

# MANAGING FINANCIAL INSTRUMENTS IN A LIFE COMPANY PORTFOLIO

PAUL KENNEDY

## ABSTRACT

Financial instruments are increasingly used to support unusual product guarantees or to enhance investment returns, either by exploiting tax loopholes and anomalies or by improving a life insurer's risk-reward profile. The range of financial instruments available continues to grow but so does the list of cautionary tales that result from the strains on life company's treasury function. This paper highlights some pitfalls and considers a basic programme for managing these powerful instruments.

## INTRODUCTION

1 Section I of this paper introduces the range of financial instruments available, with a summary of their main uses.

2 Section II gives examples of the pitfalls that result from strains on life company's treasury function.

3 Section III sets out a programme for managing financial instruments in a life company portfolio.

## CONTENTS

- I The range of financial instruments
- II Pitfalls
- III Conclusion - a management programme

### 1. THE RANGE OF FINANCIAL INSTRUMENTS

101 The list of financial instruments found in the UK (and discussed below) is long and includes anything except conventional securities:

- (a) Financial reinsurance
- (b) Bank financing arrangements
- (c) Indexed funds
- (d) Purchased call and put options
- (e) Written call and put options
- (f) Futures and forward exchange contracts
- (g) Swaps
- (h) Synthetic and notional options
- (i) Options on options
- (j) Composite instruments

### 1.1. FINANCIAL REASSURANCE

102 The flexibility of reinsurance has allowed it to go beyond mere protection against claims fluctuation. Financial reinsurance has been available for a long time in several forms and for several purposes:

- (a) Relief of new business strain via initial reinsurance commission payments and reduction in the mathematical reserves that need to be held.
- (b) Tax-management eg to sell losses or unused expenses, or to absorb the reinsurer's investment income via a deposit-back arrangement.
- (c) Offshore reinsurance can help achieve both these aims, although this time without a deposit-back arrangement.
- (d) The true financial effect can be disguised through the use of artificial restrictions introduced either through "memorandum accounts" or profit commission provisions which restrict the actual payments made by each party.
- (e) The ultimate reinsurance agreement is perhaps the "surplus rental" agreement, which is designed to allow the ceding company to relieve its valuation strain; a combination of a 100% profit commission and a deposit of the reinsurer's reserves with the ceding office ensure that the only cash flow between the two is the reinsurer's rental on the extra reserves released by the insurer.

### 1.2. BANK FINANCING ARRANGEMENTS

103 These work in a similar way to some of the financing reinsurance deals, but are arranged with banks. The aim is to relieve the problem that certain contingent assets of the life insurer (such as future

profits and unearned commission on existing business) have economic value but are not an admissible asset of the UK life insurer.

104 Relief may be achieved in one of two ways:

- (a) The bank converts the contingent asset into a real asset eg by securitisation, or
- (b) The bank arranges financing for the life insurer subject to the same contingency as relates to the contingent asset, so that the two can be offset.

### 1.3. INDEXED FUNDS

105 These funds form the classic passive investment for investors who do not wish to incur high trading costs in an attempt to beat the market. Funds track a stock market index with a small tracking error.

106 The existence of these funds has allowed arbitrageurs to add greater confidence and liquidity to the markets in the related index options and futures.

### 1.4. PURCHASED CALL AND PUT OPTIONS

107 Call and put options are now familiar instruments. Call options give a right to purchase the underlying security at a given price, put options give the right to sell at a given price.

108 Downside loss is limited to the price of the option, while upside potential is unlimited.

109 Whilst apparently risky investments, these instruments provide a useful means to restrict losses when combined with complementary assets: ie fixed return and equity investments respectively.

### 1.5. WRITTEN CALL AND PUT OPTIONS

110 The writers of these options are the counterparties to the transaction. Writers of call options undertake to sell at a given price, and writers of put options undertake to buy at a given price.

111 Upside gain is limited to the price received for the option, while downside potential is unlimited.

112 It is unwise to write these options without holding the underlying asset: ie equities or cash respectively.

#### 1.6. FUTURES AND FORWARD EXCHANGE CONTRACTS

113 These are also familiar. Futures contracts provide for delivery of a commodity some time in the future, paid for now. Forward exchange contracts provide for a fixed rate of exchange on a future transaction, usually currency exchange.

#### 1.7. SWAPS

114 Swaps are also familiar investments, under which two parties agree to exchange the returns on 2 different investments, which they continue to hold over a given period.

#### 1.8. SYNTHETIC AND NOTIONAL OPTIONS

115 These are more controversial. On the basis of Black-Scholes and other option-pricing formulae, it is possible to replicate option characteristics, by actively and continuously trading the underlying holding.

116 In practice, there are risks to this approach - for example, in October 1987, it was impossible to trade equities continuously. Synthetic call options, which depended on the ability to sell equities as the market fell, were ineffective in limiting losses.

117 Synthetic options may be used as a cheap alternative to real options in a life portfolio. Alternatively, they may be used to hedge against the issue of written options.

118 A life office running several segmented or segregated funds might also wish to trade notional options between different funds, again valued on the basis of option-pricing.

#### 1.9. OPTIONS ON OPTIONS

119 Options on options permit the holder to buy options at a fixed price in the future.

120 These options are used to back some of the extra guarantees offered on guaranteed equity bonds in the UK, which permit high share

index gains to be locked in, thereby increasing the guaranteed return at that stage.

121 Unlike straightforward options, options on options are never traded and are in practice issued directly by a bank to a life insurer.

#### 1.10. COMPOSITE INSTRUMENTS

122 Composite instruments are also offered by a bank directly to a life insurer. Typically the bank will be acting as intermediary and will have purchased the underlying instruments from one or more issuers.

123 High maturity guarantees on regular premium contracts can be matched with such products using an investment facility with a bank, which is in fact a series of deferred zero coupon bonds all offering a fixed rate.

124 Sometimes an apparently straightforward instrument such as a zero coupon bond is in fact a combination of some other more tax-efficient instrument with the difference in performance eliminated by swaps or a combination of put and call options.

### 2. PITFALLS

201 Pitfalls typically arise when financial instruments are not fulfilling their natural function.

#### 2.1. PURCHASE OF FINANCIAL INSTRUMENT

202 Thus it may be that the financial instruments selected are inappropriate for the reason for which they have been bought. This is a particular risk where an insurer has been subjected to a hard sell by a bank wishing to promote its product regardless of the insurer's needs.

203 Similarly, a hard sell may lead to an excessive price being paid for a financial instrument.

#### 2.2. CONTROLLING EXPOSURE

204 Controls on individual actions are extremely important. There are several tales of individuals who lost money on unauthorised trans-

actions and then kept gambling more and more in a vain attempt to recover their losses.

205 Similarly, it is important to control an organisation's aggregate exposure to certain risks. The losses run up by the UK local authorities in the late 1980s are a case in point.

### 2.3. MANAGEMENT WEAKNESSES

206 The most alarming tales relate to options which their owners forgot to exercise. However, it is also important to remember written options against an insurer.

207 If synthetic or notional options are used, there is a danger that this nature of the underlying assets may be forgotten at a crucial time.

208 When management expertise is inadequate for the task, a considerable amount of training and recruitment may be necessary in order to handle their management satisfactorily.

### 2.4. COUNTER-PARTY RISKS

209 A danger with financial instruments is to assume that they are as secure as the underlying investments. In fact there are a number of counter-party risks, including:

- default
- fraud

210 There is also an effective counter-party risk in the case of synthetic options. Synthetic options will fail if it not possible to trade continuously during a sudden shift in market price. This is because it may not be possible to find anyone else who is willing to trade when needed.

211 One counter-party who may be overlooked is the policyholder. If the policyholder is able to lapse his policy, an insurer may find itself exposed to losses on its commitments to the financier from which it bought the financial instrument.

### 2.5. ATTACK BY AUTHORITIES

212 The authorities may be tax authorities or insurance regulators.

213 Attack by tax authorities is a particular risk when this tax-efficiency plays an important part in the selection or price of a product. However, the agreement must also be resilient in the event of changes in tax legislation.

214 Similar considerations apply in the case of insurance regulators. There is also a risk that certain instruments will be affected by changes in generally accepted accounting principles, or as a result of EC directives, such as the 3rd life framework directive.

### 3. CONCLUSION - A MANAGEMENT PROGRAMME

301 Financial instruments are powerful instruments. But they can be dangerous if not properly managed.

302 A management programme is required to manage these risks away from the many pitfalls that await the unwary. If in doubt, independent advice should be sought at all stages of the management process.

303 Such a management programme will involve internal controls which will perform the following functions:

- (a) Ensure that the financial instruments purchased are appropriate and properly authorised
- (b) Ensure that the financial instruments purchased are appropriately priced and authorised on the basis of an independent assessment of value and product details
- (c) Ensure that gross and net risk exposures are properly identified:
  - (i) in relation to possible policyholder or counter-party activity
  - (ii) in relation to assets which are backing or complementary to the financial instruments
  - (iii) in relation to C1 and C3 risks
- (d) Ensure that gross and net risk exposures are properly monitored, paying particular attention to counter-parties, aggregated with related assets, and laid off
- (e) Ensure that gross and net risk exposures are properly authorised
- (f) Ensure that key dates are properly diarised
- (g) Ensure that the substance of transactions is properly recorded in financial statements and that contingencies are identified and disclosed.

- (h) Ensure that tax consequences are properly recorded and managed, and that advice is taken if necessary.

304 Finally, while thanking Nigel Masters and Philip Moore for their comments on this paper, I should point out that the ideas expressed here are my own and do not necessarily reflect the views of my employers.