Correction: A Mean-Variance Framework for Tests of Asset Pricing Models

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In Kandel and Stambaugh (1989), we provide the rejection regions in sample mean-variance space for likelihood ratio tests of various asset-pricing models. When a riskless asset exists, we note that, in some cases, there can be no rejection region to construct in sample mean-variance space. That is, there can be samples in which *no* portfolio would produce a likelihood-ratio test statistic above the critical value for a given significance level (see Propositions 1 and 4). [This possibility was first noted in Kandel and Stambaugh (1987).]

What we failed to observe is that a similar phenomenon can arise when no riskless asset exists. It is possible in that case as well to have samples in which there are no portfolios that produce a likelihood ratio test-statistic above the critical value. Specifically, W_A, the transformation of the likelihood ratio (defined on page 135 of our article) has an upper bound equal to D/L (where D and L are defined on page 129). As a result, there is no rejection region ex post whenever the critical value for W_A exceeds D/L. The critical parabolas given in Propositions 2, 3, and 5 are therefore defined only when, in each proposition, the argument of $\boldsymbol{\delta}_1(\ )$ and $\boldsymbol{\delta}_2(\ )$ is less than D/L.

Although this outcome does not occur in any of the

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examples presented in our article, it seems that one can find other samples where it does. An example in which no rejection region exists for a 5 percent significance level is reported by Rosin (1994), using weekly data for Israeli stocks, and we are grateful for his first bringing this possibility to our attention. Another example can be constructed using monthly data from 1926 through 1992 on 12 assets consisting of the equally weighted NYSE index, the value-weighted NYSE index, and 10 value-weighted portfolios formed by firm size (these data are taken from the CRSP Index File). The sample value of *D/L* in that case is 0.026, which is the upper bound on $W(p)$ defined on page 134. The critical value for a 1 percent significance level, W^c in Proposition 2, is 0.029 (based on the asymptotic x^2 distribution). Thus, no portfolio of those 12 assets could produce, in this 67-year sample, a rejection of efficiency at a 1 percent significance level.

We would also like to take this opportunity to correct typographical errors in the published article:

1. page 134, line 3, x^{12} should be x^2
2. page 134, Equation (11), $\sigma_2(W^C)$ should be $\delta_2(W^c)$
3. page 142, unnumbered equations, W^C should be $W^C + 1$ and $W^c_{1,2}$ should be $W^c_{1,2} + 1$
4. page 152, Equation (A12), $\hat{\hat{\sigma}}$ should be $\hat{\hat{\sigma}}^2$
5. page 154, two lines after Equation (A17), X_{K2} should be X_{A2}

References

Kandel, S., and R. F. Stambaugh, 1987, "On Correlations and Inferences about Mean-Variance Efficiency," *Journal of Financial Economics,* 18,61-90.

Kandel, S., and R. F. Stambaugh, 1989, "A Mean-Variance Framework for Tests of Asset Pricing Models," *Review of Financial Studies,* 2, 125-156.

Rosin, A., 1994, "Investigation of the CAPM Validity in Israel (1986-1992) by Examining the Efficiency of the 'Market Portfolio'" MA. Thesis, Tel-Aviv University.