

# Endogenous Risk, Incentives and Aggregate Fluctuations

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## Abstract

This paper analyzes a model in which incentive constrained contracting implies both amplification and intertemporal propagation of technology shocks. In the model risk averse agents choose between a riskless technology and a risky technology ('the entrepreneurial activity') with higher expected return but also with moral hazard. Under the optimal contract, entrepreneurs need to bear more risk when productivity is low. This renders agents' technology choices procyclical, i.e., more agents become entrepreneurs when productivity is high, which in turn amplifies technology shocks. The technology choices and hence the amount of entrepreneurial activity can be correlated across time even if technology shocks are independent. The propagation is asymmetric and results in long expansions and short, 'sharp' recessions. We think that our model complements the existing literature on the effects of countercyclical agency costs by pointing out an additional mechanism that renders agency costs countercyclical. In our model it is the risk associated with the entrepreneurial activity rather than constraints on outside funding (due to the limited resources of the insider, i.e., the entrepreneur) that constrains the amount of entrepreneurial activity.

In contrast to the literature on the effects of financial contracts on aggregate dynamics which typically considers one period financial contracts only, we study both one period and multiperiod contracts (two period contracts) and show that multiperiod contracts have important effects on the dynamic properties of the aggregates. Thus, restricting attention to one period contracts importantly alters the implications for aggregate dynamics. We provide a characterization of optimal two period contracts. In particular, we find that (i) entrepreneurs who are unsuccessful early on are most likely to be credit constrained and (ii) incentive constraints are more stringent in the second period of a contract and thus compensation is optimally delayed towards the second period (which may be interpreted as the accumulation of 'internal funds'). The cross-sectional variance of consumption in an economy with multiperiod contracts can be countercyclical and persistent. Output in an economy with two period contracts may be less volatile and exhibit less persistence than output in the corresponding one period economy.

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