important. In my experience it takes a while from the time the economist or strategist of an investment bank revises his top-line forecast until the sell-side analysts have changed their 900-line-item-earnings spread sheets and these revisions end up altering the consensus estimates at a third-party data vendor. Furthermore, the track record of bottom-up earnings consensus estimates is far from pristine; and this is putting it quite mildly. There are various factors that bias the earnings upwards. (If the investment landscape would exist of 99% short-sellers instead of long-biased investors, the consensus forecasts would be biased downwards, instead of upwards; surely.) The great benefit of looking at earnings momentum, however, is that it is very "trendy;" trendy, not as in hip, cool, chic, etc. but as in continuously moving in one direction, as in trending.

Figure 11: Twelve-month forward consensus earnings estimates (as of 6 January 2015)



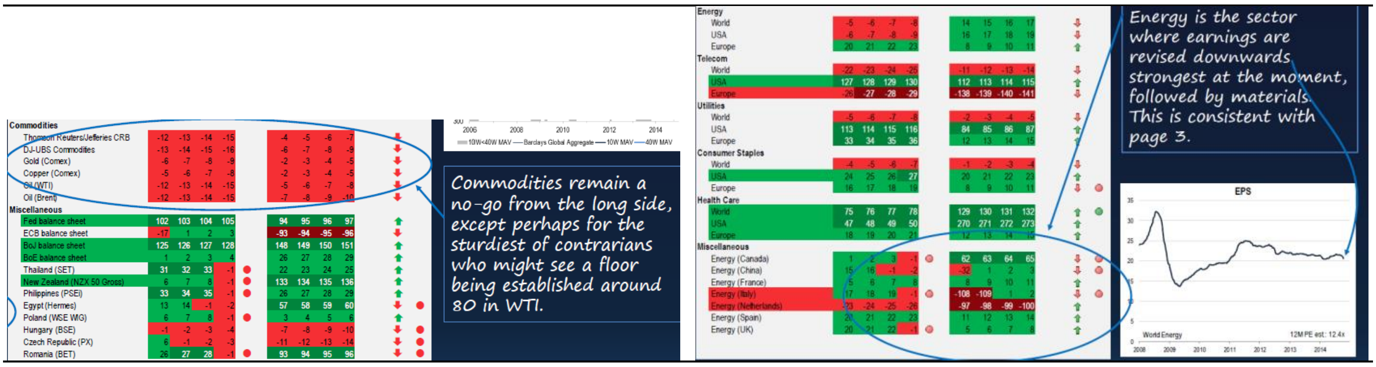
Source: IR&M, Bloomberg

A healthy equity bull market is characterised by multiple expansion and rising earnings

Figure 11 shows this trending feature well: Earnings estimates in the US seemingly went up forever, down forever in the UK, and "nowhere" in the Eurozone. US earnings up, UK earnings down, Eurozone earnings flat were statements that were true for years. It's far better than flipping a coin; or paying heed to expert forecasters, obviously. The practical relevance is that when the US stock market is compared to the one in the Eurozone, the US stock market is turbo charged, i.e., the multiple expansion is accompanied by an additional power boost from rising earnings (estimates). This was not the case in the Eurozone, where a price rise was pure multiple expansion. In the UK falling earnings estimates were an outright negative, working against the multiple expansion. (Note that the ranking of 2014 stock market performance in USD of the five indices in Figure 11 was the same as the ranking of lines in the chart: S&P 500: 11.4%; MSCI World: 2.9%, Topix: -4.9%, FTSE All-Share: -7.9%, and Euro STOXX: -10.8%. Given the somewhat tainted image of bottom-up consensus earnings estimates with some investors, this must be a coincidence; clearly.)

Earnings momentum is also examined in the momentum monitor publication. Figure 12 shows two screen shots, the first from the price momentum page and the second from the earnings momentum page from 20 October 2014. (The first set of numbers count the weeks since medium-term signal occurred, and the second set the weeks since long-term signal. See Appendix on page 29 for methodology.)

Figure 12: Two screen shot of earnings momentum from Momentum Monitor from 20 October 2014 for the week No 42



Source: IR&M

- With the benefit hindsight we would have liked to have made a really big fuss about commodities falling and earnings momentum in energy turning negative in October. The momentum monitor told us where not to go long, i.e., where caution was appropriate. However, it didn't tell us how bad it's about to get.

This means, as mentioned at the beginning of the report, it is important to know what we don't know. We, as investors, all knew that momentum in commodities was negative. We knew that earnings in the energy sector were turning negative. We also knew that some indices had a larger weighting to energy than others, e.g., Canada, UK, etc. All these things were measurable and knowable. We also knew that high standard deviation events are more likely when momentum is negative. However, we didn't know that oil would fall to \$45 and that the S&P 500 Energy Index would lose 7% to January 9th, 2015. This means the magnitude of destruction is unknowable in advance. The monitoring exercise should strengthen the investors' conviction where not to go long, or not to go short; but the Holy Grail of finance it is not. It is valuable to the investor who thinks in probabilities and who distrusts forecasts.

"Strength begets strength; weakness, weakness."
—Dennis Gartman

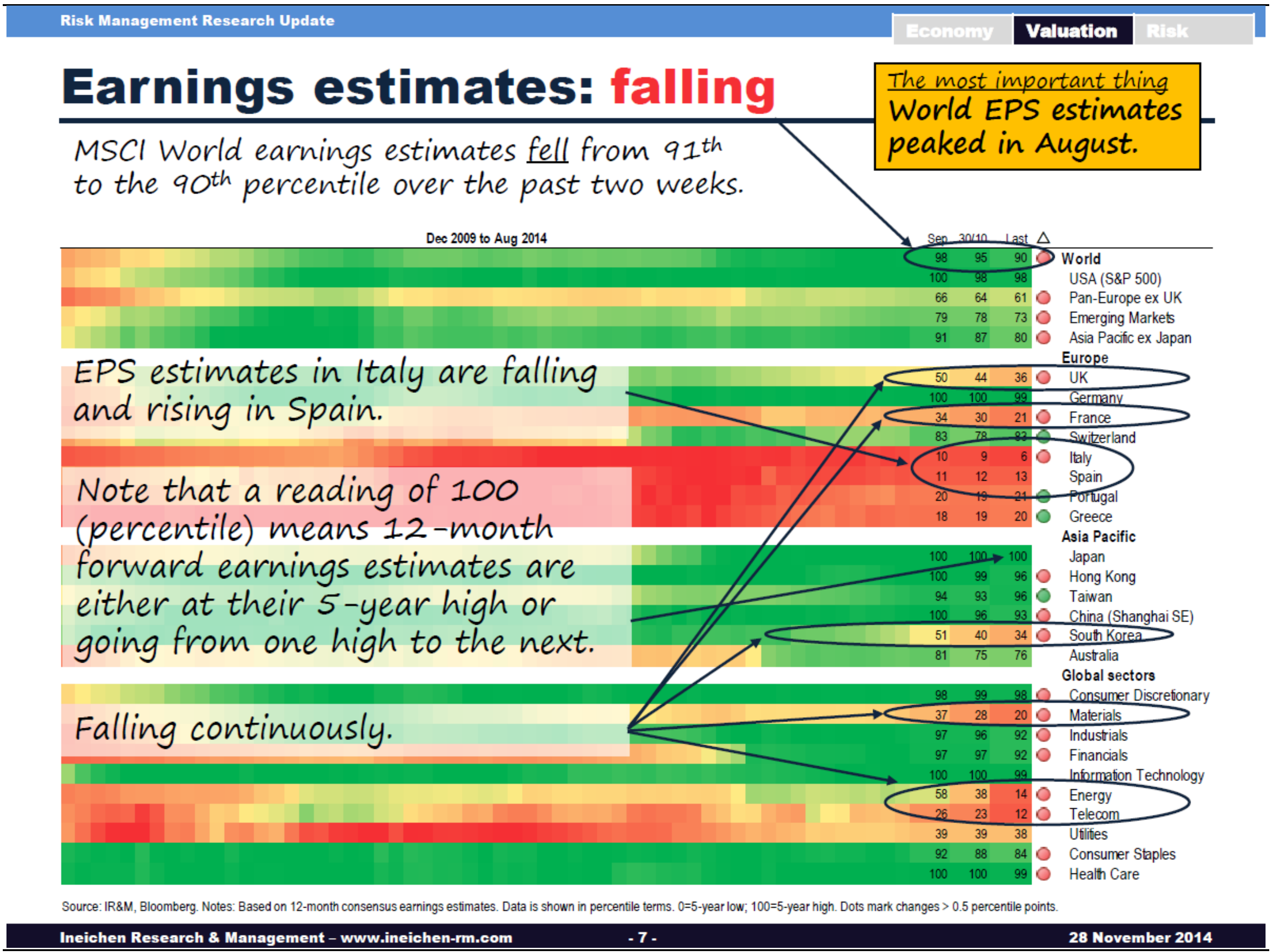
One "issue" I have with the momentum monitor is that there are too many dots, i.e., too many changes. For this reason the summary page 1 was created that only shows long-term momentum, long-term momentum being more important than medium-term momentum for most investors. (The sector page needs a bit of re-design as the most important changes are visible but do not stand out. Ideally, the most important dots should blink. However, that would require time travel.)

"It ain't over till the fat lady sings."
—English proverb

I'm quite happy when the first page has no dots. It makes for a more boring reading, but it makes investment life easier. Earnings in energy are falling until they reverse on day x. We do not know when x-day is; prior to x-day, that is.

Figure 13 below is one way to examine large amounts of earnings data on one page with a particular focus on the most recent change. In the exhibit 12-month forward EPS is expressed in percentile terms over the past five years. A reading of 100 means that 12-month forward EPS estimates are at a five-year high, a reading of 0 means a five-year low. We apply a colour-coding for percentile. If you look at the last column <u>vertically</u>, you can compare different markets with each other. If you look at the lines <u>horizontally</u>, you see the trend of one particular merket. In some markets, e.g., the US, Japan, Germany, Global Information Technology, there is hardly any colour differentiation, it's just green. This means the percentile stayed at 100, i.e., the 12-month forward EPS went from one five-year high to the next. The red and green dots show the change. The speed reader can quickly pick up what is going on by just looking at the relationship between green and red dots.

Figure 13: Screen shot from the 28th November 2014 IR&M risk management update



Source: IR&M

By looking at this slide every two weeks we were able to notice in August that earnings on an MSCI World level were starting to fall. There was no need for forecasting. Spotting the change in wind in August, to remain with the sailing analogy from before, was good enough to trim the sails a bit. Now Newton's first law of motion applies: the trend is negative until there is a 'force' that reverses the trend. EPS in the MSCI World will continue to fall until the trend stops. Who can predict this reversal without wearing a pointed wizard's hats with a picture of a crescent moon on it?

Summary and practical relevance to risk management

There are many definitions for risk. Since the financial crisis we all know that it has very little to do with VaR (value at risk). A definition I came across early in investment life and I believe works well for pragmatists and is applicable to the nowcasting approach is the following:

> *Risk = exposure to change*

"Risk comes from not knowing what you're doing."
—Warren Buffett

This definition[2] is very simple and unscientific but very powerful and has stood the test of time. Risk measurement deals with the objective part. The risk measurer either calculates bygone risk factors, simulates scenarios or stress tests portfolios based on knowledge available today according to an objective (and statistically robust) set of rules. Any assessment of risk is based on knowledge that is available today. Risk, however, has to do with what we do not know today. More precisely, risk is exposure to unexpected change that could result in deviation of one's goals (such as meeting future liabilities, for example). By definition, we cannot measure what we do not know ahead of time. We are free to assume any probability distribution, but that does not imply an objective assessment of risk. The best we can do is to determine the change in real time, i.e., nowcasting.

"Armed with complicated modelling techniques, increasingly powerful computers, and reams of historical market data, a growing number of investors have become entranced with the dream of scientific rectitude. Few recognize, however, that such modelling assumes constancy in market fundamentals."
—Henry Kaufman[1]

A monitoring approach allows to superficially screen large amounts of data and information with the particular focus on change. The status quo is in today's price, an unexpected change isn't. If nothing changes, this approach may result in boring *IR&M risk management updates*. However, as Gordon Gekko never said: "boring is good." As George Soros put it:

Boring is good

> *If investing is entertaining, if you're having fun, you're probably not making any money. Good investing is boring.*

One way to spot change is via a tick-the-box approach. Figure 14 below shows an example for a tick-the-box approach, applying it in this case to a health check of the current US equity bull market. The more red flags; the more does the current situation (last column) resemble previous peaks. In 2000 it was equity valuations that were the red flags and in 2007/2008 the warning signs were macro related. We do not know what the warning signs for the next crash or bear market are. (A momentum approach doesn't capture the risk of expropriation or enforced savings programs which, in the Eurozone, is, if not a major issue, at least worth serious consideration.) By focusing on change, we should be able to notice when the storm is starting to brew. A storm at sea, to stay with the sailing analogy, doesn't start sudden. It changes gradually. There is enough time to trim the sails. The biggest risk is ignorance, i.e., being blind towards the change. This leaves us with *gap risk*, a major, sudden, out-of-the-blue type of risk. If for instance extraterrestrials, for example the Vogons, vaporise, say, New York State; our tick-the-box approach to risk management will have been of little use, as, with the

"Man had always assumed that he was more intelligent than dolphins because he had achieved so much... the wheel, New York, wars, and so on, whilst all the dolphins had ever done was muck about in the water having a good time. But conversely the dolphins believed themselves to be more intelligent than man for precisely the same reasons."
—Douglas Adams (1952-2001), English author[3,4]

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[1] The Recurring Irresponsible Financial Behavior, Remarks delivered before the Carnegie Council, New York City, 20 June 2011, printed in The Gloom, Boom & Doom Report, Marc Faber, 1 November 2011.

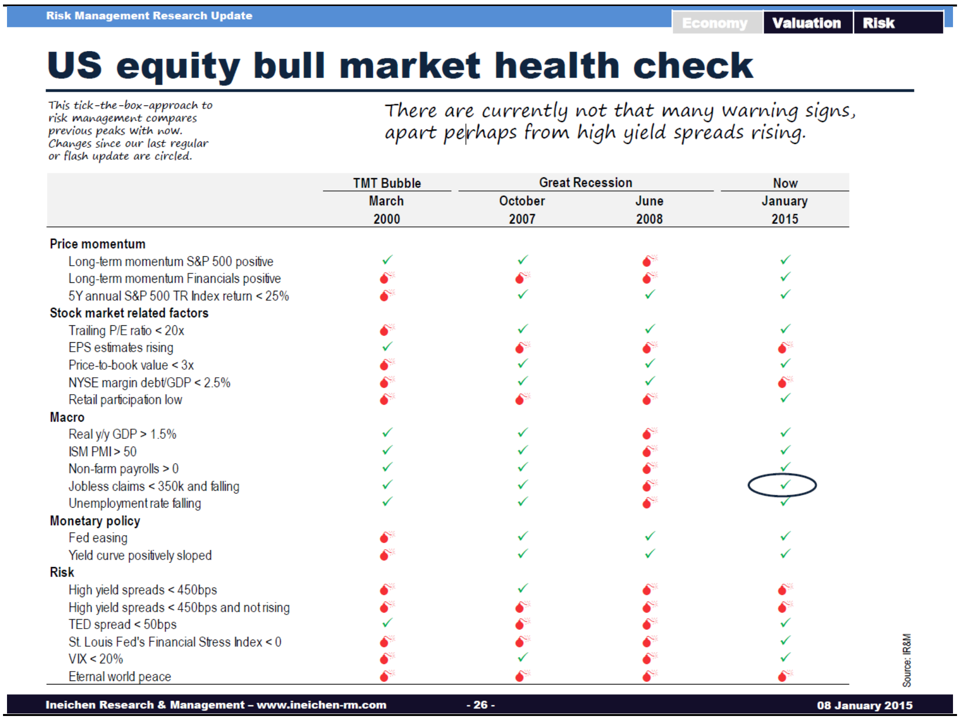
[2] The source of this definition is from the education materials of Chicago-based options trading boutique *O'Connor* that joint ventured with my then-employer, *Swiss Bank Corporation*, in the late 1980s.

[3] The Hitchhiker's Guide to the Galaxy (1979), Chapter 23.

[4] The dolphins knew about the destruction of Earth and left before the Vogons came. They did try to warn people, but no one realised what they were saying. So the dolphins gave one last message and left. The message was: "So long and thanks for all the fish."

benefit a non-New-Yorker's hindsight, we will have to concede not having ticked the right boxes.

Figure 14: Screen shot from IR&M update from 8 January 2015



Risk Management Research Update — Economy | Valuation | Risk

US equity bull market health check

This tick-the-box-approach to risk management compares previous peaks with now. Changes since our last regular or flash update are circled.

There are currently not that many warning signs, apart perhaps from high yield spreads rising.

	TMT Bubble	Great Recession		Now
	March 2000	October 2007	June 2008	January 2015
Price momentum				
Long-term momentum S&P 500 positive	✓	✓	💣	✓
Long-term momentum Financials positive	💣	💣	💣	✓
5Y annual S&P 500 TR Index return < 25%	💣	✓	✓	✓
Stock market related factors				
Trailing P/E ratio < 20x	💣	✓	✓	✓
EPS estimates rising	✓	💣	💣	💣
Price-to-book value < 3x	💣	✓	✓	✓
NYSE margin debt/GDP < 2.5%	💣	✓	✓	💣
Retail participation low	💣	💣	💣	✓
Macro				
Real y/y GDP > 1.5%	✓	✓	💣	✓
ISM PMI > 50	✓	✓	💣	✓
Non-farm payrolls > 0	✓	✓	💣	✓
Jobless claims < 350k and falling	✓	✓	💣	✓
Unemployment rate falling	✓	✓	💣	✓
Monetary policy				
Fed easing	💣	✓	✓	✓
Yield curve positively sloped	💣	✓	✓	✓
Risk				
High yield spreads < 450bps	💣	✓	💣	💣
High yield spreads < 450bps and not rising	💣	💣	💣	💣
TED spread < 50bps	✓	💣	💣	✓
St. Louis Fed's Financial Stress Index < 0	💣	💣	💣	✓
VIX < 20%	💣	✓	💣	✓
Eternal world peace	💣	💣	💣	💣

Source: IR&M

Ineichen Research & Management – www.ineichen-rm.com - 26 - 08 January 2015

Source: IR&M

In summary, we can apply the three types of momentum discussed above to the current market environment applying the tick-the-box approach. GDP and industrial production were added, with little effect on the bottom line though.

Table 3: Tick-the-box summary (as of 9th January 2015)

	US	UK	Europe*	Germany	Japan
Price momentum					
Long-term momentum main index positive	✓	💣	✓	✓	✓
Long-term momentum Financials positive	✓	✓	✓	✓	✓
Long-term momentum 10-year yields falling	✓	✓	✓	✓	✓
Long-term momentum 5-year CDS spreads falling	✓	✓	💣	✓	💣
Long-term FX momentum rising	✓	💣	💣	💣	💣
Economic momentum					
IR&M economic momentum positive	✓	💣	💣	💣	💣
GDP y/y growth > 2%	✓	✓	💣	💣	💣
Industrial y/y production > 3%	✓	💣	💣	💣	💣
Earnings momentum					
Long-term momentum main index positive	✓	💣	✓	✓	✓
Long-term momentum Financials positive	✓	✓	✓	💣	✓
Bottom line					
Sum of ticks	10	5	5	5	5

Source: IR&M
* Momentum in 10-year yields, 5-year CDS spread, FX as well as GDP growth and industrial production refer to the Eurozone.

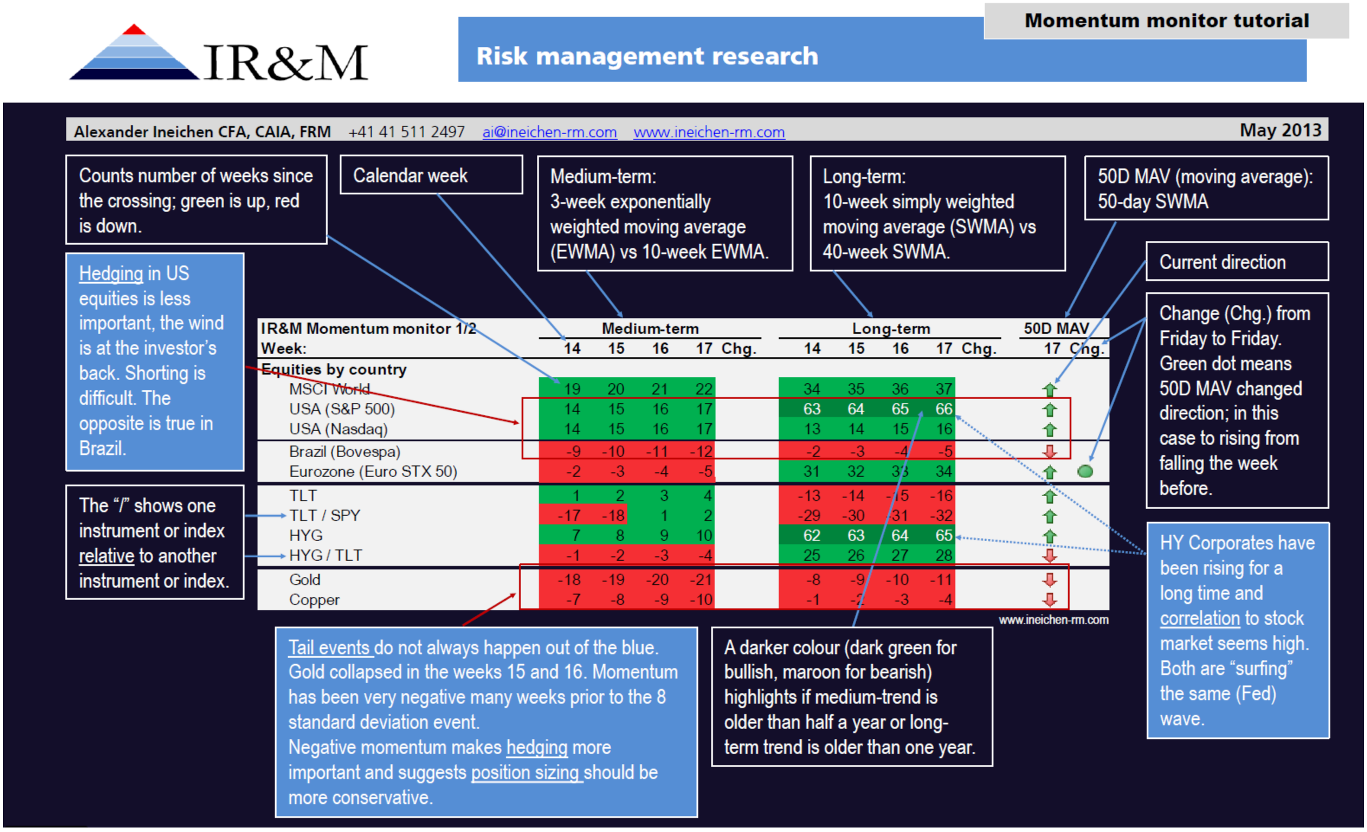
- The US remains supreme, or, as Denis Gartman put it last October, "the quickest draw in a gun fight of 85 year olds."

Nothing lasts forever. The situation will change eventually. Forecasting the change is a mug's game. Nowcasting the change in real time will elevate the investor's conviction in the change and allow for more disciplined and robust—and therefore more intelligent—decision making.

"Skill is successfully walking a tightrope over Niagara Falls. Intelligence is not trying."
—Anonymous

Appendix

Momentum monitor tutorial



IR&M Momentum monitor 1/2	Medium-term					Long-term					50D MAV	
Week:	14	15	16	17	Chg.	14	15	16	17	Chg.	17	Chg.
Equities by country												
MSCI World	19	20	21	22		34	35	36	37		↑	
USA (S&P 500)	14	15	16	17		63	64	65	66		↑	
USA (Nasdaq)	14	15	16	17		13	14	15	16		↑	
Brazil (Bovespa)	-9	-10	-11	-12		-2	-3	-4	-5		↓	
Eurozone (Euro STX 50)	-2	-3	-4	-5		31	32	33	34		↑	
TLT	1	2	3	4		-13	-14	-15	-16		↑	
TLT / SPY	-17	-18	1	2		-29	-30	-31	-32		↑	
HYG	7	8	9	10		62	63	64	65		↑	
HYG / TLT	-1	-2	-3	-4		25	26	27	28		↓	
Gold	-18	-19	-20	-21		-8	-9	-10	-11		↓	
Copper	-7	-8	-9	-10		-1	-2	-3	-4		↓	

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Publications

Risk management research (subscription based)

Lack of boldness	8 January 2015
Trapped in Waterworld	17 December 2014
Concrete ideas wanting	28 November 2014
Another 'whatever it takes' moment	14 November 2014
Take tranquilisers	30 October 2014
Wide uncertainty as experiment ends	16 October 2014
Risk clearly on the downside	30 September 2014
The 4% rule applied (report)	**26 September 2014**
We're done	12 September 2014
No reform	29 August 2014
Time for caution	14 August 2014
Bad equilibrium	18 July 2014
Make no mistake	4 July 2014
Rekindled financial romance	18 June 2014
Economic World Cup 2014 (report)	**6 June 2014**
Illegibly incomprehensible	4 June 2014
Seriously concerned	16 May 2014
Inflationary complacent	1 May 2014
Awaiting further accommodation	15 April 2014
Sleeper pins (report)	**11 April 2014**
Underpricing geopolitical risk	28 March 2014
Small cushion	14 March 2014
Fragile improvement	28 February 2014
Recovery far from complete	14 February 2014
Boring middle years	31 January 2014
Boldly going where others have gone	17 January 2014
Trends remain in place far longer	6 January 2014
Everything mean reverts	20 December 2013
Positive momentum mode	4 December 2013
Blue skies and red flags	19 November 2013
Walking a tightrope (report)	**6 November 2013**
Tapering off the table	21 October 2013
Uncertainty matters	8 October 2013
No dope no hope	26 September 2013
Change spotting (report)	**19 September 2013**
More fragile than it looks	13 September 2013
Fragile growth	30 August 2013
In remembrance of caution	15 August 2013
Growth surprises, not taper timing	2 August 2013
Highly accommodative (report)	17 July 2013
Tapering-off talk tapering off	1 July 2013
Mispriced bubbles	18 June 2013
All they know	3 June 2013
Pretty shocking	17 May 2013
No understanding – no assurance	3 May 2013
IR&M momentum monitor (inaugural issue and tutorial)	3 May 2013
A new dimension (report)	19 April 2013
A bit of friction here and there	4 April 2013
As long as it takes	22 March 2013
…	
Repressionomics (report)	**18 January 2013**
No risk (report)	**26 October 2012**
Wriston's Law of Capital (report)	**10 July 2012**
What makes bears blush (report)	**11 April 2012**
Europe doubling down (inaugural report)	**3 October 2011**

IR&M's risk management research consists of 25-30 risk management updates, 20-30 flash updates, 45-50 momentum monitors and 4-8 thematic reports per year.