
# PRIIPs – New Performance-Scenarios for Certificates

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*Since last few years German certificate issuers are already disclosing performance scenarios in so-called „product information sheets" (PIB). Now the European PRIIPs-regulation requires a new uniform calculation method. That means, from 2017 on all the issuers must calculate and disclose performace scenarios according to the same methodology. This will increase the comparability – however it will also increase the effort of calculation.*

From 2017 onward it is mandatory for issures to disclose a Key Information Document (KID) for every certificate. Performance scenarios are important elements that should show investors the possible development of their investment. In the final version of "Regulatory Techincal Standards" (RTS) from March 2016 the European financial supervisor (ESMA) has published the methodology for calculation of performance scenarios in detail.

**Previous practice:** Previously certificate issuers used to represent a win and a loss scenario along with the break-even scenario in the product information sheets (PIBs) for structured products in Germany. Usually these two scenarios would represent examplary developments of the certificate if the underlying would fall or rise by 10%. Thereby the investors get already an indication of profit and loss potential of an investment. However, until now there are no concrete statements connected to the likelyhood of the occurance of these scenarios.

# PRIIPs based the performance scenarios on new methodological fundament

**The main aspects of the new PRIIPs regulation:**

- The calculation of performance scenarios for structured products is carried out on a forward-simulation of the underlying on the basis of historical returns – the so-called "bootstrapping method". Thereby the calculation is based on the same methodology that is also used for calculation of the Summary Risk Indicator (SRI).

- In the future the performance scenarios must be calculated for the end of the "recommended holding period" – that is mostly the maturity date for investment certificates – and for "intermediate holding periods".

- The expected value of the certificate will be calculated in following scenarios:
  - A favourable scenario
  - A moderate scenario
  - An unfavourable scenario
  - An additional scenario will be available if the unfavourable scenario does not identify any loss.

# How does the calculation and presentation of scenarios appear in practice?

**Example for a stuctured product with less than one year remaining to maturity:**

The **performance data of the underlying for the last five years** will be used for the simulation required by ESMA. On that basis the future development of the underlying price will be simulated. The simulation contains minimum 10,000 possible paths. The result is a distribution function of possible underlying price levels at maturity of the certificate.

Background: The forward-simulation includes a so-called "drift correction" which neutralizes historical market trends. Due to the neutralization the result of simulation exclusively reflects the immanent volatility of the underlying asset in the past five years.

Subsequently, the simulation of the underlying will be translated into performance values of the certificate. For this purpose, the payoff function of the certificate is applied to each of the 10,000 simulation paths. The result is a **distribution function for possible payoffs of the certificate**. Following is an example for a DAX bonus certificate.

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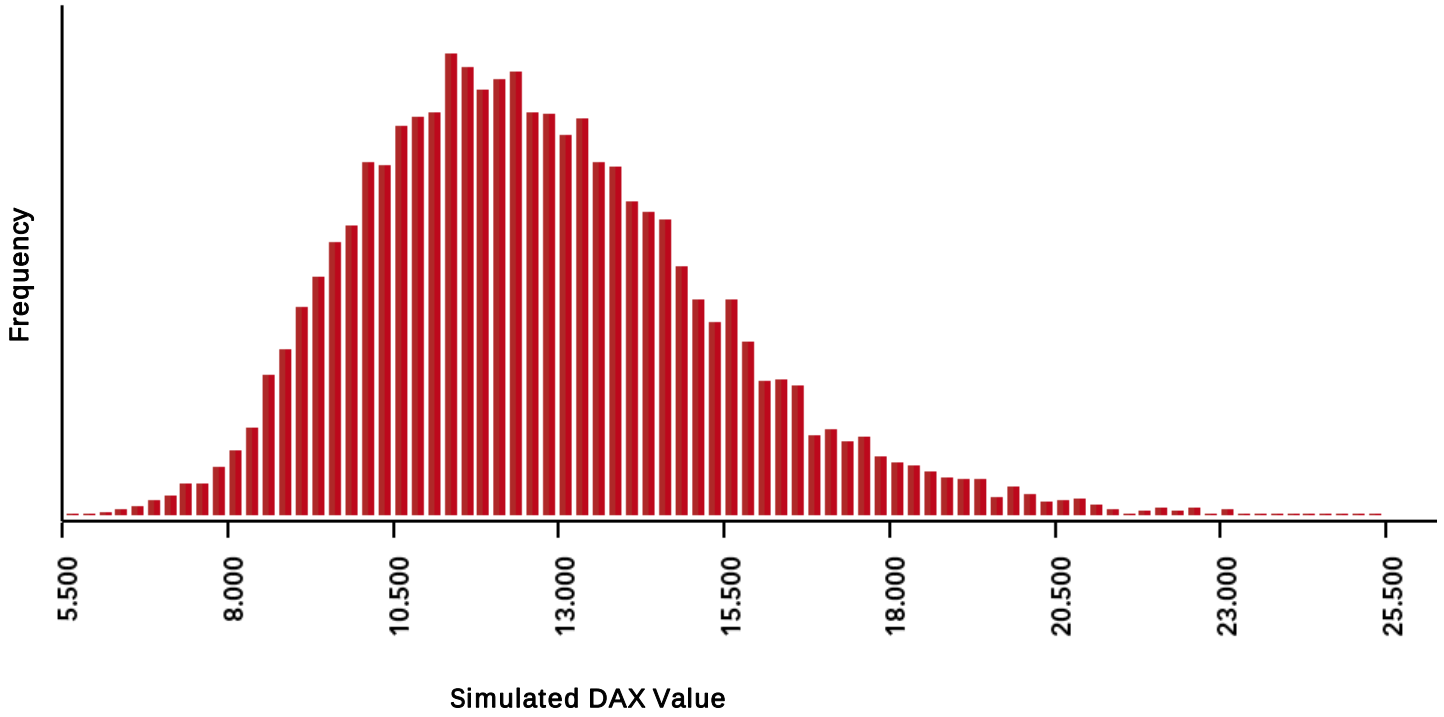
## Simulation of the Underlying (DAX Example) - Distribution of Simulated Values



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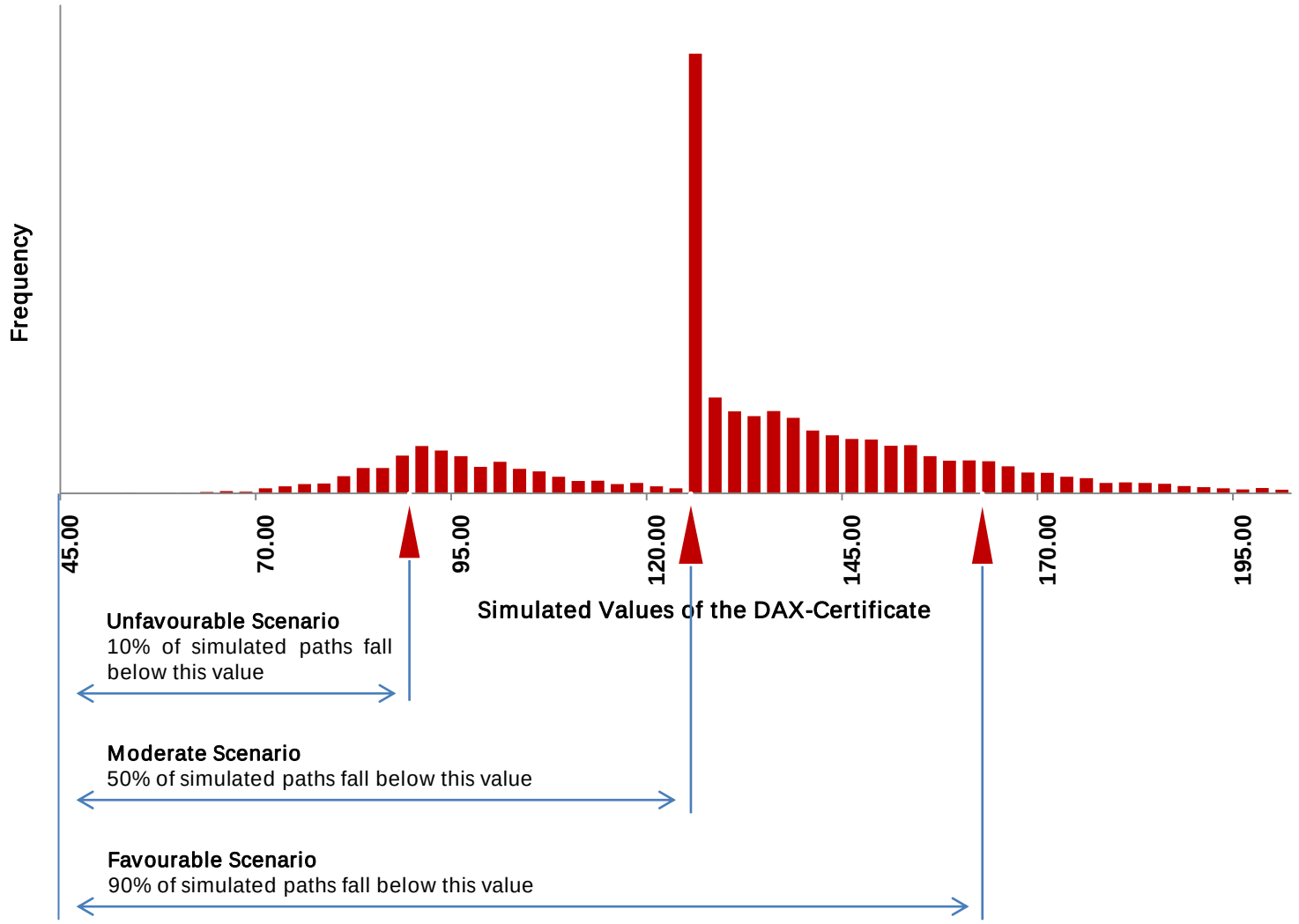
## Simulated Payoff Profile for Maturity of the Certificate (Example: DAX-Bonus)



The three **scenarios can now be determined directly** from the distribution function of the simulated values – shown as red triangles in the graph:

- The **favourable scenario:** 90% of simulated paths fall below this value at the time of maturity – in other words: 8,999 out of 10,000 simulated paths lead to a weaker performance in the simulation.
- The **moderate scenario**: 50% of simulated paths fall below this value at the time of maturity – in other words: 4,999 out of 10,000 simulated paths lead to a weaker performance.
- The **unfavourable scenario:** 10% of simulated paths fall below this value – or: only 999 out of 10,000 simulated paths lead to a weaker performance.

Background: A value that only 2.5% of simulated paths fall below, is the starting point for the calculation of **Value-at-Risk (VaR)**, which is needed for determination of the Market Risk Measures (MRM) and thereby determination of **Summary Risk Indicators (SRI)**.

**Representation**: The scenarios are represented in the KIDs in two ways: Firstly as "Absolute Return" (What returns the investor will receive on invested capital in the particular scenarios?) and secondly as "Annualized Return on Investment, ROI " (Which performance p.a. corresponds to the respective scenario?). The results are represented minus the costs contained in the certificate. (See example on pages 10 and 11)

# Intermediate Performance Scenarios are based on the same approach

**Calculation of the "intermediate" scenarios)**

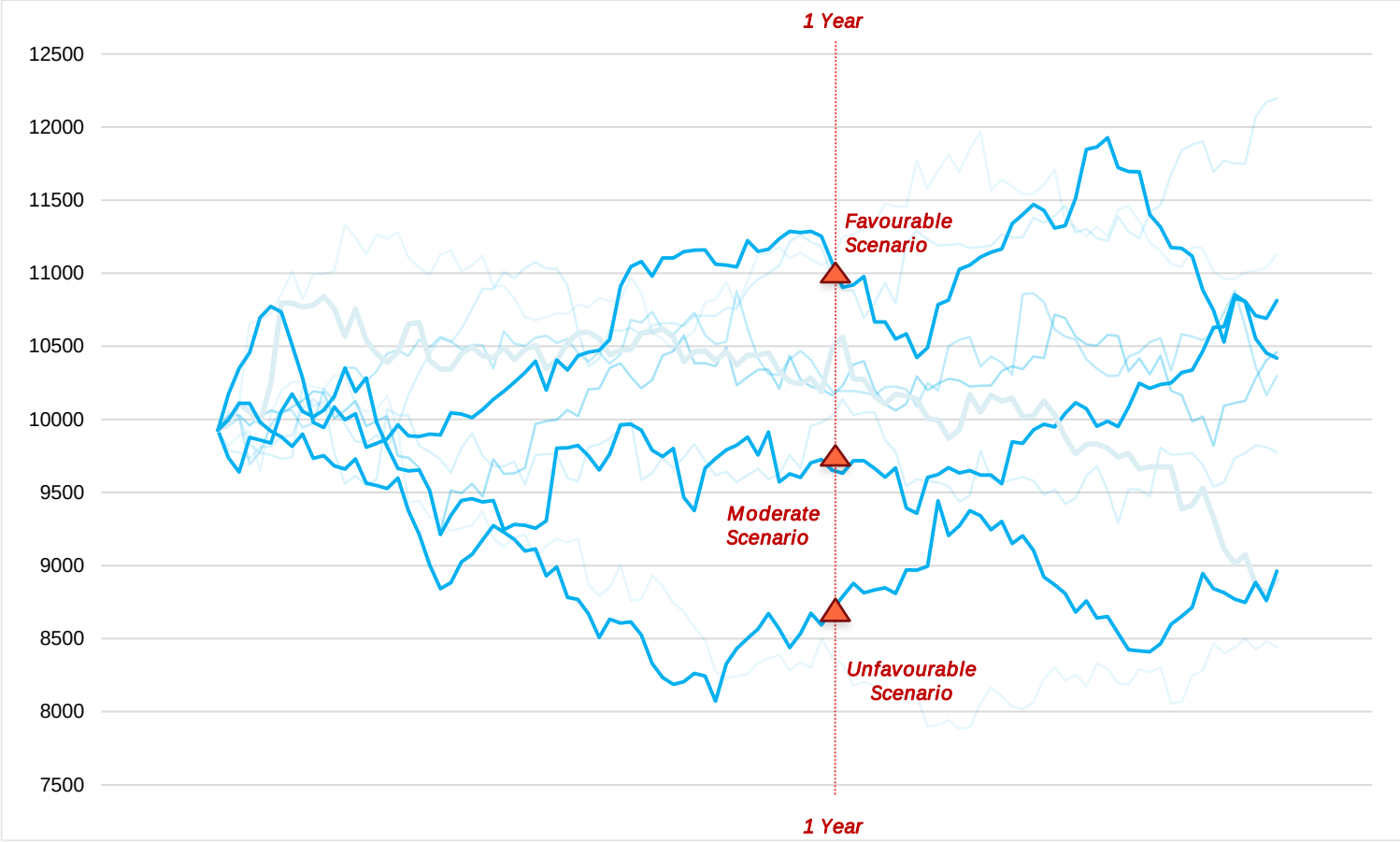
The three scenarios must be represented for the recommended holding period (RHP) as well as for intermediate holding periods for certificates that have more than one year remaining before maturity. Depending upon the term of the certificate at most two further points in time come under consideration. For example, additional scenarios must be represented for 1 year and 2 year holding periods along with the maturity scenario for a certificate with four years remaining before maturity.

The calculation of "intermediate" scenarios is similar to the scenario determination at the maturity. It is based on the same methodic approach. One possible way of calculation is as follows:

First of all the above described 10,000 paths simulation will be carried out for the underlying until the maturity of the certificate. Subsequently, those 10,000 values are considered that the simulation of the underlying assumes after one year. Based on that the 10%, 50% and 90% quantile will be taken as starting points for the three intermediate scenarios.

In order to determine the certificate prices corresponding to these three values, a further 10,000 paths simulation of the underlying is required (until maturity of the certificate). The certificate price generated in this way will define the three intermediate scenarios.

## Example: DAX Simulation with **"Intermediate"** Scenarios **"1 year"**




**Graph:** Some of the 10,000 simulation paths are represented here as example. The starting point is the current DAX value. The red triangles mark the starting value for the calculation of the three "intermediate" scenarios for 1 year holding period.

# Representation of Scenarios – Example DAX-Discount-Cert.

Cap 11,000, maturity 22.06.2018, certificate price: 93.03 Euro, DAX level: 9,950,  10,000 Euro invested

| | | Intermediate Scenario 1 Year | Scenario at maturity |
|---|---|---|---|
| **Favourable Scenario:** | Absolute Return | **11,325.38 Euro** | **11,824.14 Euro** |
| | Annualized ROI | 13.25% | 8.16% |
| **Moderate Scenario:** | Absolute Return | **9,909.71 Euro** | **10,056.97 Euro** |
| | Annualized ROI | -0.90% | 0.27% |
| **Unfavourable Scenario:** | Absolute Return | **7,800.71 Euro** | **6,741.91 Euro** |
| | Annualized ROI | -21.99% | -16.90% |

*Source: SmartTrade, date of calculation 3 may 2016*

# Representation of Scenarios – Example DAX-Bonus-Cap-Cert.

Cap / Bonus level: 12,400, Barrier: 7,600, Maturity 22.12.2017, Certificate Price: 107.19
DAX level: 9,950, 10,000 Euro invested

| | | Intermediate Scenario 1 Year | Scenario at maturity |
|---|---|---|---|
| **Favourable Scenario:** | Absolute Return | **11,530.93 Euro** | **11,568.24 Euro** |
| | Annualized ROI | 15.31% | 9.30% |
| **Moderate Scenario:** | Absolute Return | **10,820.04 Euro** | **11,568,24 Euro** |
| | Annualized ROI | 8.20% | 9.30% |
| **Unfavourable Scenario:** | Absolute Return | **6,833.66 Euro** | **6,210.47 Euro** |
| | Annualized ROI | -31.67% | -25.25% |

*Source: SmartTrade, date of calculation 3 may 2016*

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