Risk-based supervision of UCITS – Critical Analysis of a New Approach

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# Table of Contents

Abstract .............................................................................................................................. 3

1. Introduction .................................................................................................................... 4

1.1. Transition From CESR To ESMA ............................................................................. 4

1.2. Objectives of the ESMA .......................................................................................... 4

1.3. Common Risks of Investment Funds ....................................................................... 5

2. Risk Management Approaches by ESMA / CESR ...................................................... 6

2.1. Synthetic Risk and Reward Indicator (SRRI) ......................................................... 6

2.2. Global exposure ....................................................................................................... 8

2.2.1. Commitment approach ...................................................................................... 9

2.2.2. Value at Risk (VaR) approach .......................................................................... 11

2.3. Counterparty Risk .................................................................................................... 14

3. Critical Analysis of a New Approach .......................................................................... 17

4. Conclusion ................................................................................................................... 19

Bibliographical References ............................................................................................... 20

Appendix ........................................................................................................................... 22
Abstract

The recent unprecedented events in the financial markets and beyond them (e.g. the crash of the subprime debt market in USA, the bankruptcy of the Lehman Brothers and the Bear Stearns, nationalization of the AIG, calls for a bailout of certain EU states) uncovered many interesting facts to the world audience with regards to, for example, the reliability of the credit ratings, the interdependence of the global economies regardless the size and location, and the risk-free rate theory. Most vivid statements that one could draw out based on these facts are that no one, that time, could estimate (at least partly) the hypothetical affect of the financial market crash in 2008 and that the risk management and supervision system (whether at private, public or state entity) was not sophisticated enough to guard the interests of the public.

Obvious need for the improvement of risk management and supervision process within the EU financial system set the regulatory bodies to review the legislation and introduce the new risk-based supervision approaches. Two most prominent events within the comprehensive restructuring of the financial legislation were the introduction of, so called, UCITS IV directive (2009/65/EC) and the transition from Committee of European Securities Regulators (CESR) to European Securities and Markets Authority (ESMA).

This paper focuses on the changes in the risk-based supervision approaches introduced by the CESR guidelines (CESR/10-673, CESR/10-788). The paper is divided into four parts starting with introductory part which overviews the basis for creation of ESMA and the objectives of the new authority, followed by the detailed overview of the new approach (Synthetic Risk and Reward Indicator, global exposure and systematic risk) and ends with the conclusive part which provides a critical analysis of the new approach and concludes the key findings. For the convenience purposes calculation examples are kept inside the body part instead of being allocated in the appendix, while graphical material (e.g. price charts, distribution charts) could be found in the appendix.
1. Introduction

“When written in Chinese the word „crisis” is composed to two characters. One represents danger, and the other represents opportunity.”

John F. Kennedy (speech in Indianapolis, 12 April 1959)

1.1. Transition From CESR To ESMA

Just as it is said in the starting quote the crisis always provides an opportunity. The most prominent opportunity that a financial industry must utilize in order to secure its stability and integrity is an improvement and strengthening of the risk management and risk supervision approaches.

The European Union admitted the lack of risk supervision and chose the way of improvement. In November 2008, the European Commission mandated a High-Level Group chaired by Jacques de Larosière to make recommendations on how to strengthen European supervisory arrangements with a view to better protecting the citizen and rebuilding trust in the financial system. In its final report presented on 25 February 2009 (the ‘de Larosière Report’), the High-Level Group recommended that the supervisory framework be strengthened to reduce the risk and severity of future financial crises. It recommended reforms to the structure of supervision of the financial sector in the Union. The group also concluded that a European System of Financial Supervisors should be created, comprising three European Supervisory Authorities, one for the banking sector, one for the securities sector and one for the insurance and occupational pensions sector and recommended the creation of a European Systemic Risk Council. This was the turning point that symbolized the transition from Committee of European Securities Regulators (CESR) to European Securities and Markets Authority (ESMA).

1.2. Objectives of the ESMA

Protection of the public interest by contributing to the stability and effectiveness of the financial system, for the EU economy, its citizens and businesses were named as the key objectives of the newly established authority. Going further into details, the authority shall contribute to:

a) improving the functioning of the internal market, including in particular a sound, effective and consistent level of regulation and supervision,

b) ensuring the integrity, transparency, efficiency and orderly functioning of financial markets,

c) strengthening international supervisory coordination,

d) preventing regulatory arbitrage and promoting equal conditions of competition,

e) ensuring the taking of investment and other risks are appropriately regulated and supervised, and

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1.3. Common Risks of Investment Funds

According to the definition provided by the CFA Institute a risky asset is “an asset with uncertain future returns”. Looking into this definition through the prism of a fund, or a pool of assets, a word risk refers to the possibility that fund assets will lose value creating a loss for investor. The set of risks that investment funds are exposed to could vary depending on a type of a fund and its strategy. The below given table consolidates the most common risks that fund managers must assess and limit:

<table>
<thead>
<tr>
<th>Risk</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market risk</td>
<td>The general risk associated with interest rates, exchange rates and asset prices.</td>
</tr>
<tr>
<td>Interest rate risk</td>
<td>The uncertainty of returns on an investment due to possible changes in interest rates over time</td>
</tr>
<tr>
<td>Exchange rate risk (currency risk)</td>
<td>An uncertainty due to the denomination of an investment in a currency other than that of the investor’s own country.</td>
</tr>
<tr>
<td>Liquidity risk</td>
<td>A risk that a financial instrument cannot be purchased or sold without a significant concession in price due to the size of the market.</td>
</tr>
<tr>
<td>Counterparty risk</td>
<td>The risk to each party of a contract that the counterparty will not live up to its contractual obligations.</td>
</tr>
<tr>
<td>Asset allocation bias</td>
<td>A risk that substantial portion of capital is allocated or concentrated in one asset type, group or class. Typically allocation risk appears in portfolios with weak diversification.</td>
</tr>
<tr>
<td>Default risk</td>
<td>A risk that the issuer will fail to satisfy the terms of the obligation with respect to the timely payment of interest and principal</td>
</tr>
</tbody>
</table>

Table 1: Common Risks of Investment Funds

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3 Definition by Investopedia: counterparty risk.
4 CFA Program Curriculum – Volume 5, Equity and Fixed Income
2. Risk Management Approaches by ESMA / CESR

2.1. Synthetic Risk and Reward Indicator (SRRI)

The Synthetic Risk and Reward Indicator (SRRI) is based on the volatility of the returns (i.e., past performance) of the fund.

The European Securities and Markets Authority (ESMA) issued a paper describing the various techniques for the SRRI calculation. UCITS funds have been divided into five main categories (market funds, life cycle funds, absolute return funds, total return funds and structured products), each with different calculation methodologies.

In a nutshell, the indicator is calculated based on the volatility of the underlying fund for the previous five years, and the value obtained is translated into one of the seven risk categories available based on pre-defined volatility intervals. Funds are classified with a numeric risk rating ranging from 1 to 7, with rating 1 bearing typically lower risk and lower return while rating 7 bearing higher risk and higher return. An illustration is shown below.\(^5\)

![Figure 1: Risk and reward scale](image_url)

The SRRI calculation is based on the risk measure volatility \(\sigma_f\) applied on an annual basis. It is calculated by using the formula 1\(^7\):

\[
\sigma_f = \sqrt{\frac{1}{T-1} \sum_{t=1}^{T} (r_{f,t} - \bar{r}_f)^2}
\]

(Formula 1)


\(^7\) CESR’s guidelines on the methodology for the calculation of the synthetic risk and reward indicator in the Key Investor Information Document, July 2010, page 5
where the returns of the fund \( (r_{f,t}) \) are measured over \( T \) non overlapping periods of the duration of 1/m years. This means m=52 and T= 260 for weekly returns, and m=12 and T=60 for monthly returns; and where \( \bar{r}_f \) is the arithmetic mean of the returns of the fund over the \( T \) periods:

\[
\bar{r}_f = \frac{1}{T} \sum_{t=1}^{T} r_{f,t}
\]

(Formula 2)

After calculation result of the volatility can be allocated into one of the risk classes:

<table>
<thead>
<tr>
<th>Risk Class</th>
<th>Volatility intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Equal or above</td>
</tr>
<tr>
<td>1</td>
<td>0.0%</td>
</tr>
<tr>
<td>2</td>
<td>0.5%</td>
</tr>
<tr>
<td>3</td>
<td>2.0%</td>
</tr>
<tr>
<td>4</td>
<td>5.0%</td>
</tr>
<tr>
<td>5</td>
<td>10.0%</td>
</tr>
<tr>
<td>6</td>
<td>15.0%</td>
</tr>
<tr>
<td>7</td>
<td>25.0%</td>
</tr>
</tbody>
</table>

Table 2: Volatility intervals and risk classes

If past data are not available (for new funds) or not representative (UCITS changing its investment strategy significantly) then alternative methodologies shall be used, including volatility measurements of the portfolio model, target asset mix allocation or benchmark tracked. For structured funds a reverse engineering corresponding to the 99 per cent Value at Risk (VaR) has to be calculated. And as a last resort method, if none of the above techniques can be used, then simulations have to be performed. The SRRI has to be complemented by a narrative section, briefly explaining how the indicator was calculated, and what other material risks are not captured by it (liquidity or counterparty risks, for example).

In order to demonstrate the possible application of SRRI in practice the figure 4 was composed. Six random funds with different asset classes, reference currencies and strategies were chosen in Bloomberg terminal. Descriptive details of funds are available in appendix 1. All the funds have a history of NAV longer or equal to five years that is compliant with CESR directive. The sufficient history of NAV allowed avoiding a usage of a reference benchmark for each fund as suggested by CESR. Daily NAV values of each fund were obtained and standard deviation of daily returns for each fund was calculated. The result then is multiplied by square

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8 CESR's guidelines on the methodology for the calculation of the synthetic risk and reward indicator in the Key Investor Information Document, July 2010, page 7
root of 252 trading days which is common in financial industry. The final step is to define a risk class based on volatility intervals given in figure 3.

<table>
<thead>
<tr>
<th>Name of fund</th>
<th>Asset class</th>
<th>Volatility (annualized)</th>
<th>Risk class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skandia Total Return USD Bond Fund</td>
<td>Fixed income</td>
<td>4.24%</td>
<td>3</td>
</tr>
<tr>
<td>Vontobel European Value Fund</td>
<td>Equity</td>
<td>27.88%</td>
<td>7</td>
</tr>
<tr>
<td>Fidelity European Smaller Companies Fund</td>
<td>Equity</td>
<td>17.56%</td>
<td>6</td>
</tr>
<tr>
<td>KBC BONDS CENTRAL EUROPE FUND</td>
<td>Fixed income</td>
<td>8.71%</td>
<td>4</td>
</tr>
<tr>
<td>Allianz Total Return Asian Equity Fund</td>
<td>Equity</td>
<td>27.2%</td>
<td>7</td>
</tr>
<tr>
<td>Julius Baer Multicooperation Commodity Fund</td>
<td>Commodities</td>
<td>21.32%</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 3: SRRI calculation example for randomly selected funds

The results of the SRRI calculation are not surprising as equities represent the asset class with one of the highest risk profiles, while fixed income securities are low risk assets under normal market conditions. Two more interesting findings that SRRI calculation uncovered are popular and often justified hypotheses that a small/mid cap equities are typically volatile and bear high risk and that investments in securities of Emerging markets (in our example Allianz Total Return Asian Equity) are more risky in comparison to developed markets. The last but not the least, commodity oriented fund of Julius Bear didn’t come up as a surprise taking into consideration that the fund was launched in 2006 which was a starting point for a commodity “price bubble” years (e.g. crude oil, precious and ferrous metals, fertilizers).

Although SRRI is simple to calculate and apply it is not a sufficient to use it alone. Unsystematic events that appear in the market (e.g. M&A events, loss/success in a patent infringement suit, change in legislation) may create a momentum “splash” (which is often called “noise”) of price and thus affect dramatically SRRI value (examples could be viewed in appendix). Therefore, fund managers shall apply techniques (e.g. graphical analysis of trading volumes, comparison of moving averages with different time ranges) that allow thorough assessment of fund’s returns volatility.

2.2. 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. A UCITS must calculate its global exposure on at least a daily basis. The limits on global exposure must be complied with

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9 Bloomberg Professional via Bloomberg terminal
on an ongoing basis. Depending on the investment strategy being pursued a UCITS should, where necessary, also carry out intra-day calculations.

Basically there are two main approaches recommended to measure global exposure. These two are Commitment approach and Value at Risk (VaR) approach. The most suitable method being chosen is based on the UCITS risk profile.\(^\text{10}\)

2.2.1. Commitment approach

As the commitment approach is a more simple method for global exposure calculation, it is advisable to use it on non complex UCITS. The principle of commitment approach is based on evaluating standard derivatives’ market value of the equivalent position in the underlying asset after a netting procedure.

If UCITS comply in full with the criteria below, then it is possible to calculate global exposure using the commitment approach as described in the General Guidelines but adjusted in the following way:

- The formula-based investment strategy for each pre-defined payoff is broken down into individual payoff scenarios.
- The financial derivative instruments implied in each scenario are assessed to establish whether the derivative may be excluded from the calculation of global exposure under the provisions of the General Guidelines.
- Finally the UCITS calculates the global exposure of the individual scenarios to assess compliance with the global exposure limit of 100% of NAV.

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\(^{10}\) CESR’s Guidelines on Risk Measurement and the Calculation of Global Exposure and Counterparty Risk for UCITS, July 2010, page 5, 41

\(^{11}\) PwC, Risk management challanges in context of UCITS IV, April 2011, page 2
The criteria are:

- the UCITS is passively managed and structured to achieve at maturity the pre-defined payoff and holds at all times the assets needed to ensure that this pre-defined payoff will be met;
- the UCITS is formula-based and the pre-defined payoff can be divided into a limited number of separate scenarios which are dependent on the value of the underlying assets and which offer investors different payoffs;
- the investor can only be exposed to one payoff profile at any time during the life of the UCITS;
- the use of the commitment approach as defined in the General Guidelines to calculate global exposure for the individual scenarios is appropriate taking into account the requirements of Box 1 of the General Guidelines;
- the UCITS has a final maturity not exceeding 9 years;
- the UCITS does not accept new subscriptions from the public after the initial marketing period;
- the maximum loss the UCITS can suffer when the portfolio switches from one payoff profile to another must be limited to 100% of the initial offer price;
- the impact of the performance of a single underlying asset on the payoff profile when the UCITS switches from one scenario to another complies with the diversification requirements of the UCITS Directive based on the initial net asset value of the UCITS.

Below listed example will demonstrate an application of commitment approach in situation similar to real.

A hypothetical UCITS has active investment strategy and invests solely in European equities that are components of a “blue-chip” index EURO STOXX 50. In order to secure a low tracking error of returns UCITS invests in market indices via ETFs and uses future contracts for hedging purposes. According to the UCITS policy the total exposure in derivative used for hedging purpose cannot exceed the 50% of UCITS’ NAV. Apart from plain vanilla equities portfolio has the following holdings:

- ETF iShares EURO STOXX 50 – 100 000 shares with current value of EUR 23.13 per share.
- Future contracts for sale of EURO STOXX 50 – 100 contracts with a size of 10,
expiry end of August 2012 and the index level of 2 250.

Position in ETF is treated as long and its exposure is:

\[100,000 \text{ shares} \times \text{EUR 23.13} = \text{EUR 2,313,000}\]

Future contract is a derivative contract and therefore its commitment must be calculated according to the conversion methodologies set by CESR\(^\text{12}\):

\[\text{Number of contracts} \times \text{notional contract size} \times \text{index level} = \]
\[= 100 \times 10 \times 2,250 = \text{EUR 2,250,000}\]

As future position as treated as short the value of commitment of this position must be negative, thus the commitment of futures is EUR -2,250,000.

Since both securities have a reference to the same underlying asset the netting procedure could be applied. The gross commitment of the netting position would EUR -2,250,000, however, the long position in EURO STOXX 50 can offset the commitment of futures position, or in other words:

\[\text{EUR 2,313,000} - \text{EUR 2,250,000} = \text{EUR 63,000}\]

The result leads to the conclusion that the commitment of the derivative position is equal to zero since long position, when netted, can fully offset its exposure.

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2.2.2. Value at Risk (VaR) approach

Value at Risk (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. It is recommended to use it for more sophisticated UCITS which include derivative strategies of greater complexity.

General principles when using VaR approach are:

- A global exposure calculation using the VaR approach should consider all the positions of the UCITS portfolio;
- A UCITS should always set the maximum VaR limit according to its defined risk profile.

According to the defined risk profile of the UCITS fund a limit qualitative and quantitative is set, and when reached adjustments to the portfolio must be made in order to be consistent to the investors risk preferences. It is possible to test its accuracy with back testing procedure. \(^\text{13}\)

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\(^{12}\) CESR’s Guidelines on Risk Measurement and the Calculation of Global Exposure and Counterparty Risk for UCITS, July 2010, page 8
Two main VaR approaches exist:

- **Absolute VaR model** - limit is set as a percentage of the fund’s Net Asset Value (NAV);
- **Relative VaR model** - VaR of an unleveraged reference portfolio must be at least twice as small as the fund’s VaR. 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.

The choice between these two is a responsibility of the UCITS and depends solely on the risk profile and investment strategy of the fund.

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.  

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

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.

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

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relevant market parameters and correlation factors, which could result in major depreciation of the UCITS value.

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.\(^\text{15}\)

Below listed example will demonstrate an application of commitment approach in situation similar to real.

CESR states that there is a variety of models that estimate VaR and it is a responsibility of UCITS to select the appropriate model.\(^\text{16}\) In this particular example we will review the VaR based on assumption of normal distribution of returns.

Let’s assume that the same hypothetical UCITS that was overviewed in the section dedicated to commitment approach and it has the following composition:

<table>
<thead>
<tr>
<th>Type of Security</th>
<th>Issuer</th>
<th>Amount</th>
<th>Unit Value</th>
<th>Total Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinary shares</td>
<td>BASF SE</td>
<td>100</td>
<td>EUR 57.89</td>
<td>EUR 5 789</td>
</tr>
<tr>
<td>Ordinary shares</td>
<td>Siemens AG</td>
<td>100</td>
<td>EUR 69.23</td>
<td>EUR 6 923</td>
</tr>
<tr>
<td>Shares of ETF</td>
<td>iShares EURO STOXX 50</td>
<td>100</td>
<td>EUR 23.14</td>
<td>EUR 2 314</td>
</tr>
</tbody>
</table>

We assume that UCITS was launched on the 30 December 2011 and we want to calculate the VaR based on 20 July 2012 closing values. Therefore, we have a time range that is a standard year-to-date (YTD). We want to define the possible loss for time horizon equal to five days.

First we need to define an appropriate confidence level for VaR. Although CESR allows a choice between three possible options, i.e. 95%, 97.5% and 99% levels of confidence, in our case we have chosen a 99% confidence level, which means that, 99% of all returns lie within the 2.326 standard deviations from a mean value according to the CESR\(^\text{17}\).

With second step we calculate five days trailing returns for each asset. Then we calculate a mean and standard deviation of these returns for each of the assets.

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\(^{15}\) CESR’s Guidelines on Risk Measurement and the Calculation of Global Exposure and Counterparty Risk for UCITS, July 2010, page 30
\(^{16}\) CESR’s Guidelines on Risk Measurement and the Calculation of Global Exposure and Counterparty Risk for UCITS, July 2010, page 28
\(^{17}\) CESR’s Guidelines on Risk Measurement and the Calculation of Global Exposure and Counterparty Risk for UCITS, July 2010, page 27
- Basf SE: mean = 0.127%, standard deviation = 3.67%
- Siemens AG: mean = -0.335%, standard deviation = 3.16%
- iShares EURO STOXX 50: mean = 0.133%, standard deviation = 1.90%

In next step we calculate the relative VaR value with confidence level of 99% for each of the assets.

- Basf SE = mean + standard deviation * 2.326 = 8.65%
- Siemens AG = mean + standard deviation * 2.326 = 7.02%
- iShares EURO STOXX 50 = mean + standard deviation * 2.326 = 4.56%

In the final step we convert the relative VaR to monetary values and sum up the results to get total VaR for UCITS.

- Basf SE = 8.65% * EUR 5 789 = EUR 500.98
- Siemens AG = 7.02% * EUR 6 923 = EUR 485.66
- iShares EURO STOXX 50 = 4.56% * EUR 2 314 = EUR 105.44
  Total VaR monetary value is EUR 1092.08.\(^\text{18}\)

The results let us state the following, that under the assumption of normal distribution of returns for each of the UCITS assets, the total possible loss in the next five days with probability of 99% could be equal to EUR 1092.08 or 7.27% of UCITS NAV based on NAV of 20 July 2012.

### 2.3. Counterparty Risk

Counterparty Risk - the risk to each party of a contract that the counterparty will not live up to its contractual obligations. Counterparty risk as a risk to both parties and should be considered when evaluating a contract.\(^\text{19}\)

One of the ways to limit counterparty risk is using collateral. 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

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\(^{18}\) Calculations were performed with MS Excel
\(^{19}\) Definition by Investopedia: counterparty risk.
http://www.investopedia.com/terms/c/counterpartyrisk.asp
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’ (a price that does not reflect recent information available to the market) 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.**

Another issue which must be taken into account is a concentration risk which is an overweight of a single security in the fund. In line with UCITS Directive, 5% (10% for credit institutions) of the total assets in the fund can be invested in a single derivative. However, the UCITS Directive makes an additional provision related to this limit which is similar to “5-10-40
“rule”, a widely applied rule in a financial industry. Under the meant provision the limit of an investment in a single security could exceed 5% and reach 10% threshold unless cumulative weight of securities with weight of 10% does not exceeds 40% of fund’s assets. UCITS Directive has a separate provision for fund-of-funds. Under this provision a fund 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. Investments made in units of non-UCITS may not exceed in aggregate 30% of the assets of the UCITS.²⁰

Basic ways for limiting counterparty risk focuses on controlling credit exposure with diversification, netting, collateralisation and hedging.

3. Critical Analysis of a New Approach

This chapter is dedicated to analyze all the summarized important points regarding risk management recommendations proposed by ESMA and to give some conclusions for the new approach.

**SRRI**

SRRI is a simple to calculate and easy to interpret indicator. It is understandable for portfolio managers and clients. However, there is no confidence that this indicator is not misleading. As the examples in the appendix show, there is always a probability that the unsystematic and inconsistent events may affect the price of an asset dramatically and create a “splash” of momentum or mean value. On top of it, the concept of using volatility alone as a risk measurement especially since it does not capture the true form of the underlying distributions is questionable and thus is widely discussible in academic and professional world. The last, but not the least is that a paradox may take place that fund with continuously low returns and fund with continuously high returns will both show low volatility inconsistent to the performance.

If fund managers deals with a small number of assets he or she may simply use the graphical tools to check the consistency of volatility, but this approach is not efficient when it comes to monitoring of large amount of assets.

**Commitment approach**

As for the commitment approach, which is easier way to calculate global exposure, it is acceptable when non-sophisticated UCITS are the case but still some considerations must be taken into account. One of the weak points is that no prohibitive action is taken for the use of commitment approach (this is not the case for VaR approach). All this can come down to giving incorrect or misleading information to investors and fund managers.

**VaR**

The VaR approach is more complex therefore more precise way to assess the risks. Also it is not a “crystal ball” because measure alone is not a sufficient indicator for determination of risk if we refer to complex UCITS. VaR alone does not provide sufficient information for the “bad case” scenario. Also there is lack of mathematical properties if we contrast this method to other calculation methods. The last, but not the least is that the assumption of normal distribution of
returns should always be treated with prudence as perfect normal distribution is an assumption. As examples in the appendix show, the distribution of returns is rather semi-normal or close-to-normal. Thus, fund managers may involve correction techniques for calculation of VaR.

To sum up it can be clearly said that UCITS IV is a significant step in enhancing developing UCITS sector. It is clearly seen that the newly introduced changes in regulation are based on a thorough analysis of UCITS risk management aspects (like short selling or usage of credit default swaps) as these changes received the responses from key industry participants like BlackRock\textsuperscript{21}, Morningstar\textsuperscript{22}, STOXX\textsuperscript{23} or London Stock Exchange\textsuperscript{24} and created a base for further dialogs.

Methodological Guidelines

Overall, methodological guidelines are of high quality and provide explanation for reader in a plain language. Guidelines have a lot of examples that demonstrate the application of a particular recommendation in practice. However, we must stress, that the examples are simplified and sometimes lack a preciseness that could confuse an unsophisticated reader. For example, in the section dedicated to netting of derivatives, an example is given that contain a phrase “a long position through futures on the FTSE” which is confusing as FTSE is a name of the group that provides calculation of FTSE indices, including famous FTSE 100 market index. On top of it, examples are represented in a short form with lack of explanatory information which is common for informal literature rather than academic literature. For example, in the section dedicated to calculation of commitment of bond future an example calculation is provided not mentioning the notional amount of the bond future and purchasing price of the future.

\textsuperscript{21} Response of BlackRock on ESMA consultation paper, March 2012
\textsuperscript{22} Morningstar’s Response to ESMA’s Consultation Paper on ETFs and Other UCITS Issues, March 2012
\textsuperscript{23} STOXX’ position on ESMA’s guidelines on ETFs and other UCITS issues, March 2012
\textsuperscript{24} LSEG LSEG Response to Consultation Paper: ESMA’s guidelines on ETFs and other UCITS issues, March 2012
4. Conclusion

We have overviewed the key components of the newly introduced changes within the UCITS legislative framework. It is necessary to mentioned that an impressive work was conducted in order to reveal a weak points of the current approaches and to work out the ways to improve them.

Although newly introduced approaches represent a prominent step forward it is obvious that they need to be improved as it is stated in the section dedicated to the critical analysis of this new approaches (e.g. isolated usage of SRRI could be misleading, corrections shall be applied when assuming a normal distribution of returns of an asset for VaR calculation). On top of quantitative drawbacks mentioned above, there are certain qualitative pitfalls that unsophisticated investors may face, like the lack of literal preciseness when the example situation is simulated (e.g. exact names of securities of market indices or lack of explanatory information for calculations).

Financial markets keep working and market participants develop new strategies and new approaches to maximize their profits in the current environment of evident macro economic uncertainty and, as the result, “sluggish” stock markets. These new strategies will sooner or later affect risk characteristics of separate asset classes and markets in whole thus creating new challenges for investors, fund managers and regulatory bodies. ESMA continues its work and there seems to be a small probability that UCITS IV will retain its actuality for the next couple of years as UCITS V is expected to be issued which is awaited logical step.

We rely on a prudence and proactiveness of the governing bodies and hope to see further changes aimed to improve the UCITS legislation. Transparent, plain and easy adoptable legislation is a backbone of the UCITS industry and we believe that ESMA make these traits the pillars of the future changes. Finally, we look forward to the increase in number of UCITS compliant funds as this could become the best proof of the utility of UCITS legislation.
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   http://www.basf.com/group/corporate/en/investor-relations/share/stock-chart,
   accessed on June 20, 2012
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    accessed on July 10, 2012
    on_paper_on_etfs_and_other_ucits_issues.pdf, accessed on July 10, 2012
13. STOXX’ position on ESMA’s guidelines on ETFs and other UCITS issues, March 2012

14. LSEG Response to Consultation Paper: ESMA’s guidelines on ETFs and other UCITS issues (ESMA/2012/44), March 2012
## Appendix

1. Basic information on funds selected for calculation of SRRi

<table>
<thead>
<tr>
<th>Name of fund</th>
<th>ISIN (Bloomberg ID)</th>
<th>Inception</th>
<th>Currency</th>
<th>Short description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skandia Total Return USD Bond Fund</td>
<td>IE0031386414 (SGPUTRA ID Equity)</td>
<td>12.03.2002</td>
<td>USD</td>
<td>UCITS certified open-end fund incorporated in Ireland. The objective is to maximize total return consistent with preservation of capital and prudent investment management. The Fund invests primarily in fixed income securities listed or traded on recognized exchanges in the OECD.</td>
</tr>
<tr>
<td>Vontobel European Value</td>
<td>LU0153585137 (WYD5 GR Equity)</td>
<td>15.11.2002</td>
<td>EUR</td>
<td>Open-end investment fund incorporated in Luxembourg. The Fund’s objective is capital appreciation. The Fund invests a minimum of two-thirds of its assets in undervalued equity securities of Western European countries.</td>
</tr>
<tr>
<td>Fidelity European Smaller Companies</td>
<td>LU0261951528 (FFESCAE LX Equity)</td>
<td>25.09.2006</td>
<td>EUR</td>
<td>Open-end investment fund incorporated in Luxembourg. The Fund aims to provide investors with long-term capital growth. The Fund invests primarily in small and medium-sized European companies and equity securities quoted on the European stock exchanges.</td>
</tr>
<tr>
<td>KBC BONDS CENTRAL EUROPE</td>
<td>LU0145227863 (kbccceec LX Equity)</td>
<td>11.04.2002</td>
<td>EUR</td>
<td>KBC Bonds Central Europe is a SICAV incorporated in Luxembourg. The Fund’s objective is to achieve the highest possible level of total return. The Fund invests principally in bonds denominated in the currencies of Central and Eastern European countries, excluding Russia. The principal investments are made in Poland, the Czech Republic and Hungary.</td>
</tr>
<tr>
<td>Allianz Total Return Asian Equity</td>
<td>LU0348816934 (DRDTRAA LX Equity)</td>
<td>31.10.2005</td>
<td>USD</td>
<td>Open-end fund incorporated in Luxembourg. The Fund’s objective is to provide shareholders with a combination of income flow and capital growth through investment in</td>
</tr>
</tbody>
</table>

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25 Bloomberg Professional via service terminal
<table>
<thead>
<tr>
<th>Name of fund</th>
<th>ISIN (Bloomberg ID)</th>
<th>Inception</th>
<th>Currency</th>
<th>Short description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Julius Baer Multicooperation</td>
<td>LU0244125398 (JBMCFEC LX Equity)</td>
<td>28.02.2006</td>
<td>EUR</td>
<td>Open-ended fund incorporated in Luxembourg. The Fund's objective is to achieve a long-term excess return over the Rogers International Commodity Index Enhanced SM TR (EUR Hedged). The Fund invests in commodities in energy, agriculture, livestock and precious and industrial metals. Currency risks are hedged extensively.</td>
</tr>
</tbody>
</table>
2. Examples of liquidity “traps”
   
a. Harman International Industries (Bloomberg ticker: HAR US Equity)\textsuperscript{26}. Member of S&P 500 index.

Red line in a bottom section represents a daily trading volume of security; green line is a simple 30 days moving average (SMAG) of trading volume.

\textsuperscript{26}Bloomberg Professional via Bloomberg terminal
b. Harvard Bioscience Inc. (Bloomberg ticker: HBIO US Equity), Member of Russell 3000 index.

Red line in a bottom section represents a daily trading volume of security; green line is a simple 30 days moving average (SMAG) of trading volume.

Abnormal trading turnover may mislead investors by creating "splashes" of momentum and moving average values.
3. Examples of return distributions of randomly selected financial instruments

a. BASF SE

Stock returns from Frankfurt Stock Exchanges for the period 20 July 2012 – 21 April 1987 (6468 observations)

---

Distribution of real returns
Hypothetical normal distribution

Mean 0.05%
Standard deviation 1.74%
Min -12.12%
Max 13.53%

---

28 Own chart; data retrieved from BASF SE website (http://www.basf.com/group/corporate/en/investor-relations/share/stock-chart)
b. Siemens AG

Stock returns from Frankfurt Stock Exchanges for the period 20 July 2012 – 21 April 1987 (6468 observations) \(^{29}\)

![Distribution of real returns vs Hypothetical normal distribution](image)

- Mean 0.04%
- Standard deviation 2.00%
- Min -15.10%
- Max 18.06%

\(^{29}\) Own chart; data retrieved from Siemens AG website ([http://www.siemens.com/investor/en/siemens_share.htm](http://www.siemens.com/investor/en/siemens_share.htm))
c. **ETF iShares EURO STOXX 50**

Stock returns from Frankfurt Stock Exchanges for the period 20 July 2012 – 3 April 2000 (3153 observations)\(^{30}\)

\(^{30}\) Own chart; data retrieved from iShares website (http://de.ishares.com/en/pc/products/EUN2/pricing-exchange)