



Price deflation, money demand, and monetary policy discontinuity: a comparative view of Japan, China, and the United States

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Received 25 April 2003; received in revised form 7 November 2003; accepted 19 November 2003

Abstract

In this paper we review the history of deflation in China, Japan, and the United States, and summarize the stylized empirical facts regarding deflation and key real and monetary variables in these economies. Based on a review of the institutional background of deflation in these economies, we argue that deflation in China is largely supply-led, whereas deflation in Japan is demand-led. We discuss the adverse effects of demand-led deflation, and argue that deflation is not simply inflation in reverse. Based on these adverse effects, we explain the basis of a discontinuity in the monetary policy process, and contrast the discontinuity process with the 1930s-era liquidity trap concept. We then provide empirical evidence on an important link in the discontinuity process: the effect of demand-led deflation on money demand. We consider a variety of money demand function estimates for Japan, China, and the United States in order to illustrate that deflation in Japan may have indeed contributed to a discontinuity in monetary policy by shifting the demand for money upward, and we then suggest several implications for central bank policy in a deflationary environment.

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JEL classification: E41; E58; P52

Keywords: Money demand; Deflation; Liquidity trap; Monetary policy discontinuity; Japan; China; United States; Supply-led deflation; Demand-led deflation

1. Introduction and stylized empirical facts

Price deflation has characterized both China and Japan in recent years, and deflation was a prominent characteristic of the economic and financial distress experienced by the United States during the 1930s. While the deflation experience of China and Japan since

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Table 1
Average inflation rate in comparison economies (annual average percentage)

Country	1975:Q1– 1979:Q4	1980:Q1– 1984:Q4	1985:Q1– 1989:Q4	1990:Q1– 1994:Q4	1995:Q1– 1997:Q4	1998:Q1– 2002:Q4
United States						
Deflator	7.1	6.5	3.1	2.9	2.0	1.6
CPI	8.1	7.4	3.6	3.6	2.7	2.3
Japan						
Deflator	5.2	3.0	1.3	1.5	–0.3	–1.3
CPI (1981–)		2.2	1.0	2.0	0.6	–0.4
WPI	3.7	3.1	–1.5	–0.3	–0.6	–1.0
China						
Deflator	0.9	2.4	8.1	10.9	7.0	–0.9
CPI	1.2	3.3	11.9	10.1	9.2	–0.3

Source: See footnote 6.

the mid-1990s, which we show in Table 1, is on a much smaller scale than the deflation of the 1930s, the fact that deflation has reappeared raises a number of issues and rekindles old debates of the 1930s regarding monetary policy liquidity traps.

The deflation experience of China and Japan is markedly different in terms of its effect on real and monetary variables. China has experienced low inflation and most recently deflation, and yet, real GDP growth has been high, as Fig. 1 demonstrates. In contrast, Japan's disinflation and deflation process has been associated with stagnant or declining real GDP. Fig. 2 illustrates that nominal interest rates have fallen in China, but remain meaningfully above zero, while Fig. 3 shows that real interest rates have remained at about 2% since 1999. In contrast, growth in Japan has been stagnant (Fig. 1), nominal interest rates have approached zero (Fig. 2), while at the same time real interest rates have increased (Fig. 3). As Fig. 4 shows, the ratios of money supply (both M1 and M2) to GDP (the k ratio) have risen rapidly in China and Japan in the 1990s. The growth of the k ratio in China is probably reflecting rapid income growth more than deflation, while in Japan the growth of the k ratio largely reflects deflation, since income has been stagnant or declining. As Fig. 5 shows, the deposit expansion multipliers for M2 in China and Japan also illustrate divergent behavior in the presence of deflation.¹ China's M2 multiplier has increased while Japan's has decreased.

For the United States, which we include as a benchmark case because of the general absence of deflation in the postwar period, nominal interest rates have declined in the 1990s due to disinflation, but they remain higher than nominal rates in Japan. Real interest rates since 1999 have averaged about 2%. Furthermore, the k ratio has remained relatively stable and while the M2 multiplier declined in the early 1990s, it has stabilized since 1996.

Thus, there are considerable differences between the recent deflation experiences in China and Japan, and considerable differences with economies where deflation is not present. The

¹ Because China's monetary base is not available, the deposit multiplier in China is approximated by the M2/Currency ratio, which tracks closely with the deposit expansion multiplier in the U.S. and Japan. M2 for Japan includes CDs

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