

How high can inflation get during hyperinflation? A transaction cost demand for money approach

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Abstract

We develop an inflationary finance model where transaction costs of the type suggested by [Barro, R., 1976. Integral constraints and aggregation in an inventory model of money demand. *Journal of Finance*, Vol. 31, pp. 77–87] are assumed. The model implies that there is a single unstable steady state. This result is in sharp contrast to those of traditional inflationary finance literature in which there exists the possibility of dual steady states and a high-inflation trap. In our model, inflation increases at an increasing rate along the hyperinflationary path, as it does during hyperinflationary episodes, until it reaches an upper bound. Moreover, we show that the inflation rate reaches a higher upper bound when the country is more financially developed and private resources are larger. © 1998 Elsevier Science B.V. All rights reserved.

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1. Introduction

Most of the inflationary finance models developed in literature (Evans and Yarrow, 1981; Kiguel, 1989; Bruno, 1989, Bruno and Fischer, 1990, among others) are built on Cagan's demand for money. Under perfect foresight those models imply the possibility of dual equilibria and the existence of a high-inflation trap, which means that inflation does not explode.¹ Inflationary finance models follow the traditional approach to studying hyperinflationary periods, which considers such episodes (Cagan, 1956; Sargent and Wallace, 1973, etc.) as simply monetary phenomena that can be studied by focusing only on the money market.²

This traditional approach has recently been challenged because it fails to explain many of the stylized facts of hyperinflation. For instance, Buiter (1987), Dornbusch et al. (1990), and Bernholz and Gersbach (1992) emphasize that hyperinflation is better described as an unstable dynamic process where inflation speeds up. Other papers consider new approaches to account for the changing behavior occurring during hyperinflation. This changing behavior, among other things, includes individual financial adaptation (Mondino et al., 1996), learning (Marcet and Nicolini, 1996), currency substitution (Sturzenegger, 1994), and new individual trading patterns (Casella and Feinstein, 1990).

The aim of this paper is three-fold. First, we develop a transaction cost demand for the money model under perfect foresight, which accounts for explosive inflation. Second, we show that the model proposed in this paper exhibits a single steady state in sharp contrast to the duality implied by Cagan's model. Third, we analyze the existence and the factors determining the upper bound of the rate of inflation during hyperinflation.

In this paper we derive a demand for money from a model with a generalized transaction costs technology of the type suggested by Barro (1976), trying to bridge the gap between the approach developed by Casella and Feinstein (1990) and inflationary finance literature. This is attempted in two steps. First, we assume that transaction costs (TC) are all resource costs. Second, we follow Dowd (1990) by including the wage rate as an argument in the TC function. The idea is to capture the value of time hypothesis (VTH), which establishes that if money saves

¹ A microeconomic foundation of the traditional inflationary finance model and a review of the model dynamics were derived in a previous version of this paper. They can be obtained from the author upon request.

² In Cagan's own words "Hyperinflations provide a unique opportunity to study monetary phenomena. The astronomical increases in prices and money dwarf the changes in real income and other real factors... Relations between monetary factors can be studied, therefore, in what almost amounts to isolation from the real sector of the economy." Evans and Yarrow (1981) (p. 61) define hyperinflations as "...periods during which fluctuations in prices are considered sufficiently large as to be analysed independently of output changes."

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