A model of the Federal Reserve Act under the international gold standard system

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Abstract

Freeman (Am. Econom. Rev. 86 (1996a) 1126) shows that an elastic money supply enhances the efficiency of monetary equilibrium by clearing default-free debts at par value in the domestic credit market. This research adds a foreign exchange market to Freeman’s model and extends his analysis into a two-country model, in which the arrival rates of agents are not equal between the two countries. In this model, an elastic money supply in the foreign exchange market to clear the exchange of fiat monies at gold standard parity, accompanied by an elastic money supply in the domestic credit market, could improve the efficiency of monetary equilibrium.

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1. Introduction

The Federal Reserve Act of 1913 established a nationwide settlement system with a lender of last resort, aimed at preventing seasonal fluctuations in interest rates by supplying money elastically in accordance with the Real Bills Doctrine. Freeman (1996a, b) demonstrates why such a central bank operation is desirable in general equilibrium monetary models. He considers an economy where agents are spatially separated, and thus, private debt incurred between two parties can only be redeemed with fiat currency at a central clearing area. Suppose that the departure rate of creditors from the central clearing area is higher than the arrival rate of debtors. In this case, the amount of currency available at the central clearing area is less than the par value of debt, and late-departing creditors can buy the risk-free assets of early-departing creditors at discounted prices in exchange for fiat money. The resulting equilibrium will be liquidity-constrained. Suppose a central bank issues additional fiat money to purchase the IOUs of early-departing creditors, and receives fiat money from the debtors at the central clearing area. Then, the IOUs of early-departing creditors can be cleared at par value, and the money stock remains constant as long as this central bank takes the money received from the debtors in the second-hand debt market out of circulation. Such a central bank intervention leads to an optimal allocation of resources. By this reasoning, Freeman shows that an elastic money supply to smooth the seasonal fluctuations in the nominal interest rate in the short run, and a constant money supply in the long run, are consistent and desirable policies.

As West (1974) argues, like the Real Bills Doctrine, the international gold standard system was an important foundation for the Federal Reserve Act of 1913. Therefore, this paper extends Freeman’s model into a two-country model under gold a standard, and seeks additional policy implications. The analysis in this paper shows that an elastic money supply in both the domestic debt market and the foreign exchange market arranged by the central bank a la Freeman is required to enhance the efficiency of monetary equilibrium. More specifically, consider the two-country model of Freeman (1996a), in which old creditors are subject to taste shocks. They want to consume young foreign debtors’ goods in their second stage of life with a small probability. Suppose that old creditors know their preference for foreign goods only after their debt is settled in their domestic central clearing area. Due to the country-specific cash-in-advance constraint, old domestic creditors must pay foreign currency to obtain goods from young foreign debtors. Imagine the “turnpike” of Townsend (1980) that connects the central clearing areas of two countries. Old creditors with taste shocks travel this turnpike, and they meet old creditors coming from the other country at a trading post. They exchange their fiat money for the fiat money of the other country. Suppose that the arrival rates of old creditors with taste shocks to the trading post are not equal between two countries. For example, if one country is inhabited by many bankers (or late-departing creditors), only a small fraction of old creditors come to the foreign exchange market in the early stages of the market transaction. Then, the currency of a country with a large banking sector might be in short supply, compared with the gold standard parity. In such a
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