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Time varying pass-through: Will the yen depreciation help Japan hit the inflation target? ☆

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ABSTRACT

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This paper argues that the exchange rate could be a powerful transmission channel of the effects of ongoing "unconventional" monetary policies in Japan. It is shown that exchange rate pass-through to domestic prices, once considered near-extinct, has come back strong in recent years. This is especially true for those items that households purchase frequently. Evidence based on VARs as well as TVP-VARs indicates that a 25% depreciation of the yen would produce a 2% increase in the prices of those items. This could have an additional benefit of raising the public's expectation about future inflation, as their beliefs are often said to be influenced by their daily observations about prices of those items that they buy frequently. *J. Japanese Int. Economies* **37** (2015) 43–58. Department of Economics, Hitotsubashi University, 2-1 Naka, Kunitachi, Tokyo 186-8601, Japan.

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1. Introduction

This paper re-examines the issue of exchange rate pass-through to the Japanese CPI. A massive depreciation of the Japanese yen was observed since late 2012, which was most likely a reaction to the announcement of a massive monetary expansion by the newly formed government led by Shinzo Abe (Fukuda (2015) and Kano and Morita (2015)). However, recent studies have repeatedly found a tendency of a declining exchange rate pass-through to domestic prices, both in Japan and in many other countries. If there is no pass-through, even massive currency depreciation would be useless in ending Japan's persistent deflation.

This paper, however, finds that pass-through has recently made a significant come-back. This is especially true for items that are regularly purchased by households, such as gasoline. This point will be demonstrated via time series econometric approaches, such as the VARs and the time-varying parameter VARs. There is thus hope that the yen depreciation could indeed be quite helpful.

Raising prices of frequently purchased items could have an additional benefit. It is often believed that household expectations about future inflation are greatly influenced by their observations about those prices. If so, the yen depreciation could be an effective tool in pumping up those expectations, which would make the pursuit of higher inflation less costly for the Bank of Japan.

The rest of the paper is organized as follows. Section 2 discusses the background of the current paper. In Section 3, I estimate VAR models with for prices of individual items that households buy frequently, namely gasoline, electricity and processed food. In Section 4, I estimate another VAR model to examine the extent of exchange rate (and import prices) pass-through to the average price of items that households purchase frequently. In Section 5, I redo the above exercise with a time varying parameter VAR model, to gain insight in the timing of a structural change. Section 6 is devoted to investigation of a possible cause of the pass-through revival. Section 7 concludes.

2. Background

2.1. Unconventional monetary policy and the exchange rate channel

The Japanese economy has long been in a mild but chronic deflation. Previous attempts by the Bank of Japan to lift the economy out of this situation have encountered major difficulties. This was mostly due to the presence of the zero lower bound of the interest rate. Once the central bank runs out of a room to lower the interest rate further, there is no certain way by which monetary policy could influence the course of the economy.

On January 22, 2013, the Bank adopted a new inflation targeting scheme and set the target CPI (all items less fresh food) inflation rate of 2%. The current regime under Governor Kuroda has pushed the idea further. The Bank now aims at hitting the 2% target within two years. Moreover, it would continue the massive "Quantitative and Qualitative Easing" until inflation is stabilized around 2%. It is, however, not clear how such a policy could stimulate the private economy while at the zero bound.

Consequently, success of this kind of unconventional policy may hinge on the effectiveness of the exchange rate channel. Recent experiences suggest that the exchange rate tends to react to a quantitative expansion of monetary base, though the underlying mechanism is not very clear, theoretically. For example, Hosono et al. (2013) estimate GARCH models for daily exchange rate changes for Japan. They include dummy variables that represent important announcement dates for the Bank of Japan's unconventional monetary policies. They find some cases in which the policy announcements have significant effects on the exchange rate. Also, in relation to the current round of monetary easing in Japan, Fukuda (2015) shows that investors, most notably foreign investors, reacted to recent series of expansionary policy announcements. Ueda (2013) also agrees with the view that the strong yen depreciation was a reaction to the aggressive monetary policy stance.

In fact, since the dissolution of the parliament by the then-prime minister Noda, the Japanese Yen depreciated against the US Dollar rapidly, from about 78 JPY/USD in early October 2012 to about 103 JPY/USD in May 2013, and then to 120 JPY/USD in March 2015. Also, prices of some of the

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