

# BIG DATA & ALGORITHMIC FINANCE



## Paul KAREHNKE

Associate Professor of Finance, ESCP Business School

Paul Karehnke is an Associate Professor of Finance at ESCP Business School. He received a joint PhD from Université Paris-Dauphine and Tilburg University in 2014 and a research direction degree (HDR) from Université Toulouse 1 Capitole in 2021. Prior to joining ESCP in 2018, he was a Lecturer and then a Senior Lecturer at the University of New South Wales in Sydney (Australia).

His research interests include asset pricing, investments, behavioral finance, and choice under risk. His work has been published in journals such as the Journal of Financial Economics, Journal of Financial and Quantitative Analysis, Management Science, and Review of Finance. He has also served as a referee for top-tier finance and economics journals, and he is currently an associate editor at the Journal of Empirical Finance.

Personal web page: <https://sites.google.com/site/paulkarehnke/>

## BETA HORIZONS

Paul KAREHNKE and Frans DE ROON.

We relate beta estimates at different frequencies to each other. Both the unconditional distribution of betas and the distribution conditional on their monthly estimate become more dispersed and closer to a lognormal distribution as the estimation horizon increases. Longer horizon beta estimates that assume either independently and identically distributed returns or simple autocorrelation dynamics provide much better estimates of longer horizon betas than short-horizon betas. Longer horizon betas and mean holding period returns yield positive and reasonable market risk premium estimates, even for characteristics-sorted portfolios that have been shown to pose a challenge for the CAPM.

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