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International diversification with securitized real estate and the veiling glare from currency risk☆

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This paper analyzes diversification benefits from international securitized real estate in a mixed-asset context. We apply regression-based mean-variance efficiency tests, conditional on currency-unhedged and fully hedged portfolios to account for systematic foreign exchange movements. From the perspective of a US investor, it is shown that, first, international diversification is superior to a US mixed-asset portfolio, second, adding international real estate to an already internationally diversified stock and bond portfolio results in a further significant improvement of the risk-return trade-off and, third, considering unhedged international assets could lead to biased asset allocation decisions not realizing the true diversification benefits from international assets.

1. Introduction

Do investments in international securitized real estate markets make a statistically significant contribution to an internationally diversified mixed-asset portfolio, and does currency risk exposure have an impact on these results? These questions have become more and more popular for both private

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and institutional investors for several reasons. First, (securitized) real estate has been a fast-growing asset class around the world during the last decades. In many countries, REIT legislation has been introduced, improving the institutional framework and legal setting of real estate companies; both the number of listed real estate companies and their market capitalization have increased tremendously, coverage by analysts and investors has augmented, and therefore, securitized real estate now cumulatively offers a suitable opportunity to overcome the drawbacks of investments in direct real estate. Second, many studies show that cross-country diversification benefits for pure stock portfolios have been decreasing over time due to increasing financial integration of global stock markets. Thus, investors are looking for other assets, such as real estate, to provide diversification benefits. Third, recent contributions by Lustig and Verdelhan (2007), Lustig et al. (2011), and Verdelhan (2011) provide evidence for systematic risk in exchange rates.[2] If currency risk is not independent and random, buying bonds, stocks, and real estate in different currencies does not lead currency exposure to diversify away in international portfolios (see Verdelhan (2011), p. 6). Consequently, the portfolio diversification benefits from an asset class like international real estate may be masked by common movements in currency risk premia, and thus may lead to an underestimation of the true benefits. Therefore, given the mentioned facts and the increased relevance of real estate investments in the recent past, the central questions raised above present the guideline and motivation for our analysis.

To our knowledge, the paper at hand is the first study applying mean-variance efficiency tests to such a broad range of markets and assets, covering a time period of more than 25 years, while simultaneously considering currency risk, which we regard as an important contribution to the existing literature of international portfolio diversification where currency risk is often neglected even it is a substantial part of risk.

Compared to previous studies applying spanning tests as discussed below, our analysis extends the investment universe from international bond and stock markets to international securitized real estate markets and explicitly considers the impact of currency risk. For the empirical analysis, we use monthly data on bond, stock, and real estate markets from ten countries covering the period from 1984 to 2010. The markets considered, which are located in Asia, Australia, Europe, and North America, cover a large portion of market capitalization in global stock and real estate markets and can therefore be considered representative.

The statistical significance of the diversification benefits is analyzed by regression-based spanning tests for the complete efficient frontier and intersection tests for the global minimum variance portfolio as well as the tangency portfolio as suggested by Huberman and Kandel (1987), de Roon and Nijman (2001), and Kan and Zhou (2012). The mean-variance frontier can by definition only shift outwards when a set of assets is added to the investment universe. However, mean-variance spanning tests can be used to check whether a shift of the mean-variance frontier is too large to be attributed to chance. Performing statistical tests allows us to measure and compare diversification benefits from international bonds, stocks, and real estate by means of statistical significance.

Taking the perspective of a US investor, we start with a mixed-asset portfolio based on US bonds, US stocks, and US real estate. In three steps, we successively add international bonds, international stocks, and international real estate to this portfolio. We test the contribution of the different assets by two settings – first, by using currency-unhedged returns and, second, by using fully (unitary) currency-hedged returns – in order to account for additional systematic movements in currency markets.

If a specific currency loads on a common currency factor, this may introduce unintended co-movements between asset classes within a foreign country, measured in USD. If the currencies of several countries simultaneously load in the same direction on a common currency factor, unintended co-movements between investments in these countries might follow. Thus, if investors consider international assets on an unhedged basis to derive an asset allocation decision, the core asset price risk and the exchange rate risk are being taken as inseparable, and the “full diversification benefits of international investing” can be masked (see Dales and Meese (2001), p. 10).

[2] Where Lustig and Verdelhan (2007) and Lustig et al. (2011) focus on portfolios of exchange rates, Verdelhan (2011) focuses on bilateral exchange rates. Verdelhan finds that “two economically motivated factors” account for 20%–90% of exchange rate movements.