The first arrow hitting the currency target: A long-run risk perspective

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\textbf{ABSTRACT}

This paper reconsiders the successful currency outcome of the first arrow of Abenomics. The Japanese yen depreciation against the U.S. dollar after the introduction of the first arrow co-moves tightly with long-term yield differentials between Japan and the United States. The estimated term structure of the sensitivity of the currency return of the Japanese yen to the two-country interest rate differential indeed shifts up and becomes steeper after the onset of Abenomics. To explain this structural change in the term structure of the Fama regression coefficient, we employ a long-run risk model endowed with real and nominal conditional volatilities as in Bansal and Shaliastovich (2013). Under a plausible calibration, the model replicates the structural change when nominal uncertainty dominates real uncertainty in the U.S. bond market. We conjecture that the arrow was shot off from the U.S. side, not the Japan side.

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1. Introduction

One of the most striking events that international financial markets recently encountered might be the sharp depreciation of the Japanese yen (JPY) against the U.S. dollar (USD) started at the end of 2012. Since 78.97 JPY/USD was recorded in October 2012, the JPY keeps depreciating to 123.17 JPY/USD by August 2015. The depreciation rate of the JPY within the two-year window is 56.0%. Given the prolonged appreciation of the JPY against the USD after the Lehman shock and the subsequent global financial crisis (GFC), the change in the direction of one of the major currencies was so drastic that identifying a fundamental source behind the rapid JPY depreciation is a serious challenge for researchers of exchange rates in both academia and policy circles.

Many insist that the JPY depreciation was a unique direct consequence of the “first arrow” of “Abenomics”—the bold monetary easing policy adopted by the Bank of Japan (BOJ). Abenomics refers to the economic policy initiative of Prime Minister of Japan Shinzo Abe for fighting against chronic deflation in Japan since the general election of the Lower House of the Diet in December 2012. Abenomics was armed with the “three arrows” of economic policies: bold monetary easing, aggressive fiscal stimulus, and structural reforms. As the first arrow, soon after the then the Liberal Democratic Party (LDP) Governor Abe won the general election, the large-scale government bond purchasing program was announced by newly appointed

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The effect of the first arrow on the JPY depreciation is frequently cited as a successful outcome of Abenomics. In 2013, when most market participants expected a radical change in the monetary policy regime of the BOJ in November 2012, most market participants expected a radical change in the monetary policy regime of the BOJ in April 2013.1 The above view that the first arrow hit the currency target has gotten strong popularity among academic researchers and market commentators in Japan. This is because the JPY depreciation just started not in April 2013 but in November 2012, when the logarithm of the JPY/USD rate along with the nominal government bond interest rate differentials with the 1, 2, 3, 5, 7, and 10 year maturities between Japan and the United States since January 2012. Notice that after the first arrow shot off in November 2012 the interest rate differentials of the Japanese Government Bond (JGB) and the U.S. Treasury Bill/Note (UST) sharply falls over all maturities. The fall in the two-country interest rate differential is more striking with longer maturities of 5, 7, and 10 years than with shorter maturities of 1, 2, and 3 years. The JPY spot rate depreciates against the USD along with such sharp falls in the longer-term interest rate differentials, not in the shorter-term ones.

To scrutinize more deeply the data association between the JPY/USD rate and the term structure of the two-country interest rate differentials, we conduct simple Fama regression exercises below. Let $S_t$ denote the JPY/USD spot rate at period $t$, $Y_{t,n}$ the JGB rate to maturity $n$, $Y_{t,n}$, the UST rate to maturity $n$. We then regress the JPY depreciation rate $s_{t+1} - S_t$ against the interest rate differential to maturity $n$:

$$s_{t+1} - S_t = \alpha_n + \beta_n (Y_{t,n} - Y_{t,n}) + \epsilon_{t,n},$$

where $\alpha_n$ is constant, $\beta_n$ is the Fama regression coefficient, and $\epsilon_{t,n}$ is an i.i.d. error term. We also estimate an alternative Fama regression specification with the one-period excess currency return $r_{xt} = Y_{t,n} - Y_{t,n}$ as the dependent variable:

$$r_{xt} = \alpha_n + \beta_n (Y_{t,n} - Y_{t,n}) + \epsilon_{t,n}.$$
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