

# Title: The Macrodynamics of Debt Deflation

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## ABSTRACT

With the recent events of the large scale financial crisis in some parts of the world and the slowly declining inflation rate in major OECD countries debt deflation has again become an important topic in economic research. In models with debt issuing firms, financial their investment, we explore the interaction of high nominal levels of debts, output prices, increase in real debt and declining economic activity. This destabilizing mechanism is explored in the context of small scale as well as large scale Keynesian demand constrained model economies. In both model types labor market dynamics are emphasized. Our principle conclusion is that the small scale as well as the large scale models are prone to accelerating downward instability caused by over-indebtedness and declining prices if the process is not stopped by floors to deflation by appropriate government policies.

In the general large scale model of the paper we in particular reconsider extensions and modifications of earlier work on disequilibrium models of AS-AD growth. This general dynamic model exhibits more or less sluggishly adjusting prices and quantities, Keynesian demand rationing and fluctuating capacity utilization for both labor and capital. Firms use debt and pure profits to finance their investment expenditures. We first prove that the resulting 7D core dynamics are convergent broadly speaking for low adjustment speeds. We then demonstrate partly analytically and partly numerically that their interior steady state will lose asymptotic stability by way of so-called Hopf bifurcations, at first generating persistent fluctuations, but giving way to purely explosive dynamics later on, when relevant adjustment speeds are made sufficiently large. This holds in particular for the debt; falling investment and shrinking economic activity that deepens the deflation already under way. This instability result even occurs in the case where accompanying real wage increases would support economic stability.

**Keywords:** Keynesian AS-AD growth, Price and wage flexibility, Stability, Hopf bifurcations, Cumulative debt deflation.

**JEL Classification:** E12, E32