ELSEVIER

Journal of Economics and Business 58 (2006) 303–322

Journal of Economics & Business

Country-fund discounts and risk: Evidence from stock market volatility and macroeconomic volatility

Thomas C. Chiang [a,1], Doseong Kim [b,*], Euiseong Lee [c,2]

[a] *Drexel University, Philadelphia, PA 19104, USA*
[b] *University of Akron, Akron, OH 44325-4803, USA*
[c] *Ministry of National Defense, 1-3ga, Yongsan-dong, Yongsan-gu, Seoul, Republic of Korea*

Received 9 March 2005; received in revised form 12 September 2005; accepted 16 September 2005

Abstract

This paper provides empirical evidence on the relationship between country-fund discounts and time-varying risk factors by analyzing monthly data of 39 closed-end country funds. By using conditional standard deviations derived from stock index returns, foreign exchange returns, inflation rates, real incomes, and interest rates to measure the risks associated with stock markets and macroeconomic fundamentals, respectively, we find significant evidence to support the proposition that fund discounts are correlated with time-varying U.S. and foreign risk factors. Additionally, among all the risk measures, the U.S. stock return volatility appears to be the most dominant risk factor to explain country-fund discounts. During the Asian crisis period, our evidence indicates that foreign exchange risk and foreign macroeconomic risk factors have a more profound impact on the country-fund discounts.

JEL classification: F21; F40; G12

Keywords: Time-varying risk; Country-fund discount; Volatility; Asian crisis

1. Introduction

By defining country-fund discounts as log-differences of fund prices in the U.S. market and net asset value (NAV) for a package of foreign assets, the empirical evidence has consistently shown

* Corresponding author. Tel.: +1 330 972 5361; fax: +1 330 972 5970.
E-mail addresses: chiangtc@drexel.edu (T.C. Chiang), doseong@uakron.edu (D. Kim), lbryn97@yahoo.com (E. Lee).
[1] Tel.: +1 609 265 1315; fax: +1 609 265 0141.
[2] Tel.: +82 2 748 5632; fax: +82 2 748 5659.

0148-6195/$ – see front matter
doi:10.1016/j.jeconbus.2005.09.005

that country funds are traded at discounts and fund discounts display time-varying behavior.[1] Several hypotheses have been advanced to explain this country-fund discount puzzle. Researchers have identified market frictions and segmentation (Bonser-Neal, Brauer, Neal, & Wheatley, 1990; Choi & Lee, 1996), investor's sentiment (Hardouvelis, LaPorta, & Wizman, 1994; Bodurtha, Kim, & Lee, 1995; Klibanoff, Lamont, & Wizman, 1998), divergent expectations between the U.S. and foreign investors (Frankel & Schmukler, 1996, 2000), and different risk exposures of country-fund price and NAV (Chandar & Patro, 2000) as key factors that explain time-varying country-fund discounts.

Although the above-mentioned studies provide some plausible explanations for the behavior of country-fund discounts (premiums), researchers seldom conduct a direct test to examine the issue that country-fund discounts are linked to risk factors in a time-varying fashion. Recognizing that the structure of international capital markets is partially segmented, fund prices in the U.S. market and NAVs in the foreign market can hardly be maintained in parity conditions. From the investor's point of view, the difference in prices in two markets, defined as the time-varying fund discounts, is considered to be compensation for the risk differentials. This notion is based on the rationale that the time-varying fund discount is continually interacting with risk emerging from stock markets and/or from macroeconomic fundamentals. Since country-fund shares are traded in the U.S. market and underlying assets are valued in foreign markets, country-fund prices and NAVs are perceived to react more sensitively to each own market information. Yet, differences in economic conditions, business perspectives, expectations formation, or speed of adjustment of asset prices are likely to produce different risks, reflected in the volatilities of different state variables.[2] Thus, we propose this hypothesis: country-fund discounts are associated with risk factors revealed in stock market and macroeconomic conditions, both in U.S. and foreign markets. In this paper, we use conditional standard deviations of stock index returns to measure time-varying stock return risk and use conditional standard deviations of foreign exchange returns, inflation rates, real incomes, and interest rates to measure macroeconomic risk factors. Testing the model based on 39 closed-end country funds, we find that the null hypothesis that country-fund discounts are independent of both U.S. and foreign time-varying risk factors is significantly rejected. Further, testing the model based on data in the turbulent period, the risk factor becomes more significant, especially as reflected in exchange rate volatility.

This paper differs from existing work in the following ways. First, previous studies use U.S. stock market returns, foreign stock market returns, and foreign exchange returns to explain fund discounts. The use of market returns as an argument, however, fails to reflect the measure of risk perceived by investors in these respective markets, although return is often perceived to be correlated with volatility. Second, using conditional standard deviations of stock returns and of macroeconomic variables to explain the country-fund discounts allows us to test their relative significance, which, in turn, provides some empirical insight into the information content for each set of variables. Our tests conclude that U.S. stock market volatility plays a most significant role. However, the foreign macroeconomic risk as a group is seen to be more dominant in explaining country-fund discounts. This is consistent with the fact that U.S. stock return volatility affects trading prices, while the foreign macroeconomic fundamentals impinge on the NAVs.

[1] Country funds can show both premiums and discounts at any time. However, in this paper, we mainly use the term discount for simplicity, since a negative discount is a premium.

[2] This argument is consistent with Chandar and Patro (2000), who argue that differential risk exposures of country-fund shares and NAVs can explain the behavior of country-fund premiums. This argument is based on the assumption of market segmentation.