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Foreign investment with inflation-linked securities: A natural hedge under Fisher theory?

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Abstract

All foreign holders of U.S. dollars currencies face significant risk of unfavorable currency exchange movements, proportional to the amounts they hold. Some of these risks can be hedged to an extent, but the costs of doing so can be significant, and errors in execution or maintenance of the hedges can cause serious capital losses. Today the vast holdings of China and others creates currency risk on an unprecedented scale. China alone now has a total in excess of a trillion (1×10^{12}) U.S. dollars, which makes traditional approaches to hedging problematic at best.[1] This paper analyzes the potential hedging effectiveness of investing foreign dollar holdings in U.S. inflation-indexed securities under Fisher's Identity. To the extent that Fisher's Identity and its derivative theories hold, foreign investors can effectively protect the purchasing power of their dollar balances, and earn an assured rate of return. Investment in inflation-indexed securities does not incur the additional expenses that swaps and currency hedges do.

Keywords: Inflation-linked securities; Fisher theory; Currency hedge

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[1] At this writing, China has a reported $1.07 trillion in reserves: Batson, Andrew (2007), "China May Get More Daring with Its $1.07 Trillion Stash", *The Wall Street Journal*, February 15, 2007, C1. A year earlier it was reported that "[China] will soon release statistics showing it has passed Japan as the biggest holder of foreign currency the world has ever seen. Its reserves already exceed $800 billion and are on track to reach $1 trillion by the end of the year, up from just under $4 billion in 1989." Keith Bradsher, *The New York Times*, Sunday, February 26, 2006. http://www.nytimes.com/2006/02/26/weekinreview/26bradsher.html?_r=1&pagewanted=all&oref=slogin.

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1. Introduction

Fisher's theories provide rationale for numerous academic papers to test. For this work, the key assumption is that Fisher's Identity, which is the basis for the Fisher and International Fisher effects, holds at least approximately. Literature Review reveals no conclusive agreement on how well the Fisher Identity or its derivative theories hold. Some studies suggest it is appropriate to assume they hold at least approximately. Woodward (1992), using monthly data for UK inflation-linked securities at 14 maturities for his analysis concluded, "the hypothesis that the after-tax nominal interest rate is a constant plus anticipated inflation proves to be a reasonable approximation to reality." In addition, he found that for "… longer maturities, the coefficients on the expected rate of inflation are approximately equal to one." Later, Coppock and Poitras (2000) examined the Fisher hypothesis that nominal interest rates respond to point-for-point changes in expected inflation rate using long-term cross-country data. Their evidence suggests that interest rates do not fully adjust to inflation because of differences in financial asset liquidity premia. An earlier study by Nelson and Schwert (1977) concluded that neither market efficiency nor real rate constancy by themselves provide testable hypotheses. Owen (1993) showed that it is not appropriate to add a proxy for expected real rate to an hypothesized cointegrating relation for the nominal interest rate and the rate of inflation. Shelton (2000) provides a thorough discussion of risk premia, real yields, and market acceptance of inflation-indexed securities in the US. For this study, it is significant that no prior published work on use of inflation-indexed securities by foreign holders of dollars was found.

The continuing massive current account deficits of the United States create a winner's curse for foreign dollar holders. There is significant risk of a decline in the value of the dollar vis-à-vis other currencies. Alternatives for addressing this problem are limited in number, and most suffer from problems of their own. The problems owe largely to the huge amounts that are at risk, particularly by China. Available ways for managing risk or reducing the amounts held by foreign dollar holders (FDH) include the following, individually or in combinations as alternatives to inaction:

(1) Convert dollars into euros or other currencies.
(2) Purchase stores of wealth such as gold and other commodities.
(3) Make direct investments in mines, timber, businesses.
(4) Make indirect investments with stocks and bonds.
(5) Invest in U.S. Treasury securities.
(6) Sell dollars in the forward market.
(7) Hedge dollars with swaps and other derivatives.

1.1. Convert dollars into euros or other currencies

Conversion out of dollars into other currencies has merit *ex ante*, but not *ex post* for those who hold huge amounts of dollars. Conversion of major dollar holdings would induce a decline in the dollar's exchange rate. Such a decline in the dollar simply realizes a loss of wealth. Thus, conversion of dollars into other currencies as a portfolio diversification prior to devaluation can be a viable strategy. However, either after a significant accumulation of dollars, or after an already experienced decline in dollar exchange value, it is not a viable strategy.

1.2. Purchase stores of wealth such as gold and other commodities

There are many shortcomings of this action, especially for huge foreign dollar holders (HFDH). The obvious and widely recognized fact that there is no dividend or other return is important, coupled