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The "news view" of economic fluctuations: Evidence from aggregate Japanese data and sectoral US data ☆

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This paper uses aggregate Japanese data and sectoral US data to explore the properties of the joint behavior of stock prices and total factor productivity (TFP) with the aim of highlighting data patterns that are useful for evaluating business cycle theories. The approach used follows that presented in [Beaudry, P., Portier, F., 2004. News, stock prices and economic fluctuations. Working paper 10548. NBER]. The main findings are that (i) in both Japan and the US, innovations in stock prices that are contemporaneously orthogonal to TFP precede most of the long-run movements in total factor productivity and (ii) such stock prices innovations do not affect US sectoral TFPs contemporaneously, but do precede TFP increases in those sectors that are driving US TFP growth, namely durable goods, and among them equipment sectors. *J. Japanese Int. Economies* **19** (4) (2005) 635–652. CRC Department of Economics, University of British Columbia and NBER; Université de Toulouse (GREMAQ, IDEI, LEERNA, Institut Universitaire de France and CEPR).

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1. Introduction

In Beaudry and Portier (2004a), we used US data to document properties of the joint behavior of *total factor productivity* (hereafter TFP) and *stock prices* (hereafter SP) that are supportive of a "news view" of business cycles, that is, a view of business cycles where it is news about future developments in productivity that drive fluctuations. In particular, we presented two orthogonalized moving average representation for these variables: one based on an impact restriction and one based on a long-run restriction. We then examined the correlation between the innovations that drive the long-run movements in TFP and the stock prices innovation which is contemporaneously orthogonal to TFP. We found this correlation to be positive and almost equal to 1, indicating that permanent changes in productivity growth are preceded by stock market booms. We showed why this observed positive correlation runs counter to that predicted by simple models where surprise changes in productivity drive fluctuations. We also discussed how the pattern could arise if agents have advanced information about future technological opportunities, or if productivity growth emerges as a delayed byproduct of a period high investment activity. In either case, the results suggests that expected changes in technological opportunities may be central to business cycle fluctuations even if surprise changes in productivity are not.

In this paper, we extend this analysis to Japanese aggregate data and US sectoral data. The analysis of aggregate Japanese data confirms our previous results: stock prices innovations do contain most of the information about the long-run movements of aggregate TFP, and are responsible for short-run business cycle fluctuations. Our econometric setup also allows for an account of the Japanese "lost decade," and shows that a downward revision of TFP growth in 1990 and 1992, which first revealed itself in stock prices, can account for the low performance of TFP and SP in the 1990s.

Second, we analyze the relation between the aggregate US stock prices innovation and the behavior of sectoral manufacturing TFP. Our analysis of US manufacturing two-digit data shows that the stock prices news is indeed a shock that does not affect sectoral TFPs on impact, but increases TFP in the long run for those sectors that are driving TFP growth, namely durable goods, and among them equipment sectors.

2. The setup

In this section, we present the tools introduced in Beaudry and Portier (2004a), which can be described as a new way of using orthogonalization techniques—i.e. impact and long-run restrictions—to learn about the nature of technological progress diffusion and business cycle fluctuations. Those techniques are not used simultaneously, but sequentially, to describe the joint behavior of stock prices (SP) and measured total factor productivity (TFP).

2.1. Two orthogonalization schemes

Assume that we have an estimate of the reduced form moving average (Wold) representation for the bivariate system $\{TFP_t, SP_t\}$, as given below (for ease of presentation we neglect any drift term).

$$\begin{pmatrix} \Delta TFP_t \\ \Delta SP_t \end{pmatrix} = C(L) \begin{pmatrix} \mu_{1,t} \\ \mu_{2,t} \end{pmatrix}$$