Currency Overlay

Neil Record

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John Wiley & Sons (Asia) Pte Ltd, 2 Clementi Loop #02-01, Jin Xing Distripark, Singapore 129809

John Wiley & Sons Canada Ltd, 22 Worcester Road, Etobicoke, Ontario, Canada M9W 1L1

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Library of Congress Cataloging-in-Publication Data

Record, Neil.
Currency overlay / Neil Record.
p. cm.
Includes bibliographical references and index.
ISBN 0-470-85027-2 (Cloth: alk. paper)
1. Currency overlay. I. Title.
HG4529.5 .R43 2003
332.4′5—dc22 2003014721

British Library Cataloguing in Publication Data

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

ISBN 0-470-85027-2

Typeset in 10/12pt Times by TechBooks, New Delhi, India
Printed and bound in Great Britain by Antony Rowe Ltd, 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 Julie, Chris, Rob, Helen, Katy and Guy – a cure for insomnia!

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Biography

Neil Record was educated at Balliol College, Oxford, where he studied Philosophy & Psychology; Essex University and University College, London, from where he gained an MSc in Economics with Distinction. His first job, in 1977, was as an Economist in the Economic Intelligence Department of the Bank of England. While there he had his first taste of large-scale economic modelling, and his first exposure to an exchange rate forecasting model. It was notable then that the exchange-rate forecasting model was one of the weaker elements of the Bank's model of the UK economy.

In 1979, Neil moved to work as a commodity price forecaster at the chocolate maker Mars in Slough, UK. He quickly moved into line responsibility for buying commodities, and then to buying forward currency for the company's commodity and import needs. While at Mars he developed an innovative process for controlling currency risk and exploiting currency market inefficiency.

In 1983, aged 29, Neil left Mars to establish his own specialist currency management business, Record Treasury Management (renamed Record Currency Management in 2001). Record Currency Management was a pioneer of currency overlay for pension and investment funds, and in April 1985 it was awarded the worldwide first-ever institutional currency overlay mandate – from the UK Water Authorities' Superannuation Fund.

Today, 20 years after founding Record Currency Management, Neil remains Chairman and CEO. He divides his time between client liaison, currency overlay design work, and speaking and writing about currency overlay. His other interests include a non-Executive Directorship of RDF Media – a leading UK independent TV production company – opera, baroque music, tennis, skiing, travel, art, architecture and watching his childrens' sporting activities. He is divorced and lives with his partner, Julie, and his three children and her two children.

Acknowledgements

I am indebted to my colleagues at Record Currency Management, particularly Peter Wakefield, Leslie Hill, Bob Noyen, Mike Timmins, Ian Harrison, Joel Sleigh, Dave Murphy, Simon Williamson, James Dyas, Sebastian Jans and Dmitri Tikhonov for their technical input, advice and debate. I am also grateful to Chris Jackson, Jane Deane and Julia Edbrooke for their administrative support. I am also indebted to Brian St.J. Hall of Hewitt Bacon & Woodrow for advice and comments on earlier drafts. Finally, I must thank Julie for putting a glass of wine in my hand after particularly heavy days!

1 Introduction

Currency overlay is a new branch of investment management. Not surprisingly, the literature is equally new; in particular, there does not exist at the time of writing (2003) any comparable comprehensive book on currency overlay.

Because currency overlay is new, I have chosen to write this book in such a way that it fulfils two functions: the first as a primer; the second as a reference book. Writing for a heterogeneous audience is difficult at the best of times; writing for a heterogeneous audience and to fulfil two functions is doubly challenging. I have chosen to enlist a number of techniques to help in this effort.

- **Argument from first principles**
  Where possible, I try to limit the reference to external theories or academic literature. In theory, I would like the able and mathematically literate reader to be able to grasp the arguments in this book without having prior knowledge of the currency world or any of the literature that surrounds it.
- **Use of mathematics**
  I will use only sufficient mathematics to explain my point or make my case. I have avoided advanced maths where at all possible. Generally, the only references to 'given' mathematical theories are in statistical formulae, where there is simply not enough space to derive them from first principles.
- **Boxes**
  I will use a technique used by Norman Davies in *Europe – a History*,[1] in which he creates 'boxes' with self-contained 'stories'. While a full description of currency overlay is clearly nowhere near as multi-stranded as the history of Europe, nevertheless I believe the reader will find it helpful to have text which is not fully 'linear'. I also use boxes to explain or describe vocabulary which may be unfamiliar.

This book is aimed at a wide audience. I anticipate that it will include readers from currency overlay managers, from the wider investment management industry, from investment consultants and actuaries, from the more investment-literate pension fund managers, from the investment management desks of insurance companies, from foreign exchange dealing banks and from custodian banks. It will inevitably also appear on the desks of students in finance and related disciplines, although it is not written as a textbook.

What distinguishes this book from a similar one written as a textbook? Firstly, it is not designed to fit in with any class, course, degree or qualification. Secondly, it is not designed to be fully rigorous. This is deliberate – full rigour would significantly expand the size of the book without adding to the core content. Thirdly, a textbook would not typically aim at a heterogeneous audience. A readership of, say, graduates following an AIMR[2] qualification or a

[1] Davies, N., *Europe – a History*, Oxford University Press, December 1996; ISBN 0-195-20912-5.

[2] Association for Investment Management & Research – the highly respected American asset management trade association and the awarder of the CFA qualification.

postgraduate degree course would expect a great deal less introductory finance and economics, and a great deal more mathematical rigour.

Currency overlay is not, to my knowledge, part of the syllabus of any investment management or other finance course at the moment. When, and if, it becomes part of standard graduate or professional courses, a textbook will undoubtedly emerge.

1.1 INVESTMENT BACKGROUND

Readers completely unfamiliar with investment may like a brief primer as to the key investment instruments and the key investor categories. I do this because I will be referring to these instruments throughout the book. The reader familiar with basic investment principles might like to skip this short section, and turn to p. 14.

1.1.1 Investor instruments

There are two main investment classes: equities and bonds, and both of these are also instruments. There is a larger range of smaller asset classes (cash, property, private equity, hedge funds, commodities), although some of these (e.g. hedge funds) are not instruments.

Box 1.1 What is currency overlay?

An investor – say a US investor – decides to invest in the UK stock market. The decision to invest in the UK is not determined by the investor's view on the prospects for the UK pound, but by the good prospects for the UK stock market and a desire for diversification. However, to buy the UK stocks, the US investor has to buy pounds with dollars on the foreign exchange market. He then buys the UK stocks with the pounds. Each month, the investor will get a valuation of this investment, and two markets (not one) will affect this valuation – (i) the general level of UK stocks in pounds and (ii) the level of the pound against the dollar.

The investor may decide that the uncertainty brought about by the variation in the dollar/pound exchange rate is undesirable, and choose to get rid of (or 'hedge') it. He hires a currency overlay manager, whose remit is to maintain a portfolio of forward currency contracts to offset any movements in the dollar/pound exchange rate. Broadly speaking, these contracts commit the investor to sell fixed amounts of pounds against the dollar at fixed dates in the future. This 'overlay' does not require any investment on the part of the investor; only a credit line with foreign exchange banks to enable the overlay manager to have the ability to deal in forward contracts with the banks on behalf of the investor.

The 'returns' of currency overlay come in two ways: forward currency contract valuations and cash settlements on maturing forward contracts. These two combine to become the contribution to return of currency overlay. The overlay manager who maintains the currency hedge over a constant proportion of the portfolio is conducting 'passive overlay'; the manager who varies it according to his view on the prospects for the pound is running 'active overlay'.

The expression 'currency overlay' has been extended recently to cover active mandates which are purely return-seeking, rather than risk-reducing. These mandates are not restricted purely to forward contracts to sell currencies already owned in the portfolio against the base currency – they can utilise any currency pair in either direction.

Equities (or shares) are a share in a limited liability company, and entitle the holder to the residual value on winding up of a company, and to regular payments in the form of dividends of surplus profits after other claims on the business have been discharged. Quoted equities (those that trade on recognised exchanges) are generally sufficiently liquid to maintain a 'second-hand' price in the market. This market price is the key for much of the later discussion in this book about international equities and currency risk. For the time being it is worth noting that the currency in which equities are quoted (which is generally, but not exclusively, the same as the currency in which the company reports its accounts) is important for the initial categorisation of equities' currency risk.

Bonds are on the face of it much simpler instruments than equities. They are a loan from the investor to a company or other economic entity. Bond-issuing entities include companies, asset-holding special purpose vehicles, governments, international organisations and mixed public/private sector groups. The bond (and I find it easiest even in this electronic world to think of it as a piece of paper) represents a promise of a series of payments by the issuer to the holder. These payments are a fixed amount of cash (the coupon), say $6 per year, until a particular date, and then a payment of principal, which is almost always by convention $100 (or £100 or Eur100 depending on the currency of the bond). Bond coupon payments are usually made either annually (mainly governments) or semi-annually. For annual payments, the last payment date (when the principal is repaid) is also usually the payment date of the coupon. There are a huge range of variations on this simple theme – most importantly that there are bonds where both the coupon and the principal are linked to an index of consumer or retail prices ('index-linked' bonds), and where the amount of the coupon varies according to prevailing short-term rates, rather than being fixed ('floating rate' bonds).

Bonds can be and are issued in a variety of currencies, although they are for practical purposes traded (in the second-hand market) in the same currency as their issue currency.

1.1.2 Key investor categories

Who are the main investors in equities and bonds? The ultimate answer is 'individuals', but most of this ownership is diffused through one or more intermediary layers, so that the majority of the influential decision-making is made by the managers of large pools of assets. These are commonly called 'institutional investors', although this is something of a misnomer, since they are mainly professional commercially-orientated managers, rather than representatives of 'institutions'.

Investment is about deferring consumption. There are many different reasons for deferring consumption, but by far the most important now is the deferral of income from the period while an individual is working to their retirement. This used not to be the case, at least in public securities' markets. In the heyday of nineteenth century capitalism, the majority of investors were rich men intent on getting richer – not thinking about their retirement, and insurance and provident companies investing small contributions from policyholders to provide for life's disasters – death, injury, fire – but not generally retirement. Few women in this period were economically active (in the sense of having paid jobs), and men were expected to work until 60 or 65.

The fundamental changes in the economic and social structure of western societies in the late twentieth century have changed that – families no longer expect to look after their elderly relatives, life expectancy in the developed countries has been extended markedly and average retirement age has, if anything, gone down. See Box 1.2. It is not untypical for a

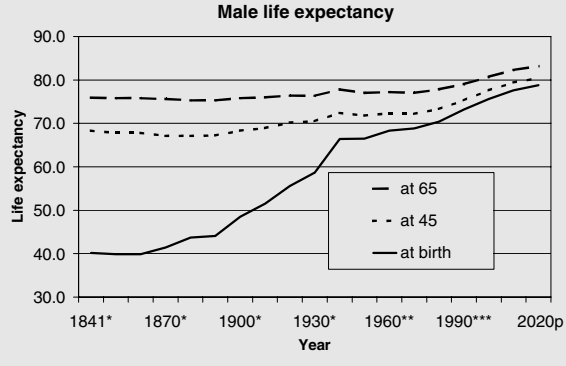
worker to retire in their mid to late fifties and live to their early eighties. This requires 25 years of income – income that governments are either unwilling, or now increasingly unable, to provide. Providing this income is the principal concern of the investment management industry.

Box 1.2 Life expectancy

Life expectancy in developed countries has been increasing almost continuously for two centuries. However, the pattern of mortality has also changed, and this has a significant impact on the need and scale of retirement provision. Taking the UK as an example, the striking thing about the change in mortality patterns is the collapse in *early* death rates. In the nineteenth and early twentieth centuries, people died at every age group – mainly through infectious diseases and what would be regarded now as avoidable causes – accidents, childbirth, etc.

In the late twentieth and early twenty-first centuries, death is almost exclusively the preserve of the elderly. This means that the population is becoming increasingly elderly, and the ratio of working years to retirement years has collapsed. In 1841, only 30% of males born reached 65; in 2000, 83% reached 65. Life expectancy for those lucky enough to reach 65 has changed less markedly. In 1841, the life expectancy of a 65-year-old man was 76 years; in 2000, 81 years.

This effect can be seen graphically in male life expectancy at ages 0, 45 and 65:



Source: UK Government Actuary's Department.

The female experience is very similar: just a few years longer at every age. So both the continuous rise in the solid line, and the recent rise in the dotted and dashed lines, are making the provision of retirement income so much more difficult and material.

These changing social and economic trends mean that the majority of investment is by pension funds. While there is a large sector which is explicitly labelled 'pension funds', there are also mutual funds and insurance company investments which, even if not labelled so, are also largely for the purpose of securing individual income in retirement.

Pensions are divisible into two key types – defined benefit and defined contribution.

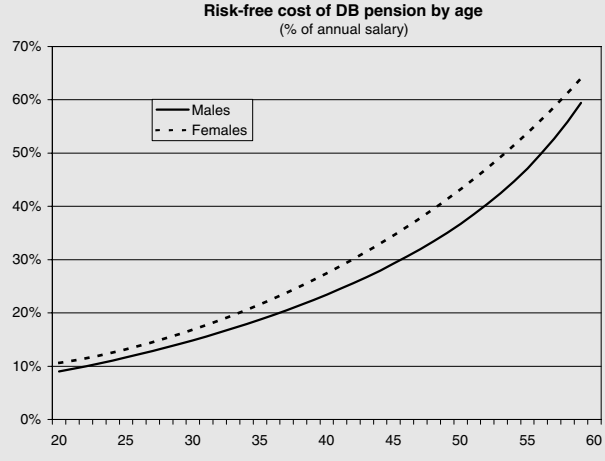
1.1.3 Defined benefit pensions

Defined benefit (DB) pensions are just that. They are a promise by an employer, or a government, to pay a defined amount of annual pension between a retirement date and death. The

Box 1.3 Defined benefit pensions

The key characteristic of defined benefit (DB) pensions is that the pension they deliver is not affected by any factors except the number of years of pensionable employment and the employees' final (or, more rarely, average) salary. DB pensions are typically expressed in the form '1/60 of final salary for each year of pensionable employment'. In the UK, but not the US, they are now required to be index-linked (0–5% p.a. limits) after retirement. They are typically offered to men and women on the same terms, although the expected cost to the employer is higher for women than for men because of the higher life expectancy for women.

The cost of DB pensions is highly sensitive to real investment returns, salary increases and longevity. If the cost of providing a DB pension were outsourced to a third-party provider like an insurance company, then it would be possible to calculate from financial economics the annual cost to the employer that the insurance company would have to charge. I assume here that the insurance company is prepared to take mortality (annuity) risk (which is diversified), but not investment risk (which is systematic), and that the contract is priced at cost. The graph below shows the annual pension cost compared to employee age on the following assumptions: UK pension; investment only in I/L gilts; 2.5% real returns for I/L; I/L pension (no cap or floor); UK average mortality; annual salary increase 3% p.a. higher than inflation; continuous employment with one employer for 40 years; retirement at 60; 1/60th accrual. Later years are so much more expensive to the employer because of the uprating of accrued rights with salary increases. And just to be clear, this graph means that the *annual* cost to the employer of a male aged 59 is 60% of his salary!



On these assumptions, the average cost per year to the employer is 26% p.a. for males, and 30% p.a. for females.

defined amount may go up (in the UK it routinely increases with inflation for example), but it will never go down. The level of pension is not dependent on the performance of any underlying assets guaranteeing the pension – only on the rules of the pension. This is the distinguishing feature from defined contribution pension schemes.

1.1.4 Defined contribution pensions

Defined contribution (DC) pension schemes are not really pension schemes. They are basically mutual funds or unit trusts with a beneficial tax-wrapper. The 'tax-wrapper' is usually that governments will allow income tax relief on investment into a DC scheme, and allow the income and capital gains to roll up inside the fund tax-free.[3] By way of compensation, governments usually tax all of the subsequent capital value as income when it is received by the pensioner, which will usually be by way of annuity receipts.

DC pension schemes allow individuals to build their own 'pot' of assets, often with contributions also coming from their employer. Most jurisdictions require retiring DC members to buy an annuity with much or all of this 'pot'. An annuity is a promise from a provider (usually an insurance company) to pay a fixed annual amount from the date of purchase until the annuitant's death. Payments from an annuity are, in effect, a pension. Annuities are priced by the market, which is run by insurance companies. They pool the mortality risk they are taking, and then replicate the payments required by holding bonds. If bonds are expensive (i.e. bond yields are low), then annuities will be expensive (i.e. a fixed outlay will buy less annual pension).

The DC investor therefore runs two very significant financial risks: (1) the risk of poor performance of his investments up to the point at which he retires, and (2) the risk that annuities will be expensive, thereby reducing his pension.

1.1.5 Investors in a currency overlay context

The remainder of this book will deal with the issue of currency exposure and institutional investors. The currency exposure at the centre of this question is that embedded in the ownership of securities outside an investor's home country, and denominated in a foreign currency. As a practical matter, most of the currency overlay mandates awarded in the period 1985–2002 have been to manage the currency exposure of international *equity* portfolios. In addition, most of the investors awarding such contracts have been DB pension funds. This has come about because the majority of cross-border portfolio investment is experienced by DB schemes' equity portfolios.

Table 1.1 shows rough estimates of the scale of global asset classes. It is very difficult to make sensible estimates of total cross-border asset holdings, hence my choice to show estimates for DB cross-border holdings alone (which are better documented). Suffice it to say at this stage that *international equities* are the largest creator of identifiable currency risk, and *DB pension funds* are the largest of the investor types experiencing currency exposure.

[3] In the UK, the notorious 1997 withdrawal of ACT relief for pension fund holders of UK equities was a partial withdrawal of this tax-free status. The position with regard to bonds is now anomalous – bond interest cost is fully tax-relievable for UK corporates, and not taxable in the hands of pension funds.

Table 1.1 Estimates of global asset ownership ($ bn)

	Total world market cap	Of which owned by DB funds	Of which DB cross-border	DB% total	Cross-border% DB
Equities	23 800	5200	1126	22%	22%
Bonds	18 000	3466	125	19%	4%
Total	41 800	8666	1251		

Sources: Lehman Bros; MSCI; Record Currency Management, December 2002.