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Author: Januj Juneja

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- The study of affine DTSM has flourished in recent term structure literature.
- In theory, any two affine DTSM can be connected through invariant transformations.
- It is shown that invariant transformations (IT) leave bond yields identical.
- IT lead to statistical differences in affine DTSM (ADTSM) performance.
- Usage of IT does not lead to material economic differences in ADTSM performance.

Invariance, observational equivalence, and identification: Some implications for the empirical performance of affine term structure models

Januj Juneja

Department of Finance, College of Business Administration, San Diego State University, San Diego, California 92182

Tel: 619 594 8397, fax: 619 594-3272.

Abstract

Scholars working on the class of affine term structure models (ATSM) use econometric theory to postulate that any two ATSMs can be connected through any combination of affine transformations (AT), leaving their implied bond prices and distributions identical. Our results, which are obtained through the derivation and testing of two hypotheses, show that, first, the application of AT introduces a lack of precision in the parameters resulting from their not being identified, and, this leads to very statistically distinct model performance. Secondly, we also demonstrate that, owing to the property of observational equivalence, AT neither improves nor worsens the empirical performance of ATSM. Results are robust to a Monte Carlo simulation experiment. Taken together, our findings show that the usage of invariant transformations introduces statistically significant differences in empirical performance that are economically

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