



ELSEVIER

Contents lists available at ScienceDirect

Journal of International Financial Markets, Institutions & Money

journal homepage: www.elsevier.com/locate/intfin



The long-run component of foreign exchange volatility and stock returns



Ding Du^{a,*}, Ou Hu^{b,1}

^a The W.A. Franke College of Business, Northern Arizona University, PO Box 15066, Flagstaff, AZ 86011, United States

^b Department of Economics, Youngstown State University, Youngstown, OH 44555, United States

ARTICLE INFO

Article history:

Received 24 October 2013

Accepted 14 April 2014

Available online 24 April 2014

JEL classification:

F31

G15

Keywords:

Foreign exchange volatility

Long-run component of foreign exchange volatility

Short-run component of foreign exchange volatility

Mimicking-factor portfolios

ABSTRACT

The present paper explores the cross-sectional pricing power of foreign exchange volatility in the US stock market by decomposing it into short- and long-run components. Our approach is motivated by Bartov et al. (1996). Empirically, we find supporting evidence that the long-run component of foreign exchange volatility is priced in the US stock market. Our findings have important implications for international finance and empirical asset pricing.

© 2014 Elsevier B.V. All rights reserved.

1. Introduction

The present paper hypothesizes that the long-run component of foreign exchange (FX) volatility is a Merton (1973) state variable in the US equity market. Our conjecture is motivated by the following observations.

* Corresponding author. Tel.: +1 928 523 7274; fax: +1 928 523 7331.

E-mail addresses: ding.du@nau.edu (D. Du), ohu@ysu.edu (O. Hu).

¹ Tel.: +1 330 941 2061.

First, theoretically models in [Campbell \(1993, 1996\)](#) and [Chen \(2002\)](#) suggest that stock market volatility is a cross-sectional asset-pricing factor with a negative risk premium, because increasing stock market volatility represents a deterioration in investment opportunities. [Ang et al. \(2006\)](#), [Adrian and Rosenberg \(2008\)](#), [Da and Schaumburg \(2011\)](#), and [Moise and Russell \(2012\)](#) provide supporting evidence. [Menkhoff et al. \(2012\)](#) (MSSS) concisely conclude that “volatility innovations emerge as a state variable” (p. 686).²

Second, there is empirical evidence suggesting that FX volatility spills over to stock market volatility. For instance, [Francis et al. \(2006\)](#) find that increasing FX volatility (except for the Japanese yen) leads to increasing volatility in the US stock market.³ “When (stock) market volatility is stochastic, intertemporal models predict that asset risk premia are not only determined by covariation of returns with the market return, but also by covariation with the state variables that govern (stock) market volatility.” ([Adrian and Rosenberg, 2008](#), p. 2997) In this regard, FX volatility may be a [Merton \(1973\)](#) state variable in the equity market.

Third, two empirical studies imply that it might be the long-run component of FX volatility that matters for asset pricing. First, a recent study by [Du and Hu \(2012b\)](#) shows that FX volatility as a whole has very little pricing power in the US equity market. Second, [Bartov et al. \(1996\)](#) (BBK) find that the market risk of multinational firms increases with the increase in FX volatility when a longer-horizon (5 years) is focused on.⁴

If only the long-run component of FX volatility matters for the cross-section of stock returns, using raw FX volatility, including both the short- and long-run components, can introduce significant noise and reduce the power of tests. Motivated by this observation, we intend to extend [Du and Hu \(2012b\)](#) by focusing on the long-run component of FX volatility in the present paper.

Empirically, we follow MSSS to construct the FX volatility and decompose it into short- and long-run components with the [Hodrick and Prescott \(1997\)](#) methodology. We measure FX volatility innovations in two ways. The first way is to take the first differences of the FX volatility as well as its components as in [Ang et al. \(2006\)](#), while the second way is to construct factor-mimicking portfolios along the same line as [Hou et al. \(2011\)](#). In terms of empirical implementation, we employ the standard two-pass regression methodology of [Fama and MacBeth \(1973\)](#).

Our findings can be easily summarized: the long-run component of FX volatility does have power to explain the cross-section of stock returns. Our findings have important implications for both international finance and empirical asset pricing. For international finance, we strengthen [Francis et al. \(2006\)](#) in that we also suggest researchers focus more on (the long-run component of) the second moment of exchange rates in understanding the linkages between FX and equity markets.⁵ For empirical asset pricing, we imply a fresh perspective of the state variables underlying the Fama–French–Carhart factors, namely (the long-run component of) FX volatility.

The remainder of the paper is organized as follows: Section 2 describes our data and empirical methodology. Section 3 reports empirical results when FX volatility innovations are measured by the first differences of FX volatility as well as its components. Section 4 presents the results when FX volatility innovations are measured by factor-mimicking portfolio returns. Section 5 concludes the manuscript.

² The empirical success of stock market volatility in pricing the cross-section of stock returns has motivated researchers to use foreign exchange volatility to explain carry trade returns in foreign exchange markets. The empirical evidence in [Christiansen et al. \(2011\)](#) and MSSS suggests that foreign exchange volatility is a priced risk factor in the currency market.

³ [Muller and Verschoor \(2009\)](#) also find that “stock return variability of US multinationals is positively related to exchange rate variability” (p. 1967).

⁴ [Adrian and Rosenberg \(2008\)](#) also find differential effects of the long-run and short-run components of stock market volatility on expected returns of stocks.

⁵ There is a huge literature that focuses on the first moment of exchange rates. See for instance [Adler and Dumas \(1983\)](#), [Jorion \(1990, 1991\)](#), [Du and Hu \(2012a\)](#), and [Balvers and Klein \(2014\)](#).

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات