

Comments on “Credit Frictions and Optimal Monetary Policy”, by Cúrdia and Woodford*

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Cúrdia and Woodford (CW) have written a topical and important paper. There is no doubt in my mind that it will become a standard and much studied reference.

Let me first briefly place it in the broader context of current macroeconomic research. First-generation new-Keynesian models, of the type analyzed by Woodford in his well-known book (2003), were based on a few central imperfections, namely monopolistic competition to allow for non-trivial market power and price setting, and nominal rigidities; their purpose was to show how shifts in demand could indeed affect output, and study the basic role of policy in that context. It was clear however that these models missed many of the imperfections central to macro. Thus, second-generation new-Keynesian models are focusing on the implications of additional imperfections, be it in labor markets, goods markets, financial markets, and credit markets. CW is likely to become one of the standard references for credit market imperfections.

The paper has all the hallmarks of the Woodford technology:

- The careful introduction of an additional imperfection in the benchmark NK model: Here, the imperfection is taken to be a wedge between borrowing

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and lending rates, which may come either from the use of resources in intermediation, or from the market power of intermediaries.

- A delicate choice of assumptions, to capture the essence while keeping tractability. A typical problem in introducing heterogeneity (here of lenders and borrowers) is the complexity of keeping track of distributions. Here, the choice by CW to allow for some insurance but only at the time when agents change type, elegantly cuts through the Gordian knot, and makes for a tractable analysis.
- A tough slog through the derivations, showing all the unpleasant terms in the equations, allowing one to assess whether they matter or not.
- At the end of the derivation tunnel, the emergence of a simple structure, based on the interaction of the heterogeneity of agents and the wedge, showing the effects of the wedge on both (consumption) demand, and (labor) supply.
- A set of strong positive and normative conclusions, and of practical policy conclusions.

Let me now turn to the specific issues. Observing the current financial crisis, many observers have two main worries. The first is that the deterioration of financial intermediation will have major adverse effects on activity. The second is that, in that environment, monetary policy may just not work. Taken at face value, the CW results are reassuring:

- The effects of a worsening of financial intermediation, they tell us, are likely to be limited. Changes in the wedge have important distribution effects, but small aggregate effects.
- Monetary policy still works. Indeed, optimal monetary policy remains simple. When changes in the wedge are exogenous, then the optimal target criterion remains the same as in the model without a wedge. The key to a good policy is to focus not only on the rate controlled by the central bank (the lending rate in their model), but more so on the borrowing rate (the rate faced by borrowers in the economy).

Should we buy this reassuring message? Are these conclusions robust, or instead

the result of specific assumptions? This is the question I shall take up in the rest of my comment. (There are many other results in the paper, which would all warrant further discussion: the effects of the existence of financial intermediation on the dynamic effects of other shocks; the effects of shocks to borrowers' or savers' behavior; the characteristics of optimal monetary policy; the conditions under which a Taylor rule remains a good approximation; the use, if any, of credit aggregates. They are all important. Lack of time prevents me from taking them up.)

Let me start with an informal description of how CW reach their conclusions:

They focus on an economy where intermediation takes place between households—not between households and firms. Some households are lenders, some are borrowers. The difference between the two types comes primarily from a difference in effective discount rates. Savers discount the future less, borrowers discount the future more. (Households change types randomly, so there is a well defined steady state distribution of wealth.)

Intermediation is subject to a wedge, which makes the borrowing rate be higher than the lending rate. An increase in the wedge, at the same average interest rate, decreases the lending rate and increases the borrowing rate. As lending is less attractive, lenders save less. As borrowing is less attractive, borrowers borrow less. The result is strong distribution effects, with higher consumption by lenders, lower consumption by borrowers.

Can we sign the aggregate effect? Typically yes. As lenders tend to have lower consumption than borrowers, they account for a smaller fraction of the total demand for goods. Thus, their higher consumption is more than offset by the lower consumption of the borrowers. Aggregate demand goes down. (A more technical remark here: This aggregate effect is made stronger in the model by the assumption that the two groups differ in another way, namely in their elasticity of substitution. This seems rather unconvincing.)

A very similar mechanism operates on the labor supply side. In response to an increase in the wedge, for a given average rate, savers want to consume more and work less, borrowers want to consume less and work more. Thus, there is again a

clear distribution effect, with a decrease in the labor supply of savers, an increase in the labor supply of borrowers. The aggregate effect is again likely to be small, but we can typically sign it: As savers work relatively more, they account for more of labor supply than borrowers, and thus their effect dominates: Labor supply decreases.

In short, an increase in the wedge leads to an adverse shift in aggregate demand, and an adverse shift in aggregate supply. It has potentially large distribution effects, but small aggregate effects. Monetary policy still works: The monetary authority can still affect the lending rate, and by implication, given the wedge, the borrowing rate. It just has to take into account that there are two rates. A policy such as that followed by the Fed over the last year, i.e. cutting the policy rate to maintain a roughly constant borrowing rate for prime loans or mortgages for example, is often, but not always (that depends on the underlying shocks) a good policy.

Are these conclusions likely to be robust? I am not sure.

CW focus on intermediation between households, rather than between households and firms. Thus, a failure of intermediation makes some households consume more and work less, others consume less and work more. There is no direct effect on production. It is clear, however, that much intermediation is between households and firms. Suppose that production takes time, and firms need to borrow in order to buy inputs. Then less intermediation directly translates into less production. Or suppose, more conventionally, that financial intermediation is between saving and investment. Then, less intermediation implies less investment today, and thus less production in the future. In both cases, we are not talking about the net outcome of distribution effects, but with a direct effect on production. Can these effects be large? I suspect they can be.

Can we be sure that monetary policy continues to operate even under poor financial intermediation? Suppose again that intermediation is between saving and investment. And suppose, for the sake of argument, there is a complete breakdown of intermediation: Firms can no longer borrow, at any interest rate, and production/investment stops. It is clear that, if monetary policy can only affect

the lending rate, it will have no effect on the outcome. Admittedly, I have looked at an extreme case, but it makes me think that non-linearities may be more relevant than the CW setup suggests. Other methods of intervention, such as direct liquidity provision, may work better than standard open-market operations.

Let me conclude. The paper represents a large methodological step. It shows how one can integrate financial intermediation in a general equilibrium model of fluctuations. It clarifies many technical and conceptual issues along the way. It suggests foundations for a recipe for central banks which smells right: Focus in large part on the rate at which the ultimate borrowers can borrow, rather than on the rate you control directly. It does not pretend to be the last word on the topic, but it provides the platform on which we can build.

References

Woodford, M., 2003, *Interest and Prices*, Princeton University Press.