You Can't Be Half Pregnant!

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TrackMacro ™ is a software tool providing equity risk signals in 40 countries

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In the last two months, TrackMacro successively flipped from 'blue' (risk on) to 'red' (risk off) in many equity markets, then back from 'red' to 'blue' at the end of December. In other words, TrackMacro became unstable on a short time scale. Such a behavior raises many questions that this note intends to address:

- What happened in December?
- Are the new equity 'risk on' signals statistically founded?
- Why is TrackMacro switching so abruptly?
- Instead of radical 'risk on' and 'risk off' signals, could or should the system provide more nuanced appraisals?

What happened in December?

President Donal Trump signed into law a $1.5 trillion tax overhaul package and promised to unveil soon his proposal for a massive infrastructure package. Most energy and transportation indices skyrocketed in anticipation of accelerating US and world growths.

TrackMacro, which expressed doubts in November about the strength of world trade, reversed its view in December. Many countries were then close to their equity tipping points, and the reversal of a diffusing rule was sufficient to gain access to the other side of the mountain, and re-enter favorable equity territory.

Are the new equity 'risk on' signals statistically founded?

Signals' flips from 'blue' to 'red', followed by reversed signals the following month have happened in the past. History suggests that TrackMacro was right to switch back to equities on the third month in these occurrences.

Table 1. Third-month equity returns, when TrackMacro switched from 'blue' to 'red', then back from 'red' to 'blue' over a period of two months.

Country	Equity Index	Nber of occurences	3rd month average return
USA	SPX	20	1,7%
Germany	DAX	17	2,1%
UK	UKX	13	2,7%
Japan	TPX	16	1,8%
China	SHCOMP	8	-1,0%
India	SENSEX	14	4,4%
Rusia	RTS	5	23,9%
Brazil	IBOV	7	2,6%

Why is TrackMacro reversing its positions so abruptly?

Percolating clusters in neural networks are groups of neurons that are connected to most of the network. They act like hubs, rapidly diffusing information that is relevant on a systemic basis. Within TrackMacro, the hub combines world liquidity in USD and world trade in volume.

When percolating clusters oscillate—and if neurons with local synaptic connexions are not firing enough—the whole network tends to flip. Percolating clusters are essential in their ability to detect phase transitions and critical regimes. They are equally used to demonstrate pathological behaviors such as epilepsy or schizophrenia.

Instead of radical 'risk on' and 'risk off' signals, could or should the system provide more nuanced appraisals?

This is an entropic question about TrackMacro's ability to provide more information than it currently delivers. The answer requires scientific concepts, but let's start with an example from our daily lives.

Do you prefer tea or coffee?

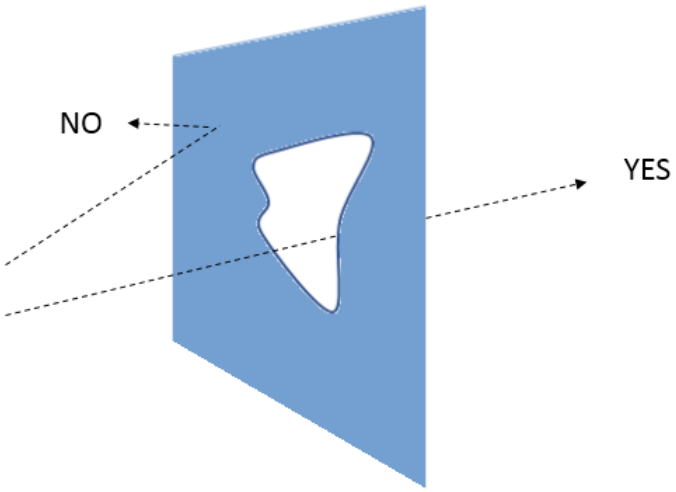
You might feel like drinking coffee in the morning, and tea in the afternoon (or vice-versa), but the very goal of the question is to collapse overlapped, entangled and sometimes contradictory feelings into a single, mutually-exclusive, black-or-white answer.

The answer expresses a preference at a certain point in time, regardless of the degree of imbalances between feelings. When feelings translate into actions or facts, this 'grey' information is lost in the process. The 'collapsing' black-or-white effect results from interaction with someone or something.

In quantum physics, particles are overlapping waves of probable and contradictory states, which collapse—or not—into a 'real' object, when interacting with a measuring instrument. The act of measuring is similar to asking a closed question about a preference. It can be represented by a "filter", which is a mathematical operator acting like an opaque screen pierced with a hole.

The question is then translated as: are you passing through the hole? If yes, you do exist at this position in space-time; if no, you don't.

Fig 1. A physical measure is like an opaque screen pierced with a hole

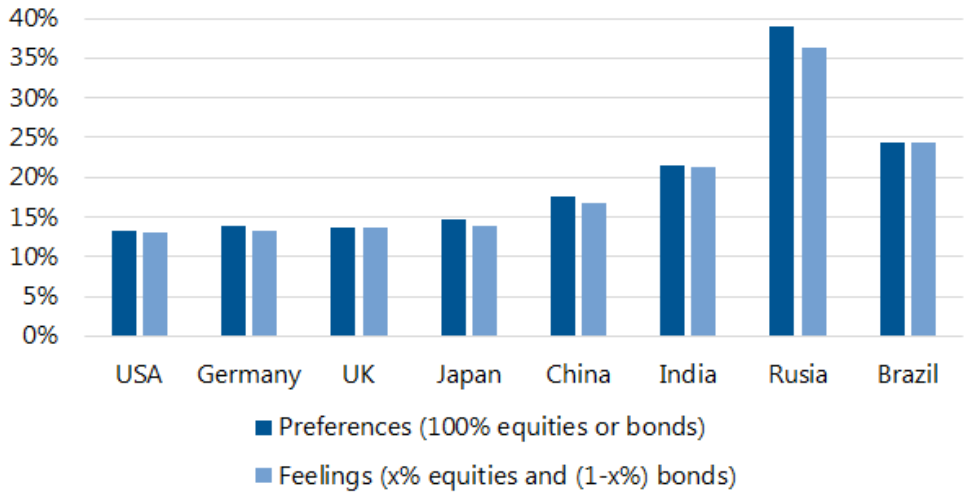


John Van Neumann was the first physicist to consider that such operators, named projectors, allowed the measure of any physical object. These operators share a unique property: applying twice an operator P has the same effect as applying it once. The opaque screen and the hole remain unchanged. In other words: P= P*P. And only two numbers verify this property: 0 and 1 (0=0*0 and 1=1*1). If 0 means "No" and 1 means "Yes", then filters collapse multiple feelings into binary preferences, and waves into physical objects.

TrackMacro is a measuring instrument. The "feelings" are the seven macro rules combining multiple and sometimes contradictory risk states. The "preference" for equity vs. risk-free asset results from the collapse of state functions into a binary answer.

Let's now increase the neural network's degrees of freedom, so that it expresses feelings instead of preferences. TrackMacro's answer then becomes something like 70% in favour of equities and 30% in favour of risk-free, instead of 100% preference for equities. The system's results are surprisingly extremely similar.

Fig 1. TrackMacro's annual returns when using radical or nuanced risk signals



The conclusion is that nuanced appraisals and contradictory feelings feed the human thinking process, the way TrackMacro does, but provide no added value when it comes to making decisions. TrackMacro is a measuring instrument, acting like a projector on equity risk states. As in quantum physics, reality—when measured—says that you can't be half pregnant.