Quantitative Finance > Risk Management

WARNING: Physics Envy May Be Hazardous To Your Wealth!

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The quantitative aspirations of economists and financial analysts have for many years been based on the belief that it should be possible to build models of economic systems - and financial markets in particular - that are as predictive as those in physics. While this perspective has led to a number of important breakthroughs in economics, "physics envy" has also created a false sense of mathematical precision in some cases. We speculate on the origins of physics envy, and then describe an alternate perspective of economic behavior based on a new taxonomy of uncertainty. We illustrate the relevance of this taxonomy with two concrete examples: the classical harmonic oscillator with some new twists that make physics look more like economics, and a quantitative equity market-neutral strategy. We conclude by offering a new interpretation of tail events, proposing an "uncertainty checklist" with which our taxonomy can be implemented, and considering the role that quants played in the current financial crisis.

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