



Banc Ceannais na hÉireann
Central Bank of Ireland

Eurosystem

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UCITS Financial Derivative Instruments and Efficient Portfolio Management

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Relevant Legislation

1. The following is a list of the key legislation in this area:
 - European Communities (UCITS) Regulations 2011 (the “UCITS Regulations”)
 - Council Directive 2009/65/EC (the “Directive”)
 - Commission Directive 2007/16/EC (the “Eligible Assets Directive”) which clarifies certain definitions of the Directive
 - Commission Directive 2010/43/EC as regards organisational requirements, conflicts of interest, conduct of business, risk management and content of the agreement between a depositary and a management company
 - European Commission Recommendation 2004/383/EC on the use of financial derivative instruments for undertakings for collective investment in transferable securities (UCITS) (the “Commission Recommendation”)
 - ESMA guidelines concerning eligible assets for investment by UCITS ref: CESR/07-044 (“ESMA guidelines”)
 - ESMA guidelines on Risk Measurement and the Calculation of Global Exposure and Counterparty Risk for UCITS
 - ESMA guidelines to competent authorities and UCITS management companies on risk measurement and the calculation of global exposure for certain types of structured UCITS (April 2011- Ref ESMA/2011/112)(“ESMA structured UCITS guidelines”)
 - ESMA guidelines on ETFs and other UCITS issues (December 2012- Ref ESMA/2012/832)
 - Central Bank (Supervision and Enforcement) Act 2013 (Section 48(1)) (Undertakings for Collective Investment in Transferable Securities) Regulations 2019 (the “Central Bank UCITS Regulations”)

Permitted FDI

2. Regulation 8(1)(a) of the Central Bank UCITS Regulations states:

“A responsible person shall only invest assets of the UCITS in an FDI if:
(a) the FDI does not expose the UCITS to risks which the UCITS could not otherwise assume”.

A responsible person should not gain exposure to an instrument/issuer/currency to which the UCITS cannot have a direct exposure.

3. Financial derivative instruments (“FDI”) on commodities are not permitted FDI for a UCITS.

Global exposure

4. The calculation of the global exposure represents only one element of the UCITS overall risk management process (“RMP”). The RMP should comprise procedures which enable the responsible person to assess the UCITS exposure to all material risks including market risks, liquidity risks, counterparty risks and operational risks.
5. The responsible person should assess the investment strategy and portfolio composition of the relevant UCITS on an on-going basis to establish where an intra-day calculation may be required. This may be necessary, for example, on a particular day due to increased volatility or might be required more frequently.
6. A responsible person should use an advanced risk measurement methodology (supported by a stress testing program) such as the Value-at-Risk (VaR) approach to calculate global exposure where:
 - (a) it engages in complex investment strategies which represent more than a negligible part of the UCITS’ investment policy;
 - (b) it has more than a negligible exposure to exotic derivatives; or
 - (c) the commitment approach does not adequately capture the market risk of the portfolio.
7. With respect to the selection of the methodology used to measure global exposure, the commitment approach should not be applied to UCITS using, to a large extent and in a systematic way, FDI as part of complex investment strategies. As a general rule, the responsible person should use a maximum loss approach to assess whether the complex investment strategy or the use of exotic derivatives represent more than a negligible exposure.
8. Additionally there are investment strategies that can be pursued by UCITS through the use of FDI for which the commitment approach does not adequately capture the related risks (for instance non-directional risks like volatility risk, gamma risk or basis risk) and/or for which it does not give, with regard to the complexity of the strategy, an adequate and risk sensitive view of the related risks (for instance hedge fund-like strategies). Illustrative examples (non-exhaustive list) of such investment strategies might be:
 - option strategies (e.g. delta-neutral or volatility strategies)
 - arbitrage strategies (e.g. arbitrage on the interest rate curve, convertible bond arbitrage etc.)
 - complex long/short and/or market neutral strategies.
9. Regulation 103(3) of the UCITS Regulations provides *inter alia* that a UCITS may borrow not more than 10% of its assets provided that such borrowing is on a temporary basis. A UCITS may not use borrowings to invest in FDI transactions

or as cover for individual FDI positions. Borrowings may only be used to finance temporary cash flow mismatches.

10. Regulation 17(a) of the Central Bank UCITS Regulations states:

“A responsible person shall ensure that, at all times:
(a) the UCITS complies with the limits on global exposure”.

Depending on the investment strategy of the UCITS it may be necessary to calculate global exposure intra-day.

Commitment approach

11. Regulation 69(4)(a) of the UCITS Regulations states:

“A UCITS shall ensure that its global exposure relating to derivative instruments does not exceed the total net asset value of its portfolio.”

The UCITS may not therefore be leveraged in excess of 100% of net asset value.

12. Where a responsible person uses a conservative calculation rather than an exact calculation of the commitment for each FDI, hedging and netting arrangements cannot be taken into account to reduce commitment on the derivatives involved if it results in an underestimation of the global exposure of the UCITS.

13. Where the use of FDI does not generate incremental exposure for a UCITS, the underlying exposure need not be included in the commitment calculation.

14. Where the commitment approach is used, temporary borrowing arrangements entered into on behalf of the UCITS in accordance with Regulation 103 of the UCITS Regulations need not be included in the global exposure calculation.

15. A FDI is not taken into account when calculating the commitment if it fulfils all of the following characteristics:

- (a) it swaps the performance of financial assets held in the UCITS portfolios for the performance of other reference financial assets;
- (b) it totally offsets the market risk of the swapped assets held in the UCITS portfolio so that the UCITS performance (e.g. performance of the net asset value) does not depend on the performance of the swapped assets; and
- (c) it includes neither additional optional features, nor leverage clauses nor other additional risks as compared to a direct holding of the reference financial assets.

16. A FDI is not taken into account when calculating the commitment if it meets both of the following conditions:

- (a) the combined holding by the UCITS of a FDI relating to a financial asset and cash which is invested in risk free assets is equivalent to holding a cash position in the given financial asset; and
- (b) the FDI is not considered to generate any incremental exposure and leverage or market-risk.

Commitment-Approach-Conversion-Methodologies

17. The following are illustrative numeric examples of the calculation of the commitment on certain types of FDI using the prescribed conversion methods:

Bond Future:

A UCITS purchases 10 contracts of the Sept 2009 Bund future. Assuming that the 'cheapest-to-deliver' bond is the 10 Year 4% Bund (2018), trading at €120, the commitment calculation is:

$$10 * 100,000 * (\text{€}120/100) = \text{€}1,200,000$$

Plain Vanilla Index Option:

A UCITS purchases 100 puts on the Dow Jones Euro STOXX 50. Assuming a current index level of 3,000 and a notional contract size of 10, the commitment calculation for this index option (assume a delta of 0.5) is:

$$(100 * 10) * 3000 * 0.5 = \text{€}1,500,000$$

Single Name Credit Default Swap:

A UCITS sells credit protection on an investment grade corporate bond with a notional value of €1,000,000. Assuming the reference bond is trading at €86, the commitment calculation is:

$$\text{The market value is } \text{€}1,000,000 * (\text{€}86/100) = \text{€}860,000$$

The notional value is €1,000,000

Therefore the notional value is higher than the market value so it must be included in the commitment calculation.

FX Forward/Currency Future:

A USD-denominated UCITS sells 20 contracts of the EUR/USD short term currency future (contract notional €250,000). As at 31/12/20XX the EUR/USD exchange rate is 1.30. This is effectively the same as an FX forward with a notional of €5,000,000.

In both cases the commitment value is $\{20 * \text{€}250,000\} * 1.30 = \text{USD } 6,500,000$

The same UCITS also takes out a EUR/YEN FX forward contract for €1,000,000/YEN 100,000,000. As at 31/12/20XX the EUR/USD rate is 1.30 and

the YEN/USD rate is 80. As both legs of the FX forward are in non-base currency, they must both be taken into account in the commitment calculation as follows:

$$\{€1,000,000 * 1.30\} + \{YEN 100,000,000 / 80\} = USD 2,550,000$$

Variance Swaps:

Assume that a UCITS has a long position on a variance swap (without volatility cap) on the Eurostoxx 50 with a strike price of 25 (expressed in terms of volatility), a vega notional of €250, 000 and that the current variance (squared volatility) is 302 (=€900). As a consequence, the variance notional would equal €5000 for the given contract.

For that contract the commitment at time t amounts to:
 $5000 * 302 = €4,500,000$.

Barrier (knock-in knock-out) Options:

A UCITS purchases 100 knock out options (up and out call) on the DJ Eurostoxx 50. Assuming a current index level of 3000 and a notional contract size of 10, and a maximum delta of 0.8 the commitment calculation is:

$$(100 * 10) * 3,000 * 0.80 = €2,400,000$$

Commitment approach - embedded derivatives

18. Embedded derivatives may be present in commonly traded financial products such as convertible bonds. Structured products may also embed derivatives and as such trigger the requirement to apply the commitment calculation methodology. Depending on the complexity of the derivative structure embedded in the host security, the structure should be broken down into its component parts and the effect of layers of derivative exposures must be adequately captured.
19. Examples of structured financial instruments that may be assumed to embed a FDI are:
 - Credit linked notes;
 - Convertible or exchangeable bonds;
 - Structured financial instruments whose performance is linked to the performance of, for example, a basket of shares or a bond index, or structured financial instruments with a nominal fully guaranteed whose performance is linked to the performance of a basket of shares with or without active management;
 - Collateralised debt obligations and asset backed securities that create leverage, i.e. the CDO is not a limited recourse vehicle and the investors' loss can be higher than their initial investment or are not sufficiently diversified.
20. UCITS using structured financial instruments embedding FDI should respect the principles of the UCITS Regulations. It is the responsibility of the responsible

person to check that investment in hybrid instruments embedding derivatives complies with these requirements. The nature, frequency and scope of checks performed will depend on the characteristics of the embedded derivatives and on their impact on the UCITS, taking into account its stated investment objective and risk profile.

Non-standard derivatives

21. Certain derivative instruments exhibit risk characteristics that mean the standard conversion approach is not appropriate as it does not adequately capture the inherent risks relating to this type of product. Some derivatives, for example, may exhibit path-dependency, such features emphasising the need to have both robust models for risk management and pricing purposes, but also to reflect their complexity in the commitment calculation methodology. These derivatives may be stand-alone OTC contracts or may be embedded in a host security (see above).
22. Another common feature of these products is the existence of a highly volatile delta which could, for example, result in significant losses. It is expected that many of these instruments will need to be assessed on a case by case basis as alternative structures can include multiple barriers or barriers incorporated into other types of derivatives, for example binary options can be structured with barriers. The level of potential losses, which may be unlimited, should also be taken into account by reference to which side of the particular contract the UCITS is on.
23. There are other non-standard derivatives such as derivatives on bespoke baskets (baskets of credit derivatives) with features like accumulators, non-linear participation features and complex default correlation features.
24. Where it is not possible to determine a suitable approach for a particular derivative or derivative structure, the responsible person should not apply the commitment methodology.

Commitment approach - structured UCITS

25. The ESMA structured UCITS guidelines provide examples of various payoff scenarios to assist in the consideration by the responsible person of the extent to which they may apply Regulation 18(3) of the Central Bank UCITS Regulations.
26. In accordance with the requirements of Regulation 17(b) of the Central Bank UCITS Regulations, it is the responsibility of a responsible person to select an appropriate methodology to calculate global exposure. Structured UCITS, as defined in Article 36(1) of Commission Regulation No 583/2010, may use the standard commitment or VaR approach to calculate global exposure. Structured UCITS may also adopt an optional regime using the commitment approach in accordance with the provisions of Regulation 18 of the Central Bank UCITS Regulations. This permits the responsible person to calculate the global exposure of each individual scenario using the commitment approach. The characteristics

of each individual scenario should be compatible using the commitment approach. This excludes scenarios relying on complex investment strategies or exotic derivatives, as provided in paragraph 6 of this guidance. Only those structured UCITS which satisfy the criteria in Regulation 18(1) of the Central Bank UCITS Regulations should calculate the global exposure using the method outlined in Regulation 18(2) of the Central Bank UCITS Regulations

27. For each structured UCITS portfolio a number of different scenarios may be generated based on the possible payoff outcome at maturity. A responsible person should not include a significant number of different scenarios as this would raise issues regarding proper disclosure and investor comprehension.
28. The responsible person of an actively managed UCITS or UCITS which do not follow a formula-based approach and offer investors a predefined payoff should not use the approach set out in Regulation 18(2) of the Central Bank UCITS Regulations.. However, the requirements of Regulation 18(1)(a) of the Central Bank UCITS Regulations do not preclude a responsible person from actively managing its counterparty relationship; this includes changing counterparties, managing collateral and restructuring the derivative where necessary, to take account of subscriptions and redemptions. A UCITS which follows a Constant Proportion Portfolio Insurance strategy is not considered to be passively managed. Where the structured UCITS gains exposure to an underlying fund or index or other type of managed portfolio, these structures should also be passively managed.
29. UCITS are required to provide redemption facilities to investors in accordance with the Regulations. Investors who redeem units in these structured UCITS prior to maturity do not benefit from the pre-defined payoff and can be subject to the volatility of the underlying assets and fluctuations in the net asset value. Structured UCITS with longer maturities could increase these volatility risks to redeeming investors. The maturity of the structured UCITS should be measured as of the end of the initial offer period when the derivative is entered into. The initial offer period for a structured UCITS should not generally exceed 3-6 months.
30. When the responsible person adopts the optional regime, it calculates the global exposure on each individual scenario. However, a complete closing of the UCITS may have a negative impact on the pricing of the derivatives as counterparties would know that trades would only be in one direction. Therefore the responsible person is not prevented from taking measures to deal with mispricing risk associated with the derivative.
31. Structured UCITS which provide investors with exposure in excess of 200% of the performance of an index or underlying portfolio would not meet the global exposure requirements set out in Regulation 69(4) of the UCITS Regulations and as such should not use the approach set out in Regulation 18(2) of the Central Bank UCITS Regulations..

32. When the global exposure is calculated on each individual scenario, the responsible person should be able to measure the loss due to the switch from one scenario to another. This loss or gap is calculated at the time of the switch when the underlying hits the barrier and it depends on the payoff profile at the current market conditions.
33. Regulation 58 of the Central Bank UCITS Regulations sets down prospectus disclosure requirements in relation to structured UCITS. It is important that investors properly understand the impact of the different scenarios within a structured UCITS and whether, for example, their capital is protected. The responsible person should also disclose in the prospectus the impact on investors who redeem prior to maturity and do not benefit from the pre-defined payoff, including capital protection, where relevant.

Exclusions

34. Paragraphs 14 and 15 of this guidance provide for types of FDI which may be excluded from the global exposure calculation. A FDI which meets the criteria in paragraph 14 of this guidance should substitute the exposure of other reference financial assets for the exposure on financial assets directly held in the UCITS portfolio. Furthermore, it does not subject the UCITS to the market risk of the assets held as it totally protects the UCITS from movements in the market value of these assets.
35. As an example, if the UCITS portfolio invests in the DAX index and holds a FDI which swaps the performance of the DAX index with the performance of the NIKKEI index then it must be equivalent to holding exposure to the NIKKEI index in the portfolio. So, the UCITS net asset value does not depend on the performance of the DAX index.
36. As the FDI does not provide any incremental exposure or leverage (i.e. exposure is created on an unleveraged basis) as calculated using the commitment approach, it will not have to be taken into account in the commitment approach calculation process. This reasoning can be extended to cases in which the performance swap involves several assets or even the entire portfolio.
37. With regard to paragraph 35, and as a further example, assume that a UCITS invests in index future contracts and holds a cash position equal to the total underlying market value of future contracts. This is equivalent to directly investing in index shares and the use of these FDI (i.e. index futures) does not provide any incremental exposure.

38. With regard to risk free assets, these are expected to be assets which provide a risk-free return and are generally accepted as those which provide the return of short-dated (generally 3-month) highest quality government bonds, for example 3-month US T-bills.

Netting

39. The requirement in paragraph 1 of Schedule 2 of the Central Bank UCITS Regulations that netting arrangements should refer to the same underlying asset should be interpreted strictly: assets which the responsible person considers as equivalent or highly correlated, such as different share classes or bonds issued by the same issuer, should not be considered as identical for the purpose of netting arrangements.
40. The definition of netting arrangements aims to ensure that only those trades which offset the risks linked to other trades, leaving no material residual risk, are taken into account. This means that combinations of trades which aim to generate a return, however small, by reducing some risks but keeping others should not be considered as netting arrangements. This is the case, for example, with arbitrage investment strategies which aim to generate a return by taking advantage of pricing discrepancies between FDI with the same underlying but different maturities.
41. It is possible to net a long call option on share xyz with a 3 month maturity with a long put option on that same share xyz with a 6 month maturity. The global exposure on the residual position on these two options is equal to the (absolute value of the) sum of the exposure on the call option (which is positive) and on the put option (which is negative).
42. It is possible to net a long position on share xyz with a put option on that same share xyz.
43. The following simple example illustrates the netting process.
44. The UCITS portfolio contains:
- 10 Dax listed shares X whose combined market value is 100
 - a short position through futures on that same share X whose market value is -20.
 - a long position through futures on the FTSE with a market value of 30
 - a short position through futures on the DAX with a market value of -10
45. The commitment of each individual derivative is:
- derivative on share X : -20
 - derivative on FTSE : 30
 - derivative on DAX : -10

46. Without any netting or hedging arrangement, the global exposure would be equal to the sum of the absolute values of each individual derivative commitment: 60.
47. The combined long position and short position on share X constitutes a netting arrangement whereby the position in shares X (100) can be offset against the -20. This leads to a net commitment of nil.
48. Global exposure is equal to the sum of:
- the absolute value of the commitment of the derivative on FTSE : 30
 - the absolute value of the commitment of the derivative on DAX : 10
 - the absolute value of the net commitment of the netting arrangement : 0
49. The DAX short exposure should not be netted against share X. Global exposure is thus equal to 40.
50. Using a conservative calculation in the hedging and netting arrangement may lead to an under-estimate of the global exposure. Assume that the UCITS portfolio contains:
- a long position on share X whose market value is 100.
 - a short position through futures on share X with an exact calculation equal to 80 and a conservative calculation equal to 100.
51. Netting the positions using the conservative calculation leads to an exposure equals to 0 whereas it would be equal to 20 using the exact calculation. It under estimates the global exposure.

Duration Netting

52. As the standard commitment approach wrongly leads to interest rates with different maturities being considered as different underlying assets, for some UCITS the responsible person may need to use specific netting rules which allow partial duration netting.
53. When identifying its investment strategy and risk profile, a responsible person should be able to define the level of the interest rates risk and consequently to assess its target duration (as duration means the portfolio market value sensitivity to interest rate movements). The responsible person should take into account the predefined target duration when making its investment choices. This means that the portfolio duration should be around the target duration under normal market conditions. Under a stressed market, the portfolio duration may diverge from the target duration. The portfolio composition should be modified in order to regularise this spread.
54. For each interest rate derivative instrument, the equivalent underlying asset position stands for the amount that would need to be invested in a cash asset in order to have the same risk profile as the aggregate risk profile of the interest rate derivative instrument held by the UCITS. Consequently, the cash asset is taken to be a bond with a duration which is equal to the target duration of the UCITS.

55. The responsible person is not expected to use these netting rules for UCITS with long duration which invest in very short-term derivatives (e.g. 3-month instruments). This would be considered as arbitrage and it is expected that the responsible person will not use these specific netting rules.
56. The maturities suggested to be the thresholds of the buckets (2 years, 7 years and 15 years) in paragraph 120 of this guidance have been chosen in such a way that the buckets would surround the main issuing maturities on the bond market (5, 10 and 30 years).
57. The method used allows netting long positions with short positions whose underlying assets are different interest rates (e.g. 1 year vs. 2 years).

(a) within each bucket, netting positions is totally accepted.

For instance, the UCITS may invest in the FDI with the closest maturity to the one it aims to hedge for liquidity issues, and a long position on an interest rate derivative instrument with a 18 months maturity may be matched with a short position on an interest rate derivative instrument with a 2 years maturity because of its low liquidity in the bond market.

(b) netting positions between two different buckets is partially allowed.

Netting long and short positions whose underlying assets have a large maturity spread is only partially allowed between different buckets. Indeed, positions whose modified duration is much higher than the whole portfolio's modified duration are not in line with the investment strategy of the UCITS and totally matching them should not be allowed. For instance, it would not be appropriate to match a 18 months maturity short position (set in bucket 1) with a 10 years maturity long position (set in bucket 3), the target duration of the UCITS being around 2.

58. Some penalties should be applied to the netted positions to allow only for partial netting and are expressed by means of percentages relying on the average correlations between the maturity buckets for 2 years, 5 years, 10 years and 30 years of the interest rate curve.
59. In fact, the bigger the time-band spread between the positions, the more that netting them should be subject to a penalty, which explains why these percentages increase with the distance between the buckets.
60. Duration netting rules may not be used for hedging purposes. As an example when calculating the global exposure, the responsible person can firstly identify the hedging arrangements. And then, the derivatives involved in these arrangements are excluded from the global exposure calculation. The responsible person should use an exact calculation in hedging arrangements. It is not expected that the responsible person uses duration netting rules in the hedging calculation. The duration-netting rules may be used to convert the remaining interest rate derivatives into their equivalent underlying asset positions.

61. As an example, let us consider the following portfolio:

| Portfolio | | | | |
|-------------|----------|----------|--------|-------------|
| Instrument | Maturity | Notional | Amount | Sensitivity |
| Bond | 4Y | 650 000 | 1 | 3,79 |
| IR Future | 3Y | 200 000 | 3 | 3,50 |
| IR Future | 4Y | 75 000 | -1 | 4,05 |
| Bond Future | 4Y | 650 000 | -1 | 3,80 |

The global exposure is illustrated as follows:

- a. The long position on the bond of maturity 4Y is hedged by the short position on the bond future of the same maturity (lines in green). This hedging arrangement is thus excluded from the calculation of the global exposure.
- b. Then the duration-netting rules are applied to the remaining interest rates derivatives (IR future contracts of maturities 3Y and 4Y).

Hedging

62. The scope of hedging arrangements as defined in paragraph 2 of Schedule 2 of the Central Bank UCITS Regulations is much narrower than that of strategies often referred to as hedging strategies.
63. The following list illustrates situations where the hedging strategy may comply with the criteria in paragraph 2 of Schedule 2 of the Central Bank UCITS Regulations.:
- A portfolio management practice which aims to reduce the duration risk by combining an investment in a long-dated bond with an interest rate swap or to reduce the duration of a UCITS bond portfolio by concluding a short position on bond future contracts representative of the interest rate risk of the portfolio (duration hedging).
 - A portfolio management practice which aims to offset the significant risks linked to an investment in a well-diversified portfolio of shares by taking a short position on a stock market index future, where the composition of the equity portfolio is very close to that of the stock market index and its return highly correlated to that of the stock market index and where the short position on the stock market index future allows for an unquestionable reduction of the general market risk related to the equity portfolio (beta-hedging of a well- diversified equity portfolio where the specific risk is considered to be insignificant).

- (c) A portfolio management practice which aims to offset the risk linked to an investment in a fixed interest rate bond by combining a long position on a credit default swap and an interest rate swap which swaps that fixed interest rate with an interest rate equal to an appropriate money market reference rate (for example, EONIA) plus a spread.

Such a strategy might be considered as a hedging strategy as all the hedging criteria laid down above are in principle complied with.

64. The following list illustrates situations which do not comply with the hedging criteria:

- (a) A portfolio management practice which aims to offset the risk of a given share by taking a short position through a derivative contract on a share that is different but strongly correlated with that first share.

Though this strategy relies on taking opposite positions on the same asset class, it does not hedge the specific risk linked to the investment in share x. It should not be considered as a hedging strategy as laid down in paragraph 2 of Schedule 2 of the Central Bank UCITS Regulations as the criteria set out in sub-paragraphs (i), (ii) and (iii) in particular are not complied with.

- (b) A portfolio management practice which aims to keep the alpha of a basket of shares (comprising a limited number of shares) by combining the investment in that basket of shares with a beta-adjusted short position on a future on a stock market index.

This strategy does not aim to offset the significant risks linked to the investment in that basket of shares but to offset the beta (market risk) of that investment and keep the alpha. The alpha component of the basket of shares may dominate over the beta component and as such lead to losses at the level of the UCITS. For that reason, it should not be considered as a hedging strategy as laid down in paragraph 2 of Schedule 2 of the Central Bank UCITS Regulations, as the criteria set out in sub-paragraphs (i) and (ii) in particular are not complied with.

- (c) A merger arbitrage strategy: such a strategy combines a synthetic short position on a stock with a long position (synthetic or not) on another stock.

As in the previous example, such a strategy aims to hedge the beta (market risk) of the positions and generate a return linked to the relative performance of both stocks. Similarly, the alpha component of the basket of shares may dominate over the beta component and as such lead to losses at the level of the UCITS. It should not be considered as a hedging strategy as laid down in paragraph 2 of Schedule 2 of the Central Bank UCITS Regulations, as the criteria set out in sub-paragraphs (i), (ii) and (iii) in particular are not complied with.

- (d) A strategy which aims to hedge a long stock position with purchased credit bond protection (CDS) on the same issuer.

This strategy relates to two different asset classes and cannot be taken into account for the purpose of calculating the global exposure as the criteria set out in paragraph 2 (iv) of Schedule 2 of the Central Bank UCITS Regulations is not complied with.

VaR

65. If the proposed risk measurement framework used by a responsible person should prove inadequate, the Central Bank may impose stricter measures for the UCITS.
66. The VaR approach is a measure of the maximum potential loss due to market risk rather than leverage. More particularly, the VaR approach measures the maximum potential loss at a given confidence level (probability) over a specific time period under normal market conditions.
67. For example if the VaR (1 day, 99%) of a UCITS equals \$4 million, this means that, under normal market conditions, the UCITS can be 99% confident that a change in the value of its portfolio would not result in a decrease of more than \$4 million in 1 day. This is equivalent to saying that there is a 1% probability (confidence level) that the value of its portfolio could decrease by \$4 million or more during 1 day, but the level of this amount is not specified (i.e. it could be catastrophic).
68. As part of the overall RMP, a responsible person should establish, implement and maintain a documented system of internal limits concerning the measures used to manage and control the relevant risks for each UCITS. The VaR limits should always be set according to the defined risk profile. In particular, it is considered that there might be circumstances where, giving the agreed risk profile, the responsible person should set a VaR limit that is lower than the regulatory threshold for ensuring consistency between the VaR limit and the risk profile.
69. Market practice in UCITS over the last number of years suggests that there are two main approaches to using VaR, namely the relative and absolute VaR measurement approaches. For both approaches, the VaR is calculated for all the positions of the UCITS portfolio. The choice made should be duly justified and consistency should be maintained (e.g. a UCITS that has chosen to use absolute VaR should not switch to relative VaR simply because it has breached the limits set out in the guidelines on the use of absolute VaR).
70. Strategies suited to the relative VaR approach are those where a leverage free benchmark is defined for the UCITS, reflecting the investment strategy which the UCITS is pursuing. In this case the benchmark is a standardisation that obviously serves as the basis for a reference portfolio for the relative VaR approach. The use of relative VaR would also be the most transparent way for the investor, who is in general aware of the benchmark and who might have, at least implicitly, an idea of the risk of this benchmark.

71. In contrast, UCITS investing in multi-asset classes and that do not define the investment target in relation to a benchmark but rather as an absolute return target, are suited to the absolute VaR approach. In particular, for absolute return UCITS that manage the portfolio in relation to a targeted VaR, the calculation of a reference portfolio might be inappropriate.
72. A variety of models exists for estimating VaR. Each model has its own set of assumptions, advantages and drawbacks. Common models include the parametric (Variance-Covariance) model, the Historical Simulation model and the Monte Carlo Simulation model. It is the responsibility of the responsible person to select the appropriate VaR model, given that some models may not be suited to some types of fund portfolio. For instance, for a UCITS referring largely to financial derivatives presenting non-linear risk features, the parametric VaR model is not appropriate and such a UCITS should rather refer to a Historical Simulation model or a Monte-Carlo model.
73. The model should adequately capture all the material market risks associated with portfolio positions and, in particular, the specific risks associated with FDI. For that purpose, all the risk factors which have more than a non-negligible influence on the fluctuation of the portfolio's value should be covered by the VaR model. For illustration purposes (non-exhaustive), the following risks should, for instance, be captured, if applicable, by the VaR model:
- all significant price risks with respect to option positions or assimilated ('option-like') positions (i.e. gamma, vega, etc);
 - inconsistent variations in short-term and long-term interest rates (term structure risk);
 - the spread risk (for instance between swaps and bonds) arising from less than perfectly correlated movements between government and other fixed-income interest rates;
 - differences in the development of the spot and forward prices of equities.
74. In order to capture all material market risks, the VaR model should cover a sufficient number of risk factors which will depend on the investments made by the UCITS in the various markets (interest rate risk, foreign exchange risk, equity risk, spread risk, etc.). Possible risk factors (a non-exhaustive list) might be, for instance:
- for interest-rate risk: in the major currencies and markets, the yield curve should be divided into a minimum of six maturity segments, to capture the variations of volatility of rates along the yield curve;
 - for (interest rate) spread risk: to specify a completely separate yield curve for non-government fixed income instruments or to estimate the spread over government rates at various points along the yield curve;
 - for equity risk: to have, for instance, at a minimum a risk factor for each of the equity markets in which the UCITS holds positions (i.e. market index) or to have risk factors for each sector in which the UCITS holds

positions (i.e. sector index) or to have risk factors corresponding to the volatility of individual equities.

Relative VaR

75. The relative VaR approach does not measure the leverage of the strategies rather it allows the responsible person to double the risk of loss under a given VaR model. It creates a clear link between the risk of loss of the reference portfolio and the risk of loss of the UCITS, and the similarity of risks between the reference portfolio and the UCITS portfolio should prevent the UCITS from using highly leveraged strategies given the requirements in this guidance regarding the choice of the reference portfolio.
76. Compliance with the criteria governing the choice of the reference portfolio should address the risk of reference portfolios being constructed in a way that 'games' the calculation of relative VaR.
77. In accordance with these criteria, the reference portfolio should not contain financial derivatives or embedded derivatives, so as to avoid any leverage inside the reference portfolio itself except for UCITS engaging in long/short strategies. If short positions are used in the reference portfolio, then the absolute sum of long and short positions should be equal to 100% of the NAV of the UCITS.
78. The reference portfolio should have a risk profile that is very close, if not identical, to the UCITS portfolio. The UCITS portfolio should be scaled back to an unleveraged reference portfolio which must be consistent with the investment objectives and policies of the UCITS (as stated in its fund rules or instrument of incorporation and its prospectus). It should also adhere to the investment limits (but not necessarily to the issuer limits) set out in the UCITS Regulations). For the avoidance of doubt, a long-only benchmark should not be used as a reference portfolio for a long/short strategy, since it would not entail a similarity in the risk profiles of the reference and UCITS portfolios.
79. The reference portfolio can be based on a combination of unleveraged market indices that is consistent with the investment strategy. It can also be inferred from a target allocation, an asset allocation observed over the recent period, or a statistical analysis of the market risks of the portfolio. Where a choice must be made between different reference portfolios, the portfolio with the lower potential market risk level should be chosen. For the avoidance of doubt, this implies that an emerging markets index should not be used as a reference for a portfolio invested in less volatile markets.

Quantitative Requirements

80. The requirements set out in paragraph 5(d) of Schedule 4 of the Central Bank UCITS Regulations relating to the quarterly data set updates is particularly relevant for responsible persons making use of a parametric VaR model.

81. A responsible person may deviate from the default VaR calculation standards (i.e. confidence interval of 99% and holding period of 1 month (20 days)) laid down in paragraphs 5(a) and (b) of Schedule 4 of the Central Bank UCITS Regulations. For instance, a responsible person could theoretically use a confidence interval of 95% and a holding period of 7 days. In that case, the maximum VaR limit of 20% for a responsible person using absolute VaR has to be scaled down to account for these different calculation standards according to the principles laid down in paragraphs 4-7 of Schedule 4 of the Central Bank UCITS Regulations.
82. The rescaling of the absolute VaR limit to a different confidence interval and different holding period should be done in line with the principles laid down in this guidance. When rescaling the absolute VaR limit to a different confidence interval, the responsible person should take into account the table below outlining the quantiles of the normal distribution:

| Confidence Level | Coefficient normal distribution |
|------------------|---------------------------------|
| 99,0% | 2,326 |
| 97,5% | 1,96 |
| 95,0% | 1,645 |

83. In front of a confidence interval of y% (and a holding period of 20 days), the 20% limit with a confidence interval of x% (i.e., 99%) should be rescaled according to the following formula (1):

$$\text{VaR}(y\%) \approx \frac{\text{coeff}(y\%)}{\text{coeff}(x\%)} \times \text{VaR}(x\%)$$

84. For example, if the responsible person uses a confidence interval of 95% in its internal processes, the application of formulae (1) leads to the following rescaled maximum VaR limit:

$$\text{VaR}(95\%) \approx \frac{1,645}{2,326} \times \text{VaR}(99\%) = \frac{1,645}{2,326} \times 20\% \approx 14,1\%$$

85. In the same way, it is possible to move from a time period to another one by using the square root of time rule. For a responsible person using an absolute VaR approach with a holding period of x days (and a confidence interval of 99%), the 20% limit with a holding period of t days (i.e., 20) has to be rescaled according to the following formula (2):

$$\text{VaR (x days)} \approx \frac{\sqrt{x}}{\sqrt{t}} \times \text{VaR (t days)}$$

86. For example, if the responsible person uses a holding period of 5 days in its internal processes, the application of formula (2) leads to the following rescaled maximum VaR limit:

$$\text{VaR(5 days)} \approx \frac{\sqrt{5}}{\sqrt{20}} \times 20\% = 10\%$$

87. For a responsible person using internally a confidence interval of 95% and a holding period of 5 days, the rescaled maximum VaR limit is:

$$\text{VaR (95%, 5 days)} \approx \frac{1,645}{2,326} \times \frac{\text{VaR (20 days, 99\%)}}{\sqrt{4}} \approx 7\% \text{ NAV}$$

88. With regard to the relative VaR approach, the relative nature of the measure means that no adjustment is necessary to the VaR limit (i.e. 200%) in instances where the responsible person uses other parameters than the standards ones set out above.

Back Testing

89. The back testing program should be performed on the basis of either the effective changes ('dirty back testing') or the hypothetical changes ('clean back testing') in the UCITS portfolio value, or even both. A responsible person should take appropriate steps to improve their back testing program, if it is deemed to be insufficient.
90. Back testing is ideally performed on the hypothetical changes in the portfolio's value. That is, it should ideally be based on a comparison between the portfolio's end-of-day value and, assuming unchanged positions, its value at the end of the subsequent day.
91. Under the assumption of a 99% confidence interval, the accurate number of 'overshootings' for each UCITS is 2.5 for the most recent 250 business days. A higher number of 'overshootings' indicate an under-estimate of the VaR. If the back testing results reveal a percentage of exceptions that appears to be too high, the responsible person should review its VaR model and make appropriate adjustments.
92. Where the back testing results give rise to consistently inaccurate estimates and an unacceptable number of 'overshootings' (that is to say, that the number of 'overshootings' is not in line with the confidence interval selected for the calculation of the VaR), the Central Bank reserves the right to take measures and e.g. apply stricter criteria to the use of VaR or, if need be, to disallow the use of the model for the purpose of measuring global exposure. The Central Bank may,

for example, also require that results of the calculation of the UCITS VaR to be scaled up by a multiplication factor.

Stress Testing

93. Regulation 21 of the Central Bank UCITS Regulations, require a rigorous, comprehensive and risk-adequate stress testing program. The complexity of the stress tests should be in line with the risk profile of the UCITS i.e. stress tests for a UCITS with a complex risk profile should reflect this complexity. In contrast, stress tests for lower-risk UCITS could be accordingly simpler and less demanding.
94. Stress scenarios should be selected and tested to reflect extreme changes in markets and other environmental factors which would affect UCITS. The scenarios should be plausible, i.e. unlikely to occur but not impossible.
95. Conversely, the responsible person should if appropriate in relation to the relevant UCITS strategy and risk profile and based on a concrete risk situation, actively identify scenarios which would have a severe impact on the UCITS and probability of such scenarios being realised. For such scenarios, the responsible person should implement appropriate measures in its RMP for early warnings and prevention.
96. If it is not possible to assess precisely the potential depreciation of the UCITS value or the changes in the parameters and correlations for specific types of risk, the responsible person may instead make a skilled estimate.
97. The stress tests should be integrated into the responsible person's RMP. That is to say that the stress test calculation results should be monitored and analysed by the Risk Management function and they should be submitted for review to the senior management. The results should be considered when making investment decisions for the UCITS. If the stress test calculation results reveal particular vulnerability to a given set of circumstances, then they should give rise, if applicable and appropriate, to prompt steps and corrective actions for managing the risks appropriately (for instance hedging or reduction of exposures).
98. Stress tests should generally refer to all risks the UCITS is exposed to except for those which even in stress situations have no more than a negligible/immaterial effect on the UCITS value.
99. A UCITS could theoretically, due to the effect of leverage and depending on the composition and profile of the UCITS, lose more than the value of its own assets in rare situations. Therefore, where appropriate with respect to its composition and risk profile, a responsible person should actively identify scenarios that could result in the value of the UCITS becoming negative. For such scenarios, the responsible person should implement appropriate measures in its RMP for early warnings and prevention.

100. Furthermore, the responsible person should take into account the breakdown of common relationships and standards. For instance, correlations can change significantly due to stress situations.

101. Monthly stress tests should be sufficient for portfolios that are relatively constant. For rapidly changing portfolios more frequent stress tests might be more appropriate. Regulation 21 of the Central Bank UCITS Regulations requires additional stress tests to be carried out if the composition of the UCITS portfolio or the market environment changes in a relevant manner. For index replicating UCITS the stress tests may be conducted less frequently since they do not have an impact on the investment decisions.

102. Each time the design of the stress tests is changed, both the previous and the modified stress tests should be conducted simultaneously, at least once and the results compared.

Since these requirements allow a lot of freedom in the design of the stress tests, there should be clear procedures implemented by the responsible person. For each UCITS there should be a properly documented program, setting out the individual stress tests to be carried out with an explanation of why the program is appropriate for the UCITS. Furthermore, the execution the program (including the concrete implementation, the results and consequences) should be traceable documented.

Qualitative Requirements

103. This validation can be conducted for example by a relevant competent authority such as a banking regulator, by an internal or external auditor or by an external service provider independent of the building process.

Safeguards

104. There is a risk that the use of the VaR method could result in UCITS strategies using high levels of leverage with a risk management system that does not adequately capture all the relevant risks, in particular the 'fat tail' risk.

105. For example, UCITS that engage in arbitrage strategies, where the mixture of long and short strategies leads to fat tails (adverse movements of both long and short legs) but low VaR, may incorporate high levels of leverage. A responsible person that resorts to leveraged arbitrage strategies for a relevant UCITS while measuring its global exposure with VaR should therefore take appropriate additional measures to monitor their risk profile (e.g. use CVaR or other methods able to detect the potential impact of low-probability market events).

106. Additionally, UCITS may hold assets where the risk profile cannot be adequately captured by the computation of VaR. Structured securities, credit-linked financial instruments or FDI designed to limit the maximum loss at a given confidence level are examples of such assets. Appropriate additional risk management methods

should therefore ensure that both the maximum loss and the sensitivity to market movements in adverse conditions are adequately captured and limited.

VaR - Disclosure

107.Regulation 56(3), 56(4) and Regulation 68 of the Central Bank UCITS Regulations requires that the prospectus issued by a UCITS should provide investors with information about the risk related to derivatives, such as for instance, the existence of leverage risk and the corresponding level of risk taken.

108.Since the VaR approach does not directly limit the level of leverage, the prospectus should disclose the possibility of higher leverage levels and also the expected level of leverage that might be reached. However, the disclosed expected level of leverage is not intended to be an additional exposure limit for the UCITS. The level of leverage may vary over time. Where the responsible person anticipates that expected levels of leverage may vary then prospectus disclosure could reflect the maximum expected levels, e.g. “Leverage is not expected to exceed...”, or, the expected level of leverage with information on the possibility of higher leverage levels under certain circumstances (e.g. very low market volatility). Leverage should be calculated as the sum of the notionals of the derivatives used

109.A responsible person proposing to use a financial index incorporating embedded leverage features for a UCITS should apply a “look through” approach to the level of leverage calculated as the sum of the notionals of the embedded derivatives in order to comply with prospectus disclosure requirements set out in Regulation 56(5) of the Central Bank UCITS Regulations.

110.Paragraph 6(e) of Schedule 7 to the Central Bank UCITS Regulations requires the disclosure of the method used to calculate global exposure (commitment, absolute or relative VaR) in the annual report. Transparency for investors will be increased by the disclosure of information on the reference portfolio, since its composition mainly determines the level of risk taken by the UCITS. Moreover, since VaR is a common risk measure, its disclosure also increases transparency for investors.

OTC Derivatives - general

111.The purpose of imposing counterparty limits on a UCITS is to ensure that the UCITS is not exposed to a single counterparty disproportionately. In the event of a counterparty failure, the risk of material loss will be reduced due to risk diversification. OTC derivative transactions give rise to counterparty risk exposure as they are bi-lateral contracts for non-exchange traded FDI. Moreover, the counterparty exposure related to OTC derivatives should be added to other non-FDI exposures that the UCITS may have to the counterparty in order to ensure

that overall counterparty exposure limits are not breached, i.e. the total exposure to a single counterparty arising from all activities should be captured in the risk management systems. FDI transactions that are traded on exchanges where daily mark-to-market valuations and margining occur are deemed to be free of counterparty risk (i.e. exchange-traded derivatives).

OTC Derivatives – collateral

112. Collateral requirements are set out in Regulation 24 of the Central Bank UCITS Regulations. These apply to collateral received in relation to OTC derivative transactions and efficient portfolio management transactions.

OTC Derivatives - Counterparty and Issuer Concentration Risk

113. The commitment approach should be used in the counterparty and issuer concentration calculations where appropriate. For instance, if the use of the commitment approach leads to an infinite value (binary option), the position exposure should be equal to the maximum potential loss as a result of default by the issuer.

OTC Derivatives - counterparty netting requirements

114. A responsible person is permitted to net the mark-to-market value of OTC derivative positions with the same counterparty provided that the UCITS has a contractual netting agreement with its counterparty which creates a single legal obligation such that, in the event of the counterparty's failure to perform owing to default, bankruptcy, liquidation or any other similar circumstance, the UCITS would have a claim to receive or an obligation to pay only the net sum of the positive and negative mark-to-market values of included individual transactions.

Duration netting rules

115. A responsible person should make use of the duration-netting rules set out in this section for UCITS that invest primarily in interest rate derivatives only in order to take into account the correlation between the maturity segments of the interest rate curve.

116. A responsible person should not apply the duration-netting rules if application of these rules results in an incorrect assessment of the risk profile of the UCITS. A responsible person which applies duration netting rules should not include other sources of risk (e.g. volatility) in the UCITS interest rate strategy. Therefore, for example, interest rate arbitrage strategies may not apply these netting rules.

117. The responsible person should ensure that the use of the duration-netting rules for the relevant UCITS does not generate any unjustified level of leverage through investment in short-term positions. Thus, for example, short-dated interest rate

derivatives cannot be the main source of performance for a UCITS with medium duration if it makes use of this netting methodology.

118.A responsible person shall convert the relevant UCITS interest rate derivative into its equivalent underlying asset position by taking the following steps::

1. Allocate each interest rate FDI to the appropriate range ('bucket') of the following maturity-based ladder:

| Bucket | Maturities range |
|--------|------------------|
| 1 | 0 - 2 years |
| 2 | 2 - 7 years |
| 3 | 7 - 15 years |
| 4 | > 15 years |

2. Calculate the equivalent underlying asset position of each interest rate derivative instrument as its duration divided by the target duration of the UCITS and multiplied by the market value of the underlying asset:

$$\text{Equivalent underlying asset position} = \frac{\text{duration}_{FDI}}{\text{duration}_{target}} \times MtM_{Underlying}$$

where:

- duration_{FDI} is the duration (sensitivity to interest rates) of the interest rate derivative instrument,
- duration_{target} is in line with the investment strategy, the directional positions and with the expected level of risk at any time and will be regularised otherwise. It is also in line with the portfolio duration under normal market conditions.
- $MtM_{underlying}$ is the market value of the underlying asset as detailed in paragraph 2.1

3. Net the long and short equivalent underlying asset positions within each bucket. The amount of the former which is netted with the latter is the *netted position* for that bucket.
4. Net the amount of the remaining unnetted long (or short) position in the bucket (*i*) with the amount of the remaining short (long) position remaining in the bucket (*i+1*).
5. Net the amount of the unnetted long (or short) position in the bucket (*i*) with the amount of the remaining short (long) position remaining in the bucket (*i+2*).
6. Calculate the netted amount between the unnetted long and short positions of the two most remote buckets.
7. A responsible person shall calculate the relevant UCITS total global exposure as the sum of:
 - (a) 0% of the netted position for each bucket;
 - (b) 40% of the netted positions between two adjoining buckets (*i*) and (*i+1*);
 - (c) 75% of the netted positions between two remote buckets separated by another one, meaning buckets (*i*) and (*i+2*);
 - (d) 100% of the netted positions between the two most remote buckets; and

(e) 100% of the remaining unnetted positions.

119. A responsible person which applies a hedging framework to the relevant UCITS should only apply the duration netting rules to interest rate derivatives which are not included in the hedging framework.

Hedging

120. A responsible person should only take hedging arrangements which do not meet the criteria set out in paragraph 2 of Schedule 2 to the Central Bank UCITS Regulations into account when calculating the UCITS global exposure if the FDI in question are used for currency hedging purposes (i.e. they do not add any incremental exposure, leverage and/or other market risks).

Absolute VaR approach

121. The absolute VaR approach limits the maximum VaR that a UCITS can have relative to its Net Asset Value.

Techniques and instruments for the purposes of efficient portfolio management - general

122. Regulations 23 to 25 of the Central Bank UCITS Regulations set down requirements in relation to the use of Securities Lending and Repurchase/Reverse Repurchase Agreements by UCITS for the purposes of efficient portfolio management. Guidelines in relation to the application of these requirements are set out below.

123. Repurchase/reverse repurchase agreements and securities lending (i.e. efficient portfolio management techniques) may only be effected in accordance with normal market practice.

124. Repurchase/reverse repurchase agreements or securities lending do not constitute borrowing or lending for the purposes of Regulation 103 and Regulation 111 of the UCITS Regulations respectively.

Techniques and instruments for the purposes of efficient portfolio management - collateral requirements

125. Collateral requirements are set out in Regulation 24 of the Central Bank UCITS Regulations.

126. Paragraph 5(i) of Schedule 3 of the Central Bank UCITS Regulations sets out collateral diversification requirements and paragraph 5(ii) provides for the disapplication of these requirements in certain circumstances. Where the acceptance of the collateral would mean that the collateral issuer constituted more than 20% of the net asset value of the UCITS, the responsible person should apply

the additional resources which a prudent responsible person would apply to a more detailed assessment of the credit quality of that collateral.

127. Credit quality of already-accepted collateral should be monitored on an on-going basis. Additional resources should continue to be applied to the more frequent and more detailed re-assessment of collateral issuers who constitute more than 20% of the net asset value of a UCITS.

128. Where there is evidence of deteriorating credit quality of collateral held, the responsible person should put into action a plan promptly to remedy its exposure to that collateral of deteriorating quality in an orderly manner and should prioritise the reduction of its exposure to any collateral counterparty who represents more than 20% of the net asset value of the UCITS. Unless the board of the responsible person, explicitly and specifically on each occasion a decision is to be made, decides otherwise, the responsible person should not accept as new or replacement collateral, or continue without a timely remediation plan to hold, any collateral which is not of high quality as described in paragraph 3 of Schedule 3 to the CBI UCITS Regulations.

Techniques and instruments for the purposes of efficient portfolio management - operational and legal risks

129. Collateral management is a highly complex activity. A responsible person should have or employ appropriate systems, operational capabilities and legal expertise to manage this risk.

Techniques and instruments for the purposes of efficient portfolio management - leverage

130. A responsible person that uses VaR as part of its risk management methodology should ensure that all efficient portfolio management exposures are also included in the calculations and limits.

Other requirements – cover

131. The cover rules, which are set out in Regulation 15 of the Central Bank UCITS Regulations, are applicable in all circumstances where a UCITS has commitments under the terms of the derivative contract. This includes synthetic short positions (i.e. transactions in which a UCITS is exposed to the risk of having to buy securities at a higher price than the price at which the securities are to be delivered). A UCITS is therefore exposed to the risk that it cannot meet all or part of its commitments under the terms of the derivative contract.

132. The RMP should provide for a regular check on whether the coverage available to UCITS, either in the form of the underlying financial instrument or in the form of liquid assets, exists in sufficient quantity to meet all future obligations.

Other requirements - reporting

133. A responsible person should employ a RMP that enables it to monitor, measure and manage the risks attached to FDI positions. Details of this process should be provided to “Securities and Markets Supervision Division” for review. Appendix I (“Risk Management Process – Guide to Filing Requirements”) sets out guidance in this area and a suggested format for the responsible person to use. The Appendix also includes a checklist to assist in the filing process.

Other requirements - UCITS annual FDI report

134. Paragraph 29 of Schedule 9 to the UCITS Regulations provides that a UCITS shall submit a report to the Central Bank on its FDI positions on an annual basis. The report should be signed by the responsible person and submitted with the annual report of the UCITS to Securities and Markets Supervision Division.

135. The purpose of such a report is to enable the Central Bank to review the UCITS use of FDI during the year and any risk breaches, while also allowing the responsible person to update the RMP as required. The Central Bank may require additional information or clarification based on the data submitted.

136. The UCITS Annual FDI Report should therefore include details of the following:

- summary review on the use of FDI by the UCITS during the year by reference to Paragraph 29 of Schedule 9 to the UCITS Regulations;
- instances of any breaches of global exposure during the year, with an explanation of remedial action taken and duration of the breaches;
- instances of any breaches of counterparty risk exposure during the year, with an explanation of remedial action taken and duration of the breaches;
- where relevant, a summary of non-material updates to the RMP, for example, changes to personnel, systems, procedures and instruments used. In this instance a revised RMP should be attached.

137. In the case of UCITS using VaR, additional information is required as follows:

- year-end VaR number expressed as a percentage of NAV (where applicable);

- instances of any breaches in VaR limits during the year, with an explanation of remedial action and duration of breach;
- confirmation as to whether back-testing has been successful in accordance with the requirements and, if not, what actions the UCITS has taken to address the situation;
- confirmation that the responsible person has a stress testing regime, an overview of the broad assumptions behind such testing and a commentary on the results of the stress testing and its applicability to the day to day use of the model.

Other requirements - prospectus disclosure requirements

138. A responsible person should provide specific disclosure in relation to the use of FDI, to clarify at the outset the purpose behind the use of these instruments and to set out the extent to which the UCITS may or may not be leveraged as a result. A UCITS will be leveraged if it expects to have a global exposure number greater than zero. Further details, on general prospectus disclosure for complex products is set out in the Central Bank's guidance on – "UCITS Structured Products and Complex Trading Strategies – Prospectus Disclosure". Guidance in relation to disclosure to be provided by UCITS using VaR is also provided in paragraphs 18 and 19 above.

139. While it is acceptable to refer to efficient portfolio management ("EPM") in the prospectus, the reference should be accompanied by further detail in order to clarify the instruments and/or strategies that the UCITS may utilise. In the paragraph under EPM therefore, the prospectus should list the FDI that the UCITS will or may use to achieve EPM, although such a list need not be exhaustive. EPM refers to techniques and instruments, including FDI, used for one or more of the following specific aims:

- the reduction of risk;
- the reduction of cost;
- the generation of additional capital or income for the UCITS with a level of risk which is consistent with the risk profile of the UCITS.

Other requirements – financial statement disclosure requirements

140. The Central Bank UCITS Regulations require that open financial derivative positions be reported in annual and half-yearly reports. Schedule 7 and Schedule 8 to the Central Bank UCITS Regulations allow that where the volume of these positions is high they can be reported on a condensed basis. UCITS are guided to consider that where the volumes of open financial

derivative positions results in more than five A4 pages, this can be taken to meet “where the volume of positions is high”.

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APPENDIX I

UCITS: Risk Management Process – Guide to Filing Requirements

Overview

1. The RMP document should:
 - be a stand-alone document and so should include all relevant information and not cross-reference to other non-RMP documents; and
 - only include appendices that are clear and understandable.
2. The Central Bank requires that a UCITS system for measuring the various risks associated with FDI should be both comprehensive and accurate. UCITS are exposed to the operational risk that deficiencies in information systems or internal controls will result in unexpected loss. This risk is generally associated with inadequate procedures and controls as well as human error and system failures. Therefore the Central Bank considers it important that the RMP submitted should be detailed and comprehensive.
3. The primary components of a sound risk management system are:
 - a comprehensive risk measurement approach;
 - a detailed structure of limits, guidelines and other parameters used to govern risk taking; and
 - a strong management information system for controlling, monitoring and reporting risks.

Authorisation Requirements

4. A UCITS should submit details of the proposed risk management system in the form of a formal statement, signed and duly dated. It should be submitted in good time to allow it to be assessed prior to authorisation, and should take account of the following:
 - where the RMP will be carried out by an entity other than the responsible person, it is the responsibility of the responsible person to provide the necessary details from its risk-manager on the procedures that will be applied. This report, which should be set out on the headed paper of the third party, should include contact details of people responsible for the execution of the process;
 - it is important that the submission from the responsible person details how it will monitor and control the procedures set out by the third party risk-manager on an ongoing basis and should include escalation procedures in the event of a regulatory breach. This will normally be in the form of a covering letter

accompanying the RMP submitted to the Central Bank. The covering letter from the responsible person should identify, *inter alia*, the risk-manager that has been appointed by the responsible person and set out how it will supervise the work of its delegate, including how it will monitor and control the applicable compliance and quantitative limits, as well as noting procedures that apply in the event of regulatory breaches (immediate escalation is required).

5. A responsible person that proposes to use a RMP, the details of which have already been supplied to the Central Bank in the context of an earlier application, is not required to re-submit those details where the responsible person confirms in writing that the same process will be applied without amendment. Material amendments to the RMP should be submitted by the responsible person to the Central Bank in advance. Other amendments should be noted in the UCITS Annual FDI Report.
6. As an aid in preparing the document and ensuring that the Central Bank's requirements are met, the following is a suggested model for the submission. While the format is not obligatory, alternative formats should ensure that all of the required information is included. In order to aid review, RMP submissions should also be accompanied by the relevant prospectus extract detailing the FDI the UCITS may use.
 - a. General Information
 - Details of the entity and unit(s) responsible for FDI valuations, risk measurement and management. This will include information on when formed, who regulated by, AUM and a description of any areas of specialist expertise.
 - Policy on the level of expertise required by persons engaged in any part of the planned FDI activity. Specify what expertise is currently in place in terms of personnel and/or departments involved.
 - Details of specific FDI, including embedded derivatives in transferable securities and money market instruments, with a description of their commercial purpose. Notwithstanding that a wide range of FDI may be referred to in the prospectus, the Central Bank will permit that the RMP may detail only those FDI that will be employed initially by the UCITS. In this case, the prospectus should include a statement stating that any FDI not included in the RMP will not be utilised until such time as a revised submission has been provided to the Central Bank.
 - An explanation of the risks involved to the UCITS by utilising the specific FDI referred to above.

- A description of the valuation rules for all specified FDI, including the policy with regard to the valuation of illiquid FDI.
 - Overview of the information technology systems being used by risk manager to monitor, measure and manage the risk process.
 - Policy in relation to the monitoring and management of legal risk, particularly in the context of OTC derivatives (particularly credit derivatives, if applicable). Legal risk is the risk of loss due to the unexpected application of a law or regulation, or because contracts are not legally enforceable or documented correctly.
- b. Global Exposure and Leverage
- The method of measurement the responsible person will use to calculate the Global Exposure and Leverage of the UCITS with appropriate rationale.
 - A detailed description of the methodology to be used for the calculation of Global Exposure and Leverage. This should include a numeric example, with appropriate calculations, for each FDI the UCITS will be utilising, to illustrate how the responsible person will apply the Commitment Approach.
 - Policy to be adopted regarding cover requirements.
 - Policy adopted regarding issuer concentration risk (position risk).
 - Procedures the responsible person will follow to monitor and control the calculations of Global Exposure and Leverage to ensure compliance with requirements, including details of the management controls and systems that the responsible person will employ such as:
 - Monitoring of compliance and quantitative limits
 - Prevention of limit breaches
 - Trade monitoring
 - Position netting
 - For responsible persons using advanced risk management techniques, the Value at Risk (“VaR”) or other advanced method that will be applied. The description of the VaR or other advanced method should detail the quantitative and qualitative parameters adopted. If a benchmark is being used for VaR, details of such benchmark (relative VaR).
 - A description of any other risk measures used in addition to the Commitment Approach or VaR (e.g. tracking-error, stop-losses).

c. Counterparty Risk Exposure

- Policy on how the UCITS will calculate its counterparty exposure. This policy statement should refer to the following:
 - Counterparty approval (note that credit derivatives should be subject to the same approval and monitoring process as credit risk derived from more traditional derivative products)
 - Un-rated counterparties and implied ratings
 - Use of collateral
 - Use of netting
 - Quantitative standards
- The calculation methodology to be used with a description of the steps involved.
- Details of the management controls and systems that the UCITS will employ in the measurement and management of counterparty risk, including:
 - Monitoring of compliance and quantitative limits (e.g. concentration limits); and
 - Prevention of limit breaches.

d. Reporting Requirements

- Details of the procedures for preparing the UCITS Annual FDI Report, including an outline of the format of the report.
- Details of internal reporting procedures. This should include frequency of board meetings and, where relevant, the formal lines of communication between the risk-manager and the responsible person. The procedures should also include the steps to be taken by the responsible person and/or the risk manager in the event of a regulatory breach, including escalation procedures.

APPENDIX II

Glossary

Absolute VaR

This is defined as the VaR of the UCITS capped as a percentage of NAV.

Barrier Option

A barrier option is an option contract where, in addition to the normal strike price, there is (are) additional specific barrier or trigger levels. If the underlying asset of the option touches the barrier during the lifetime of the option, the option contract provides for specific consequences (for instance activation or deactivation of the option) that depend on the type of barrier option. Standard barrier option contracts that can be seen in the industry are knock-out or knock-in options or options combining both features.

Basic Total Rate of Return Swap

The basic TRORS contract is defined as a bilateral contract between a total return payer and a total return receiver whereby the total return payer pays the total return of a reference asset (i.e. short position on reference asset) and receives from the receiver of the total rate of return (i.e. long position on reference asset), in principle, a floating rate payment (for instance LIBOR) plus a spread.

Contract for Differences

A contract for difference (CFD) is a contract between two parties, typically described as 'buyer' and 'seller', stipulating that the seller will pay to the buyer the difference between the current value of an asset and its value when the contract was entered into. In effect, CFDs are financial derivatives that allow investors to take long or short positions on underlying financial instruments. CFDs do not involve the purchase or sale of an asset, only the agreement to receive or pay the movement in its price.

Clearing House

A clearing house assists in the transfer of funds and contracts between members who execute trades. A clearing house is a central point for depositing and paying out funds that need to be credited to or debited from the accounts of its member firms. A clearing house may also guarantee the performance of the contract, despite what the individual member may do. If a member defaults, the collective resources of the members are used to satisfy the claim as necessary.

Event risk

Risk that the value of a financial instrument changes in an abrupt or sudden way when compared with the behaviour of the general market and in a way that goes well beyond the normal range of fluctuations in value. Event risk covers, for instance, the migration risk for interest rate products or the risk of significant changes or jumps in equity prices.

General market risk

Risk of loss arising from changes in the general level of market prices.

Global Exposure

Global exposure is a measure designed to limit either the incremental exposure and leverage generated by a UCITS through the use of FDI (including embedded derivatives) or the market risk of the UCITS portfolio.

Suggested alternative: The definition of global exposure should be clarified so that incremental exposure and leverage are more precisely linked to UCITS utilising the commitment approach and that global exposure for UCITS using a VaR approach is linked to market risk.

Idiosyncratic risk

Risk that the value of a financial instrument changes more or less than the market in general (but not in an abrupt or sudden way).

Interest rate derivative instrument

In the context of duration-netting arrangements, an interest rate derivative instrument is a derivative where the underlying asset is the right to pay or receive a notional amount of money at a given interest rate. The variation of the marked to market of the interest rate derivative is mainly related to the move of interest rate curve. Examples (non-exhaustive list) of interest rate derivatives might be: Interest rate swap, FRA, interest rate future, future on notional bond. The risk profile of the interest rate derivatives does not include another main source of risk other than interest rate risk. For the avoidance of doubt, options on corporate bonds which include credit risk shouldn't be considered as interest rate derivative instruments.

Non-Basic Total Rate of Return Swap

The non-basic TRORS contracts are those where, instead of the floating rate payment leg, the TRORS refers to a fixed rate payment or to the total return of another reference asset.

Partly Paid Security

A security on which only part of the capital amount and any premium due has been paid. The outstanding amounts are payable at a time chosen by the company issuing the securities.

Path Dependency

Path dependency reflects the fact that the terminal value of certain exotic derivatives is dependent not only on the value of the underlying asset at that time, but also at prior points in time. The value is therefore dependent on the 'path' taken by the underlying over the life of the derivative.

Relative VaR

This is defined as the VaR of the UCITS divided by the VaR of a benchmark or reference portfolio (i.e. a similar portfolio with no derivatives). This can be an actual benchmark portfolio (such as an index) or a fictitious benchmark portfolio. The VaR on the UCITS portfolio shall not exceed twice the VaR on a comparable benchmark portfolio.

Right

A right is granted to existing shareholders of a corporation to subscribe for a new issue of common stock before it is offered to the public. The right normally has a life of 2 – 4 weeks. The subscription price is normally lower than the public offering price.

Specific market risk

The specific market risk covers two types of risks, namely the idiosyncratic risk and the event/default risk.

Value at Risk (VaR)

VaR is a measure of the potential loss to the UCITS due to market risk. More particularly, VaR measures the potential loss at a given confidence level (probability) over a specific time period under normal market conditions.

VaR Back-testing

This is the process of assessing the accuracy and quality of a VaR model by comparing the model generated VaR measures that it produces over time against actual observed gains and losses.

VaR Stress-testing

Stress testing is a process to establish how the portfolio would react to changing conditions in the markets. Stress testing aims to identify extreme events that could trigger catastrophic losses in a given portfolio.

Variance Swap

Variance swaps are contracts that allow investors to gain exposure to the variance (squared volatility) of an underlying asset and, in particular, to trade future realized (or historical) volatility against current implied volatility. According to market practice, the strike and the variance notional are expressed in terms of volatility.

Warrant

A security which usually issued along with a bond or preferred stock, entitling the holder to buy a specific amount of securities at a specific price, usually above the current market price at the time of issuance, for a specified or unspecified period. If the price of the security rises to above the warrant's exercise price, then the investor can buy the security at the warrant's exercise price and resell it for a profit. Otherwise, the warrant will simply expire or remain unused.

The following is a checklist to assist in the completion of the RMP submission:

- Procedural Yes/No
- 1 RMP on risk manager's headed paper, dated and signed
 - 2 Where relevant, covering letter from UCITS setting out, inter alia:
 - a. The risk-manager
 - b. How FDI compliance and quantitative limits will be monitored
 - c. Escalation procedures in the event of limit breaches
 - 3 Ensure FDI in RMP agrees with prospectus (submit extracts)

General Information

- 1 Details of entities and units responsible for risk and valuations
- 2 Policy on expertise required to trade and manage FDI and related risks
- 3 Details of expertise currently in place (i.e. personnel responsible)
- 4 Details of all FDI to be used with summary of commercial purpose
- 5 Details of risks involved to the UCITS from using FDI
- 6 Description of FDI valuation rules and pricing methodology
- 7 Description of systems and technology used
- 8 Description of policy and procedures re legal risk (in particular credit derivatives)

Global Exposure and Leverage

- 1 Policy on Leverage and Global Exposure
 - a. Policy on Asset Cover
 - b. Quantitative Limits
 - c. Hedging
 - d. Position Netting
- 2 Description of the methodology to calculate global exposure
- 3 Example provided on calculation of global exposure – using FDI traded
- 4 Description of methodology on using VaR
 - a. Description of model used
 - b. Quantitative Limits
 - c. Stress Testing Procedures
 - d. Back Testing Procedures
- 5 Has the model been examined by a competent regulatory authority
- 6 Procedures and controls documented, including
 - a. Monitoring & reporting compliance and quantitative limits
 - b. Prevention of limit breaches
 - c. Trade monitoring
- 7 Any other risk measures used/described – e.g. tracking error
- 8 Issuer Concentration risk

Counterparty Exposure

- 1 Policy on counterparty risk exposure, including the following:
 - a. Counterparty approval (including rating requirements)
 - b. Use of collateral
 - c. Netting (legally enforceable netting agreements)
- 2 Description of quantitative standards adopted
- 3 Description of methodology to calculate counterparty exposure

Reporting

- 1 Details of procedures and content of UCITS Annual FDI Report

Warning: The contents of this checklist should not be relied upon to reflect the complete RMP requirements of the Central Bank. Additional information may be requested



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