



Monetary policy and asset prices

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Abstract

The purpose of this paper is study the effect of monetary policy on asset prices. We study the properties of a monetary model in which a real asset is valued for its rate of return and for its liquidity. We show that money is essential if and only if real assets are scarce, in the precise sense that their supply is not sufficient to satisfy the demand for liquidity. Our model generates a clear connection between asset prices and monetary policy. When money grows at a higher rate, inflation is higher and the return on money decreases. In equilibrium, no arbitrage amounts to equating the real return of both objects. Therefore, the price of the asset increases in order to lower its real return. This negative relationship between inflation and asset returns is in the spirit of research in finance initiated in the early 1980s.

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1. Introduction

We know that monetary policy controls the money supply, which determines the rate of inflation, and hence the rate of return on (or the cost of holding) currency.¹ However, we also know that agents often manage portfolios with assets other than money in their daily transactions. Even

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¹ In simple models, in steady state the growth rate of the money supply pins down the inflation rate, and through the arbitrage condition known as the Fisher equation, this pins down the nominal interest rate; it does not matter if policy controls money, inflation or the interest rate, since any one determines the other two.

though these assets may differ in various properties, like liquidity or rate of return, and they may appear not even to be designed for transaction purposes, different assets in a portfolio maybe related in several ways. Lucas (1990) already points out possible interactions between liquidity and interest rates in an economy. Therefore, the intuitive concern arises: could monetary policy indeed affect the price or return of other assets in the economy? And if so, what would be the precise mechanism through which those effects would take place?

We use a model in the tradition of modern monetary theory, extended to include real assets in fixed supply just like the standard “trees” in Lucas (1978). However, these assets are not only stores of value in our model. They also compete with currency as a medium of exchange. We show that money is essential (i.e. monetary equilibria Pareto dominate non-monetary equilibria) if and only if real assets are scarce, in the precise sense that their supply is not sufficient to satisfy the demand for liquidity. In this case, real assets and money are concurrently used as means of payment, and an increase in inflation causes agents to want to move out of cash and into other assets. In equilibrium, this increases the price of these assets and lowers their rates of return.

Hence, the model predicts clearly that inflation reduces the return on other assets, which is something that has been discussed extensively in the finance literature for some time. Examples of papers that report this negative relationship are Fama (1981), Geske and Roll (2001), and Marshall (1992). Geske and Roll, for example, characterize the connection between asset returns and inflation as a puzzling empirical phenomenon that does not necessarily ascribe causality one way or the other. An early attempt to explain this finding in a general equilibrium framework was made by Danthine and Donaldson (1986), where money is assumed to yield direct utility. It does not seem right to analyze asset prices by putting assets in the utility function - would we take seriously as a “solution” to the equity premium puzzle a model where people “like” bonds more than stock? As opposed to this reduced-form monetary model we choose a setting in which the frictions that make money essential are explicitly described. Building on Lagos and Wright (2005), we provide a model based on micro foundations within which the effects of monetary policy on asset prices can be analyzed.

Several models based on Lagos and Wright (2005) have been created to study different questions related to the coexistence of multiple assets as media of exchange. For example, Lagos and Rocheteau (2006) allow capital to be traded in a decentralized market and focus on the issue of over-investment. They introduce real capital that can compete with money as a medium of exchange. Part of this capital may be productive but not liquid (in the sense that it cannot be used as a medium of exchange). Therefore, it will only be valued by its direct return derived from a storage technology. However, the other fraction can be used in decentralized trade and valued both for being productive and for its role as a medium of exchange. The object that we introduce is not related with returns due to productivity. Instead, our object is a real financial asset and all of it can be taken into the decentralized market. Thus, the main difference in our model lies in the asset-pricing implications. In their framework the price of the *liquid* capital has to be equal to that of the general good in the centralized market. In contrast, the price of our real financial asset will be determined endogenously and independently in equilibrium. This price reflects now both its return as a financial asset in terms of consumption and its role as a medium of exchange. They also conclude that when the return from the storage technology is higher than that as a medium of exchange agents tend to overaccumulate capital. This does not arise in our model.

Lagos (2005) builds an asset-pricing model in which financial assets (equity shares and one-period government risk-free real bills) are valued not only as claims to streams of consumption but also for their liquidity. In his model the price of an asset will be higher when is held for its exchange value, and its rate of return will be lower than it would if the asset was not used as

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