Random noise and stylised facts in a Sznajd world.

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It is well understood that,within human organizations (including markets),opinion dynamics play a key role . Sznajd consensus model is based on the assumption that couples of similarly acting agents may easily induce their 'neighbours' to do the same. At 'zero temperature' (i.e.if no random factors influence the dynamics), this model always leads to total consensus when the updating process is performed in a randomly sequential fashion [1] [2]. The case with synchronous updating is more complex. The system may not reach a total consensus state because of frustration [3]. The introduction of memory [4] or (perhaps more surprisingly) of an appropriate amount of random noise [5] may partly overcome that problem.

It's reasonable to think of random noise as a measure of independence of thought (or degree of connection). We assume the agents to adjust their degree of connection and, as a consequence, their local behaviour in response to global events such as volatility shocks. Under these assumptions, we implement a synchronously updated Sznajd model on a two-dimensional square lattice and we show to what extent it may lead to a plausible description of financial market stylised facts.

References

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