CESR's Guidelines on Risk Measurement and the Calculation of Global Exposure and Counterparty Risk for UCITS

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Executive Summary

This paper sets out CESR's guidelines on Risk Measurement and the Calculation of Global Exposure and Counterparty Risk for UCITS. These guidelines accompany the level 2 implementing measures in the context of risk measurement and the calculation of global exposure and counterparty risk for UCITS.

The key purpose of these guidelines is to provide stakeholders with detailed methodologies in order to foster a level playing field among Member States in the area of risk measurement and the calculation of global exposure and counterparty risk for UCITS.

To achieve this objective, CESR provides a harmonised definition of global exposure. CESR stresses that the calculation of the global exposure represents only one element of the UCITS' overall risk management process and that it remains the responsibility of the UCITS to select an appropriate methodology to calculate it. Concerning the calculation of the global exposure, CESR sets out detailed methodologies to be followed by UCITS when they use the commitment or the Value at Risk (VaR) approach.

For the commitment approach, CESR sets out guidelines on:

- The conversion of financial derivatives into the equivalent position in the underlying assets of those derivatives;

- The methodologies for netting and hedging arrangements and the principles to be respected when calculating global exposure; and

- The calculation of global exposure when using efficient portfolio management techniques.

For the VaR approach, CESR sets out guidelines on:

- The principles to be applied for the choice between relative and absolute VaR;

- The methodology for the computation of the global exposure when using Relative and absolute VaR with a set of quantitative and qualitative requirements to be respected;

- Additional safeguards which UCITS should put in place when calculating the global exposure with the VaR approach.

In these guidelines, CESR also defines a set of high level principles relating to assets that may be used as collateral and cover rules for transactions in financial derivative instruments.

Finally, in order to be able to fully take into account the feedback from the public consultation on CESR's initial views on specific guidelines for structured UCITS, CESR will carry out further work to assess whether it would be appropriate for certain types of structured UCITS to use other methodologies to calculate the global exposure.

Introduction

In March 2007, the European Commission announced a series of targeted enhancements to the UCITS Directive (85/611/EEC). Following further work and consultation, the Commission adopted a proposal for the revised UCITS Directive in July 2008, an amended version of which was approved by the European Parliament in January 2009 and adopted by the Council in June 2009. The final text of the revised Directive (2009/65/EC) was published in the Official Journal on 17 November 2009.

On 13 February 2009 the European Commission submitted a provisional request to CESR for technical advice on the content of the implementing measures concerning the future UCITS Directive ('the mandate'). The mandate was split into three parts:

I. Request for technical advice on the level 2 measures related to the management company passport;

II. Request for technical advice on the level 2 measures related to key investor information;

III. Request for technical advice on the level 2 measures related to fund mergers, master-feeder structures and the notification procedure.

CESR provided technical advice to the European Commission on Part I of the mandate dealing with level 2 measures related to the UCITS management company passport (Ref: CESR/09-963) in October 2009. This advice included proposed level 2 measures for the calculation of UCITS global exposure. These proposals had been the subject of a public consultation in June 2009 (Ref. CESR/09-489). The advice also recommended that certain implementing measures dealing with the calculation of global exposure be accompanied by level 3 Guidelines. The CESR advice also proposed that the level 2 measures and level 3 guidelines should be adopted as a single package by July 2010.

These detailed Level 3 Guidelines accompany the level 2 implementing measures in the context of risk measurement and the calculation of global exposure and counterparty risk for UCITS.

In this paper, the general term "UCITS" refers to:

- the investment company, if the UCITS is self-managed, and
- the management company, if the UCITS is not self-managed, or if the UCITS is set up in a contractual or unit trust form.

Guidelines

1. <u>Definition and scope of Global Exposure</u>

> **Box 1**
>
> 1. A UCITS must calculate its global exposure on at least a daily basis. The limits on global exposure must be complied with on an ongoing basis. Depending on the investment strategy being pursued a UCITS should, where necessary, also carry out intra-day calculations.
>
> 2. In accordance with Article 41 (3) of the Commission Directive 2010/43 implementing Directive 2009/65/EC of the European Parliament and of the Council as regards organisational requirements, conflicts of interest, conduct of business, risk management and content of the agreement between a depositary and a management company ("the implementing Directive"), a UCITS may consider appropriate for the calculation of global exposure only those methodologies on which CESR has published level 3 Guidelines.
>
> 3. It is the responsibility of the UCITS to select an appropriate methodology to calculate global exposure. More specifically, the selection should be based on the self-assessment by the UCITS of its risk profile resulting from its investment policy (including its use of financial derivative instruments).
>
> 4. A UCITS must 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 doesn't adequately capture the market risk of the portfolio.
>
> 5. The use of a commitment approach or VaR approach or any other methodology to calculate global exposure does not exempt UCITS from the requirement to establish appropriate internal risk management measures and limits.

<u>**Explanatory Text**</u>

1. CESR emphasised in its advice on risk management in the context of the management company passport that the calculation of the global exposure represents only one element of the UCITS overall risk management process (see in particular Box 1 (points 3 and 4 of explanatory text) and Box 9 (point 50 of explanatory text) in Section IV of the advice). The risk management process should comprise procedures which enable the management company to assess the UCITS' exposure to all material risks including market risks, liquidity risks, counterparty risks and operational risks.

UCITS must assess the investment strategy and portfolio composition on an ongoing 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.

2. With respect to the selection of the methodology used to measure global exposure, CESR expects that the commitment approach should not be applied to UCITS using, to a large extent and in a systematic way, financial derivative instruments as part of complex investment strategies. As a general rule, CESR expects UCITS to use a maximum loss approach to assess whether the complex investment strategy or the use of exotic derivatives represent more than a negligible exposure.

3. Additionally there are investment strategies that can be pursued by UCITS through the use of financial derivative instruments 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

2 Calculation of Global Exposure using the Commitment Approach

2.1 Conversion Methodologies

2.1.1 Standard Derivatives – Embedded Derivatives and Non-Standard Derivatives

Box 2

1. The commitment conversion methodology for standard derivatives is always the market value of the equivalent position in the underlying asset. This may be replaced by the notional value or the price of the futures contract where this is more conservative. For non-standard derivatives, where it is not possible to convert the derivative into the market value or notional value of the equivalent underlying asset, an alternative approach may be used provided that the total amount of the derivatives represent a negligible portion of the UCITS portfolio.

2. The following steps must be taken by a UCITS when calculating global exposure using the commitment approach:

   a. Calculate the commitment of each individual derivative (as well as any embedded derivatives and leverage linked to EPM techniques).

   b. Identify netting and hedging arrangements. For each netting or hedging arrangement, calculate a net commitment as follows :

   - Gross commitment is equal to the sum of the commitments of the individual financial derivative instruments (including embedded derivatives) after derivative netting;
   -
   - If the netting or hedging arrangement involves security positions, the market value of security positions can be used to offset gross commitment;
   -
   - The absolute value of the resulting calculation is equal to net commitment.

   c. Global exposure is then equal to the sum of:

   - The absolute value of the commitment of each individual derivative not involved in netting or hedging arrangements; and

   - The absolute value of each net commitment after the netting or hedging arrangements as described above; and

   - The sum of the absolute values of the commitment linked to EPM techniques (Ref Box6)

3. The calculation of gross and net commitment must be based on an exact conversion of the financial derivative position into the market value of an equivalent position in the underlying asset of that derivative.

4. The commitment calculation of each financial derivative position should be converted to the base currency of the UCITS using the spot rate.

5. Where any currency derivative has 2 legs that are not in the base currency of the fund, both legs must be taken into account in the commitment calculation

Conversion Methodologies – Standard Derivatives

6. The following conversion methods should be applied to the non-exhaustive list of standard derivatives below.

- **Futures**

  - Bond Future:
  Number of contracts * notional contract size * market price of the cheapest-to-deliver reference bond

  - Interest Rate Future:
  Number of contracts * notional contract size

  - Currency Future:
  Number of contracts * notional contract size

  - Equity Future:
  Number of contracts * notional contract size * market price of underlying equity share

  - Index Futures:
  Number of contracts * notional contract size * index level

- **Plain Vanilla Options (bought/sold puts and calls)**

  - Plain Vanilla Bond Option:
  Notional contract value * market value of underlying reference bond * delta

  - Plain Vanilla Equity Option:
  Number of contracts*notional contract size* market value of underlying equity share * delta

  - Plain Vanilla Interest Rate Option:
  Notional contract value * delta

  - Plain Vanilla Currency Option:
  Notional contract value of currency leg(s) * delta

  - Plain Vanilla Index Options:
  Number of contracts*notional contract size* index level * delta

  - Plain Vanilla Options on Futures:
  Number of contracts*notional contract size* market value of underlying asset * delta

  - Plain Vanilla Swaptions:
  Reference swap commitment conversion amount (see below) * delta

  - Warrants and Rights:
  Number of shares/bonds * market value of underlying referenced instrument * delta

- **Swaps**

  - Plain Vanilla Fixed/Floating Rate Interest Rate and Inflation Swaps
  Market value of underlying (the notional value of the fixed leg may also be applied)

  - Currency Swap:
  Notional value of currency leg(s)

- Cross currency Interest Rate Swaps:
Notional value of currency leg(s)

- Basic Total Return Swap:
Underlying market value of reference asset(s)

- Non-Basic Total Return Swap:
Cumulative underlying market value of both legs of the TRS

- Single Name Credit Default Swap:
Protection Seller – The higher of the market value of the underlying reference asset or the notional value of the Credit Default Swap.
Protection Buyer – Market value of the underlying reference asset

- Contract for Differences:
Number of shares/bonds * market value of underlying referenced instrument

- **Forwards**

- FX forward:
Notional value of currency leg(s)

- Forward Rate Agreement:
Notional value

- **Leveraged exposure to indices or indices with embedded leverage**

A derivative providing leveraged exposure to an underlying index, or indices that embed leveraged exposure to their portfolio, must apply the standard applicable commitment approach to the assets in question.

Conversion Methodologies – Embedded Derivatives

7. The following conversion method should be applied to the non-exhaustive list below of financial instruments which embed derivatives.

- Convertible Bonds:
Number of referenced shares * market value of underlying reference shares * delta

- Credit Linked Notes:
Market value of underlying reference asset(s)

- Partly Paid Securities:
Number of shares/bonds * market value of underlying referenced instruments

- Warrants and Rights:
Number of shares/bonds * market value of underlying referenced instrument * delta

Conversion Methodologies – Non-Standard (Exotic) Derivatives

8. The following instruments are given as examples of non-standard derivatives with the related commitment methodology to be used.

- Variance Swaps

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. For the variance notional, this gives:

$$\text{var} iance\, notional = \frac{vega\ notional}{2\ x\ strike}$$

The vega notional provides a theoretical measure of the profit or loss resulting from a 1% change in volatility.

As realised volatility cannot be less than zero, a long swap position has a known maximum loss. The maximum loss on a short swap is often limited by the inclusion of a cap on volatility. However without a cap, a short swap's potential losses are unlimited.

The conversion methodology to be used for a given contract at time t is:

Variance Notional * (current) Variance$_t$ (without volatility cap)

Variance Notional * min [(current) Variance$_t$; volatility cap^2] (with volatility cap)

whereby: (current) variance$_t$ is a function of the squared realized and implied volatility, more precisely:

$$(current)\, \text{var} iance_t = \frac{t}{T} * realized\ volatility\,(0,t)^2 + \frac{T-t}{T} * implied\ volatility\,(t,T)^2$$

- Volatility Swaps

By analogy with the variance swaps, the following conversion formulae should be applied to volatility swaps:

Vega Notional * (current) Volatility$_t$ (without volatility cap)
Vega Notional * min [(current) Volatility$_t$; volatility cap] (with volatility cap)

Whereby the (current) volatility$_t$ is a function of the realized and implied volatility.

9. Barrier (knock-in knock-out) Options

Number of contracts * notional contract size * market value of underlying equity share* maximum delta

Whereby the maximum delta is equal to the highest (if positive) or lowest (if negative) value that the delta of the option may attain taking into account all possible market scenarios.

Explanatory Text

4. The following are illustrative numeric examples of the calculation of the commitment on certain types of derivatives 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 * (€120/100) = €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 = €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:

The market value is €1,000,000 * (€86/100) = €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 * €250,000} * 1.30 = 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 Eurostoxx50 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 30^2 (=€900).

As a consequence, the variance notional would equal €5000 for the given contract.

For that contract the commitment at time t amounts to: $5000 * 30^2 = €4,500,000$.

- 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

5. 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.

6. 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)[1].

7. 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, will also need to be taken into account by reference to which side of the particular contract the UCITS is on.

8. 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.

9. Where it is not possible to determine a suitable approach for a particular derivative or derivative structure, the UCITS may not apply the commitment methodology.

2.1.2 Types of financial derivative instruments which may be excluded from the global exposure calculation

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Box 3

1. A financial derivative instrument 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.

Explanatory Text

10. A financial derivative instrument which meets the criteria above is meant to 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.

11. As an example, if the UCITS portfolio invests in the DAX index and holds a financial derivative instrument which swaps the performance of the DAX index with the performance of the NIKKEI

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[1] Path dependency is defined in the Glossary of terms (section 6).

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.

12. As the financial derivative instrument 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.

13. This reasoning can be extended to cases in which the performance swap involves several assets or even the entire portfolio.

Box 4

  1. A financial derivative instrument 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 financial derivative instrument 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.

      (b) The financial derivative instrument is not considered to generate any incremental exposure and leverage or market risk.

Explanatory text

14. As an example, assume that the 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 financial derivative instruments (i.e. index futures) does not provide any incremental exposure.

15. Risk Free Assets:
Assets which provide a risk-free return are generally accepted as those which provide the return of short-dated (generally 3-month) high quality government bonds, for example 3-month US T-bills.

2.1.3   Netting and Hedging

Box 5

Netting and hedging

  1. When calculating global exposure using the commitment approach, netting and hedging arrangements may be taken into account to reduce global exposure.

  2. Netting arrangements are defined as:

     combinations of trades on financial derivative instruments and/or security positions which refer to the same underlying asset, irrespective – in the case of financial derivative instruments – of the contracts' due date; and where the trades on financial derivative instruments and/or security positions are concluded with the sole aim of eliminating the risks linked to positions taken through the other financial derivative instruments and/or security positions

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3. Hedging arrangements are defined as:

   combinations of trades on financial derivative instruments and/or security positions which do not necessarily refer to the same underlying asset and where the trades on financial derivative instruments and/or security positions are concluded with the sole aim of offsetting risks linked to positions taken through the other financial derivative instruments and/or security positions

4. If the UCITS uses a conservative calculation rather than an exact calculation of the commitment for each financial derivative instrument, 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.

Box 6

Netting

1. A UCITS may net positions:

- between financial derivative instruments, provided they refer to the same underlying asset, even if the maturity date of the financial derivative instruments is different;

- between a financial derivative instrument (whose underlying asset is a transferable security, money market instrument or a collective investment undertaking) and that same corresponding underlying asset;

- UCITS that invest primarily in interest rate derivatives may make use of specific duration-netting rules in order to take into account the correlation between the maturity segments of the interest rate curve.

Explanatory Text - Netting

16. The requirement that netting arrangements should refer to the same underlying asset should be interpreted strictly: assets which the UCITS 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.

17. 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 financial derivative instruments with the same underlying but different maturities.

18. It is possible to net a call option on share xyz with a 3 month maturity with a 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).

19. It is possible to net a long position on share xyz with a put option on that same share xyz.

20. The following simple example illustrates the netting process.

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

The commitment of each individual derivative is:

– derivative on share X : -20
– derivative on FTSE : 30
– derivative on DAX : -10

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.**

The combined long position and short position on share X constitutes a netting arrangement. The gross commitment of that netting arrangement is -20. However, the position in shares X (100) can be offset against these -20. This leads to a net commitment of nil.

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

It is not permitted to net the DAX short exposure against share X. Global exposure is thus equal to **40**.

21. 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.

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.

Box 7

Duration-netting rules

1. The duration-netting rules cannot be used if it would lead to an incorrect assessment of the risk profile of the UCITS. UCITS availing of these netting rules should not include other sources of risk (e.g. volatility) in their interest rate strategy. Therefore, for example, interest rate arbitrage strategies may not apply these netting rules.

2. The use of these duration-netting rules cannot 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 of this netting methodology.

3. A UCITS interest rate derivative should be converted into its equivalent underlying asset position according to the following methodology:

1. Allocate each interest rate financial derivative instrument 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:

$$Equivalent\ underlying\ asset\ position = \frac{duration_{FDI}}{duration_{target}} \times MtM_{Underlying}$$

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 Box 2.

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. The UCITS calculates its 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.

4. A UCITS making use of the duration-netting rules, which are optional, can still make use of the hedging framework further to Box 8. However, only the Interest rate derivatives which are not included in hedging arrangements can still make use of duration-netting rules.

Explanatory Text – Duration-netting rules

22. As the standard commitment approach wrongly leads to interest rates with different maturities being considered as different underlying assets, some UCITS may need to use specific netting rules which allow partial duration netting.

23. When identifying its investment strategy and risk profile, a UCITS 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). UCITS 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.

24. 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.

25. CESR does not expect UCITS with long duration which invests in very short-term derivatives (e.g. 3-month instruments) to use these netting rules. This would be considered as arbitrage and CESR expects the UCITS not to use these specific netting rules.

26. The maturities suggested to be the thresholds of the buckets (2 years, 7 years and 15 years) 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).

27. 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 derivative instrument 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 zones. 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 zone 1) with a 10 years maturity long position (set in zone 3), the target duration of the UCITS being around 2.

28. Some penalties have to 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.

29. In fact, the bigger the time-band spread between the positions, the more that netting them must be subject to a penalty, which explains why these percentages increase with the distance between the zones.

30. Duration–netting rules may not be used for hedging purposes. As an example when calculating the global exposure, UCITS can firstly identify the hedging arrangements. And then, the derivatives involved in these arrangements are excluded from the global exposure calculation. UCITS should use an exact calculation in hedging arrangements. CESR does not expect UCITS to use 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.

31. 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 calculated 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).

Box 8

Hedging

1. Hedging arrangements may only be taken into account when calculating global exposure if they offset the risks linked to some assets and, in particular, if they comply with all the criteria below :

   (a) investment strategies that aim to generate a return should not be considered as hedging arrangements;
   (b) there should be a verifiable reduction of risk at the UCITS level.
   (c) the risks linked to financial derivative instruments, i.e., general and specific if any, should be offset;
   (d) they should relate to the same asset class; and
   (e) they should be efficient in stressed market conditions.

2. Notwithstanding the above criteria, financial derivative instruments used for currency hedging purposes (i.e. that do not add any incremental exposure, leverage and/or other market risks) may be netted when calculating the UCITS global exposure.

3. For the avoidance of doubt, no market neutral or long/short investment strategies will comply with all the criteria laid down above.

Explanatory Text – Hedging

32. The scope of hedging arrangements as defined in these Guidelines is much narrower than that of strategies often referred to as hedging strategies.

33. The following list illustrates situations where the hedging strategy may comply with the above criteria:

    (a) 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).

    (b) 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[2]) 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.

34. 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 under point 1 of Box 8 as criteria (a), (b) and (c) 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 under point 1 of Box 8 above, as criteria (a) and (b) 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.

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[2] EONIA European Overnight Index Average

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 under point 1 of Box 8, as criteria (a), (b) and (c) 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 criterion (d), inter alia, as laid down under point 10 of Box 5 above, is not complied with.

2.1.4   Efficient Portfolio Management Techniques

Box 9

1. If UCITS are authorised to undertake repurchase transactions or securities lending transactions in order to generate additional leverage through the reinvestment of collateral, these transactions must be taken into consideration for the determination of the global exposure.

2. UCITS that reinvest collateral in financial assets that provide a return in excess of the risk-free return, must include in their global exposure calculations:

    - The amount received if cash collateral is held; and

    - The market value of the instrument concerned if non-cash collateral is held

3. Any global exposure generated will be added with the global exposure created through the use of derivatives and the total of these must not be greater than 100% of NAV.

4. Any further use of collateral as part of another repurchase transaction or securities lending transactions must be similarly treated and included in the global exposure calculation.

Explanatory Text

35. In these guidelines CESR refers to the 'further use' of collateral received by a UCITS. CESR considers that such 'further use' cannot result in UCITS being entitled to engage in transactions which consist of the re-use of collateral for the purpose of settling a delivery obligation arising from a security it has sold short.

36. The following are examples of transactions which may give rise to global exposure:

    - Sale & Repurchase Agreements ('repo'):

    This transaction normally occurs where a UCITS 'sells' securities to a reverse-repo counterparty and agrees to buy them back at an agreed price in the future. The UCITS will incur a *financing cost* from engaging in this transaction and therefore will need to re-invest the cash proceeds (effectively cash collateral) in financial instruments that provide a return greater than the financing cost incurred. This reinvestment of 'cash collateral' means that incremental market risk will be carried by the UCITS and so must be taken into account in the global exposure calculation. It is important to note that the economic risks and rewards of the 'sold' securities remain with the UCITS. It is also worth noting that a repo transaction

will almost always give rise to leverage as the cash collateral *must* be reinvested at a yield greater than the financing costs incurred in order for the UCITS to make a return. In the event that non-cash collateral is received as part of the transaction and this collateral is further used as part of another repo, or stock-loan agreement, the full market value of the collateral must be included in the global exposure amount.

- Purchase and Resale Agreements ('reverse repo'):

This transaction occurs where a UCITS 'purchases' securities from a repo counterparty and agrees to sell them back at an agreed price in the future. UCITS normally engage in these transactions to generate a low-risk money-market type return, and the 'purchased' securities act as collateral. Therefore there is no global exposure generated and nor does the UCITS take on the risks and rewards of the 'purchased' securities, i.e. there is no incremental market risk. However it is possible for the 'purchased' securities to be further used as part of a repo or stock-loan transaction, as described above, and in that case the full market value of the securities must be included in the global exposure amount.

- Securities Lending Agreements:

A UCITS engaging in a securities lending transaction[3] will lend stock to a stock-borrowing counterparty (who will normally borrow stock to cover a physical short sale transaction) for an agreed fee. The stock borrower will deliver either cash or non-cash collateral to the UCITS. Only where cash collateral is reinvested in instruments that provide a return greater than the 'risk-free return' will global exposure be created. If the non-cash collateral is further used as part of a repo or another stock lending transaction, the full market value of the securities must be included in the global exposure amount as described above.

- Risk Free Return:

UCITS that invest cash collateral in financial instruments providing a yield greater than the generally accepted risk-free return must take the market value of these financial instruments into account when calculating their global exposure. The risk-free return is also quite hard to define, however it is generally accepted that in practice markets use the return of short-dated (generally 3-month) high quality government bonds, for example 3-month US T-bills.

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[3] Also referred to as a 'stock lending' or 'stock loan' transaction

3   Calculation of Global Exposure using the Value at Risk (VaR) Approach

3.1   General Principles and general requirement

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1. A global exposure calculation using the VaR approach should consider all the positions of the UCITS portfolio.

2. A UCITS should always set the maximum VaR limit according to its defined risk profile.

Explanatory Text

37. If a UCITS uses the VaR approach to measure its global exposure, then it should comply with all the requirements laid down in this Chapter.

38. 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.

39. 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).

40. As part of the overall risk management process, a UCITS must 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, CESR considers that there might be circumstances where, giving the agreed risk profile, the UCITS should set a VaR limit that is lower than the regulatory threshold for ensuring consistency between the VaR limit and the risk profile.

41. UCITS that use VaR as part of their risk management methodology must ensure that all efficient portfolio management exposures are also included in their calculations and limits.

3.2 VaR Approaches – Relative VaR and Absolute VaR – The Choice

Box 11

1. For the purpose of calculating global exposure the UCITS can use the relative VaR approach or the absolute VaR approach as laid down hereafter.

2. The UCITS is responsible for deciding which VaR approach is the most appropriate methodology given the risk profile and investment strategy of the UCITS.

3. The UCITS should be able to demonstrate that the VaR approach it uses is appropriate. The decision and its underlying assumptions should be fully documented.

4. As a general rule, there must be consistency in the choice of the type of VaR used for the calculation of the global exposure

Explanatory Text

42. 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 must be maintained (e.g. a UCITS that has chosen to use absolute VaR cannot switch to relative VaR simply because it has breached the limits set out in the guidelines on the used of absolute VaR).

43. 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 standardization 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.

44. 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.

3.3 Relative VaR approach

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Box 12

1. Under the relative VaR approach the global exposure of the UCITS is calculated as follows:

   - Calculate the VaR of the UCITS' current portfolio (which includes derivatives);

   - Calculate the VaR of a reference portfolio;

   - Check that the VaR of the UCITS portfolio is not greater than twice the VaR of the reference portfolio in order to ensure a limitation of the global leverage ratio of the UCITS to 2. This limit can be presented as follows:

$$\frac{(\text{VaR UCITS} - \text{VaR Reference Portfolio})}{\text{VaR Reference Portfolio}} \times 100 \leq 100\%$$

2. The reference portfolio and the related processes should comply with the following criteria:

   - The reference portfolio should be unleveraged and should, in particular, not contain any financial derivative instruments or embedded derivatives, except that;

   - a UCITS engaging in a long/short strategy may select a reference portfolio which uses financial derivative instruments to gain the short exposure;

   - a UCITS which intends to have a currency hedged portfolio may select a currency hedged index as a reference portfolio.

   - The risk profile of the reference portfolio should be consistent with the investment objectives, policies and limits of the UCITS' portfolio;

   - If the risk/return profile of a UCITS changes frequently or if the definition of a reference portfolio is not possible, then the relative VaR method should not be used.

   - The process relating to the determination and the ongoing maintenance of the reference portfolio should be integrated in the risk management process and be supported by adequate procedures. Guidelines governing the composition of the reference portfolio should be developed. In addition, the actual composition of the reference portfolio and any changes should be clearly documented.

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Explanatory Text

45. The relative VaR approach does not measure the leverage of the strategies rather it allows UCITS 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 these Guidelines regarding the choice of the reference portfolio.

46. It is CESR's view that 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.

47. 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 must be equal to 100% of the NAV of the UCITS.

48. 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 Directive). 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.

49. 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.

3.4 Absolute VaR approach

Box 13

1. The absolute VaR approach limits the maximum VaR that a UCITS can have relative to its Net Asset Value (NAV).

3.5 Minimum requirements for VaR approach

Box 14

1. When assessing the global exposure by means of a relative or absolute VaR approach, a UCITS should comply with the quantitative and qualitative minimum requirements as laid down hereafter.

3.6 VaR approach: Quantitative requirements

3.6.1 Calculation Standards

Box 15

1. The absolute VaR of a UCITS cannot be greater than 20% of its NAV.

2. The calculation of the absolute and relative VaR should be carried out in accordance with the following parameters:

   (a) one-tailed confidence interval of 99 %;
   (b) holding period equivalent to 1 month (20 business days);
   (c) effective observation period (history) of risk factors of at least 1 year (250 business days) unless a shorter observation period is justified by a significant increase in price volatility (for instance extreme market conditions);
   (d) quarterly data set updates, or more frequent when market prices are subject to material changes;
   (e) at least daily calculation.

3. A confidence interval and/or a holding period differing from the default parameters in (2)(a) and (b) may be used by the UCITS provided the confidence interval is not below 95% and the holding period does not exceed 1 month (20 days).

4. For UCITS referring to an absolute VaR approach, the use of other calculation parameters goes together with a rescaling of the 20% limit to the particular holding period and/or confidence interval. The rescaling can only be done under the assumption of a normal distribution with an identical and independent distribution of the risk factor returns by referring to the quantiles of the normal distribution and the square root of time rule.

Explanatory Text

50. CESR considers that the guidelines relating to the quarterly data set updates is particularly relevant for UCITS making use of a parametric VaR model.

51. UCITS may deviate from the default VaR calculation standards (i.e., confidence interval of 99% and holding period of 1 month (20 days)) laid down above. For instance, a UCITS 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 UCITS using absolute VaR has to be scaled down to account for these different calculation standards according to the principles laid down in Box 15.

52. With regard to the rescaling, CESR is of the view that 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 hereafter.

    When rescaling the absolute VaR limit to a different confidence interval, the UCITS 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

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):

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

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

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

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 UCITS 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):

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

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

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

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

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

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 UCITS uses other parameters than the standards ones set out above.

3.6.2 Risk Coverage

1. The VaR model used for global exposure calculation purposes should take into account, as a minimum, general market risk and, if applicable, idiosyncratic risk. The event (and/or default) risks to which a UCITS is exposed following its investments should be taken into account, as a minimum, in the stress testing program. If the proposed risk measurement framework should prove inadequate, the competent authorities reserve the right to require stricter measures for such UCITS.

Explanatory Text

53. For clarification purposes, the related concepts of general market risk, specific market risk, idiosyncratic risk and event risk are further explained in the glossary (section 6).

3.6.3 Completeness and accuracy of the risk assessment

1. The choice of the appropriate model remains the responsibility of the UCITS. When selecting the VaR model, the UCITS should ensure that the model is appropriate with regard to the investment strategy being pursued and the types and complexity of the financial instruments used.

2. The VaR model should provide for completeness and it should assess the risks with a high level of accuracy. In particular:

   - All the positions of the UCITS portfolio should be included in the VaR calculation.

   - The model should adequately capture all the material market risks associated with portfolio positions and, in particular, the specific risks associated with financial derivative instruments. For that purpose, all the risk factors which have more than a negligible influence on the fluctuation of the portfolio's value should be covered by the VaR model.

   - The quantitative models used within the VaR framework (pricing tools, estimation of volatilities and correlations, etc) should provide for a high level of accuracy.

   - All data used within the VaR framework should provide for consistency, timeliness and reliability.

Explanatory Text

54. CESR recognises that 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 UCITS to select the appropriate VaR model, given that some models may not be suited to some types of fund portfolio. For instance, CESR is of the view that 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.

55. CESR considers that the model should adequately capture all the material market risks associated with portfolio positions and, in particular, the specific risks associated with financial derivative instruments. 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.

56. In order to capture all material market risks, CESR considers that 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.

3.6.4 Back Testing

Box 18

1. A UCITS should monitor the accuracy and performance its VaR model (i.e. prediction capacity of risk estimates), by conducting a back testing program.

2. The back testing program should provide for each business day a comparison of the one-day value-at-risk measure generated by the UCITS model for the UCITS' end-of-day positions to the one-day change of the UCITS' portfolio value by the end of the subsequent business day.

3. The UCITS should carry out the back testing program at least on a monthly basis, subject to always performing retroactively the comparison for each business day in paragraph 2.

4. The UCITS should determine and monitor the 'overshootings' on the basis of this back testing program. An 'overshooting' is a one-day change in the portfolio's value that exceeds the related one-day value-at-risk measure calculated by the model.

5. If the back testing results reveal a percentage of 'overshootings' that appears to be too high, the UCITS should review the VaR model and make appropriate adjustments.

6. The UCITS senior management should be informed at least on a quarterly basis (and where applicable the UCITS competent authority should be informed on a semi-annual basis), if the number of overshootings for each UCITS for the most recent 250 business days exceeds 4 in the

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case of a 99% confidence interval. This information should contain an analysis and explanation of the sources of 'overshootings' and a statement of what measures if any were taken to improve the accuracy of the model. The competent authority may take measures and apply stricter criteria to the use of VaR if the 'overshootings' exceed an unacceptable number.

Explanatory Text

57. 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. UCITS should take appropriate steps to improve their back testing program, if it is deemed to be insufficient.

58. 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.

59. 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 UCITS should review its VaR model and make, appropriate adjustments.

60. 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), competent authorities reserve 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 competent authorities may, for example, also require that results of the calculation of the UCITS VaR to be scaled up by a multiplication factor.

3.6.5 Stress testing

Box 19

Stress Testing – General Provisions

1. Each UCITS using the VaR approach should conduct a rigorous, comprehensive and risk-adequate stress testing program in accordance with the qualitative and quantitative requirements set out below.

2. The stress testing program should be designed to measure any potential major depreciation of the UCITS value as a result of unexpected changes in the relevant market parameters and correlation factors. Conversely, where appropriate, it should also measure changes in the relevant market parameters and correlation factors, which could result in major depreciation of the UCITS value.

3. The stress tests should be adequately integrated into the UCITS risk management process and the results should be considered when making investment decisions for the UCITS.

Explanatory Text

61. The guidelines demand 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.

62. 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.

63. Conversely, the UCITS should if appropriate in relation to its 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 UCITS should implement appropriate measures in its risk management process for early warnings and prevention.

64. 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 UCITS may instead make a skilled estimate.

65. The stress tests should be integrated into the UCITS risk management process. That is to say that the stress test calculation results should be monitored and analyzed 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).

Box 20

Stress Testing - Quantitative Requirements

1. The stress tests should cover all risks which affect the value or the fluctuations in value of the UCITS to any significant degree. In particular, those risks which are not fully captured by the VaR model used, should be taken into account.

2. The stress tests should be appropriate for analyzing potential situations in which the use of significant leverage would expose the UCITS to significant downside risk and could potentially lead to the default of the UCITS (i.e. NAV <0).

3. The stress tests should focus on those risks which, though not significant in normal circumstances, are likely to be significant in stress situations, such as the risk of unusual correlation changes, the illiquidity of markets in stressed market situations or the behaviour of complex structured products under stressed liquidity conditions.

Explanatory Text

66. 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.

67. 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 UCITS should actively identify scenarios that could result in the value of the UCITS becoming negative. For such

scenarios, the UCITS should implement appropriate measures in its risk management process for early warnings and prevention.

68. Furthermore, UCITS should take into account the breakdown of common relationships and standards. For instance, correlations can heavily change due to stress situations.

Box 21

Stress Testing - Qualitative Requirements

1. Stress tests should be carried out on a regular basis, at least once a month. Additionally, they should be carried out whenever a change in the value or the composition of a UCITS or a change in market conditions makes it likely that the test results will differ significantly.

2. The design of the stress tests should be adapted in line with the composition of the UCITS and the market conditions that are relevant for the UCITS.

3. Management companies should implement clear procedures relating to the design of, and ongoing adaptation of the stress tests. A program for carrying out stress tests should be developed on the basis of such procedures for each UCITS. It should be explained why the program is suitable for the UCITS. Completed stress tests together with their results should be clearly documented. Reasons should be given if it is intended to deviate from the program.

Explanatory text

69. Monthly stress tests should be sufficient for portfolios that are relatively constant. For rapidly changing portfolios more frequent stress tests might be more appropriate. The guidelines require 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 that comply with Article 53 of the UCITS Directive the stress tests could be conducted less frequently since they do not have an impact on the investment decisions.

70. 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.

71. Since these requirements allow a lot of freedom in the design of the stress tests, there should be clear procedures implemented by management companies. For each UCITS, there should be a properly documented program, setting out the individual stress tests to be carried out for the fund 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.

3.7 VaR approach: Qualitative requirements

Box 22

Tasks to be carried out by the risk management function

1. In accordance with the Article 12(3) of the implementing Directive concerning the tasks to be carried out by the risk management function the risk management function should be

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responsible for:

(a) sourcing, testing, maintaining and using the VaR model on a day-to-day basis;

(b) supervising the process relating to the determination of the reference portfolio if the UCITS reverts to a relative VaR approach;

(c) ensuring on a continuous basis that the model is adapted to the UCITS' portfolio;

(d) performing continuous validation of the model;

(e) validating and implementing for each UCITS a documented system of VaR limits consistent with its risk profile that is to be approved by Senior Management and the Board of Directors;

(f) monitoring and controlling the VaR limits;

(g) monitoring on a regular basis the level of leverage generated by the UCITS;

(h) producing on a regular basis reports relating to the current level of the VaR measure (including back testing and stress testing) for Senior Management.

Use of the VaR model

2. The VaR model and the related outputs should represent an integral part of the daily risk management work. In addition, they should be integrated in the regular investment process lead by the investment managers as part of the risk management program to keep the UCITS risk profile under control and consistent with its investment strategy.

Model validation

3. Following initial development, the model should undergo a validation by a party independent of the building process for ensuring that the model is conceptually sound and captures adequately all material risks. This validation process must also be carried out following any significant change to the model. A significant change could relate to the use of a new product by the UCITS, the need to improve the model following the back testing results, or a decision taken by the UCITS to change certain aspects of the model in a significant way.

4. The risk management function should perform ongoing validation of the VaR model (this includes, but is not limited to back testing as laid down in Box 18) in order to ensure the accuracy of the model's calibration. The review should be documented. Where necessary, the model should be adjusted.

Documentation and procedures

5. The documentation requirements referred to in Article 40(2) of the implementing Directive should be taken to include an adequate documentation of the VaR model and the related processes and techniques, thereby covering, among others:

  a the risks covered by the model;

b   the model's methodology;

c   the mathematical assumptions and foundations;

d   the data used;

e   the accuracy and completeness of the risk assessment;

f   the methods used to validate the model;

g   the back testing process;

h   the stress testing process;

i   the validity range of the model; and

j   the operational implementation.

72. The validation of the VaR model following its initial development can be conducted for example by a relevant competent authority, by an internal or external auditor or by an external service provider independent of the building process.

3.8 VaR: Additional safeguards and disclosure

3.8.1   Additional safeguards

Box 23

1.   UCITS which calculate global exposure using a VaR methodology should regularly monitor their leverage.

2.   UCITS should supplement the VaR / Stress Testing framework, where appropriate by taking into account the risk profile and the investment strategy being pursued, with other risk measurement methods.

Explanatory text

73. 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.

74. 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. UCITS that resort to leveraged arbitrage strategies while measuring their 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).

75. 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 financial derivative instruments 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.

3.8.2 Disclosure

a) Prospectus

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Box 24

1. The UCITS should disclose in its prospectus the method used to calculate of the global exposure (i.e. commitment approach, relative VaR or absolute VaR).

2. UCITS using VaR approaches should disclose the expected level of leverage and the possibility of higher leverage levels in the prospectus.

3. Leverage should be calculated as the sum of the notionals of the derivatives used.

4. When using the relative VaR approach, information on the reference portfolio should be disclosed in the prospectus

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Explanatory Text

76. In order to comply with Article 70 of the UCITS Directive, a UCITS' prospectus 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.

77. Since the VaR approach does not directly limit the level of leverage, the UCITS' 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 UCITS 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 usually expected level of leverage together with the information on the possibility of higher leverage levels under certain circumstances (e.g. very low market volatility)

b) Annual reports

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Box 25

1. The UCITS should disclose in its annual report the method used to calculate the global exposure (i.e. commitment approach, relative VaR or absolute VaR).

2. When using the relative VaR approach, information on the reference portfolio should be disclosed in the annual report.

3. The VaR measure of the UCITS should be published in the annual report. In this respect, the information provided should at least include the lowest, the highest and the average utilization of the VaR limit calculated during the financial year. The model and inputs used for calculation (calculation model, confidence level, holding period, length of data history) should be displayed.

4. UCITS using VaR approaches should disclose the level of leverage employed during the relevant period.

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5. Leverage should be calculated as the sum of the notionals of the derivatives used.

Explanatory Text

78. These Guidelines require the disclosure of the chosen approach (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.

79. Moreover, since VaR is a common risk measure, its disclosure also increases transparency for investors.

4. OTC Counterparty Risk Exposure

4.1 Collateral

Box 26

1. Collateral may be used to reduce counterparty risk exposure provided it complies with the following set of high-level principles at all times:

   - Liquidity – any collateral posted must be sufficiently liquid in order that it can be sold quickly at a robust price that is close to pre-sale valuation. Collateral should normally trade in a highly liquid marketplace with transparent pricing. Additionally collateral with a short settlement cycles is preferable to a long settlement cycles as assets can be converted into cash more quickly.

   - Valuation – collateral must be capable of being valued on at least a daily basis and the possibility of 'stale prices' should not be allowed. An inability to value collateral through independent means would clearly place the UCITS at risk, and this would also apply to 'mark to model' valuations and assets that are thinly traded.

   - Issuer credit quality – as collateral provides secondary recourse, the credit quality of the collateral issuer is important. This may involve the use of haircuts in the event of a less than 'very high grade' credit rating. It should be reasonable to accept collateral on assets that exhibit higher price volatility once suitably conservative haircuts are in place.

   - Correlation – Correlation between the OTC counterparty and the collateral received must be avoided.

   - Collateral diversification (asset concentration) – there is an obvious risk if collateral is highly concentrated in one issue, sector or country.

   - Operational and legal risks – collateral management is a highly complex activity. As such, the existence of appropriate systems, operational capabilities and legal expertise is critical.

   - Collateral must be held by a third party custodian which is subject to prudential supervision, and which is either unrelated to the provider or is legally secured from the consequences of a failure of a related party.

   - Collateral must be fully enforced by the UCITS at any time without reference to or approval from the counterparty.

   - Non-cash collateral cannot be sold, re-invested or pledged.

   - Cash collateral can only be invested in risk-free assets.

2. UCITS may disregard the counterparty risk on condition that the value of the collateral, valued at market price and taking into account appropriate discounts, exceeds the value of the amount exposed to risk at any given time.

3. For the valuation of collateral presenting a significant risk of value fluctuation, a UCITS should apply prudent discount rates.

Explanatory Text

80. UCITS cannot invest cash collateral in financial instruments providing a yield greater than the generally accepted risk-free return. Although the risk-free return is quite hard to define, it is generally accepted that in practice markets use the return of short-dated (generally 3-month) high quality government bonds, for example 3-month US T-bills.

81. It should be noted that collateral in the form of cash deposits in a currency other than the currency of exposure should also be the subject to an adjustment for currency mismatch.

82. For collateral presenting a risk of value fluctuation, prudent discount rates can be determined by simulating the valuations of both securities and collateral over multiple holding periods.

4.2 Counterparty/issuer Concentration

Box 27

1. According to Article 52(1) of the UCITS Directive the risk exposure of a UCITS to a counterparty to an OTC derivative may not exceed 5% of assets. This limit is raised to 10% in the case of credit institutions. The following exposure must also be calculated within the OTC counterparty limits specified in Article 52(1):

    ▪ Initial margin posted to and variation margin receivable from a broker relating to exchange-traded or OTC derivatives which is not protected by client money rules or other similar arrangements to protect the UCITS against the insolvency of the broker.

2. The following exposure must also be included when calculating the issuer concentration limit of 20% specified in Article 52(2):

    ▪ Any net exposure to a counterparty generated through a stock-lending or repurchase agreement, net exposure being understood as the amount receivable by the UCITS less any collateral provided to the UCITS. Exposures created through the reinvestment of collateral must also be taken into account in the issuer-concentration calculations.

3. When calculating exposure for the purposes of Article 52 of the UCITS Directive a UCITS must establish whether its exposure is to an OTC counterparty, a broker or a clearing house.

4. Position exposure to the underlying assets of financial derivative instruments (including embedded financial derivative instruments) in transferable securities such as money market instruments or collective investment undertakings, combined where relevant with positions resulting from direct investments, may not exceed the limits set out in Articles 52 and 55.

5. When calculating issuer-concentration risk, the financial derivative instrument (including embedded financial derivative instruments) must be looked through in determining the resultant position exposure. This position exposure must be taken into account in the issuer concentration calculations. It must be calculated using the commitment approach when appropriate or the maximum potential loss as a result of default by the issuer if more conservative. It must also be calculated by all UCITS, regardless of whether they use VaR for global exposure purposes.

6. This provision does not apply in the case of index-based financial derivative instruments provided the underlying index is one which meets with the criteria set out in Article 53(1).

Explanatory Text

83. A UCITS shall invest no more than 5% of its assets in transferable securities or money market instruments issued by the same body. This limit may be raised to a maximum of 10% of its assets in transferable securities or money market instruments issued by the same body provided that the total value of transferable securities and money market instruments held in issuing bodies in each of which it invests more than 5%, does not exceed 40%.

84. A UCITS shall invest no more than 10% (or 20% if permitted by the Member State) of its assets in units of a single UCITS or other collective investment undertaking. Moreover, investments made in units of collective investment undertakings other than UCITS may not exceed in aggregate 30% of the assets of the UCITS.

85. The commitment approach should be used in the 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.

5. Cover rules for transactions in Financial Derivative Instruments

Box 28

1. A UCITS should, at any given time, be capable of meeting all its payment and delivery obligations incurred by transactions involving financial derivative instruments.

2. Monitoring to ensure that financial derivative transactions are adequately covered should form part of the risk management process.

Explanatory Text

86. The cover rules are applicable in all circumstances where a UCITS has commitments under the terms of the derivative contract, including 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.

87. In the case of derivative contracts which provide, automatically or at the counterparty's choice, for the physical delivery of the underlying financial instrument on the due date or the exercise date and insofar as physical delivery is a normal practice in the case of the instrument in question, a UCITS:

    - should hold in its portfolio the underlying financial instrument as cover, or

    - in case where the UCITS deems that the underlying financial instrument is sufficiently liquid, it may hold as coverage other liquid assets (including cash) as cover on condition that these assets (after applying appropriate safeguards, i.e. haircuts), held in sufficient quantities, may be used at any time to acquire the underlying financial instrument which is to be delivered.

88. In respect of derivative contracts which provide for cash settlement, automatically or at the UCITS' discretion, the latter should hold enough liquid assets (after the application of appropriate safeguard measures, i.e. haircuts) to allow it to make the contractually required payments (examples: margin calls, interest payments, cash settlement of contracts, etc). The UCITS should determine for itself the method by which it will set the cover level for contracts with cash settlement. This method should ensure that the UCITS is able at all times to meet all its payment obligations.

89. The risk management process should include 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 as described above, exists in sufficient quantity to meet all future obligations.

6. Glossary of Terms

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 combing 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 clearinghouse 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 financial derivative instruments (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 doesn't 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.