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Mark DeSantis* (mjd34@pitt.edu), 301 Thackeray Hall, Pittsburgh, PA 15260. *Asset Price Dynamics: Differential Equations and Instability.*

Recent events have demonstrated the importance of studying asset prices through a dynamical systems model that allows for a variety of price-influencing factors. Our large-scale statistical data studies provide evidence for the inclusion of these factors. This system of differential equations admits a one-dimensional curve of equilibria. Local stability analysis is achieved via the Routh-Hurwitz criterion, which shows the existence of parameter regimes that yield stable and unstable regions of equilibria. From a global perspective, numerical studies have shown trajectories may take large "excursions" from unstable to stable equilibrium points. These large price excursions can be used as a new tool for studying risk. (Received September 21, 2010)