

# Market concentration, macroeconomic uncertainty and monetary policy

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## Abstract

This paper studies the effect of market structure and macroeconomic uncertainty on the transmission of monetary policy. We motivate our analysis with a simple model which predicts that: (1) investment and production in more concentrated sectors are more affected by demand shocks and (2) high uncertainty makes investment and production more sensitive to demand shocks. The empirical analysis estimates the effect of monetary shocks on sectoral output for different sectors in the US using a structural vector autoregressive (VAR) approach. The results are generally consistent with the theoretical predictions.

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## 1. Introduction

In this paper, we study the impact of economic uncertainty on the monetary transmission mechanism with particular emphasis on investment decisions. We develop the intuition through a simple model where firms choose their investment and pricing

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strategies as a function of the degree of market concentration in their industry. The model shows that different levels of market concentration explain different investment and production reactions to changes in demand. Further, we also show that uncertainty about future demand can have a significant impact on investment because it affects market structure.

Our theory differs from the previous literature on investment decisions under uncertainty and their impact on the monetary transmission mechanism for which we can separate two different strands. The first of these focuses on the role of irreversible investment decisions under uncertainty as developed by Dixit and Pindyck (1994).<sup>1</sup> The second strand emphasizes the presence of “frictions” in credit markets. Our analysis departs from the literature on irreversible investment since we focus on short-run investment decisions where the number of possible investors is exogenous and investment decisions are sticky in the sense that they cannot be changed once the state of nature is known. Our interest in the short run leads to important implications which explain how market concentration shapes the investment–uncertainty relationship. Our focus on market structure, on the other hand, suggests an alternative to credit restrictions theories.

More specifically, in the model we consider an industry where potential investors have access to idiosyncratic opportunities for investment in capacity. These investments can either be made in the present or at some future period, when there will be some uncertainty about demand. The number of potential investors with access to such opportunities is fixed and is a crucial parameter in our model as it captures the degree of concentration in the industry: The smaller this number, the more concentrated the industry will be. Although investment opportunities are individual-specific, the model is entirely symmetric as all potential investors face the same opportunity cost of investment, the same capacity level if they make the investment, the same (zero) marginal cost of production, the same discount factor between periods and the same market demand for the (identical) final product. In each period, investment decisions are made simultaneously by those who have not invested in the previous period. In a given period, those who do invest, proceed simultaneously to select prices. Thus, investment decisions in the present are made by comparing expected profits if the investment is postponed until the future with the expected profits if the investment is made in the present.

Our first result is that greater market concentration makes investment decisions more sensitive to changes in present and future demand. The intuition is particularly simple: Greater concentration implies higher profits for each investor in each period. This means that, for example, an expected increase in future demand will increase the opportunity cost of investing today and not in the future more than it would have if smaller profits were at stake. While simple, this result establishes an unambiguous link between market concentration on the one hand, and monetary policy and its impact on demand on the other.

Our other results concern the effects of uncertainty on investment. As we will discuss in detail below, the previous literature suggests that the correlation between future uncertainty and present investment is ambiguous, but our model suggests that uncertainty increases the option value to wait to invest in the future in a way that may be mediated by market concentration. In particular, we show that whenever uncertainty is so high that a negative shock to demand will significantly alter the structure of the product market, then

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<sup>1</sup>See Carruth et al. (2000) for an extensive survey.

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