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## *Comment*

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Dennis Quinn and Hans-Joachim Voth's paper "Free Flow, Limited Diversification: Openness and the Fall and Risk of Stock Market Correlations, 1890–2001" provides important new data and insights into the causes of the portfolio home bias puzzle, a topic that has intrigued economists for decades (see Lewis [1999] for a summary of the literature). Historically, the correlation of equity returns across countries has been relatively low, suggesting that investors could significantly reduce risk by diversifying their portfolios to include greater shares of foreign stocks. But, investors often have not done so. Rather, they have tended to overweight domestic equities relative to foreign equities. This paper provides evidence that the lack of international portfolio diversification in part reflects restrictions on capital mobility. In a nutshell, investors historically did not take advantage of the hypothesized gains from international diversification because they were not allowed to do so. In particular, the authors find that the low historical correlation in equity returns is associated with periods in which capital controls were very restrictive. With the widespread relaxation of capital controls in recent decades, the correlations of equity returns across countries have risen dramatically, suggesting that the hypothetical benefits from diversification have shrunk just as investors have gained the ability to take advantage of them.

The paper makes two key contributions. First, the authors extend the Quinn-Toyoda measure of capital account openness to cover over 110 years of data for 16 countries. Data are a public good essential for research, and the creation of new high-quality data is worthy of high praise on its own. Second, the paper provides compelling evidence of a positive empirical link between their measure of capital market openness and correlations in equity returns across pairs of countries. Above and beyond the application to the portfolio home bias puzzle, these

contributions add to the sizable literature that investigates the relationship between current account openness and other relevant economic variables.

This discussion focuses on three issues raised by the paper. The first relates to the robustness of the key results to alternative specifications and samples. The second has to do with the thorny problem of identification. The third issue is the connection between the paper's empirical analysis to the broader topic of the gains from international portfolio diversification.

Edison et al. (2002) find that estimated effects of capital account openness on other variables can be quite sensitive to sample and the choice of measure of openness. The paper presents a number of robustness exercises, but further sensitivity analysis would provide greater illumination of the empirical results. Given that the paper focuses on equity returns, it seems natural to consider a measure of equity market openness, such as in Bekaert and Harvey (2000), Henry (2000), and Edison and Warnock (2003), rather than overall capital market openness. Similarly, sensitivity analysis to alternative measures of the pairwise capital account openness variable would be welcome. In addition, it would be interesting to compare the results from a broader sample of countries including less developed economies. A natural question is whether the estimated effects are similar in emerging market countries. Finally, the subsample estimation results suggest that the relationship between capital market openness and equity return correlations may have changed over time. This finding could reflect a nonlinear relationship between the variables or some other form of model misspecification. Further investigation into this issue would be worthwhile.

The authors conclude that the regression findings provide evidence that changes in capital account openness caused changes in correlations in equity returns. Although this interpretation of the correlations in the data is intuitively appealing and eminently sensible, the evidence presented in the paper does not establish a completely compelling case for a causal relationship between capital account openness and equity returns correlations. Concerns that the estimated correlations reflect simultaneity and omitted variables would be lessened if both time dummies and country pair fixed effects are included in the regressions (rather than the combination of time dummies and country dummies, as reported in the paper). In addition, further examination of why capital controls were changed in a number of specific cases, like the case study of Britain and France discussed in the paper, would provide valuable context for the reader in interpreting the regression results.

The third issue deals with the relevance of the regressions to the portfolio home bias puzzle. The specification of the regressions in the paper is not as closely linked to portfolio theory as it could be. The dependent variable in the regressions is the pairwise correlation of equity returns measured in dollars. It is not clear that this particular metric is one that investors should, or do, focus on. Instead, investors presumably care about the performance of their entire portfolio, which depends on the covariance properties across all investments, as analyzed in Harvey (1991). Pairwise correlations are not well suited for analysis of portfolio choice.

Importantly, the correlations studied in this paper abstract from exchange rate risk, which arguably is a significant concern for investors that should be controlled for. In addition, the paper focuses on correlations in monthly returns. But, as discussed in Bansal and Yaron (2004) and Lewis and Liu (2009), longer-term risks carry with them far greater welfare costs. For this reason, a longer window for computing the covariance of equity returns may be more appropriate.

In summary, the paper makes a convincing case that capital restrictions have been a binding constraint with repercussions on asset returns and portfolio choices. Clearly, many other influences affect asset allocations, including transaction costs (Tesar and Werner 1995; Coeurdacier and Martin 2006) and trade costs (Obstfeld and Rogoff 2001). A fruitful direction for future research is to examine the home bias puzzle using information on a variety of factors that influence international portfolio diversification, including capital account openness.

## Endnotes

The opinions expressed are those of the author and do not necessarily reflect the views of the management of the Federal Reserve Bank of San Francisco or anyone else in the Federal Reserve System.

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