

THE REPORTING OF PORTFOLIOS CONTAINING
FUTURES AND OPTIONS:
THE TRUSTEE PERSPECTIVE

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ABSTRACT

The paper sets out standards for the reporting of portfolios containing futures, options and other similar instruments, as proposed for use in South Africa. The work done in other countries on this topic, notably in Britain, has been significantly expanded upon.

The standards were developed to meet the particular needs of trustees. Their needs for simplicity, consistency, comparability, comfort and control are explored. The role and responsibility of trustees in setting investment policy in general, and with specific reference to derivatives, is discussed and commented upon.

The proposed minimum standards of reporting are set out in detail. Firstly, the detailed reporting of each derivative investment in the listing of portfolio assets and transactions is shown.

Secondly, the proposed reporting on the structure of the portfolio is demonstrated in three separate logical stages:

The Market Value Report covers the physical assets and the market value of derivatives;

The Exposure Report builds on the previous Market Value Report by adjusting for the effective exposure of derivatives to obtain a total effective exposure for the portfolio; and

The Sensitivity Report shows the impact of various alternative financial scenarios on the portfolio, highlighting the possible effects of the portfolio management strategies adopted.

It should be noted that these standards are **not** geared to the use of futures and options as a separate asset class and thus a different approach is necessary for the reporting of managed futures and options funds as well as treasury portfolios.

1. INTRODUCTION

The difficult issue of the reporting and performance measurement of portfolios containing futures and options has occupied actuaries and

industry professionals in many parts of the world in recent years. The attention and importance of these issues has grown enormously as the derivative markets worldwide have grown and the use by portfolio managers of the instruments has become widespread and commonplace. The most notable work in this area is that being done under the auspices of the London International Financial Futures Exchange, although significant other work is being undertaken by industry bodies and professional associations in other countries.

Work was begun in South Africa in 1991 to determine whether the same issues and concerns were relevant in that country. It was found that a number of reporting and performance measurement formats were generally in use and that these were causing confusion amongst trustees. The trustees of those funds where the portfolio managers were actively using the instruments expressed discontent that, not only were there inconsistent reporting approaches, but the information provided was insufficient to understand the ramifications of the portfolio managers' actions.

It was found that the South African situation is unique in some respects as certain of the instruments traded differ from those in other markets. A local solution to the reporting question was developed, bearing in mind the trends in other markets. The proposed standard for reporting, after in-depth discussions with investment professionals, was presented to the Actuarial Society of South Africa in November 1992. Additional work needs to be done before a performance measurement standard can be finalised.

This document summarises the key issues and sets out the proposal for standards of reporting for the South African industry. As the authors gained much insight from the work done in other countries, it is hoped that their experience will assist others in this area. In particular it is felt that the separation of reporting into three distinct categories, namely Market Value Reporting, Exposure Reporting and Sensitivity Reporting, will be of interest.

2. THE TRUSTEE PERSPECTIVE

In order to understand the difficulties encountered in devising reporting standards, it is helpful to review the salient properties of the various instruments that may be used in a retirement fund portfolio. The trustees' responsibility in setting investment policy and the need for standards is also considered.

2.1. THE NATURE OF DERIVATIVE INSTRUMENTS

There remains a perception amongst some trustees and advisors that futures and options are excessively “risky” instruments and therefore have no place in retirement fund portfolios. It is our contention that this perception ignores the risks inherent in holding physical instruments (equity, property, bonds and cash) and the important role that derivative instruments (futures and options) play in modifying that risk profile.

There are a number of different approaches to the measurement of “risk”. The traditional approach, much favoured by practitioners in the USA, is to define risk as the variability of historic returns, measured as the standard deviation of historic returns. A more recent school of thought suggests that risk is forward-looking rather than backward-looking. Risk is obtained from the probability of all adverse occurrences and the consequences of those occurrences for the portfolio.

For illustrative purposes in this document we focus on the sensitivity of assets to market movements. This enables us to understand the role that derivative instruments play in modifying sensitivity.

A portfolio of physical equity behaves in the manner shown in Figure 1. When markets rise from current levels, profit is made and when markets fall, a loss is made. The exact sensitivity will depend on the composition of the portfolio but lies broadly between the dotted lines as shown. Physical bonds will show a similar profile with shorter dated bonds being less sensitive to interest rate movements than longer dated bonds. Cash has an almost horizontal profile. Property is of a similar nature to equity in this analysis.

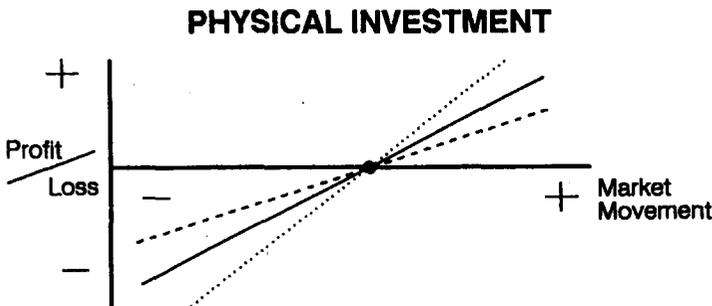


Fig. 1

Buying an equity index future gives a symmetrical profile similar to the holding of physical equity. Selling a future gives a mirror image profile that enables the portfolio manager to access the upper left quadrant or in other words, to make a profit when markets fall. Figure 2 shows this graphically.

The key to understanding the role options play in the portfolio is their non-symmetrical nature. The four categories of option are illustrated in Figure 3. Buyers of options face limited loss (limited to the premium paid) and potential unlimited gain. Writers of options have limited gain (limited to the premium received) and potential unlimited loss.

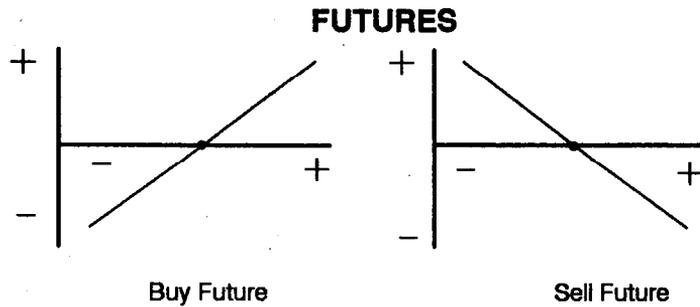


Fig. 2

The non-symmetrical nature of options makes their reporting a particularly thorny issue. Options values are affected by, amongst other things, the direction and extent of market movements. It is thus not possible to understand the impact of options on a portfolio without considering the different behaviour if the market moves up from the behaviour when the market moves down. Traditional market value reporting assumes no market movement.

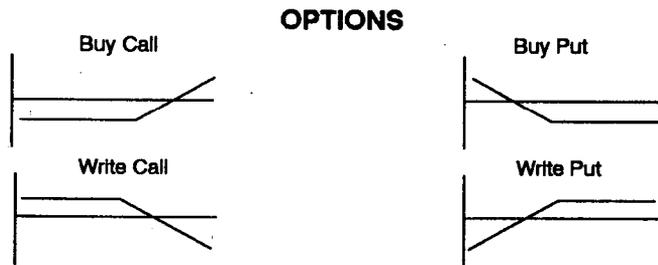


Fig. 3

ELFI (Equity Linked Fixed Interest) instruments are issued by a South African para-statal in Bull and Bear tranches. These bonds pay a fixed coupon but the capital value is linked to the equity market indices. The capital value of the Bull tranche is positively linked to the All Share Index while the that of the Bear tranche is negatively linked. These instruments thus behave more like equity than bonds and need to be categorised as equity. The sensitivity of the Bull tranche is similar to that of buying a future while the Bear is similar to selling a future. Holding a Bull and a Bear simultaneously is equivalent to holding a bond.

A further property of derivatives needs to be clarified to understand the complications in reporting. All physical instruments, options and ELFI's have a market value at which they are bought or sold. In order to buy the instrument, the full market value must be paid. The price then fluctuates and the profit (or loss) is determined by comparing the end value to the starting value as shown in the first part of Figure 4.

A future is traded at a particular price in the market but has no market value in the traditional sense. No money is put down in order to participate in the market movement. The margin deposited (which may be of the order of 10 % of the price) is simply a good-faith deposit and is paid equally by buyers and sellers.

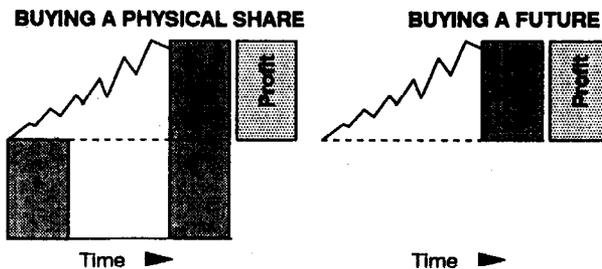


Fig. 4

The margin is reflected in the portfolio as a deposit held with SAFEX, the South African Futures Exchange, and is thus shown as cash. Interest is earned on this deposit at a rate slightly less than that earned on other cash instruments. Daily adjustments are made to the margin depending on the profitability of the futures position. All profits and losses are translated overnight to an effect on the cash position of

the portfolio. It is as if a new futures contract, at no value, is entered into each morning.

The effect on the portfolio of futures positions can be substantial. The reporting mechanism devised must thus concentrate on the effect on the portfolio and not simply market value as has been sufficient in the past.

2.2. SETTING INVESTMENT POLICY

We believe the trustees have a responsibility to set broad parameters for the investment of the assets of a retirement fund. The involvement of the actuary, the trustees and the portfolio managers is needed to ensure that the asset portfolio is suitable for the particular circumstances of the fund. Investment policy is, we believe, best summarised in the form of a written policy document containing agreed benchmarks for performance measurement.

An issue that trustees will need to address is the use of options and futures by portfolio managers. It is our opinion that, except in exceptional circumstances, the trustees should not restrict the use of these instruments by portfolio managers. A statement to the effect that "*The use of options and futures in the portfolio is at the discretion of the portfolio managers*" is generally sufficient.

Limits to the exposure achieved through futures and options are not currently regulated in the Investment Regulations. The unit trust industry is preparing regulations in this regard. The calculation of exposure is not straight-forward and regulators in other parts of the world have generally opted for leaving investment in these instruments at the discretion of the portfolio managers.

Trustees may legitimately place restrictions on the credit quality of over-the-counter options purchased by restricting the list of acceptable counter-parties. This is not applicable for exchange-listed options.

2.3. THE CASE FOR STANDARDS

The use of derivative instruments by portfolio managers in the armoury of assets available to them clearly changes the characteristics of portfolios. There has been an increasing use of derivative instruments, driven both from the expansion of the market and the range of instruments available.

The perspective adopted in the paper is that of the trustees needs. Indeed if one looks at the trustees, they are most in need of assistance and least able to control the process. It is in the interests of the investment industry to ensure that trustees understand and appreciate the role and impact of derivative instruments. If we do not do so, trustees will legitimately restrict the use of these instruments, to the possible detriment of portfolios.

The needs of trustees with regard to reporting and performance measurement are seen to be as follows:

Simplicity:

The 'public face' of reporting should be clear, simple, understandable and logically appealing. From an industry perspective it is very tempting to look for a 100% technically correct methodology but this is not appropriate: we need to focus on what trustees need to know to carry out their duties and responsibilities and ensure that the end result is clear.

Consistency:

In the current situation there are a wide variety of methodologies in use by portfolio managers both in reporting and performance measurement. There is a need both for a consistency of treatment and of consistent application of methodologies by all players in the industry. At present trustees have little appreciation of the levels of investment exposure to asset classes which the portfolio managers have undertaken nor of the impact of these actions on the fund and its performance.

Comparability:

The trustees need to be able to compare like with like in the execution of their duties. Consistency will allow full comparability of portfolios, both internally in a split-funded situation and externally against the peer group.

Comfort:

Trustees need to understand the impact of the use of derivative instruments - the 'what if' scenarios. In the case of 'physical' assets this is usually clearly understood - in the case of derivative instruments they need to be represented and reported on in a way that facilitates this process.

Control:

One of the major responsibilities of trustees is in the setting and monitoring of the investment policy of the fund (discussed in 2.2. above). Key to this process is the incorporation of financial derivatives into the

analysis; the impact they will have on the parameters and the controls or restrictions that need to be placed on them. One example is to restrict the use of derivatives so that the equity exposure of the portfolio may not be reduced by more than 50 % or increased beyond 120 % of the physical equity portfolio.

Arising from these needs the aim of standards is clear:

- (i) consistency of treatment;
- (ii) simplicity of representation; and
- (iii) adoption by the industry as a standard i.e. adoption by portfolio managers, performance measurers, actuaries and regulators.

3. THE PHILOSOPHY OF REPORTING

The current approach of reporting 'physical' exposures of various asset classes without the impact of derivatives (and other related instruments) on this exposure, and thus no overall view of the total exposure of a fund on a consistent basis, is an extremely unsatisfactory and unsound position.

The proposed structure for the minimum standards for reporting is outlined in the following sections. Section 4 covers the detailed reporting of each derivative investment in the listing of portfolio assets and transactions. Sections 5.1, 5.2 and 5.3 cover the macro asset allocation view of the portfolio in a logical sequence:

The Market Value Report covers the physical assets and the market value of derivatives;

The Exposure Report builds on the previous Market Value Report by adjusting for the effective exposure of derivatives to obtain a total effective exposure for the portfolio; and

The Sensitivity Report shows the impact of various alternative financial scenarios on the portfolio, highlighting the possible effects of the portfolio management strategies adopted.

The combined effect of the above reporting recommendations, we believe, will place the trustees in a sound position to undertake their fiduciary duties and responsibilities as trustees to retirement funds.

The recommended approaches are, we suggest, minimum standards. Clearly any reporting that moves beyond these minimum levels is to be encouraged as it enables the trustees to obtain greater insights.

It should be noted that these approaches are **not** geared to the use of futures and options as a separate asset class and thus a different approach is necessary for the reporting of managed futures and options funds as well as treasury portfolios.

4. REPORTING ON INDIVIDUAL DERIVATIVES

The key principles to be followed in the reporting of individual derivative instruments are:

- (i) that each derivative should be individually listed under the particular asset or asset class to which it relates; and
- (ii) that there should be full information disclosure for each derivative to enable it to be identified.

This enables the trustees to relate the instrument to the underlying asset or asset class. This is of particular importance to the trustees in the case of short positions with their inherent risks.

Two approaches can be used in the listing of individual derivatives; reporting within current column headings or, preferably, reporting with expanded column headings.

4.1. REPORTING WITHIN CURRENT COLUMN HEADINGS

Examples of the reporting of futures and options would be:

Holding	Description	Book Value	Current Price	Market Value
100	JSE All Share June 93 Futures (R10 × Index Point)	R3.0 m	3 200	R3.2 m

(Shown at the end of the listing of equity holdings)

10 000	De Beers	R750 000	8000 c	R800.000
10 000	De Beers Call Options June 93 - 8000 c	R15 000	200 c	R20.000

(Shown within the body of the listing, to ensure the equity option related to the underlying asset)

The description of the option or future must be sufficiently detailed to fully identify the instrument. For futures, the multiplier (R10 for equity futures) must be shown. For options it is necessary to show the strike price.

It should be noted in the De Beers option example above that under the *Holding* column, it is **not** the number of option contracts held but the related underlying asset holding that must be reflected. This makes it easier for trustees to understand what has been bought or sold.

In the above example, the headings of the columns of *Book Value* and *Market Value*, while being appropriate for options and for ELFI's, are not entirely appropriate for futures. In the case of futures, *Book Value* would be more appropriately titled *Initial Exposure* and *Market Value*, *Current Exposure*. The calculation of exposure is discussed in Section 3.6. The implication of this is that the *Book Value* and *Market Value* columns are not additive when futures are included.

In the case of options and ELFI's, while the column headings are appropriate and additive, they do not reflect the actual current exposure position. An additional column, *Current Exposure* is needed to show the actual exposure to an asset or asset class.

It should be noted that as ELFI's behave more like equity than bonds they need to be categorised under the equity asset class in the description of assets. However, if the Bull and Bear tranches are held in equal amounts, this effectively creates a bond and this would be listed under bonds.

The method of reporting with current column headings clearly has the advantage of easy implementation within the existing portfolio reporting systems.

4.2. REPORTING WITH EXPANDED COLUMN HEADINGS

This approach attempts to deal with problems outlined in Section 4.1 above. In order to cater for all the types of instruments, the headings would need to be expanded to include:

- Holding
- Description
- Book Value
- Initial Exposure
- Current Price
- Market Value

Current Exposure

and the instruments would have entries under the relevant headings. This method will in most cases require additional systems programming to accommodate the expanded headings. This second, more detailed, approach is the preferred approach.

5. REPORTING ON THE STRUCTURE OF THE PORTFOLIO

The major philosophical development in the South African recommendations is that when reporting on the structure of the portfolio, three separate reports are needed. The *Market Value Report* is the most familiar to investment managers and is the one of interest to accountants and auditors.

If there are any derivative instruments in the portfolio, the actuary and the trustees will find the *Exposure Report* necessary to determine the effective exposure of the portfolio to various asset classes. Where options are present, the *Sensitivity Report* provides further insight into the one-sided effect of options.

5.1. THE MARKET VALUE REPORT

The departure point for any reporting system needs to be the market value of the portfolio in terms of physical assets and derivatives.

The current approach in terms of the valuation of physical assets clearly continues to apply in these reports e.g. listed equities valued at Johannesburg Stock Exchange closing prices etc. Futures do not have a true 'market value', while listed options and ELFI's have clearly determinable closing market values which can be used for market value reporting. In the case of over-the-counter (OTC) options, market values are not available. Theoretical market values should be determined from option pricing models, provided the model used is generally accepted in the market place and its usage in the organisation is consistent over time.

The approach adopted in the recommended layout is to clearly distinguish the market values of:

- physical assets
- options
- ELFI's

- any other derivatives (which should be separately listed).

Furthermore it is recommended that at a minimum four asset classes be shown:

- Equities
- Property
- Bonds
- Cash

Cash must be further broken down to show the various margins which each type of derivative instrument may require. These margins, typically:

- Futures margin at the South African Futures Exchange
- Options margin at the South African Futures Exchange
- Options margin at the Traded Options Market

together with 'other cash' make up the total cash element of the portfolio. 'Other cash' may be called 'un-encumbered' cash or non-margined cash.

The recommended minimum **Market Value Report** layout is as follows:

Asset Class	Market Value Physical Portfolio (R)	Market Value Options (R)	Market Value ELFI (R)	Total Market Value (R)	Total Market Value %
Equity					
Property					
Bonds					
Cash					
Futures margin (SAFEX)					
Options margin (SAFEX)					
Options margin (TOM)					
Other Cash					
TOTAL					

From Section 5.4 it will be seen that, depending on the type of option, the market value of options could be positive or negative. The market value ELFI will usually be positive. Any profits or losses on futures, because of the daily mark-to-market, will be incorporated in margin or will already have been allocated to one of the asset classes. No market value column is thus needed for futures.

This type of layout has major advantages for the trustees as it clearly highlights the market value of each class of derivative instrument and, together with the individual reporting of each instrument (which sums to this report), enables the trustees to be aware of the physical market value and margins of their fund.

5.2. THE EXPOSURE REPORT

The next step in reporting is to bring in the 'exposure' effect of derivatives. The purpose of the **Exposure Report** is to take account of the effective exposure brought about by the use of derivative instruments by portfolio managers in the execution of their mandate.

The recommended minimum **Exposure Report** layout is as follows:

Asset Class	Total Market Value (R)	Adjustment For Futures (R)	Adjustment For Options * (R)	Adjustment For ELFI's (R)	Effective Exposure (R)	Effective Exposure %
Equity						
Property						
Bonds						
Cash						
TOTAL						

* **Note:** The effect of these options will differ depending on the direction of the movement of the market as indicated in the Sensitivity Report which follows. For a more complete understanding of the possible effects on the portfolio, please discuss this with the portfolio manager.

Some comments on the above table are appropriate:

- Total Market Value* - this comes from the previous **Market Value Report**.
- Adjustment for Futures* - the calculation and signage of economic exposure for various futures strategies is set out in Section 3.6.
- Adjustment for Options* - the calculations and signage of economic exposure for various options strategies is set out in Section 3.6. An adjustment **must**

however be made to the economic exposure of the option to take cognisance of the market value of the option already included in the *Total Market Value* of each asset class in column one. The formula to be used is:

Adjustment for options = total exposure of options MINUS market value of options.

Adjustment for ELFI's - a similar adjustment formula needs to be applied as for options.

It should be noted that very careful attention needs to be paid to the signage of all the derivative instruments as outlined in Section 5.4.

In drawing up the **Exposure Report** each of the three *Adjustment* columns **always** sum to zero. The reason for this is that the execution of a portfolio strategy will result in an increase or decrease in exposure to an asset class and the portfolio will behave as though there was a corresponding decrease or increase in the effective cash exposure. Hence for each positive adjustment in effective exposure of equities, bond or property, there will be a corresponding negative adjustment in effective exposure to cash.

The column *Effective Exposure* in Rand terms will consequently also sum to the *Total Market Value* column in Rand terms.

Two examples will demonstrate this in practice.

Example I: Using Futures

Let us assume that a portfolio manager has a physical portfolio of R100m with an asset profile of:

Equities	65%
Property	10%
Bonds	20%
Cash	5%

A decision is taken to hedge R10m of the equity portfolio. The **Exposure Report** would look as follows:

Asset Class	Total Market Value (R)	Adjustment For Futures (R)	Effective Exposure (R)	Effective Exposure %
Equity	65	-10	55	55
Property	10	-	10	10
Bonds	20	-	20	20
Cash	5	+10	15	15
TOTAL	100	0	100	100

If the portfolio manager had decided instead to increase the exposure to equities by R10m, the **Exposure Report** would look as follows:

Asset Class	Total Market Value (R)	Adjustment For Futures (R)	Effective Exposure (R)	Effective Exposure %
Equity	65	-10	75	55
Property	10	-	10	10
Bonds	20	-	20	20
Cash	5	+10	-5	15
TOTAL	100	0	100	100

In this case the gearing effect is readily visible - not a situation many trustees would feel very comfortable with in terms of the resultant risk profile. The investment parameters of many funds do not allow any gearing of this nature. This example demonstrates the reason why market value reporting on its own is insufficient for trustees, actuaries and regulators.

Example II: Using options

Using the same physical portfolio as in Example I above, the portfolio manager decides to buy an equity call option for R1m. At the portfolio valuation date the market value of the option is R1m and the exposure of the option is calculated as R10m.

The **Exposure Report** would look as follows:

Asset Class	Total Market Value (R)	Adjustment For Options* (R)	Effective Exposure (R)	Effective Exposure %
Equity	66	+9	75	75
Property	10	-	10	10
Bonds	20	-	20	20
Cash	4	-9	- 5	- 5
TOTAL	100	0	100	100

* Note: The effect of these options will differ depending on the direction of the movement of the market as indicated in the Sensitivity Report which follows. For a more complete understanding of the possible effects on the portfolio, please discuss this with the portfolio manager.

The 'gearing' effect is similarly clearly noticeable.

5.3. THE SENSITIVITY REPORT

In the recommended minimum **Exposure Report** layout in Section 5.2 there is an annotation to the column *Adjustment for Options* marked with a "*" which reads *'The effect of these options will differ depending on the direction of the movement of the market as indicated in the Sensitivity Report which follows. For a more complete understanding of the possible effects on the portfolio, please discuss this with the portfolio manager'*.

In section 2.1, when the nature of options was discussed, attention was drawn to their non-symmetrical nature. The **Exposure Report** while highlighting the effective exposure of options at the current market levels, gives no indication of the non-symmetrical effects of options exposure.

There is thus a need for the trustees to have some reporting mechanism that can reflect the impact that market movements will have on the portfolio so that the effect of portfolio management strategies will be clearly visible to them.

We thus recommend that a separate Sensitivity Report be produced for all portfolios where derivative instruments are used by the portfolio manager.

The question naturally arises as to what ranges should be used for the various asset classes to demonstrate the sensitivity to market movements. While many alternatives would be satisfactory, we recommend that, as a minimum, the ranges laid down by the Financial Services Board in respect of the Reasonable Benefit Expectations Valuation be adopted i.e.:

Equities	± 20%	interest rate movement
Bonds and Cash	± 3%	
Property	± 10%	
Foreign currency assets	± 20%	

Clearly one can readily move beyond these minimum guidelines and give the trustees a greater understanding of the implication of different financial market scenarios on the portfolios and the implications of the portfolio strategies they have adopted. For example, for equity the use of movements of ±5%, ±10% and ±20% would give deeper insights.

The recommended minimum **Sensitivity Report** layout would be to show each asset class separately for which derivatives instruments were used by the portfolio manager. For equities, the format would be as follows:

Equities	Move in Equity Market	
	-20%	+20%
Change in market value of physical (R)	-R	+R
Relative % change (compared to current market value)	-%	+%

Similar layouts would be used for other asset classes. There is no need to sum movements across asset classes into a total movement as there is no suggestion that markets could all move simultaneously in the same direction.

If there was no use by the portfolio manager of derivative instruments then there would be no **Exposure Report or Sensitivity Report**.

5.4. THE CALCULATION OF ECONOMIC EXPOSURE

The calculation of the economic exposure of futures, options and ELFI's can be, and is, undertaken in more than one way in the market at present. We recommend that the following approaches be adopted, as being both simple and in line with international recommendations.

5.4.1 FUTURES

Exposure = number of contracts x multiple x price

Where Price = mark-to-market price (at closing)

e.g. 300 Contracts x R10 x 3200 = R9.6m

In this approach a long position is shown as positive exposure and a short position (having sold futures) as a negative exposure.

It can be argued here that the last term in the formula above, 'price', should be defined as the index value (as opposed to the mark-to-market price). The difference between the two methods relates to basis risk which is of critical importance in bank and treasury portfolios that are run on a hedged basis. We suggest however that the above method be adopted as being simpler for trustees to understand. In the context of a fund with large physical holdings where derivatives are used at the margin, the methodology fulfils the criteria of simplicity and understandability. It enables trustees to update reports from the daily published prices, as they can do for equity holdings.

As a minimum, exposure is to be added across different expiry dates and instrument types within the same asset class. Preferably, the portfolio manager will show more information to enable the trustees to more clearly understand the strategy adopted. For example, showing Industrial contracts separately from All Share and showing different expiry dates separately.

The signage conventions to be adopted for futures are as follows:

	Holding	Initial Exposure	Current Exposure
Buying a future (long position)	+	+	+
Selling a future (short position)	-	-	-

5.4.2 OPTION

The economic exposure of an option is very sensitive and can change dramatically if conditions change only marginally in the physical markets. The exposure calculation is readily determined using an appropriate options model and is thus already available to portfolio managers.

More detailed calculation of options exposure using an expansion of the Black-Scholes Model is in use by some companies and may continue to be used. We are concerned with minimum standards and any more accurate representations are to be encouraged.

Exposure = number of contracts x delta x market value of underlying assets

Where delta = change in value of derivative associated with change in the value of the underlying asset

market value of underlying asset = 'spot' price.

e.g. $200 \times 0.5 \times 40.000 = \text{R}4\text{m}$

In this approach buying calls or writing puts is shown as positive exposure. Writing calls or buying puts is shown as negative exposure.

The signage conventions for options are more difficult than for futures. In the listing of assets, holdings and current exposure will have the same signage depending on the effect on the portfolio. Book value and market value are positive for buying options and negative for writing options.

	Holding	Book Value	Market Value	Current Exposure
Buying a Call (long call)	+	+	+	+
Buying a Put (long put)	-	+	+	-
Writing a Call (short call)	-	-	-	-
Writing a Put (short put)	+	-	-	+

5.4.3 ELFI'S (EQUITY LINKED FIXED INTEREST INSTRUMENTS)

As indicated in Section 2.1, ELFI's are appropriately categorised under the equity asset class. When the underlying index moves, the ELFI 'Bull' tranche has a sensitivity similarly to that of buying a future and the Bear similar to that of selling a future. This relationship forms the basis of the recommended calculation of the economic exposure of ELFI holdings under which ELFI's are converted notionally to futures.

Exposure = number of notional futures \times R10 \times price
 Number of notional futures = nominal holdings \div (10 \times base index used in ELFI)

Where price = mark-to-market price of future with closest expiry date to ELFI

In this approach the ELFI Bull has positive exposure and the ELFI Bear has negative exposure. Short positions have the reverse sign.

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