

Executive Order on calculation of risks by hedge associations

Executive Order no. 1468 of 12 May 2005

The following shall be laid down pursuant to section 114d(5) and section 132(3) of the Investment Associations and Special-Purpose Associations as well as other Collective Investment Schemes etc. Act, cf. Consolidated Act no. 768 of 19 July 2005:

Scope

1.-(1) This Executive Order shall apply to hedge associations approved pursuant to section 114a(1) and (2) of the Investment Associations and Special-Purpose Associations as well as other Collective Investment Schemes etc. Act.

(2) If a hedge association is divided into divisions, calculation of risks shall be for each individual division.

Gross exposure

2.-(1) The board of directors shall lay down the framework for the total gross exposure of the hedge association or division.

(2) "Gross exposure" shall mean the hedge association's or division's total net positions as a percentage of the total assets.

3.-(1) A "net position" in a security, money-market instrument, commodity instrument or index shall mean the difference between the sum of the market value of long positions and the sum of the market value of short positions in the individual security, money-market instrument, commodity instrument or index, including the underlying long and short positions in the security, money-market instrument, commodity instrument or index linked to the use of derivative financial instruments.

(2) A "long position" shall mean a position that yields a premium in the event of a rise in prices or fall in interest rates for the relevant security, money market instrument, commodity instrument or index. A "short position" shall mean the numerical value of a position that yields a loss in the event of a rise in prices or fall in interest rates for the relevant security, money-market instrument, commodity instrument or index.

(3) Calculation of positions in derivative financial instruments based on securities, money-market instruments, commodity instruments or indexes, in which there is an option element, shall be made by multiplying the market price of the underlying assets by the delta of the option.

4. The "total net positions" of a hedge association or division shall mean the sum of the following:

- 1) The market value of the hedge association's or division's total long net positions in securities, money-market instruments, commodity instruments or indexes.
- 2) Liquid funds, including currency.

- 3) The market value of the hedge association's or division's total short net positions in securities, money-market instruments, commodity instruments or indexes.

Diversification and concentration

5.-(1) The board of directors shall stipulate how a hedge association or division may diversify its portfolio.

(2) The board of directors shall also lay down relevant frameworks for the percentage diversification.

(3) A hedge association or division may, for example, diversify its portfolio within the following areas:

- 1) Securities, cf. section 3(1) no. 2 of the Investment Associations and Special-Purpose Associations as well as other Collective Investment Schemes etc. Act.
- 2) Securities markets.
- 3) Short and long positions.
- 4) Securities issued by the same issuer.
- 5) Acknowledged ratings on interest-rate-based securities and instruments.
- 6) Investments in other hedge associations and hedge funds.
- 7) Listed and non-listed securities.
- 8) Currency.

Standard deviation

6. The board of directors shall lay down frameworks for the standard deviation of a hedge association or division for a term of one, three and five years respectively.

Sensitivity analyses

7.-(1) The board of directors shall ensure that a hedge association or division carries out relevant sensitivity analyses (stress tests).

(2) Annex 1 lists examples of relevant sensitivity analyses.

Supplementary risk-calculation requirements

8.-(1) The board of directors shall, on the basis of the risk policy and risk profile of a hedge association or division, identify relevant potential risks.

(2) The board of directors shall, as a minimum, identify whether a hedge association or division has risks relating to the following:

- 1) Interest rates, exchange rates, shares, including derivative instruments based thereon, and commodity instruments as a result of conditions relating to the market as a whole or as a result of conditions relating to the individual issuer of securities or to the individual security (position risk).
- 2) The concentration of the portfolio, for example within individual securities, types of security or markets (concentration risk).
- 3) That a counterparty or issuer may go bankrupt and that a counterparty omits to pay or supply as agreed (credit and counterparty risk).

- 4) That a position cannot be traded at the right time and price as a result of low liquidity in the relevant market (liquidity risk).
- 5) Administration and management, including IT systems (specific operational risk).
- 6) Investment using borrowed funds and investment in derivative instruments (gearing risk).

9.-(1) The board of directors shall lay down relevant supplementary targets and frameworks for the risks of a hedge association or division. If the board of directors decides that certain risks are to be unlimited, the board of directors may decide not to set up targets and frameworks for these risks.

(2) Identification and stipulation of targets and frameworks by the board of directors, including frameworks stipulated in pursuance of section 2 and sections 5-6, shall appear clearly from the risk frameworks of the hedge association or division.

(3) The board of directors shall ensure that the risk-calculation methods of the hedge association or division have been adequately described in business procedures.

(4) The board of directors shall regularly assess the relevance of the supplementary targets and frameworks.

10. The board of directors may use the examples of supplementary risk targets listed in Annex 2, in the event that the board of directors does not want unlimited investment options, cf. section 9(1), 2nd clause.

Use of VaR models

11. A hedge association or division which chooses to use VaR models in order to comply with the supplementary requirements for position risk concerning interest rates, shares, exchange rates and commodity instruments shall comply with the requirements of Annex 3.

Guidelines on risk management and calculations of current risks

12.-(1) A hedge association or division shall comply with the risk frameworks specified for the association or the division by the board of directors of the association on the basis of the provisions laid down in the articles of association regarding investment policy and risk profile, cf. section 114e(1) of the Investment Associations and Special-Purpose Associations as well as other Collective Investment Schemes etc. Act.

(2) A hedge association or division shall, to the extent necessary, calculate current risks in order to ensure compliance with the frameworks specified.

(3) If a hedge association or division exceeds one or more of the frameworks specified, notice thereof shall be submitted to the Danish FSA immediately together with a report on the background for exceeding the risk framework and a description of how the hedge association intends to avoid similar incidents in the future, cf. section 114e(2) of the Investment Associations and Special-Purpose Associations as well as other Collective Investment Schemes etc. Act.

(4) The registered members of a hedge association or division shall be informed of all cases of exceeding the risk frameworks specified in the articles of association or by the board of directors, cf. section 114e(4) of the Investment Associations and Special-Purpose Associations as well as other Collective Investment Schemes etc. Act.

(5) A hedge association or division shall have adequate internal procedures for calculation, management and control of risks.

Publication of net asset value and calculation and publication of risks

13.-(1) A hedge association or division shall publish the net asset value of the hedge association or division at least every fortnight, cf. section 114d(3) of the Investment Associations and Special-Purpose Associations as well as other Collective Investment Schemes etc. Act.

(2) A hedge association or division shall always publish information about its net asset value at the time of making issues and redemptions.

(3) A hedge association or division shall, in connection with the publication, clarify how the net asset value is calculated in the cases where calculating a net asset value on the basis of current prices is not possible.

14.-(1) The prospectus of a hedge association or division shall contain information on the risk frameworks of the hedge association and of the division respectively, cf. section 114d(2) of the Investment Associations and Special-Purpose Associations as well as other Collective Investment Schemes etc. Act. If there are changes to the risk frameworks, the registered members shall be notified hereof, cf. section 114d(4) of the Investment Associations and Special-Purpose Associations as well as other Collective Investment Schemes etc. Act.

(2) A hedge association or division shall, on the basis of the calculations performed pursuant to section 12(2), publish calculations regarding risks each month.

(3) The calculations pursuant to subsection (2) shall be presented in an understandable manner and contain the current calculations compared to the frameworks specified, including a relevant description.

(4) If a hedge association or division has substantial risks, for which the board of directors decides not to establish frameworks, this shall appear clearly from the calculation.

(5) If a hedge association or division has a website, information pursuant to subsection (2) and section 13 shall be published on the website.

(6) If a hedge association or a division does not have a website, the calculations shall be published in some other way, however as a minimum so that all registered members are notified hereof.

Penalties

15.-(1) Any person violating the provisions laid down in section 2(1), section 5(1)-(2), section 6(1), section 7(1), sections 8-9, section 11, section 12(2) and (5), section 13(2)-(3), and section 14(2)-(6) shall be liable to a fine.

(2) Companies, etc. (legal persons) may incur criminal liability according to the regulations in part 5 of the Criminal Code.

Entry into force

While this translation was carried out by a professional translation agency, the text is to be regarded as an unofficial translation based on the latest official Executive Order no. 1468 of 12 May 2005. Only the Danish document has legal validity.

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16.-(1) This Executive Order shall enter into force on 1 January 2006.

The Danish Financial Supervisory Authority, 20 December 2005

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Annex 1

Examples of relevant sensitivity analyses

- 1) If a hedge association or division uses gearing, which as an important part of the investment strategy is to contribute to attain a higher return, the hedge association or division shall calculate scenarios for the potential total return at a maximum and minimum use of the frameworks for the total gross exposure, cf. section 2(1), where the value of the total investments falls by e.g. 20 per cent, 30 per cent, and 50 per cent.
 - 2) If a hedge association or division as an important part of the investment strategy wishes to have an overall short net position, the hedge association or division shall calculate scenarios for the potential total return, where the value of the hedge association's or division's overall net positions increases by e.g. 20 per cent, 30 per cent and 50 per cent.
 - 3) If a hedge association or division applies an investment strategy with significant concentrations of investment types, the hedge association or division shall calculate scenarios for the potential total return, where the value of the concentrated investments falls by e.g. 20 per cent, 30 per cent and 50 per cent.
 - 4) If a hedge association or division uses a long/short strategy, in which the correlations between homogenous investments are an important factor for returns, the hedge association or division shall calculate scenarios for the potential total return, where the correlations between the long/short investments develop very differently from expected.
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Annex 2

Examples of supplementary risk targets

1) If a hedge association or division has significant interest-rate risks, for example if a hedge association or division has a strategy on speculation in the market interest rate, the board of directors shall, pursuant to section 9(1), lay down targets and frameworks for the total interest-rate risk linked to positions in the portfolio of the hedge association or division, including the interest-rate risk on payments linked to the use of derivative financial instruments.

If the calculation is based on the principles in the Danish FSA Executive Order on Capital Adequacy, the total interest-rate risk shall be calculated on the basis of the sum of the changes in the market value for the hedge association's or division's positions in bonds and money-market instruments, including the change in the current value of the payments linked to the use of derivative financial instruments in the event of an interest-rate increase of one percentage point. Furthermore, the interest-rate risk shall be calculated for each currency separately. In the calculation of the total interest-rate risk, the numerical value of the interest-rate risk for the individual currencies shall be summed. The calculation may be based on measurements for duration and modified duration calculated on the basis of the regulations laid down in point 3 in annex 2 of the Danish FSA Executive Order on Capital Adequacy.

2) If a hedge association or division has significant risk related to interest-rate spreads, for example if a hedge association or division has a "fixed income arbitrage" strategy and subsequently aims to exploit inconsistencies in the price formation on interest-bearing securities by speculating in changes in interest-rate spreads between bonds, the board of directors shall, pursuant to section 9(1), lay down targets and frameworks for the total risk related to interest-rate spreads linked to positions in the portfolios of the hedge association or division, including the risk on payments linked to the use of derivative financial instruments.

The calculation can, for example, be on the basis of the sum of the changes in the market value of the hedge association's or division's positions in bonds and money-market instruments, including the change in the current value of payments linked to the use of derivative financial instruments in the event of an increase or decrease in the interest-rate spread between the bonds bought and the bonds sold respectively, measured as the difference in the effective interest rate of, for example, 10 basis points.

3) If a hedge association or division has significant correlation risk, for example if a hedge association or division has a "market neutral" strategy, which focuses on a low correlation to the market, the board of directors shall, pursuant to section 9(1), lay down targets and frameworks for the total correlation risk, including the correlation risk linked to the use of derivative instruments.

The correlation risk may, for example, be calculated by calculating the correlation between the total return of the portfolio and the return on a relevant benchmark.

4) If a hedge association or division has significant currency risk, the board of directors shall, in pursuance of section 9(1), shall lay down targets and frameworks for this risk.

The currency risk may, for example, be calculated via currency indicator 1, which gives the largest sum of the short and long currency positions of the hedge association calculated pursuant to annex 6 of the Danish FSA Executive Order on Capital Adequacy.

5) If a hedge association or division has significant share-price risk, for example if a hedge association or division has an "equity long/short" strategy, and therefore invests significantly in shares, the board of directors shall, pursuant to section 9(1), lay down targets and frameworks for the general share-price risk, including the share-price risk linked to the use of derivative instruments.

The share-price risk may, for example, be calculated using beta. Beta is calculated as the covariance between the return of the portfolio and a relevant market return divided by the variance on the market return.

6) If a hedge association or division has significant option risk, for example if a hedge association or division has an "equity long/short" strategy, in which the long and short positions primarily consist of options, the board of directors shall, pursuant to section 9(1), lay down targets and frameworks for this risk.

The option risk may, for example, be calculated via delta and vega.

7) If a hedge association or division has significant counterparty risk, for example if the hedge association or division primarily trades in securities traded OTC, the board of directors shall, in pursuance of section 9(1), lay down targets and frameworks for the counterparty risk.

The counterparty risk may, for example, be calculated as the value linked to use of securities, including derivative instruments traded OTC. In this case, the value shall be calculated as the positive market value of the instrument with an addition for the potential future amounts receivable. The addition shall be calculated pursuant to annex 1 of Executive Order on the Use of Derivative Financial Instruments by Investment Associations, Special-Purpose Associations, Restricted Associations and Innovation Associations.

If a hedge association or division has entered into a netting agreement, and if said agreement meets the conditions for agreements on netting laid down in sections 58h and 58i of the Securities Trading, etc. Act, the value of securities with a negative market value may be set against the value of securities with a positive market value with the same counterparty in the calculation of the counterparty risk in accordance with the paragraph immediately above.

In the calculation of counterparty risk, as described above, deductions may be made for collateralisation received as securities and money-market instruments that may be included in the total assets of the hedge association or division.

Annex 3

Requirements for use of VaR models

The requirements regarding use by the hedge association of VaR models, including the use of VaR models by one or more divisions, are based on similar regulations for, for example, use by banks of internal models to calculate items with position risks for capital adequacy purposes. In guidelines for banks etc., the Danish FSA has laid down general requirements for internal models that are to be used to calculate items with position risks.

VaR models may only be used, if the hedge association complies with the following requirements.

1) Qualitative requirements

The model/models of the hedge association may only be used to calculate position risks, if the risk management and controls of the hedge association are full and comprehensive and are implemented adequately. This includes compliance with the following qualitative requirements:

- a) The model/models shall be closely integrated into the day-to-day risk management of the hedge association and shall form the basis for reporting risks to the board of directors and board of management, or investment management company of the hedge association.
- b) The hedge association shall have a risk control function, which reports directly to the board of management or investment management company of the hedge association. The risk control function shall be assigned to designing, updating and implementing the risk-management systems of the hedge association, including the VaR model. The function shall prepare and analyse reports regarding the results of the model(s), including reporting on compliance with the limits laid down in instructions etc.
- c) The board of directors and board of management or investment management company of the hedge association shall be active in the risk control process, and the daily reports from the risk control function shall be processed at a management level with sufficient powers to be able to reduce the positions and risks of the hedge association or the division.
- d) The hedge association shall have an adequate number of qualified employees.
- e) The hedge association shall lay down control procedures to ensure that the written instructions and procedures of the hedge association regarding use of the model(s) are complied with and monitored.
- f) The hedge association shall have adequate historical documentation that the model(s) have previously calculated the hedge association's or division's risks with reasonable accuracy.
- g) The hedge association shall carry out stress tests, and the results of these shall be reviewed by, amongst others, the board of management or investment management company. The results of the completed stress tests must be reflected in the instructions and limits stipulated by the board of directors and the board of management or investment management company.
- h) The auditors shall carry out independent reviews of the model(s) and its/their use.
- i) At least once a year the hedge association shall carry out an examination of the model(s) and risk management as a whole, and as a minimum this should examine:
 - 1) whether documentation of the model(s), risk management, and organisation and tasks of the risk control function are complete,

- 2) how the market risks calculated by the model(s) are integrated into the day-to-day risk management, and whether management reporting is complete,
- 3) the procedures of the hedge association for approval of the methods of risk calculation and measurement,
- 4) the market risks covered by the methods of risk calculation and assessment of any material changes in the methods of risk calculation,
- 5) the correctness and adequacy of the calculation of the positions of the hedge association or division, the accuracy of the volatilities and correlations calculated, as well as the accuracy of the calculation of risk sensitivities,
- 6) the control process used by the hedge association in assessment of whether the sources of information used in the model(s) are consistent, up-to-date and reliable, as well as whether such sources of information are independent, and
- 7) the procedures of the hedge association for preparation of back tests, which are carried out in order to assess the accuracy of the model(s).

II) Quantitative requirements

As a minimum, the model(s) of the hedge association shall apply the following quantitative criteria in the calculation of position risks:

- a) Calculation of the potential risks of the hedge association or division on at least a daily basis.
- b) Uniform 99 per cent confidence interval.
- c) Holding period corresponding to 10 days.
- d) Effective observation period of no less than one year, unless a shorter observation period is justified as a result of a significant change in price volatility.
- e) No less than quarterly updating of correlations, volatilities etc.

III) Calculation of general risks

If the hedge association uses VaR models, the general risk comprises the largest amount of the following values:

- a) General risk calculated for the positions of the previous day.
- b) The average general risk calculated for the last 60 working days.

IV) Risk factors

The model(s) shall take account of an adequate number of risk factors, depending on the activity level of the hedge association or division in the respective markets, including significant risks regarding options and option-like positions. The following conditions must be met as a minimum:

- a) For interest-rate risks, the model shall apply a number of risk factors corresponding to the interest rates in the individual foreign-exchange rates in which the hedge association or division has interest-rate-sensitive positions. The hedge association shall estimate the yield curves by applying generally accepted methodologies. For significant interest-rate risks in the most important foreign-exchange rates and on the most important markets, the yield curve shall be divided into no less than six term segments in order to highlight differences in volatilities along the yield curve. The model must also highlight the risk that the correlation between different yield curves is not perfect.
- b) For exchange-rate risks, the model shall apply risk factors corresponding to the individual foreign currencies in which the hedge association or division has positions.

- c) For share-price risks, the model shall apply no less than one separate risk factor for each of the stock markets in which the hedge association or division has positions. The hedge association may apply empirical correlations within the risk categories and across the risk categories, if the model(s) of the hedge association to assess correlations are well-functioning and adequately implemented.

V) Calculation of specific risk

The hedge association may use VaR models to calculate specific risk for shares and debt instruments. In addition to the requirements in point IV, the models shall be able to:

- a) Explain the historical price fluctuations of the portfolio.
- b) Take into account the concentration, expressed in size and changes, of the composition of the portfolio.
- c) Be able to withstand changes in assumptions.
- d) Be validated through back tests aimed at assessing whether the specific risk is accurately considered. If back tests are carried out on the basis of relevant sub-portfolios, these shall be selected consistently.

If a hedge association uses VaR models in accordance with points a)-d) in order to calculate the specific risk, then the specific risk must be calculated for each risk category, ie. shares and debt instruments, or for sub-portfolios of these which have a specific risk.

If the specific risk for sub-portfolios of the hedge association or division is calculated, the sub-portfolios shall be determined consistently.

The hedge association may omit the separate calculation of specific risk stated above, if the model(s) of the hedge association for the calculation of general risk is/are in line with the agreed international standards and accurately take(s) account of the risk of unforeseen events and defaults (event and default risk) for its shares and debt instruments.

VI) Back tests

The hedge association shall check the accuracy and results of the model by carrying out back tests. Back tests are effected by comparing the daily potential risk of losses, calculated using the hedge association's model for the daily closing positions of the portfolio of the hedge association or division, with the daily change in the value of the portfolio at the end of the subsequent working day. The hedge association shall be able to perform back tests on the basis of both actual and hypothetical changes in the value of the portfolio.

Back tests on the basis of hypothetical changes in the value of the portfolio are performed by comparing the daily closing value of the portfolio assuming unchanged positions, with the value of the portfolio at the end of the subsequent day, ie. the trading carried out on the subsequent day is ignored. Back tests on the basis of actual changes in the value of the portfolio are performed by comparing the daily closing value of the portfolio with the closing value of the hedge association's or division's portfolio at the end of the subsequent day, ie. the trading carried out on the subsequent day is accounted for. An excess is when a daily change in the value of the portfolio exceeds the related daily potential risk which is calculated using model(s) of the hedge association.

If the hedge association's model(s) has many excess values, which indicate that it is not accurate enough, the Danish FSA will withdraw its approval or require the hedge association to take the measures necessary to ensure that the model(s) is/are improved. The hedge

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association shall take appropriate measures to improve its back tests, if these are deemed to be inadequate.