Hedge Fund Replication and Alternative Beta Strategies

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Library of Congress Cataloging-in-Publication Data

CIP Data to come.

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

ISBN 978-0-470-75446-7

Typeset in 10/12pt Times by Aptara Inc., New Delhi, India
Printed and bound in Great Britain by CPI Antony Rowe, Chippenham, Wiltshire
This book is printed on acid-free paper responsibly manufactured from sustainable forestry in which at least two trees are planted for each one used for paper production.

To my children, Anika May, Kira Anh, and Talia Linh

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fm JWBK289-Jaeger June 19, 2008 16:20 Printer: Yet to come

Preface

The increased academic and nonacademic effort in modeling and understanding hedge fund return sources has finally reached Wall Street. A new buzzword is out and has quickly captured the imagination of product providers and investors alike: 'hedge fund replication'. In the broadest sense, replicating hedge fund strategies means replicating their return sources and corresponding risk exposures. However, there is still no coherent picture of what hedge fund replication means in practice, what its premises are, how to distinguish different approaches, and where this can lead us to. In this book I will try to change that.

Because investors must understand return sources to achieve replication, I will present them in considerable detail. Thus the early chapters of this book cover some of the same ground as two of my earlier books: *Risk Management in Alternative Investment Strategies* (2002) and *Through the Alpha Smokescreen: A Guide to Hedge Fund Return Sources* (2005). The discussion of replication techniques and their practical application, however, is entirely new.

How this book is different

As hedge funds grow, so does the number of books about them. But it has taken a long time to see a first handbook dedicated to the topic of replicating hedge fund strategies. This is in part because the financial community is only now coming around to the view that hedge fund replication is possible. As far as I know, this is the first the first book on the topic. This book uniquely focuses on replication, explaining along the way the return sources (and systematic risks) that make replication possible. If you wish to understand the background of the new discussion on hedge fund replication and how to derive the returns of many hedge fund strategies at much lower cost, to differentiate the various underlying approaches, or simply to understand in greater detail how hedge fund replication can improve your own investment process into hedge funds, you have come to the right place.

Who needs it?

Anyone who wants to understand hedge funds and the new hedge fund replication discussion can benefit from this book. It is aimed at financial professionals who work with or allocate assets to hedge funds. But it will also be helpful to traditional asset managers, financial analysts, consultants, regulators, legal authorities, advisors, financial journalists, and students. Because I examine a wide range of strategies, even hedge fund experts are likely to learn something new.

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What do you need to know first?

All you need to benefit from this book is a basic knowledge of financial markets. To serve a broad audience, I have minimized the math and defined any technical jargon. On the way, I will also explain what hedge funds really are (and aren't) and detail how different strategies derive their returns. In the process I hope to dispel popular misperceptions of hedge funds as either a magic money machine or a scam. If you understand the fundamentals of these three things: traditional investment vehicles such as equity, fixed income, foreign exchange and commodities; plain vanilla derivatives such as options and futures; and the core principles of modern portfolio theory – then you are good to go.

What is in the book

This book is divided into three parts: Hedge Fund Background; Return Sources; and Replication Techniques.

The first part consisting of Chapters 1 and 2 – Hedge Fund Background – provides a short course in what hedge funds actually are and how they operate. It will arm you with the background knowledge you will need to absorb the rest of the book. Chapter 2 is an overview of the hedge fund industry and its recent developments. It also dispels common myths and misperceptions about hedge funds.

Armed with this background, the Return Sources part illuminates, unsurprisingly, the sources from which hedge fund derive their returns. Most importantly this section shows that the majority of hedge fund returns derive from systematic risk exposure rather than manager 'alpha'. Chapter 3 describes the individual hedge fund strategies in some detail, while Chapter 4 examines their past performance characteristics. Chapter 5 discusses the background of the capital markets theory and explains the economic reasons for hedge fund returns. Hedge fund managers and veterans might choose to skip ahead, but both the Background and Return Sources parts will be useful if you are a either new to hedge funds, or simply want a want a refresher before heading into new territory.

The third part – Replication Techniques – is the beating heart of this book. It presents both conventional and emerging approaches to replicating hedge fund returns. Chapter 6 presents the first generation of hedge fund replications products, and points out the pitfalls of the linear factor model approach that underlies them. Chapters 7 and 8 introduce alternative approaches to hedge fund replication, designed to overcome some of the the problems of previous models, and also discuss the limitations of hedge fund replication. Chapter 9 is a practical guide for using your new replication knowledge to construct optimal portfolios. You will learn a new 'core–satellite' investment approach, which optimizes returns and costs by integrating sector allocation and manager selection. This chapter is especially useful for the fund-of-funds manager.

With hedge fund replication going mainstream, investors are given a choice among several different views and approaches. But despite its immense importance, there not yet a book out which gives readers clear guidance on this topic. This is what motivated me to write this book.

This book represents untold hours of effort by many persons other than myself, and I would like to thank everybody who helped me to complete this work. The first person I owe gratitude is my dear wife, Julie, who provided love, understanding and support throughout many hours of writing. Secondly, I owe particular gratitude to Jeffrey Pease, my brother-in-law, who spent countless hours editing and rewriting the manuscript. Without him, the book would not be in the form and language presented here. Furthermore, I would like to acknowledge my colleagues and partners at Partners Group, who were the joint architects of many of the ideas presented in this book, particularly Michel Jacquemai for numerous years of collaboration, Dr Stephan Müller for valuable support and ideas on the topic as well as in the implementation of these ideas into a real-world trading environment, and Björm Imbjerowic for helping on some calculations presented.

Finally, I thank my editor at Wiley, Pete Baker, for his enthusiastic support of this book and for assistance in editing and reviewing the manuscript. Despite the extensive support I received, I take responsibility for any mistakes, misrepresentation, or omissions in the book.

Dr Lars Jaeger
April 2008