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## Japanese monetary policy and international spillovers



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### ABSTRACT

We present a simple monetary model (with sticky prices) to highlight spillovers to output gaps. We then show using a sequence of nonstructural VARs and a Global VAR, the effects of monetary policies measured using short-term interest rates and money base stocks. We conclude that money base expansions in particular have generally positive output effects both within and across borders.

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## 1. Introduction

In the wake of the announcement of a more expansionary monetary policy in Japan, the Japanese currency weakened past 100 yen to the dollar. The reason for the recent depreciation of the yen is the expectation of higher inflation in Japan, owing to the rapid projected growth in Japanese base money, the sum of currency and commercial banking reserves at the Bank of Japan. Under a flexible exchange rate regime, national monetary policies are the basic determinant of exchange rates among nations.

The recent depreciation of the yen has led to the criticism that Japan is engaging in a "currency war," that Japan is stimulating its domestic demand at the expense of its trading partners.<sup>1</sup> In general, however, the expansion of the money supply or the credible announcement of a higher inflation target does not

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<sup>1</sup> Some conference participants have pointed out that defining a "currency war" solely as a negative GDP spillover is too narrow. A broader definition of a "currency war" should include when a particular constituent in one country is hurt by a foreign currency depreciation, and the country retaliates because of political pressures from the constituent. For example, if the U.S. auto industry is hurt by a yen depreciation, the U.S. may retaliate by imposing tariffs on Japanese auto imports.

necessarily constitute a currency war. We show in a two-country money game under flexible exchange rates, that uncoordinated monetary expansion does not lead the world into a non-pareto optimal equilibrium, regardless of whether the monetary expansion has positive or negative spillovers on other countries.<sup>2</sup>

The pareto-optimality criterion holds whether the spillovers from say a Japanese monetary expansion are negative or positive, whether they lower or raise U.S. GDP. In real world international relations, however, it would seem better if the monetary expansion in one country is accompanied by positive spillovers on the other country. In the real world, an appreciating yen-dollar rate may shift employment from the U.S. to Japan. This would hurt and upset the U.S., possibly damaging U.S.-Japan relations if continued. It is certainly better if Japanese expansionary monetary policies are accompanied not only by a depreciating yen, but also expanding Japanese GDP and asset (equity and bond) prices. If rising Japanese GDP and asset prices help raise U.S. GDP, then the U.S. will have less reason to get upset. The main objective of this paper is to show whether Japanese expansionary monetary policies raise or lower U.S. GDP, whether Japanese expansionary monetary policy has positive spillovers on the U.S.

We show in our two country (U.S.-Japan) vector autoregressions that an expansion in Japanese broad money, while depreciating the yen, will tend to raise Japanese GDP and asset prices.<sup>3</sup> Although expansionary Japanese monetary policies may hurt U.S. GDP in the short-run, in the medium-to long-runs, the increase in Japanese GDP will tend to raise U.S. GDP. Thus, Japanese expansionary monetary policies should be welcomed by the U.S. We show in a multicountry VAR model (GVAR–Global VAR), that expansionary monetary policies in Japan will tend to also raise the GDPs of Japan's smaller (non-China) neighbors in the medium-to the long-runs, while hurting their GDPs in the short-run.

While there have been academic analysis of the effects of Abenomics monetary policies on the domestic Japanese economy (Hoshi, 2014; Hausman and Weiland, 2014; Michelis and Iacoviello, 2014; Rogers and Wright, 2014), our paper is the first to empirically examine the spillover effects of the recent Japanese monetary expansions on the U.S. economy.

## 2. Monetary interdependence in a two-country world

Let us introduce a world economy where prices are sticky and the two countries target a point on the Phillips curve,  $y_g^i(\pi^i)$ , where  $i = J$  (Japan) or the U.S., and  $\pi$  is the inflation rate and  $y_g$  is the output gap. Define excess money creation of the two countries as:

$$x^J = \frac{\Delta m^J}{m^J} - k \frac{\Delta y_g^J}{y_g^J}$$

$$x^{U.S.} = \frac{\Delta m^{U.S.}}{m^{U.S.}} - k \frac{\Delta y_g^{U.S.}}{y_g^{U.S.}}$$

Excess money creation refers to the money created in a country in excess of the increase in domestic money demand.

Inflation in the two countries can then be written as:

$$\pi^J = x^J + \nu(x^J - x^{U.S.})$$

<sup>2</sup> Our analysis, which follows from Hamada (1985) and Hamada and Okada (2009) is echoed in Korinek (2013) who argues in an application of the theory of the second best, that if there is an aggregate demand externality, say of insufficient demand, then the country suffering from that externality should enact policies to lessen the effects of that insufficient demand, such as an expansionary monetary policy that depreciates the exchange rate, even if that should mean that another country is hurt by its own appreciating currency.

<sup>3</sup> Since 1998, when Japan adopted its zero interest rate policy, Japanese monetary policy certainly weakened its grasp on the inflation rate and output. However, the quantitative expansion of money can impact the economy, by way of an increase in Tobin's  $q$  (by raising stock market values), by the credit accelerator effect, and by depreciating the nominal exchange rate.

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