Journal of Economics and Business 56 (2004) 469–481

Journal of Economics & Business

The US stock market and the international value of the US dollar

Robert Johnson[a], Luc Soenen[b,c,*]

[a] *School of Business, University of San Diego, Alcala Park, San Diego, CA 92110, USA*
[b] *Orfalea College of Business, California Polytechnic University, San Luis Obispo, CA 93407, USA*
[c] *Tias Business School, Tilburg University, Tilburg, The Netherlands*

Received 6 May 2003; received in revised form 22 March 2004; accepted 29 April 2004

Abstract

We investigate the spillover effect of the US equity market on the value of the dollar and therefore on the return and volatility of US equity investments for the international investor. The data are daily observations of the S & P 500 and the US dollar in terms of seven foreign currencies covering the period 1971–2002. Using Geweke measures of feedback, we find a high percentage of contemporaneous association between daily movements in the S & P 500 index and changes in the value of the dollar. A consistently positive relationship between the S & P 500 and the dollar is found for the period 1992–2002, creating a compounding effect for the foreign investor in US equities. However, investment by foreigners in US equities did not result in consistently higher returns but in higher volatility compared to their US counterparts for the period 1971–2002.

Keywords: Stock market; US dollar; Equity

1. Introduction

In a study of 39 global stock markets, covering the period 1921–1996, Jorion and Goetzmann (1999) report that US equities had the highest real return of all countries, at 4.3% annually, versus a median of 0.8% for the other countries. However, the return to the foreign investor is compounded by exchange risk, e.g. the movement of the US dollar versus the local currency. Fluctuating exchange rates make foreign investment more risky and, at

* Corresponding author.
E-mail addresses: johnson@sandiego.edu (R. Johnson), isoenen@calpoly.edu (L. Soenen).

0148-6195/$ – see front matter
doi:10.1016/j.jeconbus.2004.04.002

the same time, aggravate estimation risk, thereby diminishing the gains from international diversification.

Within the framework of an unconditional multi-factor asset pricing model, Jorion (1991) finds that the exchange risk is not priced for the US stock market, even though his sample covered the period of the 1970s and 1980s, a time when the US dollar appreciated dramatically. Dumas and Solnik (1995), on the contrary, show that for the world's four largest equity markets (Germany, Japan, UK, and US) foreign exchange risk premia exist. These premia are present because of deviations from purchasing power parity.[1] Foreign exchange risk premia are a significant component of securities' rates of return in the international financial market.

In a related study, De Santis and Gerard (1997) report that severe US market declines are contagious at the international level, and often imply a significant reduction in the gains from holding an internationally diversified portfolio. On average, the expected gains from international diversification are equal to 2.11% on an annual basis and have not been significantly affected by the increasing level of integration of international markets.[2] These findings of Dumas and Solnik (1995) and by De Santis and Gerard (1997) indicate that currency risk is likely to be an important omitted factor in international asset pricing.

Using both unconditional and conditional asset pricing models, Choi, Hiraki, & Takezawa (1998) find that exchange risk is priced and is an important component in forming time-varying expected returns on assets in Japan. However, the exchange risk is priced differently depending on the secular yen/US dollar exchange rate trend.

Exchange rate uncertainty is largely a non-diversifiable factor adversely affecting the performance of international portfolios. Therefore, it is essential to effectively control for exchange risk. Eun and Resnick (1988) show that international portfolio selection strategies designed to control both estimation and exchange risk almost consistently outperform the US domestic portfolio in out-of-sample periods.

Considering the commanding role of the US economy and the US dollar for the world economy, we investigate the spillover effect of the US equity market on the international value of the US dollar. In particular, we investigate whether movements in US equities have an impact on the US dollar value and therefore on the return and volatility of US equity investments for the international investor. For the three most actively traded currencies (DM, Yen, and Swiss franc) Jorion (1995) finds that implied volatilities inverted from the Black–Scholes model for short-term at-the-money options on these currencies, are biased volatility forecasts. The information content and predictive power of implied standard deviations appear too variable relative to future volatility. Recently, Hau (2002) reports that economic openness and real exchange rates volatility are inversely related. A high degree of trade integration tends to produce more stable real exchange rates.

[1] Choi (1984) argues that the foreign exchange risk, once created, is preserved regardless of market equilibrium conditions such as purchasing power parity. The exchange risk simply trans-forms to inflation risk under purchasing power parity, which may modify the existing asset risk depending on the specification of real returns in the investor's objective function.

[2] In a recent study, Forbes and Rigobon (2002) show that there was no contagion during recent financial crises, that is no significant increase in cross-market linkages after a shock to one country or group of countries, but only market interdependence among stock markets.