There must be a hundred better definitions, unless one favors perceptual relevance. Statistics require detrending, as data providers tend to pick modes (nominal, percent change, indexed, sum, average, etc.) or parameters (price, time, relevant unit) that back their assertions, yet might be statistically irrelevant or mathematically meaningless. The Lotka-Volterra (1925-26) ordinary differential equations were originally employed to study predator-prey dynamics in theoretical biology. Minsky’s “Long Cycle” is typified in the BIS chart by the US financial cycle’s pattern of greater amplitude waves (characteristic of unstable feedback systems) that forms over decades, as the proportion of Debt to GDP rises exponentially with each oscillation. “Predator-prey dynamics” equations have been applied in economic theory, since at least 1967, when Richard Goodwin used Kolmogorov’s version. Their application to Minsky’s Long Cycle was first proven by Asada in the late 90s, then Keen and others.

What separates science from non-science is the margin for interpretation. Though Economics introduced many appealing concepts since Adam Smith’s original theories, static assumptions continue failing to describe the powerfully nonlinear nature of human interaction. Yet, two decades into the 21st-century, we continue to apply grossly inadequate arithmetic recipes to manage our global resources, while knowing, for instance, that a pair of simple ODE developed in the 1920s can trace the High vs Low Exponential IRR patterns underlying the Financial vs Business cycles. Hence, instead of serving billions of people, Economics has become a snake-charmer’s quintessential magic wand (aside from his mandatory 64,000 crayon-case of Misleading Indicators).

Curiously, submitting Economics to scientific rigor could save the lives of millions. As the real dynamics governing Economics become obvious to everyone, illusionists like those presently devastating Venezuela, Argentina or Brazil would be rapidly recognized. Even G-7 central-bank intentions would become instantly transparent: For instance, on the BIS chart above, notice that since the 70s, the US financial and business cycles have traced the predator-prey dynamics pattern of unstable focus (a system that keeps moving away from equilibrium after any initial shock), better known today as Minsky’s “Long Cycle”.

The good news is human economics follows laws common to every living creature. The bad news is Minsky’s “Long Cycle” tracks “top-down controlled” predator-prey dynamics: As unlimited bailouts by central banks/governments make unlimited predation possible, the predator (Debt) to prey (GDP) proportion escalates exponentially with each cycle, until it depletes prey size (Capital plus annual income). Surprisingly, over the nearly five centuries since the advent of Information Symmetry (Capitalism), Bottom-Up Controlled Resource Competition keeps escalating, while cyclically relapsing each 40-60 years, back to a pre-capitalist, Top-Down Controlled dynamics. Our goal is to show the global economy is currently ending a Top-Down Controlled cycle. Yet, in this note, I only intend to address some of the fundamental notions implied by the extraordinary fit of Minsky’s Long Cycle model to the BIS chart shown above.

Oswaldo Lairret
CEO SEQUOIAN FINANCIAL GROUP
CIO SISTEMIC RISK AVERSE FUNDS

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6 See details in Arditi-Ginzburg’s 1989 (“ratio dependent”) version of Lotka-Volterra’s predator-prey dynamics