

Paulo Rodrigues

Banco e Portugal e Nova SBE

“Testing for Episodic Predictability in Stock Returns”

Abstract:

Standard tests based on predictive regressions estimated over the full available sample data have tended to find little evidence of predictability in stock returns. Recent approaches based on the analysis of subsamples of the data have been considered, suggesting that predictability where it occurs might exist only within so-called “pockets of predictability” rather than across the entire sample. However, these methods are prone to the criticism that the sub-sample dates are endogenously determined such that the use of standard critical values appropriate for full sample tests will result in incorrectly sized tests leading to spurious findings of stock returns predictability. To avoid the problem of endogenously-determined sample splits, we propose new tests derived from sequences of predictability statistics systematically calculated over sub-samples of the data. Specifically, we will base tests on the maximum of such statistics from sequences of forward and backward recursive, rolling, and double-recursive predictive sub-sample regressions. We develop our approach using the over-identified instrumental variable-based predictability test statistics of Breitung and Demetrescu (2015). This approach is based on partial-sum asymptotics and so, unlike many other popular approaches including, for example, those based on Bonferroni corrections, can be readily adapted to implementation over sequences of subsamples. We show that the limiting distributions of our proposed tests are robust to both the degree of persistence and endogeneity of the regressors in the predictive regression, but not to any heteroskedasticity present even if the sub-sample statistics are based on

heteroskedasticity-robust standard errors. We therefore develop fixed regressor wild bootstrap implementations of the tests which we demonstrate to be first-order asymptotically valid. Finite sample behaviour against a variety of temporarily predictable processes is considered. An empirical application to US stock returns illustrates the usefulness of the new predictability testing methods we propose.