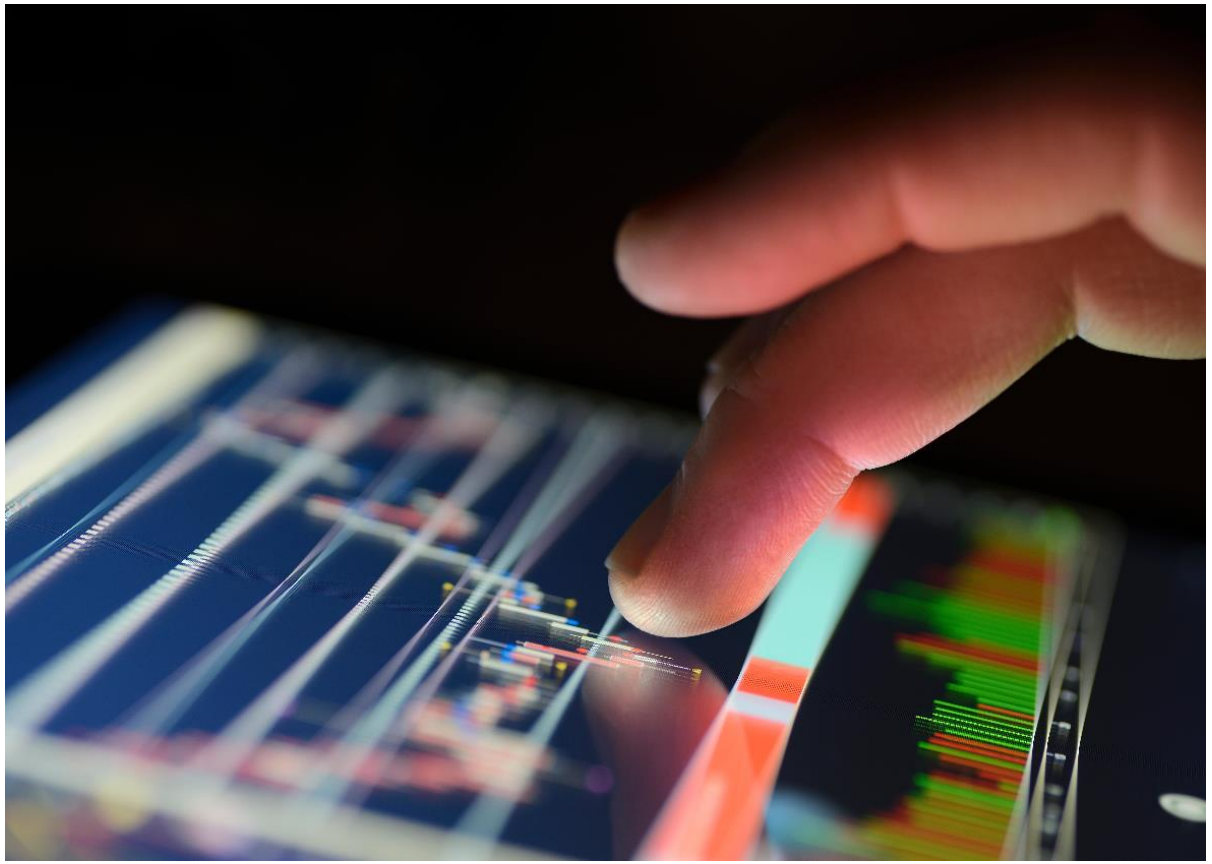
Share Class Hedging Techniques

Lunch & Learn

Deloitte Luxembourg, May 19th 2021

Contents

1. Share class FX Hedging: Operational considerations
2. Share Class Hedging TOM: Structures observed on the market
3. ESMA Paper on UCITS Share Classes
4. Benchmarking
5. Sources of FX hedging impacts



© 2021 Deloitte Tax & Consulting

Deloitte Service Team

Capital Markets Leader

Xavier Zaegel, FRM
Partner – Capital Markets Leader
Tel:+ 352 451 452 748
Mail: xzaegel@deloitte.lu

Performance Expert

Jean-Paul Frisot
Directeur – Capital Markets
Tel:+ 352 451 452 607
Mail: jpfrisot@deloitte.lu

Product Manager

Julien Baguet
Directeur – Capital Markets
Tel:+ 352 451 454 609
Mail: jbaguet@deloitte.lu

FX hedging specialist

Paul Halbeher
Consultant – Capital Markets
Tel:+ 352 451 452 552
Mail: phalbeher@deloitte.lu

© 2021 Deloitte Tax & Consulting

Share class **FX hedging** against **Foreign Currency Risk**

Operational Considerations

© 2021 Deloitte Tax & Consulting

Share class FX hedging against Foreign Currency Risk

Introduction

The objective of share class hedging is to provide investors in the hedged share class with a **return equivalent** to the return on the Fund regardless on the currency that the investor's shares are denominated in.

This is achieved by seeking to **eliminate** (as far as is practical) the effect of exchange rate fluctuations between the base currency of the Fund and local currency of the investor.

Share Class Hedging provides the following benefits:

Investor

- Convenience of investing in local currency
- Reduced currency exposure

Investment Manager

- Increased distribution opportunities
- Deliver returns linked to the base currency of the Fund

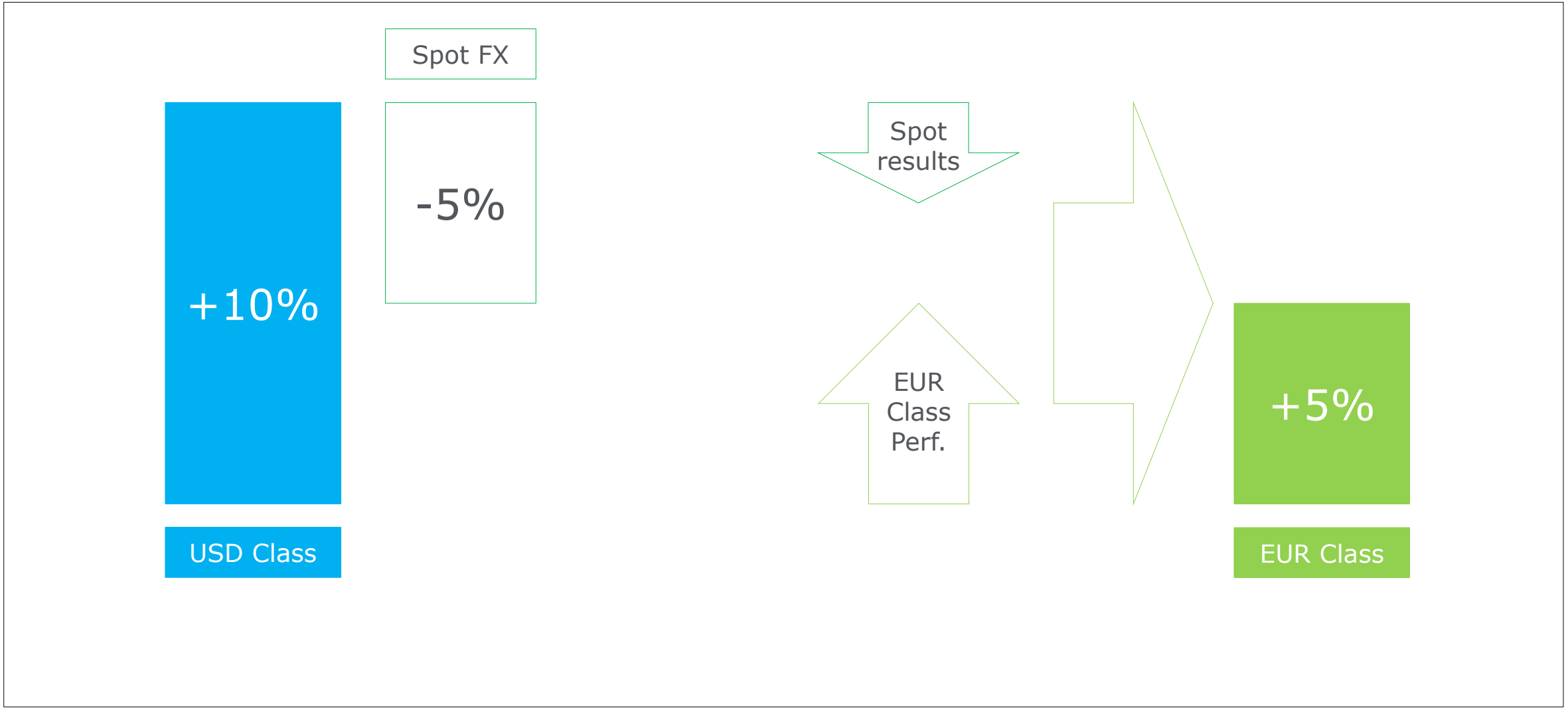
Administrator

- Client demand/increased fees
- Opportunity to provide ancillary FX dealing

© 2021 Deloitte Tax & Consulting

Share class FX hedging against Foreign Currency Risk

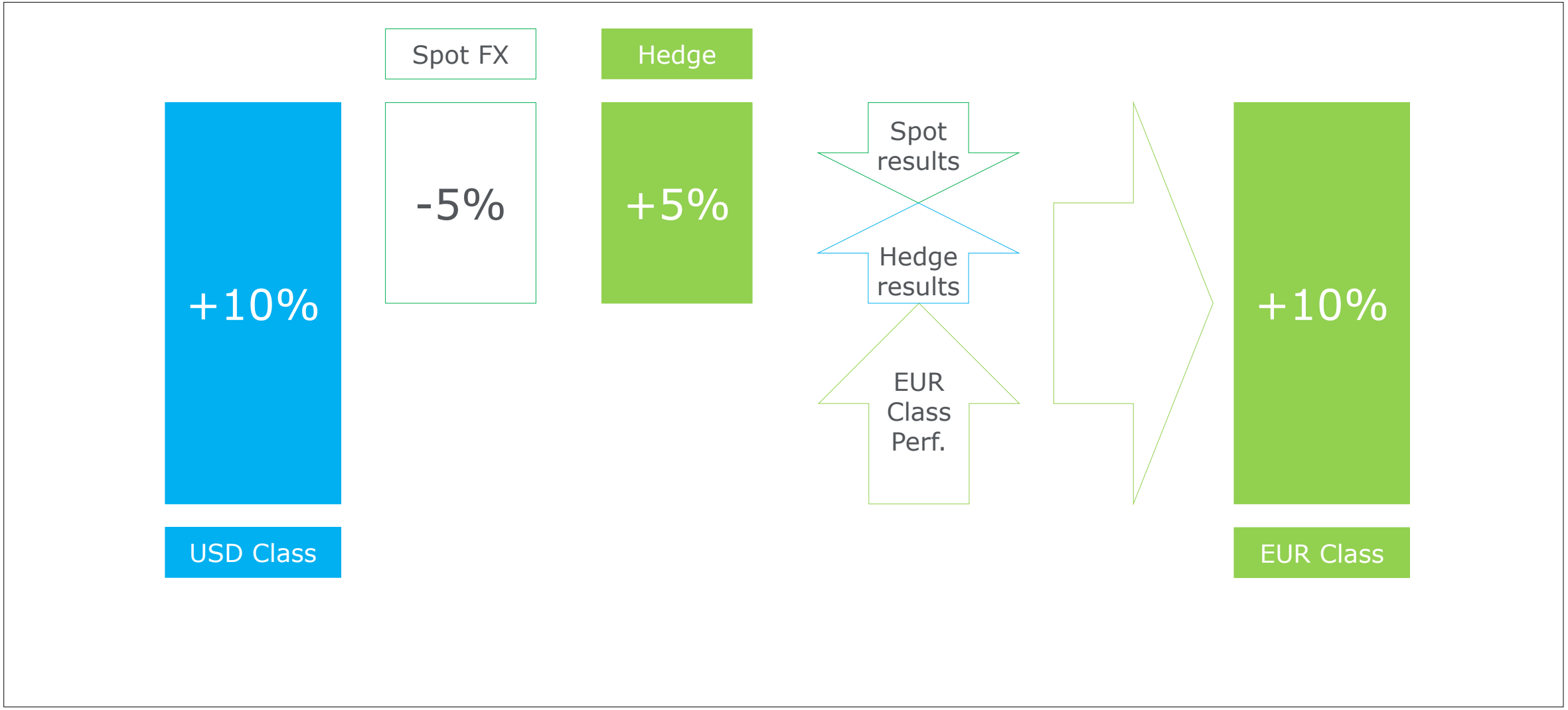
FX Hedging principle



© 2021 Deloitte Tax & Consulting

Share class FX hedging against Foreign Currency Risk

FX Hedging principle



© 2021 Deloitte Tax & Consulting

Share class FX hedging against Foreign Currency Risk

Introduction

Share Class Hedging is generally performed by the Investment Manager or the Fund Administrator of the Fund but may be outsourced in certain instances.

In most cases Share Class Hedging is operated through **Forward Foreign Currency Contracts** but there are other alternative methods available.

The following principles should be applied in operating Share Class Hedging:

- ✓ Design and implementation of an appropriate hedging strategy to ensure the effectiveness of the hedge remains within a **defined tolerance** limit (Example: 98% - 102%). The hedging strategy should encompass maximum rollover periods, trigger points etc.
- ✓ All gains/losses on FX hedging and any costs associated with operating FX hedging should be allocated to the Hedged Share Class Only.
- ✓ The performance of an Unhedged Share Classes should not be impacted by the Hedged Share Class.

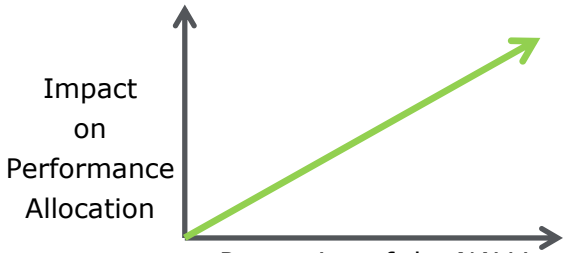
© 2021 Deloitte Tax & Consulting

Share class FX hedging against Foreign Currency Risk

Operational risks of share class hedging

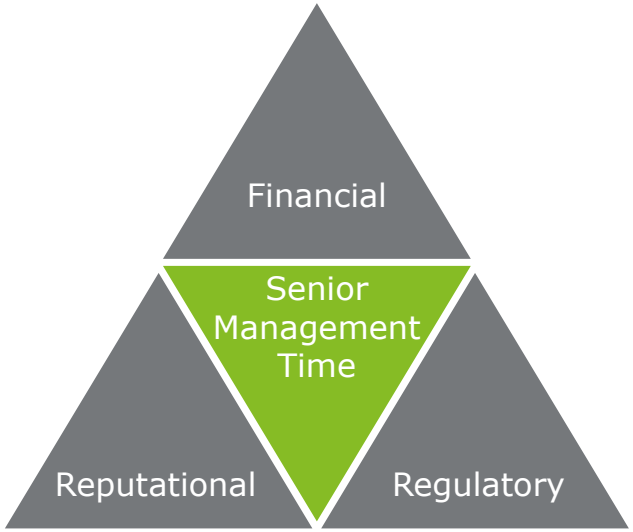
- ✓ Share class hedging creates a number of **operational risks**
- ✓ Weaknesses in either the execution of the Share Class Hedging Strategy or in the fund accounting process could result in **material errors** for both the Hedged and Unhedged share classes
- ✓ Control activities at the administrator or the investment manager may not address these risks (Real errors can be misdiagnosed as hedging inefficiencies or noise)
- ✓ Errors may go undetected for long periods of time (growing larger with time)
- ✓ Once detected the rectification process may result in **significant costs** to all parties.

Potential Impact

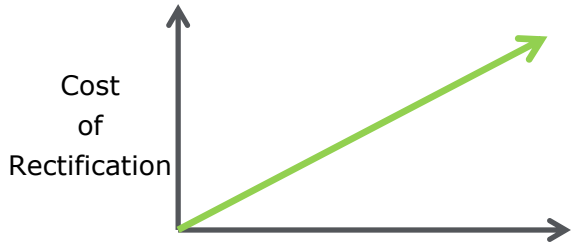


- Proportion of the NAV in Hedged Share Classes
- Volatility of FX Rates
- Volatility of Investments
- Period of Time

Costs Associated with Error Rectification Process



Financial Costs



- AUM of the Fund
- Number of Investors
- Number of Transactions
- Period of Time
- Compensation Principles Applied

© 2021 Deloitte Tax & Consulting

Share class FX hedging against Foreign Currency Risk

Implementing risk controls

The implementation of effective controls at the Investment Manager and/or the Administrator can significantly reduce the risk of an error occurring or the error going undetected.

If an error does occur or has occurred it is likely to result in significant red flags in the relative performance of share classes.

Early identification of these red flags can reduce the cost associated with any rectification process.

Reduce Regulatory Risk

Reduce Financial Risk

Reduce Reputational Risk

© 2021 Deloitte Tax & Consulting

Share Class Hedging TOM

Structures observed on the market

© 2021 Deloitte Tax & Consulting

Share class Hedging TOM

Observed TOM in the market

For the selection of the **TOM**, specific share class hedging processes, such as the calculation of the hedging ratio and generation of hedging instructions, have to be assigned to or split between:

- ✓ The Asset Manager,
- ✓ The Administrator, or
- ✓ An external third party hedging service provider.

Portfolio hedging on the other hand is most of the time part of the mandate of the asset manager but it can be outsourced as well.

Factors influencing the selection of the TOM include:

- ✓ Fund characteristics (e.g. Currencies, NAV Frequency, complexity),
- ✓ Insourcing/outsourcing capabilities (e.g. People, Systems & Technology),
- ✓ Cost comparison,
- ✓ Monitoring and reporting requirements,
- ✓ Type of hedging structures,
- ✓ Other.

© 2021 Deloitte Tax & Consulting

Share class Hedging TOM

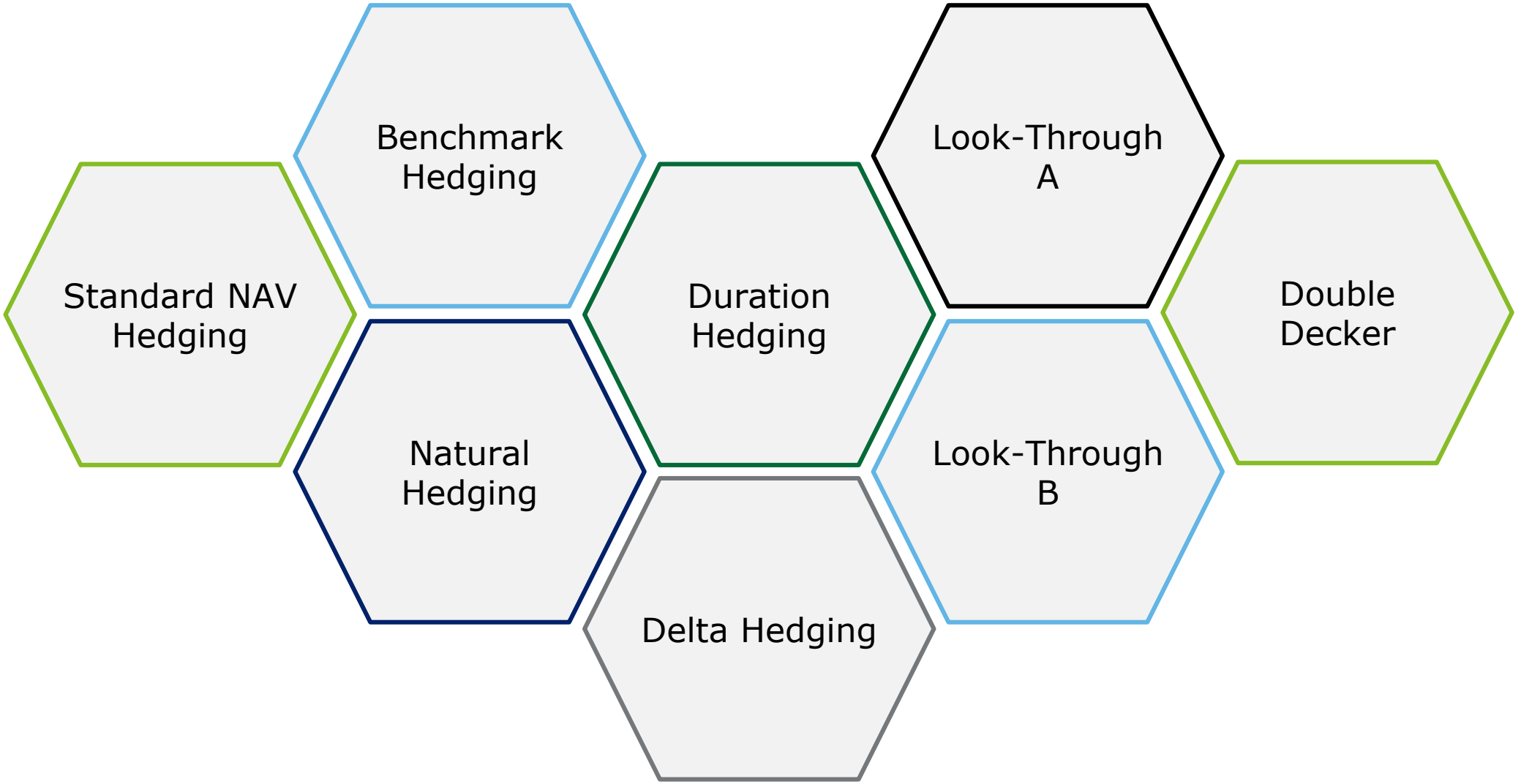
Hedging structures

- ✓ The FX exposure can be supported by the investors who have trading and risk management capability to hedge it
- ✓ Investors can choose to delegate this issue to the Investment management because of:
  - ❑ The large time delays in the publication of monthly NAV
  - ❑ Insufficient infrastructure in order to manage FX exposure
- ✓ It is important to distinguish the hedging of shares classes from the hedging of the underlying portfolio even if hybrid scenarios are possible as we will explain later on.
- ✓ The hedging of non-base currency classes is overwhelmingly performed by trading Currency Forwards. It is also possible to hedge through swaps and spot contracts but hedging through **futures** or **covered call options** is not recommended because it induces some unavoidable impacts on the performance.

© 2021 Deloitte Tax & Consulting

Share class Hedging TOM

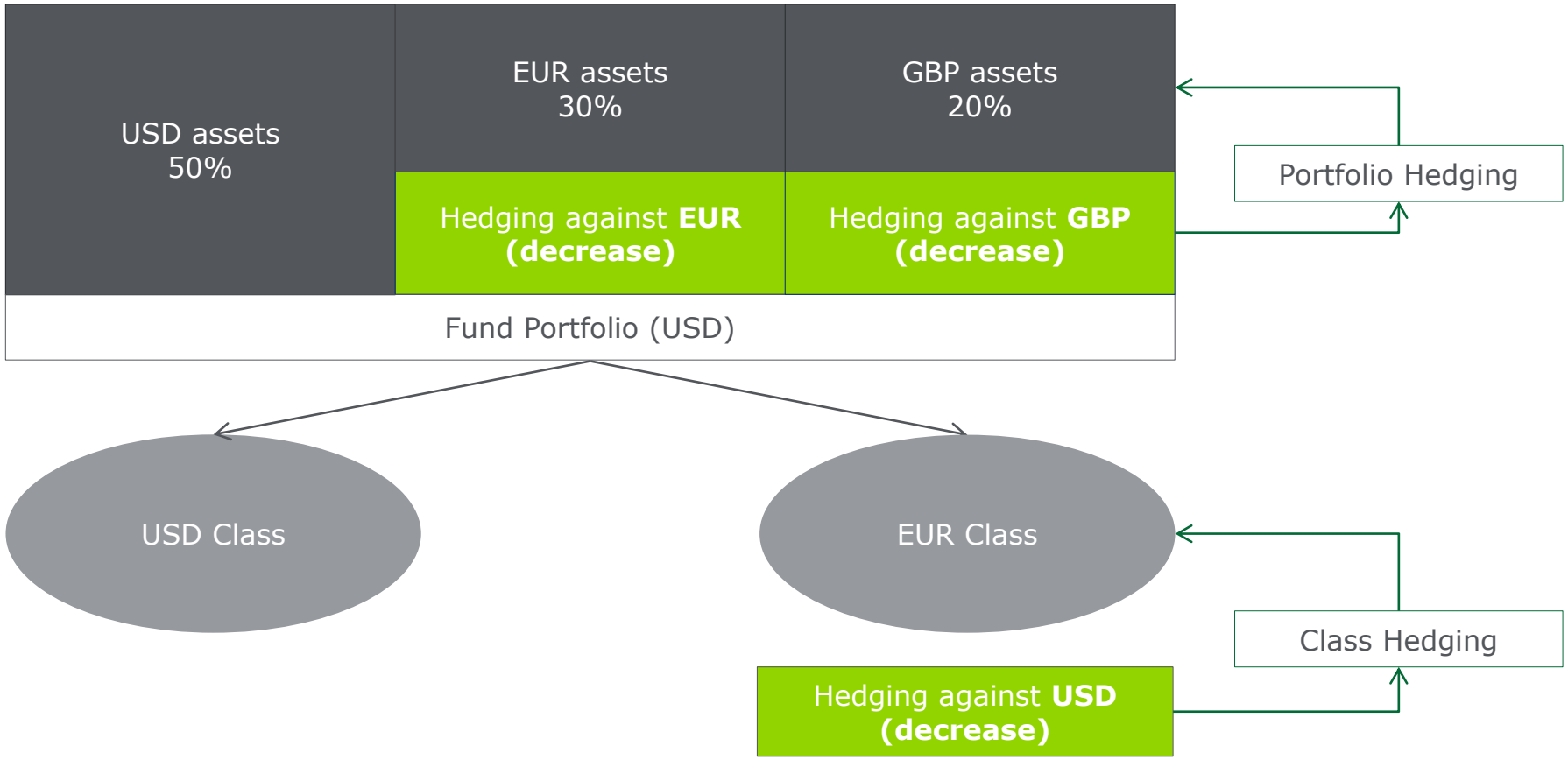
Hedging strategies



© 2021 Deloitte Tax & Consulting

Share class Hedging TOM

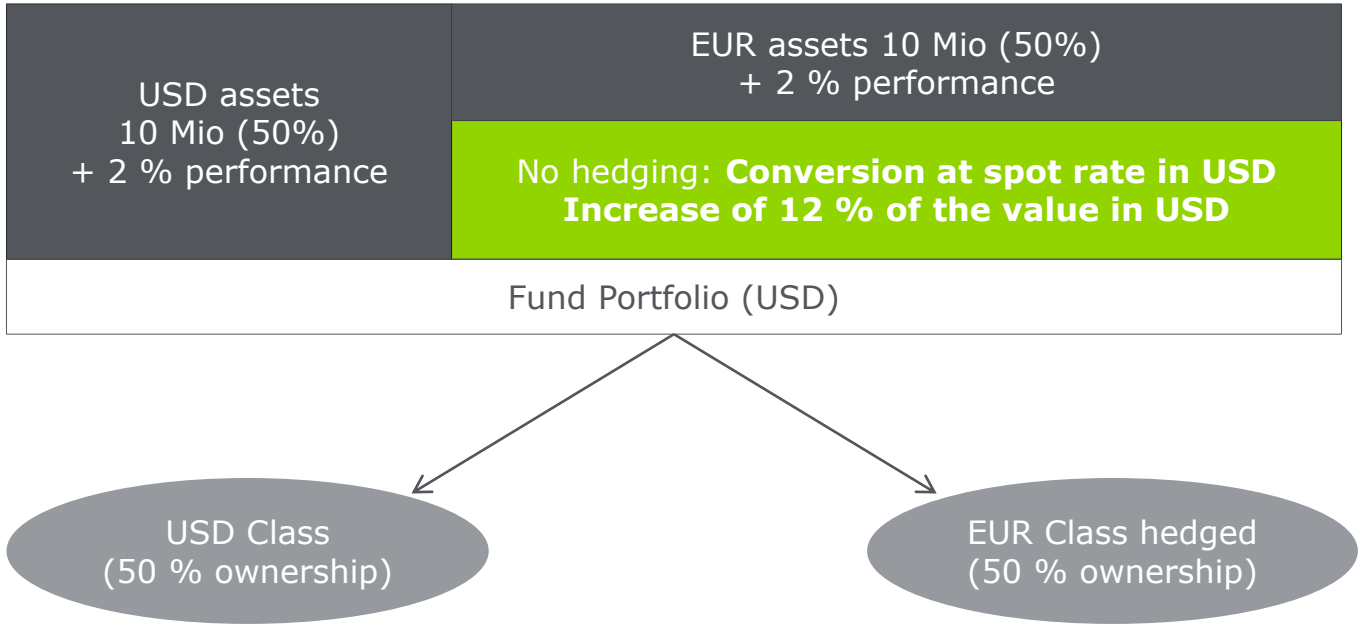
Standard FX hedging structure



© 2021 Deloitte Tax & Consulting

Share class Hedging TOM
Natural Hedging

Increase of 10% FX rate EURUSD



FX PnL : 1 Mio

The FX PnL is fully attributed to the hedged share class.

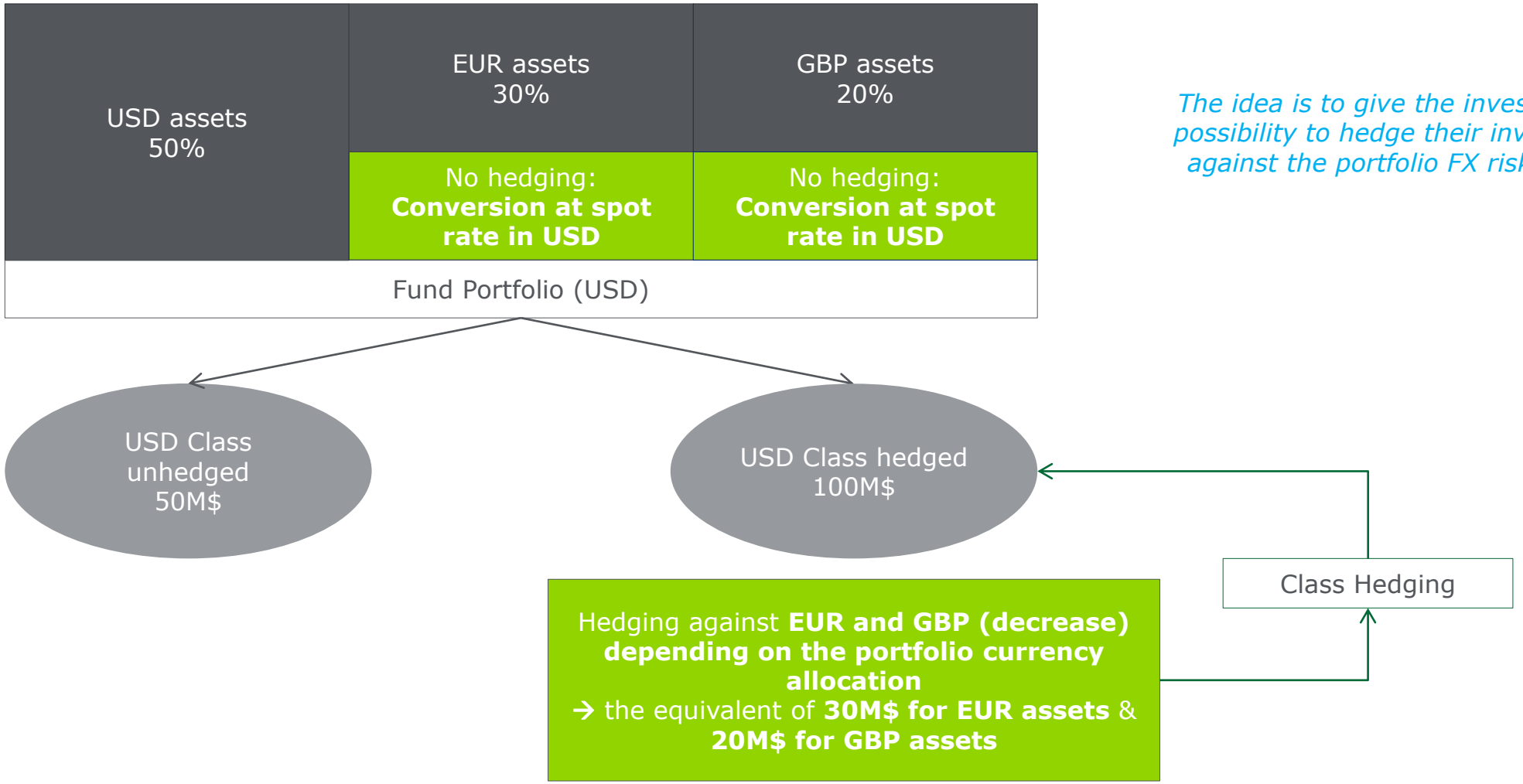
Without the FX PnL, both share classes have + 2 % performance in USD.

Once attributed, the EUR Class have a performance of + 2 % in EUR.

© 2021 Deloitte Tax & Consulting

Share class Hedging TOM

Look-Through Hedging: Example A

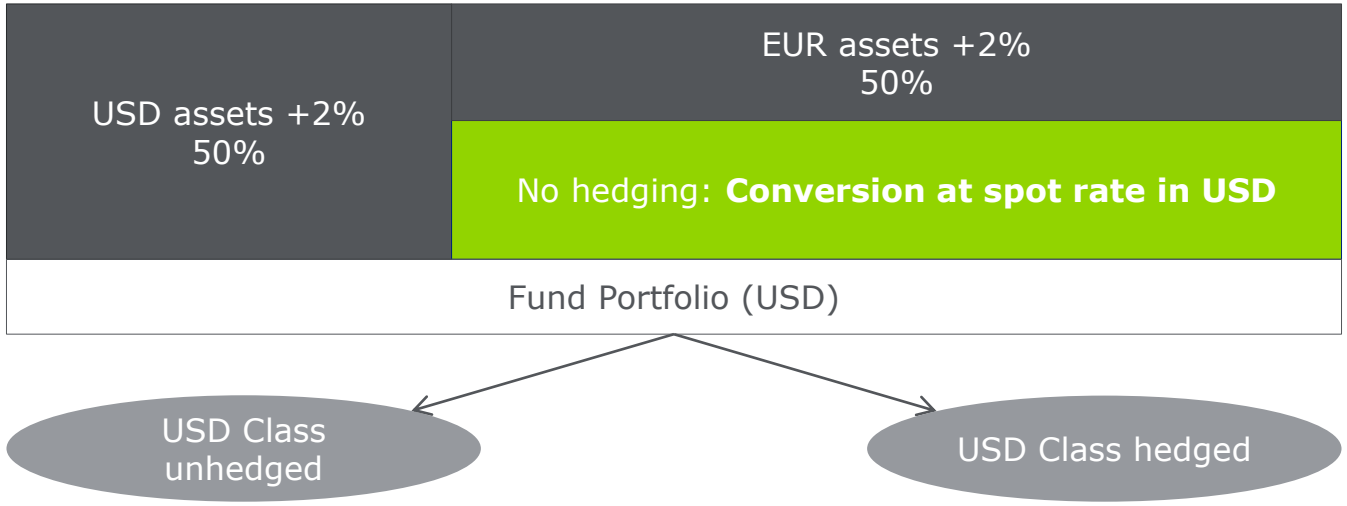


The idea is to give the investors the possibility to hedge their investment against the portfolio FX risk or not

© 2021 Deloitte Tax & Consulting

Share class Hedging TOM

Look-Through Hedging: Example A – Performance case study



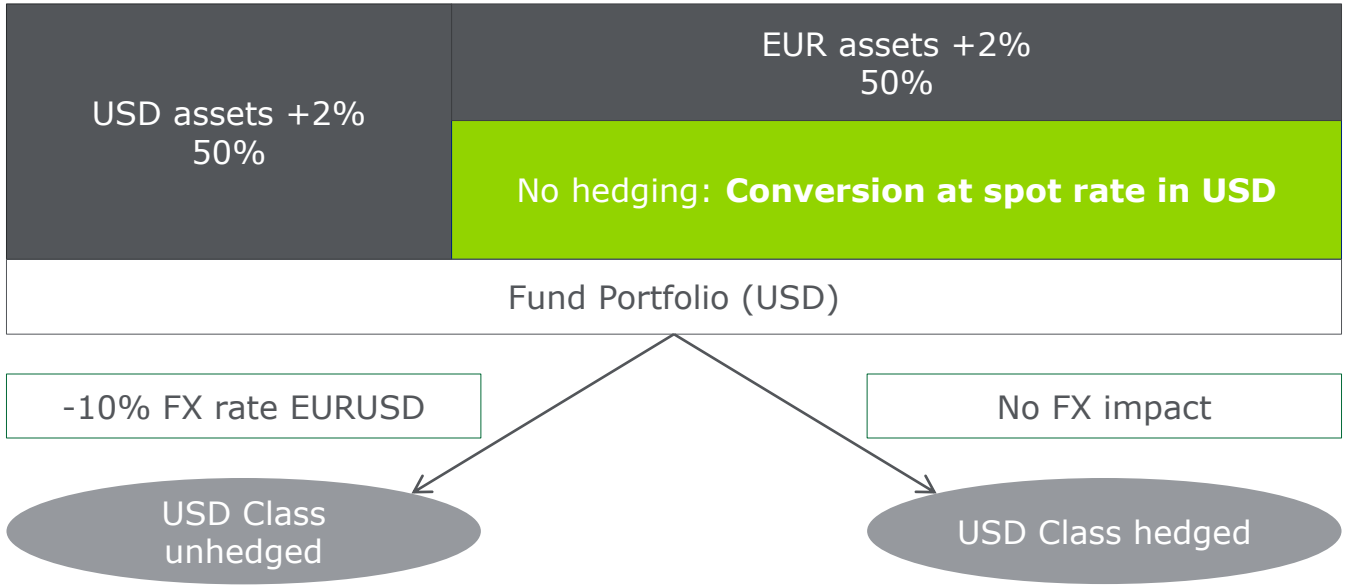
Hypothesis:
2020 Performance of the assets in their respective currency: +2%
2020 Performance of the EURUSD FX rate: -10%
Interest rates EUR = USD
No Cap Stock

Questions:
Performance of class USD Unhedged?
Performance of class USD Hedged?

© 2021 Deloitte Tax & Consulting

Share class Hedging TOM

Look-Through Hedging: Example A – Performance case study



Class is unhedged against the EUR:

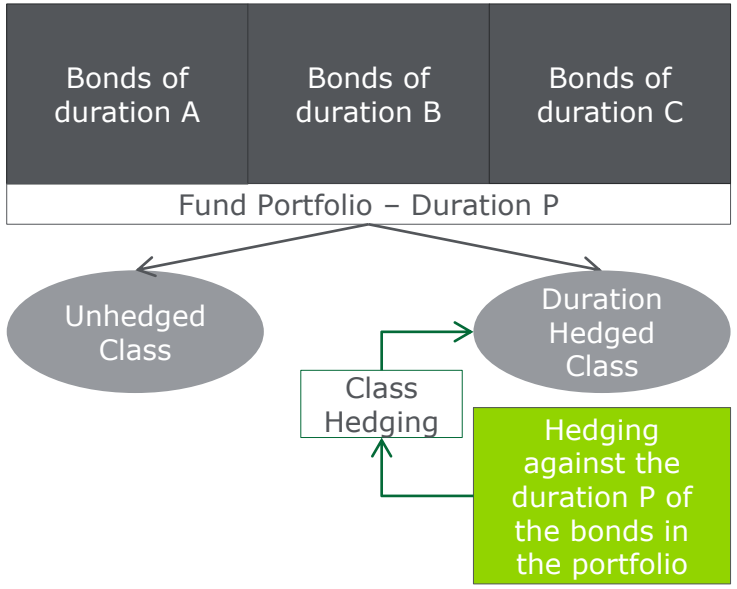
- EUR assets decreased -10% for the USD investor due to FX rates with a weight of 50%: FX impact -5%
- Given the 2% increase in the assets, performance of the class is approx. **-3%**

Class is hedged:
Approx. **2%** performance

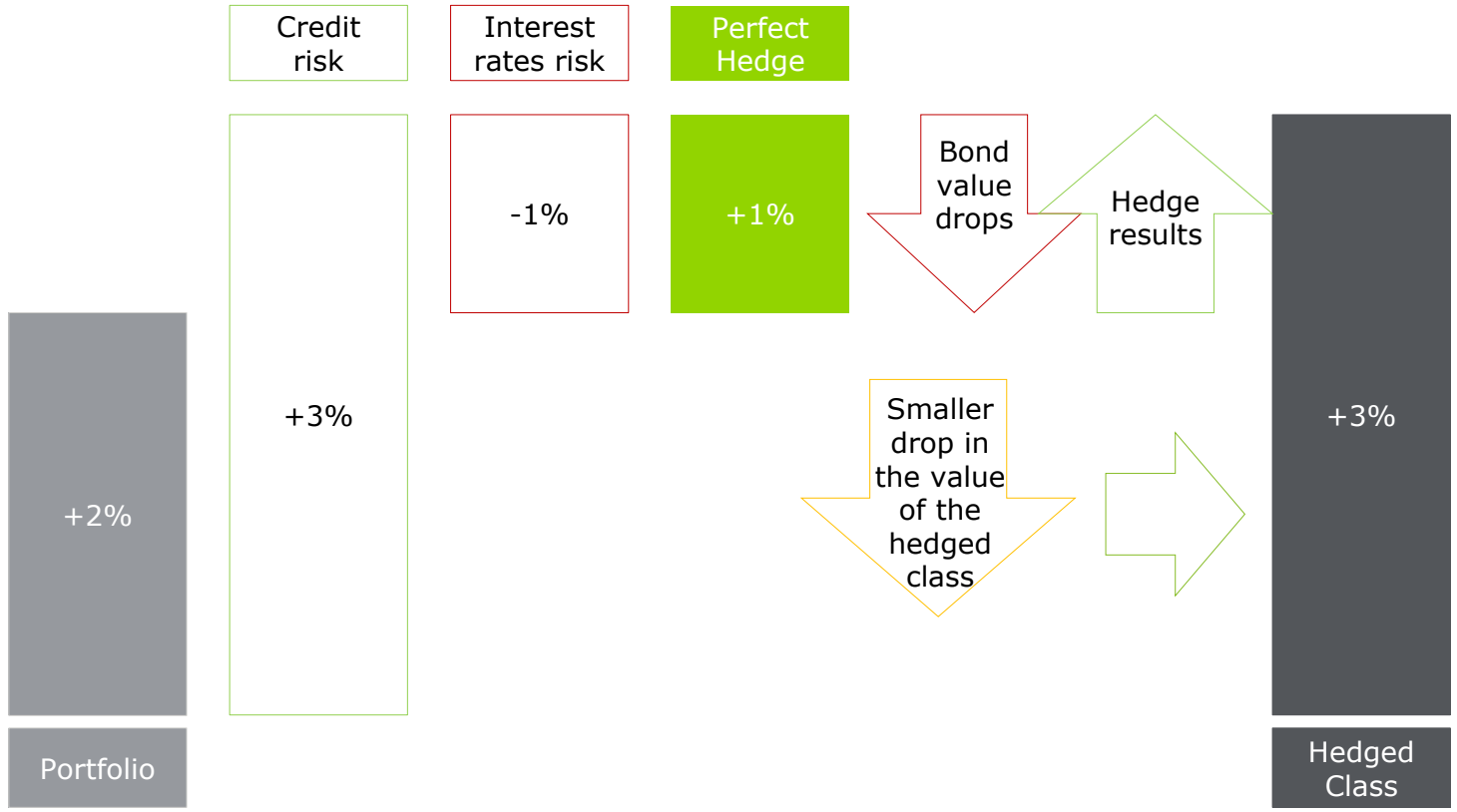
© 2021 Deloitte Tax & Consulting

Share class Hedging TOM
Duration hedging

Duration hedging structure



Drop in performance due to interest rate risk



© 2021 Deloitte Tax & Consulting

Share class Hedging TOM
Duration hedging technique

The duration is a measure of price sensitivity of a security (i.e. bonds) to changes in yield (i.e. interest rates).

Each non-government bonds has two main risks:

- ✓ Interest rate risk
- ✓ Credit risk

→ The goal of the duration hedging is to reduce the exposure to this risk (interest rate rising)

For government bonds, the duration hedging would make the performance mainly linked to the inflation factor.

The hedging technique consists of selling **several bond futures** with the same weighted average duration than the bonds in the portfolio.

$$D_{Portfolio} = \sum_{Bonds} W_{Bond}\, D_{Bond}$$

The duration hedging protects the investor **against a rise in the interest rates** which would reduce the price of their bonds.

If interest rates fall during the period, the duration hedged class will have a lower performance than the reference class. If they rise, the performance of the hedged class will be higher than the reference class.

Compared to standard share class FX hedging, the duration hedged class will have a very **different performance** than the unhedged reference class.

© 2021 Deloitte Tax & Consulting

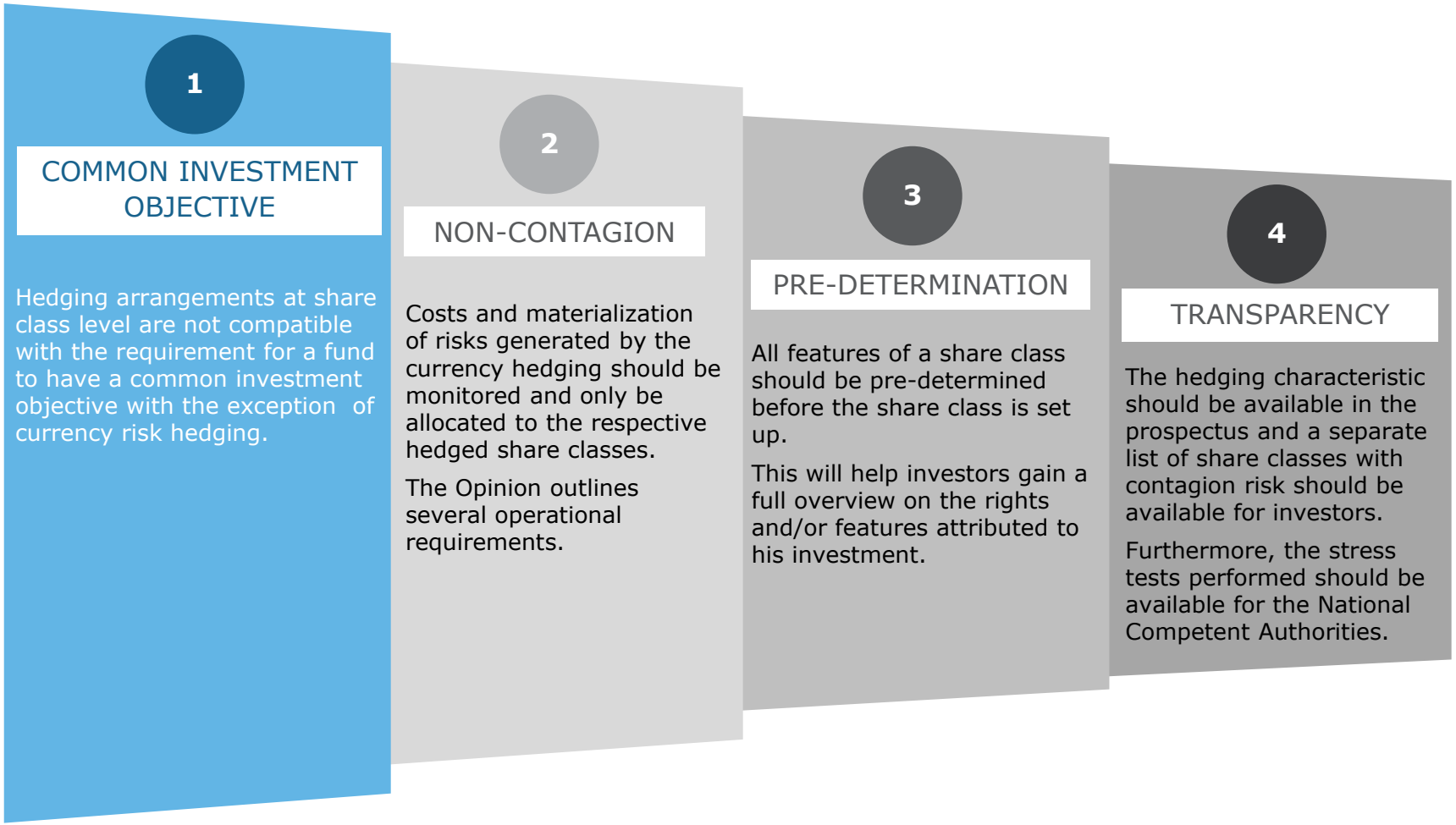
ESMA Opinion on UCITS Share Classes

Monitoring and reporting the hedging impacts

© 2021 Deloitte Tax & Consulting

ESMA Opinion

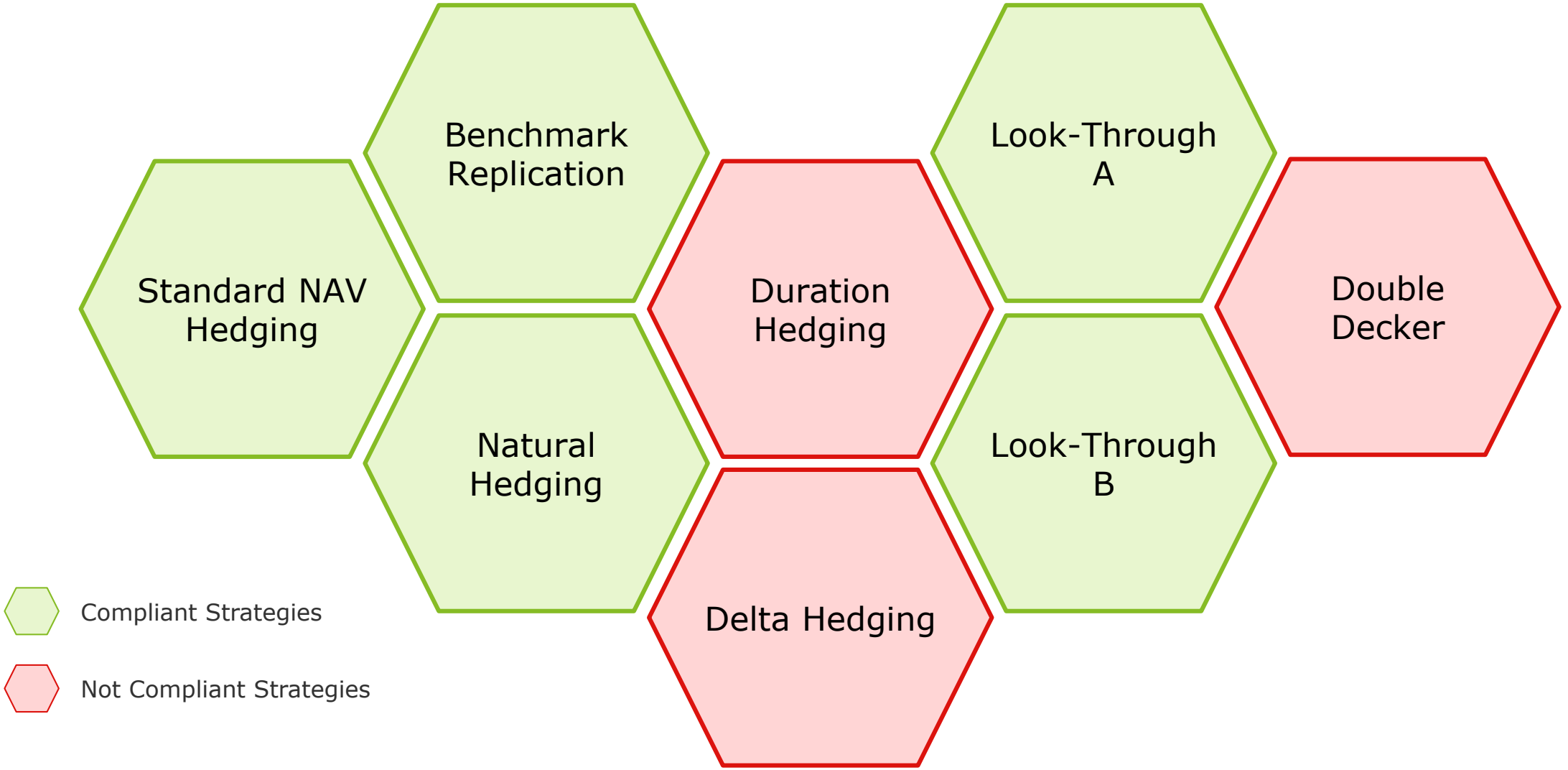
A new regulatory framework based on four principles



© 2021 Deloitte Tax & Consulting

ESMA Opinion

Hedging strategies



© 2021 Deloitte Tax & Consulting

Benchmarking

Trends on the market

© 2021 Deloitte Tax & Consulting

FX Overlay
Trends on the market

Deloitte is conducting a benchmarking on the FX Overlay.

Several participants across Europe have granted us insights of the FX products offered on the market.

The major findings are the followings :

- The level of fee paid for FX Overlay services have significantly reduced.
- The threshold applied for standard hedging are narrowing.
- The range of currency offering some hedged have increased.
- Assets managers and Investors are more interested in understanding hedging performance.

© 2021 Deloitte Tax & Consulting

Sources of FX hedging impacts

All effects explained

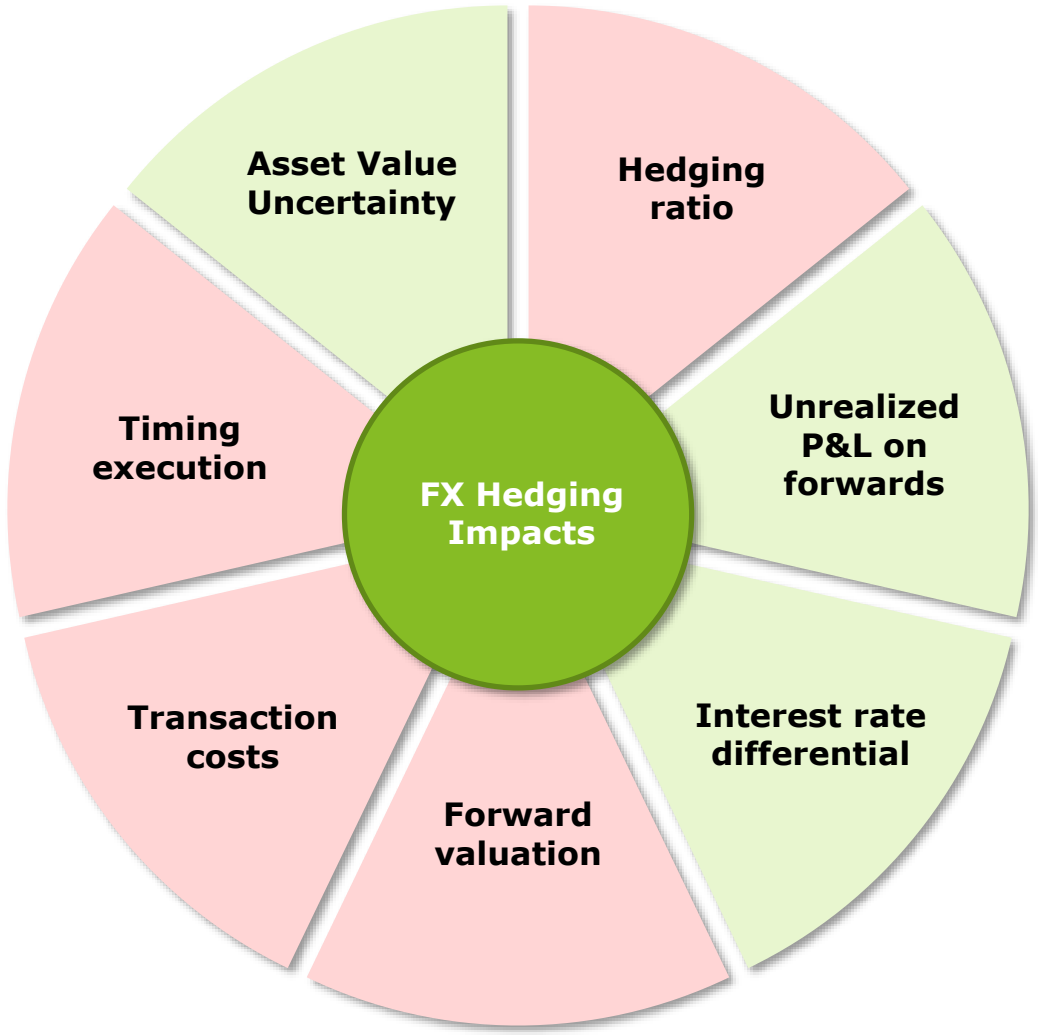
© 2021 Deloitte Tax & Consulting

Sources of FX hedging impacts

7 main effects

Non-avoidable effect

Avoidable effect



© 2021 Deloitte Tax & Consulting

Sources of FX hedging impacts

Total Impacts

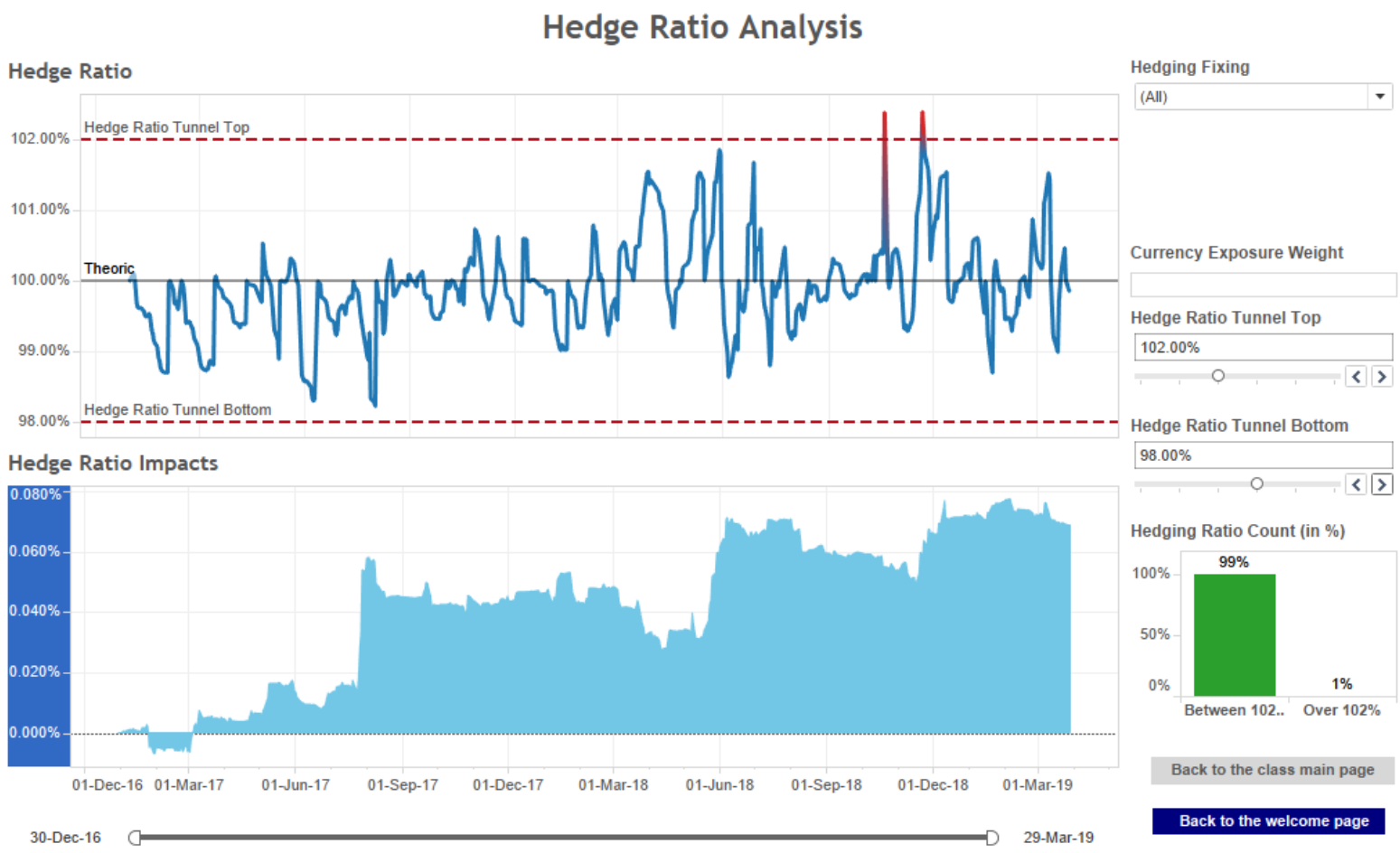
Here is the graphical breakdown of all cumulated impacts on the share class performance and their evolution through the period

Total hedging impacts reach -0,69% during the period, and avoidable hedging impacts reach -41 bps.

© 2021 Deloitte Tax & Consulting

Sources of FX hedging impacts

Hedge ratio impact



Most of the time after each NAV calculation, some part of the NAV is left **unhedged** or **overhedged** and can be impacted by the FX rates, leading to hedge ratio impacts.

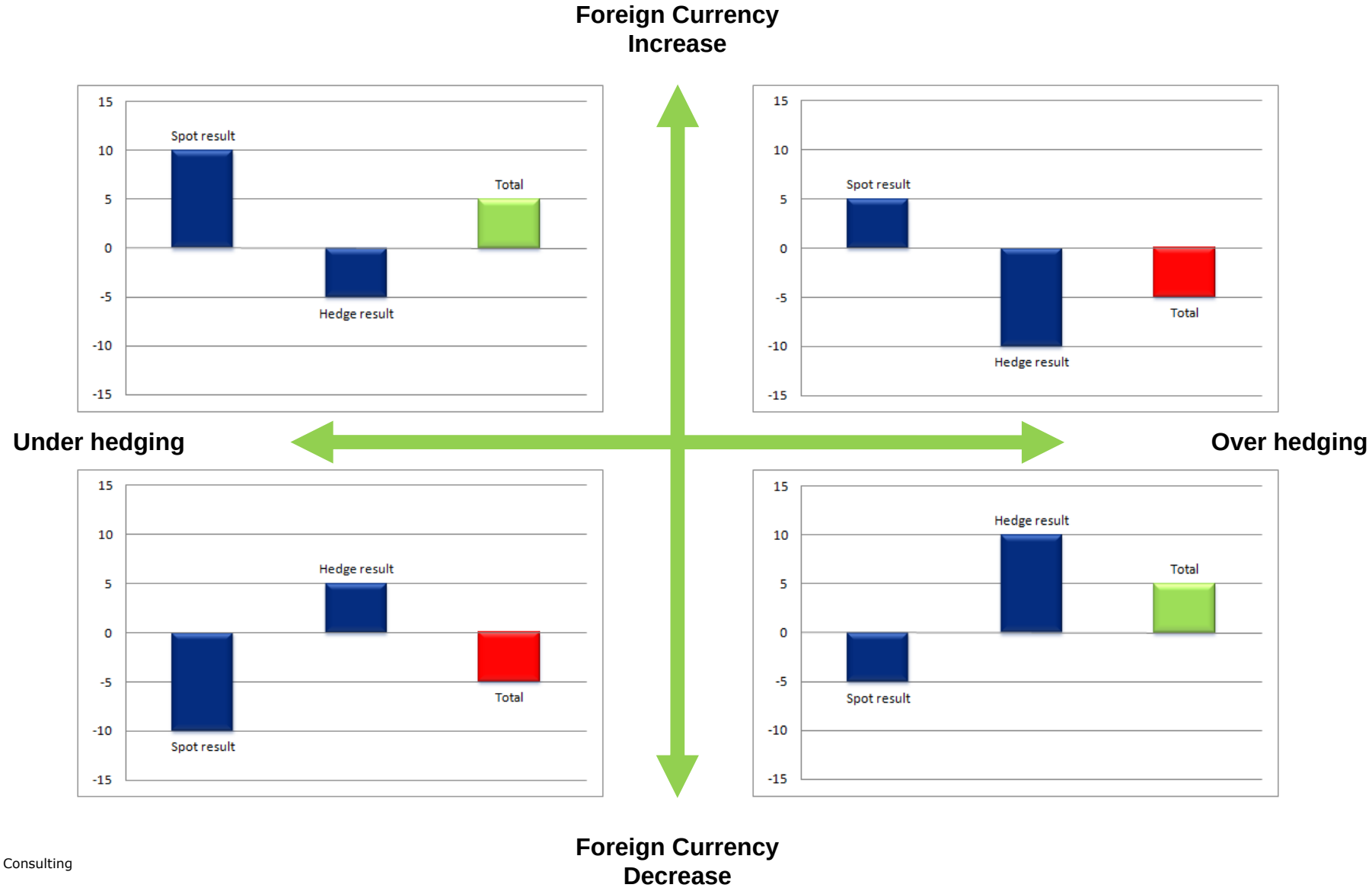
These impacts differ from the unhedged P&L impacts because they **can be avoided** by adjusting the hedge after each NAV calculation.

Usually, these adjustments occur when a specific hedge ratio threshold is reached.

© 2021 Deloitte Tax & Consulting

Sources of FX hedging impacts

Hedge ratio impact : principle of the volume effect



© 2021 Deloitte Tax & Consulting

Sources of FX hedging impacts

Hedge ratio impact

Example :

- US Equity Fund
- EUR Hedged share class (NAV Hedging)

- Overhedging : **10%** on the 17/03/20 (hedging ratio 110%)
- FX Performance : **2%** change between the 16/03/20 and the 17/03/20

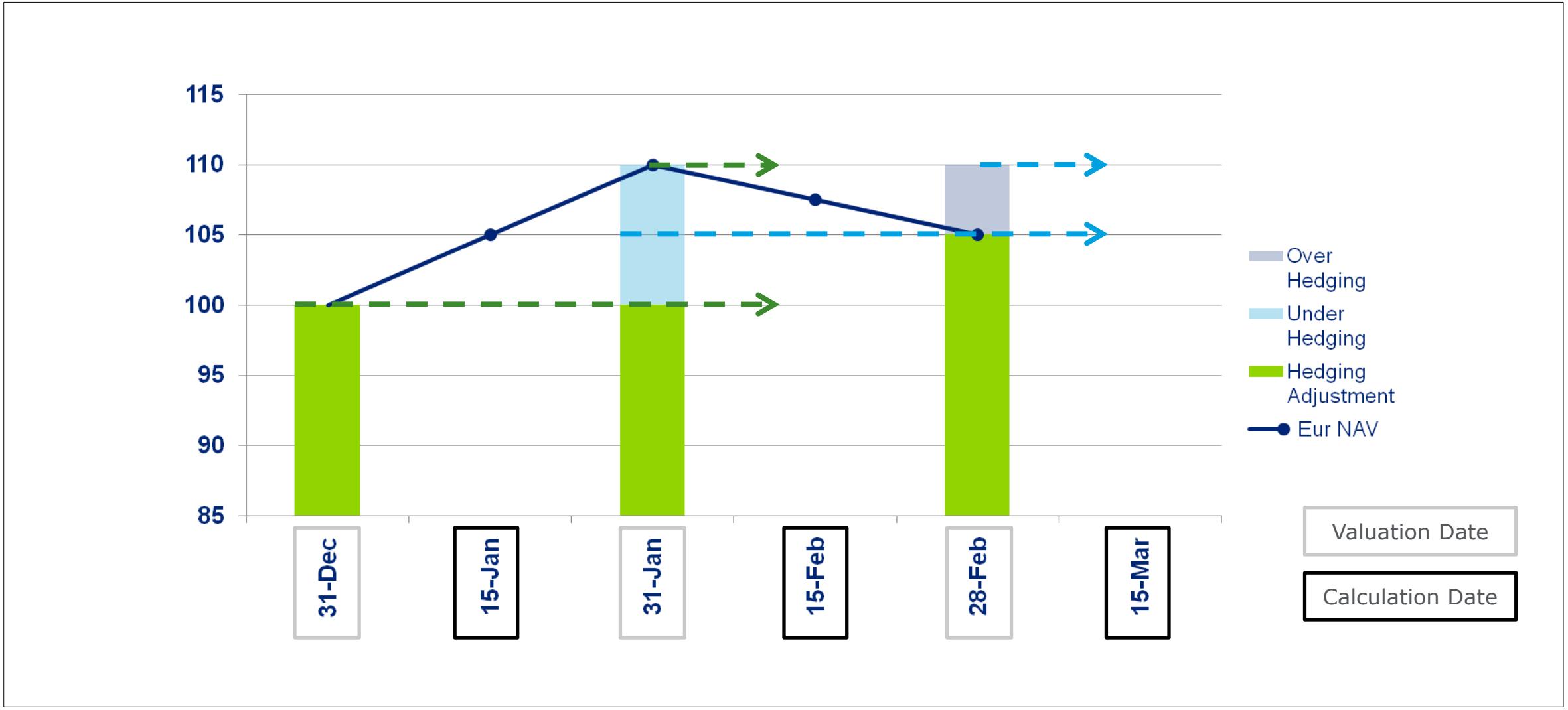
Computation : $Overhedging \times FX\ Performance$

Impact of **0.20 %** on the 17/03/20

© 2021 Deloitte Tax & Consulting

Sources of FX hedging impacts

Asset Value Uncertainty

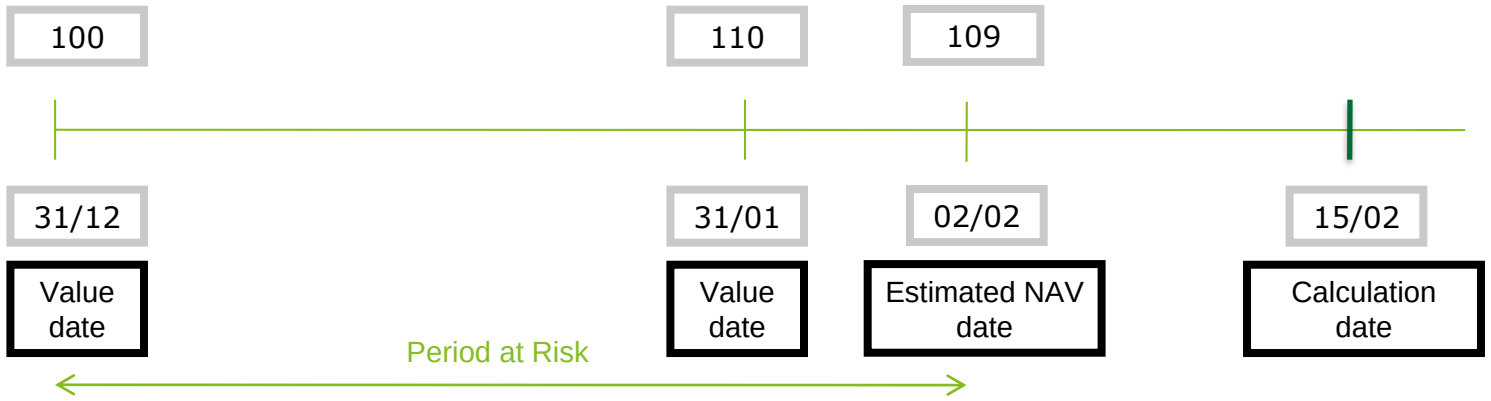


© 2021 Deloitte Tax & Consulting

Sources of FX hedging impacts

Asset Value Uncertainty

- ✓ The effect of unhedged P&L on the NAV due to the exposure between the value date and the calculation date can be reduced by evaluating the NAV near the value date
- ✓ With an estimation of the new currency exposure, the forward exchange contract size can be adjusted
- ✓ After the official NAV calculation the forward exchange contract size is adjusted by the difference between the « estimated » NAV and the « official » NAV



© 2021 Deloitte Tax & Consulting

Sources of FX hedging impacts
Asset Value Uncertainty

Example :

- US Equity Fund
- EUR Hedged share class (NAV Hedging)

- Asset Performance : **5 %** on the 17/03/20
- FX Performance : **2 %** change between the 16/03/20 and the 17/03/20

Computation : **Asset Performance** × **FX Performance**

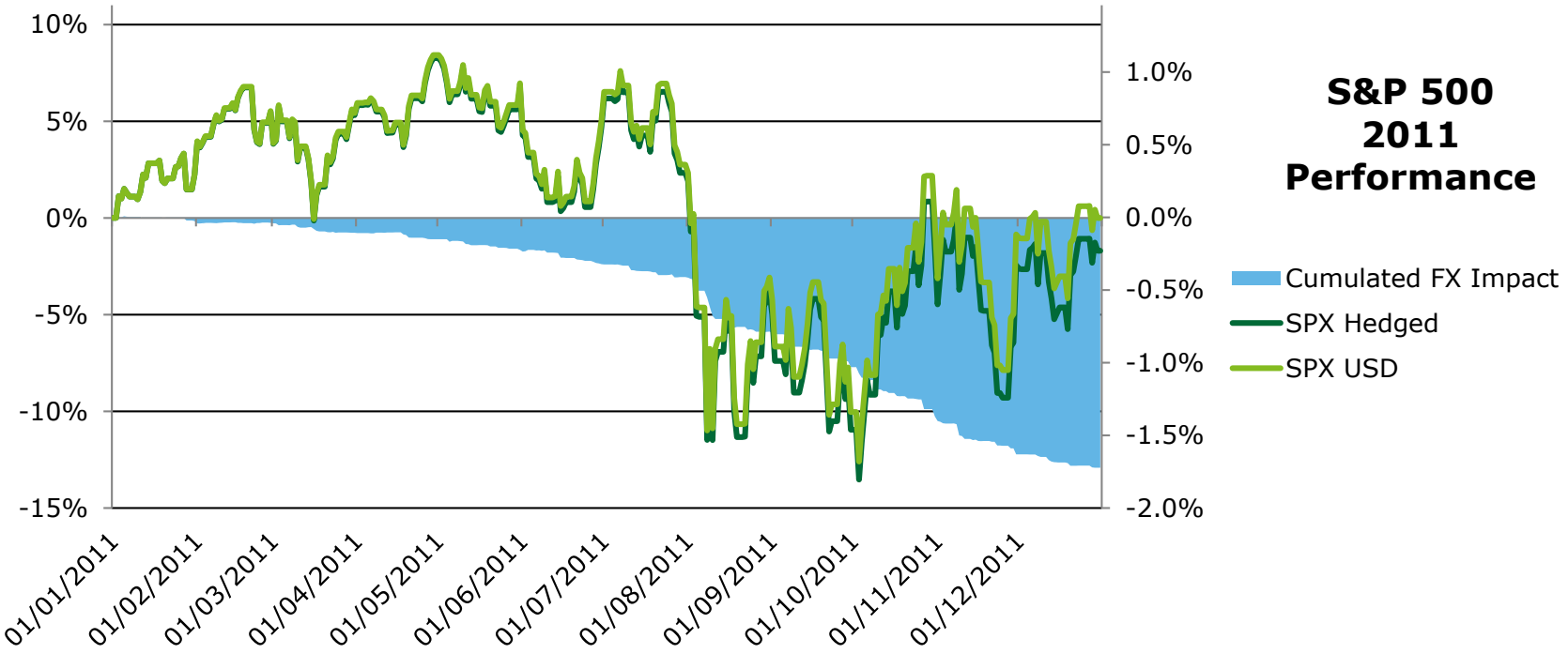
Impact of **0.10 %** on the 17/03/20

© 2021 Deloitte Tax & Consulting

Sources of FX hedging impacts

Asset Value Uncertainty

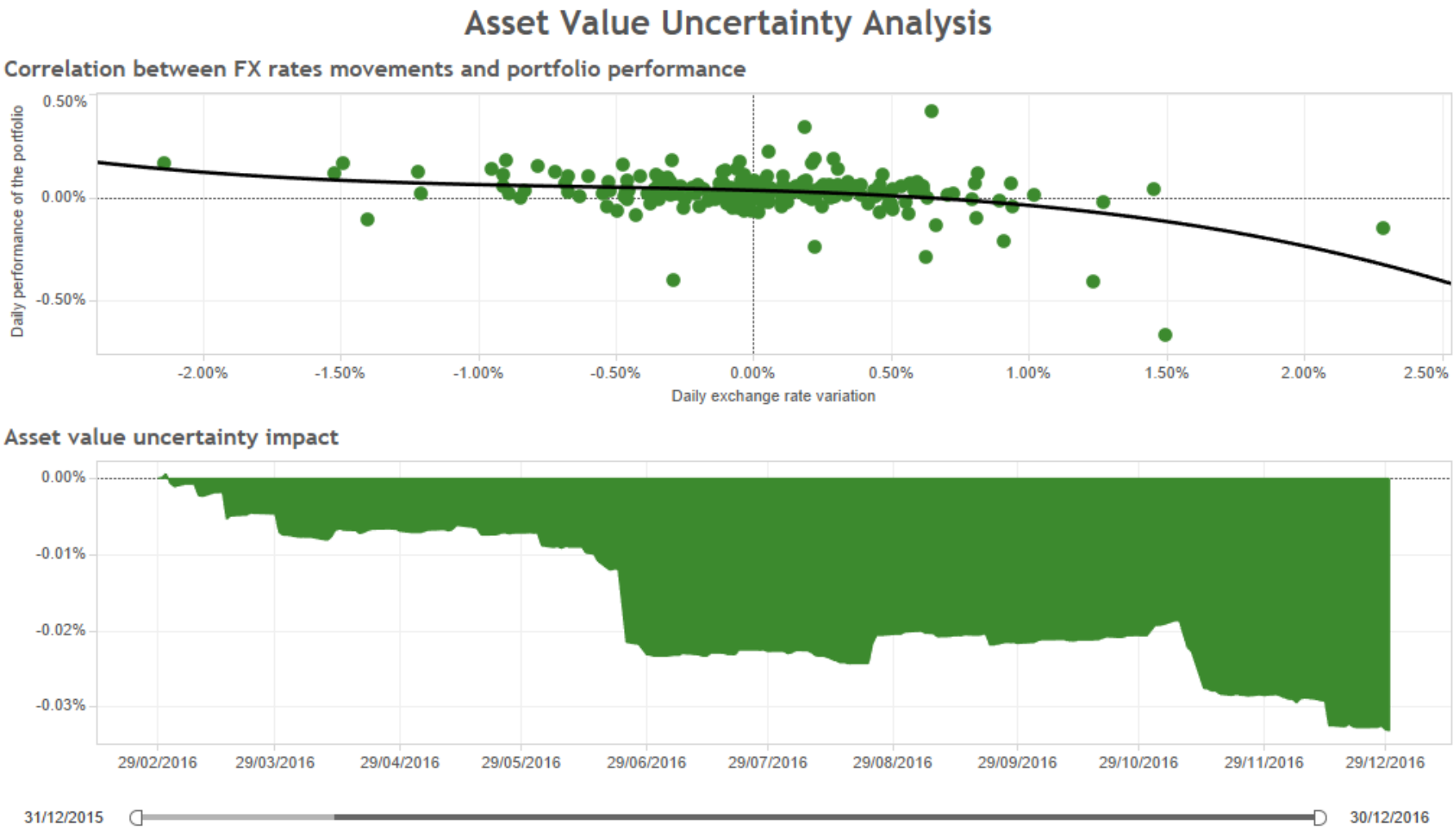
- ✓ An illustration of the importance of the P&L effect can be found with this simulation on the S&P 500.
- ✓ All other hedging impact excluded, a European investor readjusting its hedge every day to reach a HR of 100% would have suffered a loss at the end of 2011 of -1,72% from the unhedged P&L effect.



© 2021 Deloitte Tax & Consulting

Sources of FX hedging impacts

Asset Value Uncertainty in DHA



© 2021 Deloitte Tax & Consulting

Sources of FX hedging impacts

Interest rate differential impact – IRD analysis in DHA

The spot and forward FX rates are linked by a relationship called the interest rate covered parity.

The performance of the hedged class will thus be impacted by the interest rate differential between the two currencies.

Investment in EUR (foreign currency) is equal to investment in USD during the period:

- ✓ Interest rate EUR = Re
- ✓ Interest rate USD = Ru
- ✓ S = Spot exchange foreign rate (1 EUR = X USD)
- ✓ F = Forward exchange foreign rate
- ✓ (1+Re) = (1+Ru) * S / F
- ✓ F = S * (1+Ru) / (1+Re)

Example class EUR - fund USD:

In T0:
- ✓ Period: 1 year
- ✓ Interest rate EUR = 10%
- ✓ Interest rate USD = 5%
- ✓ S0 = 1
- ✓ F0 = 1* 1,05 / 1,1 = 0,95

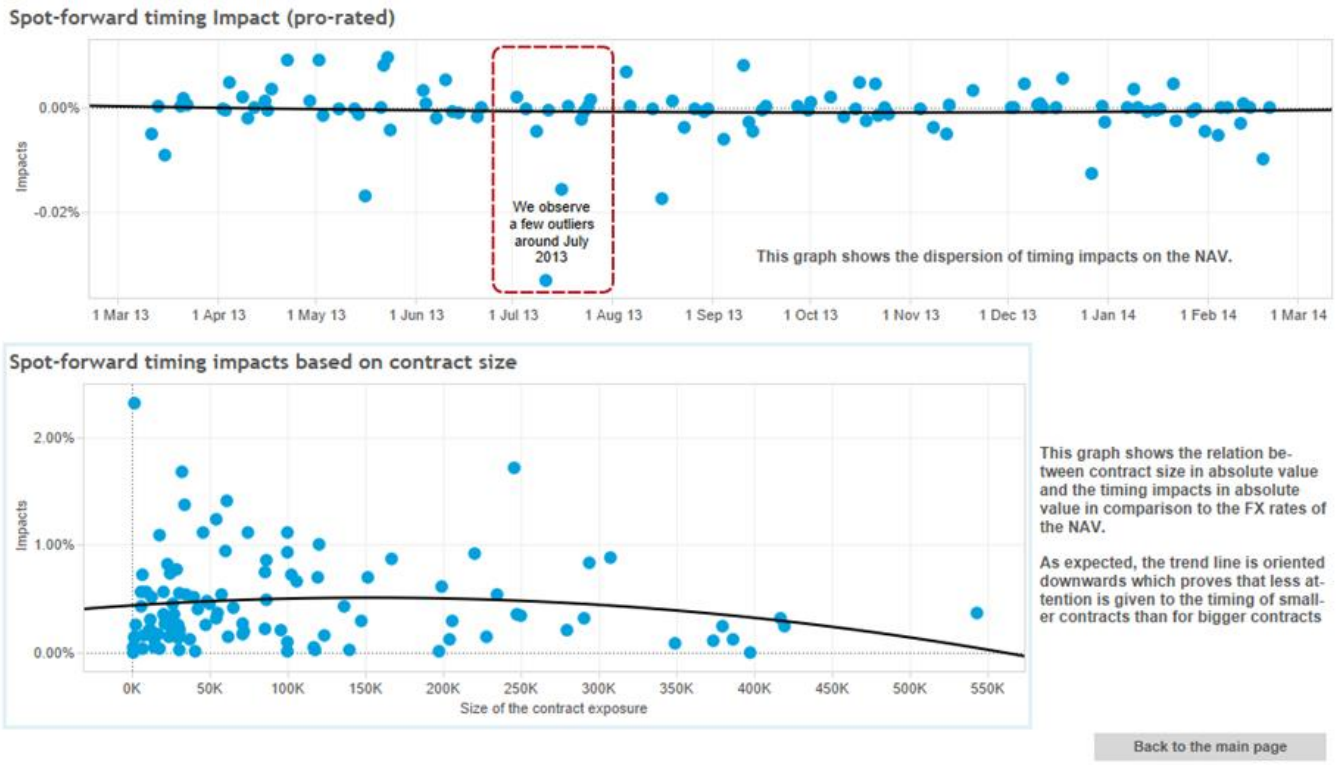
In T1:
- ✓ S1 = 1,2 S1/S0 = 20%
- ✓ F1 = 1,2 F1/F0 = 25%

The class has a gain of 5%

© 2021 Deloitte Tax & Consulting

Sources of FX hedging impacts

Timing impact analysis in DHA



- ✓ A timing impact can occur if a new forward contracts is far from the FX rate of the valuation of the NAV of the fund.
- ✓ During an adjustment of the hedge for a subscription or redemption, a timing impact can occur if the forward adjustment contract is far from the NAV cut-off time on which the S/R price will be based on.

© 2021 Deloitte Tax & Consulting

Sources of FX hedging impacts
Timing impact

Example :

- US Equity Fund
- EUR Hedged share class (NAV Hedging)

- Adjustment contract of USD **100K** traded
- Trade rate of **1.1**

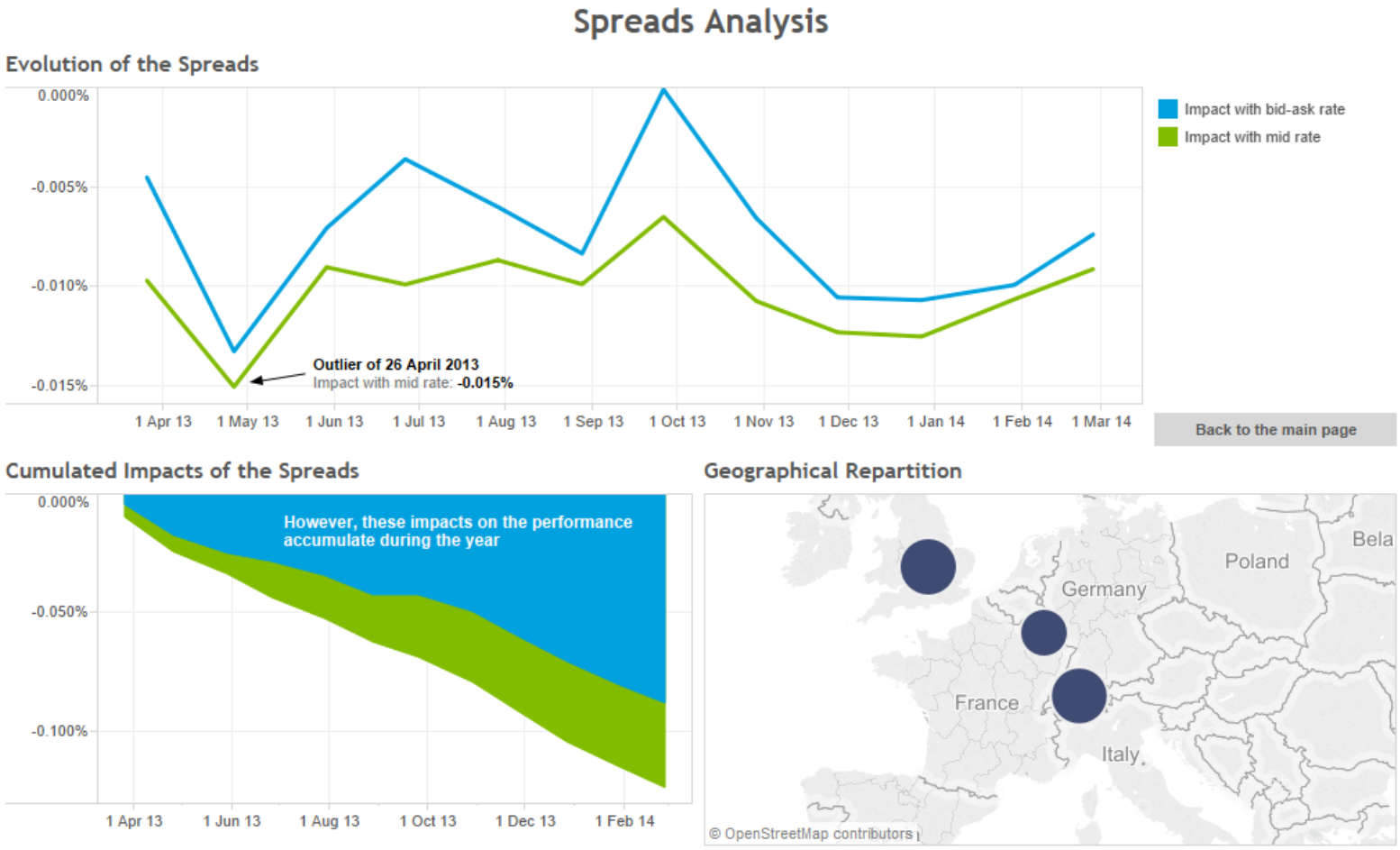
- Share class TNA of USD **1 Mio**
- Expected rate of **1**

Computation : $\left(\frac{trade\ rate}{expected\ rate} - 1\right) \times \frac{trade\ amount}{TNA\ of\ the\ class}$

Impact of **1 %**

© 2021 Deloitte Tax & Consulting

Sources of FX hedging impacts
Spreads in DHA



© 2021 Deloitte Tax & Consulting

Sources of FX hedging impacts
Spreads

Example :

- US Equity Fund
- EUR Hedged share class (NAV Hedging)

On a roll-over contract :

- Spread from contract : 0.90 pips (difference between spot and forward rate traded)
- Spread observed on market : 0.80 pips (difference between spot and forward rate at the time of the trade)

Impact of **- 0.001 %**

© 2021 Deloitte Tax & Consulting

Sources of FX hedging impacts
Forward valuation impact

✓ In opposition to the timing effect, the PTI or the transaction costs, the forward valuation effect can be a temporary pricing impact.

✓ They only arise if the mark-to-model approach is used to valuate the forwards instead of taking their mark-to-market valuation.

✓ However, as the interest rate differential effect is maximized during the roll-over and minimized at the end of the contract, the mark-to-model pricing catches-up the mark-to-market pricing.

Example :

- Mark to Market approach : - 1.00 % (based on the market value of the forward)
- Mark to Model approach : - 2.00 % (based on the trade rate of the forward)

Impact of **- 1 %** (on the roll over contract)

© 2021 Deloitte Tax & Consulting

Sources of FX hedging impacts

Unrealised P&L impact

✓ Each forward contract used for the hedge generates an **unrealised P&L**.

✓ If this positive or negative P&L is not reinvested in the fund, the hedged class will **not be invested** closely to 100% in the fund and the performance will deviate from the unhedged reference class.

The best practice would be to **reinvest the P&L** of the hedge a daily basis in order to limit such effect.

© 2021 Deloitte Tax & Consulting

Deloitte.

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited (“DTTL”), its global network of member firms, and their related entities (collectively, the “Deloitte organization”). DTTL (also referred to as “Deloitte Global”) and each of its member firms and related entities are legally separate and independent entities, which cannot obligate or bind each other in respect of third parties. DTTL and each DTTL member firm and related entity is liable only for its own acts and omissions, and not those of each other. DTTL does not provide services to clients. Please see www.deloitte.com/about to learn more.

Deloitte is a leading global provider of audit and assurance, consulting, financial advisory, risk advisory, tax and related services. Our global network of member firms and related entities in more than 150 countries and territories (collectively, the “Deloitte organization”) serves four out of five Fortune Global 500® companies. Learn how Deloitte’s approximately 330,000 people make an impact that matters at www.deloitte.com

This communication contains general information only, and none of Deloitte Touche Tohmatsu Limited (“DTTL”), its global network of member firms or their related entities (collectively, the “Deloitte organization”) is, by means of this communication, rendering professional advice or services. Before making any decision or taking any action that may affect your finances or your business, you should consult a qualified professional adviser.

No representations, warranties or undertakings (express or implied) are given as to the accuracy or completeness of the information in this communication, and none of DTTL, its member firms, related entities, employees or agents shall be liable or responsible for any loss or damage whatsoever arising directly or indirectly in connection with any person relying on this communication. DTTL and each of its member firms, and their related entities, are legally separate and independent entities.

© 2021 Deloitte Tax & Consulting