



Monetary policy along the yield curve: Why can central banks affect long-term real rates?

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The standard New Keynesian model suggests that long-term real rates (including the natural rate, r*) are shaped by real factors, with monetary policy just playing the role of a follower. Given this perspective, it is surprising that the data find long-term real interest rates to be highly responsive to monetary policy decisions. We argue that this outcome is consistent with a model in which the potency of monetary policy is decreasing in the persistence with which it is conducted (to a degree whereby the permanent component of monetary policy has no strong impact on excess demand).

In most infinitely-lived agent models, the potency of monetary policy strengthens with the shock's persistence due to the compounded power of intertemporal substitution. However, when thinking about the impact of very persistent rate changes, forces other than intertemporal substitution are likely to be important – in particular forces related to the need to save for retirement.

To understand the effects of having monetary policy cause persistent deviations in r from r*, this paper develops a Finitely-Lived Agent New Keynesian (FLANK) model. We show that such a model, which hosts a life-cycle dynamic distinguishing between workers and retirees, yields a rich but concise description of the relation between the path of future interest rates and activity.

A key insight from our model is that the effects of highly persistent monetary policy shocks can be reduced to two simple effects. First, there is a standard valuation effect for assets with positive duration, working in the conventional direction (with higher rates lowering demand). Second, there is an effect on the marginal propensity to consume (MPC) out of financial wealth. This tends to work in the unconventional direction – leaving a net total effect which implies that persistent rate changes might not affect excess demand much.

To understand why, consider a retired household, or one saving to retire in the future. It is not clear they would want to increase consumption in response to capital gains resulting from persistently lower rates. The reason is that the typical household is "short duration" by having a prospective labor income stream that is of shorter duration than their prospective consumption stream (due to the presence of a retirement phase). So, when rates fall, households may see the present value of their liabilities go up by more than that of their assets – making them want to hold more units of assets, to compensate for each unit now yielding less. The existence of such an "interest income effect" implies that the aggregate MPC out of financial wealth may well decrease when rates fall in a persistent fashion. This works in the unconventional direction, with lower rates dampening demand.





Since the asset valuation effect operates in the conventional direction, the competing forces may largely offset each other – which is what we find for reasonable calibrations.

In that case, interest rates can be kept away from r* "for long" without major effects on excess demand and inflation. As a result, if central banks misperceive r*, and used their misperceived r* to set policy, they would have very few signals suggesting they are mistaken. Central bank decisions may then end up driving real rates over long periods of time, without them realizing this to be the case. In particular, it can lead to cases where a rate cut that the central bank initially intends to be purely temporary, acquires additional persistence as it subsequently induces the central bank to erroneously lower its estimate of r* (and vice versa for a rate hike). In this type of environment, it becomes rational for markets to view central bank decisions and statements as relevant for long-term rates, even if they do not think central banks have private information about r*.