Two simple models of monetary expansion

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Abstract In this paper, I describe and compare two simple models of monetary expansion. The paper ends with "The End"

Introduction

Financial economies sometimes face the economic choice to increase the supply of money in the economy. Successful monetary expansion is generally a quick phenomenon as prolonging it is generally risky for the economy. Two broad but simple models of monetary expansion are described below:

The basic model of monetary expansion

The money supply is increased from X to Y. Define $k = \frac{Y}{X}$
There are two opposing market forces in play.
Expansionary market forces are characterized by $Y = X(1 + e)$
Contractionary market forces are characterized by $X = Y(1 - c)$
The model **suggests** that equilibrium values $\bar{c}$, $\bar{e}$ and $\bar{k}$ satisfy the following equations:

$$\bar{c} = \frac{\bar{e}}{1 + \bar{e}} \; ; \bar{k}^2 = \frac{1 + \bar{e}}{1 - \bar{c}}$$

Policy-making using the basic model

The second equation suggests that an estimate of a **marketable** amount of monetary expansion k^* can be obtained by first estimating the values of $\bar{e}$ and $\bar{c}$ from economic and financial data. The first equation serves as a check to **discover** more data and/or take **necessary** economic action.

Flaws of the basic model

The basic model is flawed since it completely ignores the demands of the financial sector of the economy, as well as the constraints of various futures, forwards and options on the money of the economy embodied through the financial sector. These demands and constraints are generally both **coupled** and **dispersed** and generally can't be **reliably** captured through the estimation of $\bar{e}$ and $\bar{c}$

The slack model of monetary expansion

The money supply is increased from X to Y. Define $k = \dfrac{Y}{X}$
There are two opposing market forces in play.
But there is also the financial sector that demands a **slack** to hedge risk.
Expansionary market forces are characterized by $Y = X(1 + e) + s$
Contractionary market forces are characterized by $X = Y(1 - c) + s$
Elimination of the slack variable leads to the following equation:

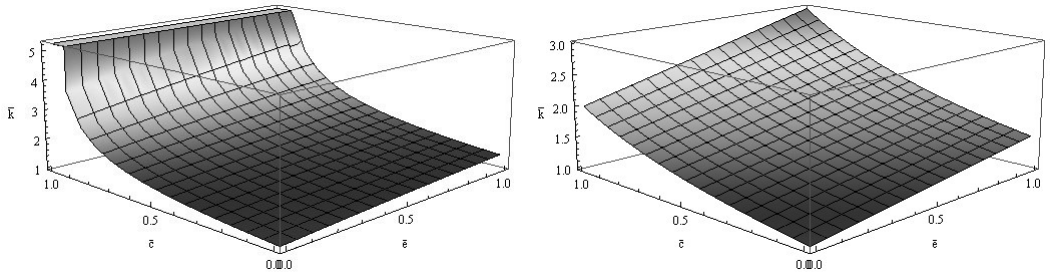
$$\bar{k} = \frac{2 + \bar{e}}{2 - \bar{c}}$$

Policy-making using the slack model

This equation too suggests that an estimate of a **marketable** amount of monetary expansion k^* can be obtained by first estimating the values of $\bar{e}$ and $\bar{c}$ from economic and financial data.

The equilibrium slack $\bar{s}$ is determined through **financial intermediation** by the financial sector of the economy, including banks, and **financial oversight** of the financial sector by governance, including regulation, in the economy. This determination must happen quickly as prolonging it is generally risky for the economy.

Figure 1: Comparing the two models



Practical comparision of the two models

When the economy has **sizeable** contractionary market forces, the first model cautiously **prescribes** a larger increase in money supply, which may be necessary to prevent deflation. However, in extreme cases, the financial sector is sometimes rendered dysfunctional or undergoes market failure, and practical application of this model is **severely** limited.

The second model is generally applied in **maturing** financial economies since they generally need to expand money supply without causing **market failure** in the financial sector of the economy. Practical application of this model generally requires **swift** financial intermediation by the financial sector and **strong** financial oversight by governance.

The End