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The Limits of Monetary Policy Effectiveness, Implied by Abel's Impossibility Theorem.

The effectiveness of the Federal Reserve to guide the U.S. economy is limited, if it seeks to control the dynamics of five or more economic factors that exhibit sufficiently complex interactions. The proof assumes a Keynesian model of the economy that generally searches to correct its forecasting and coordination errors of real output, excess stock returns, inflation, and long and short real interest rates, as the economic model is continuously perturbed by random supply shocks. The stochastic steady state of this five dimensional system of stochastic differential equations cannot be easily computed. The problem according to Abel is that the quintic characteristic polynomial of the unperturbed dynamic system cannot be generally solved in a finite number of algebraic computations. But there is a simple solution to find economic equilibrium if the Fed properly targets real interest rates. In this specific case the characteristic matrix of the unperturbed economic system can be constructed to be triangular. Then the economy's search for equilibrium speeds up.

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