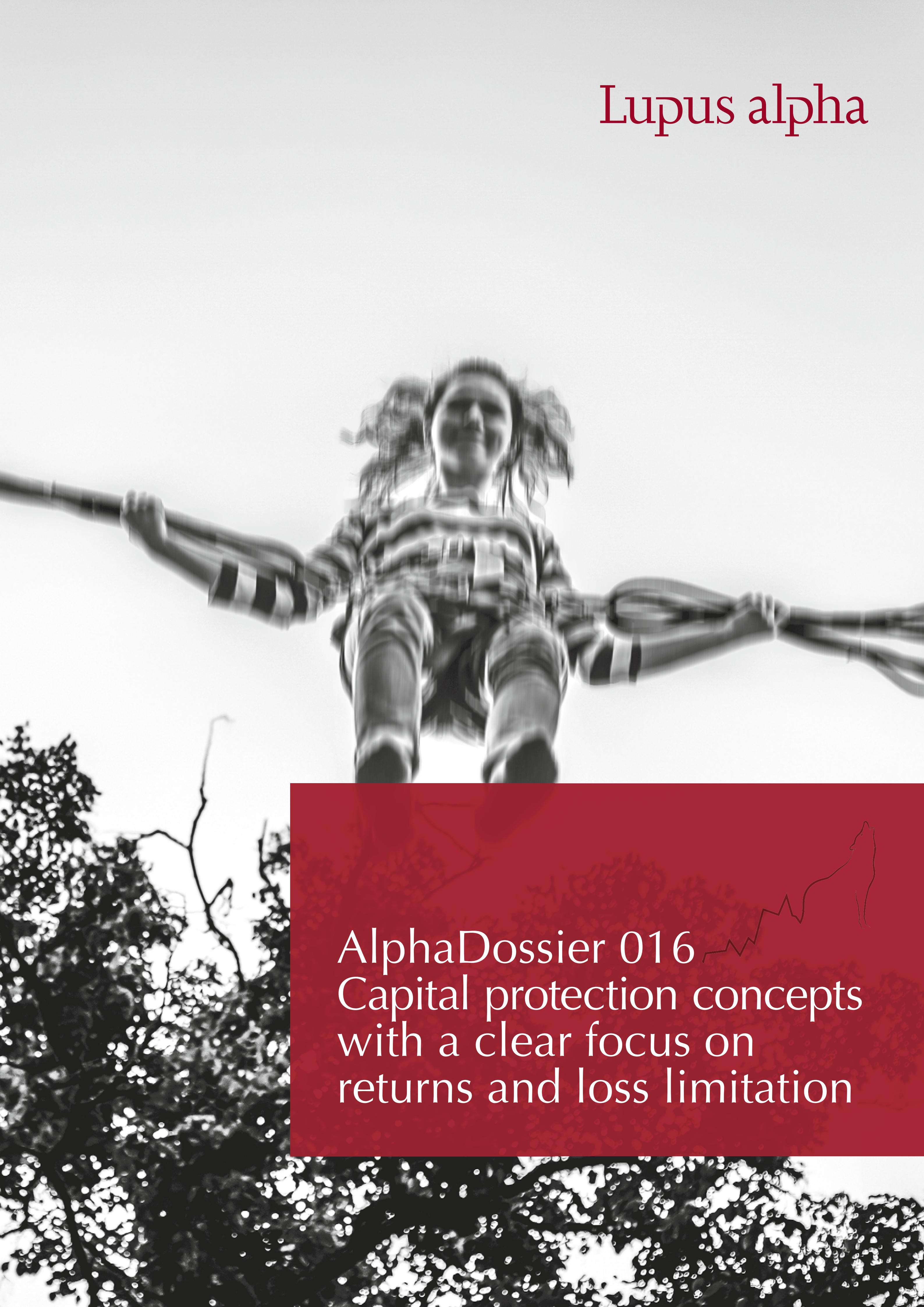
Lupus alpha



AlphaDossier 016
Capital protection concepts with a clear focus on returns and loss limitation

Lupus alpha.
The alpha way to invest.

Innovative investment solutions, managed by specialised teams, superior performance, outstanding service tailored to the individual needs of our investors and partners – this is how we have been creating real value with actively managed strategies for 25 years. We focus exclusively on specialised strategies where we, as an active manager, can offer our investors decisive advantages. Our investment solutions open up alternative sources of return and help you diversify your portfolios more successfully. Active management by our experienced teams and our clear focus on specialist strategies make us a multi-specialist that you can rely on. Extensive experience, maximum commitment and clear specialisation make Lupus alpha one of the top addresses for discerning investors – today in a total of six specialist segments.

Management summary

For decades, stable returns that generate positive real returns over the long term have been considered the domain of bonds. However, given the current interest rate and inflation environment, their effectiveness in preserving wealth in real terms is questionable.

The primary aim of capital protection concepts is to combine the opposing factors of risk and return to offer attractive income with a limited risk of loss. However, traditional systematic capital protection strategies are often impacted by cash locks. Experience shows that discretionary strategies are subject to uncertainty when it comes to investment decisions and costs. Asymmetric strategies utilise characteristic derivative properties. They can thus avoid cash locks.

Lupus alpha's large and experienced Derivative Solutions team has been actively managing asymmetric capital protection concepts for more than 15 years. The oldest mutual fund deploying these capital protection concepts has already proven its quality in every major crisis since 2007 and has fulfilled its promise to investors.

Today, investors can choose from various mutual funds with differences in equity market participation, capital protection levels and sustainability requirements. Institutional investors can make tailored allocations based on their individual risk and/or ESG requirements.

Contents

Current market environment: growing demand for capital protection

"For decades, the "natural" role of bonds has been to provide a stable income that generates positive real returns over the long term. The new uncertain interest rate and inflation environment calls their effectiveness into question. Equities with capital protection offer more promising prospects."

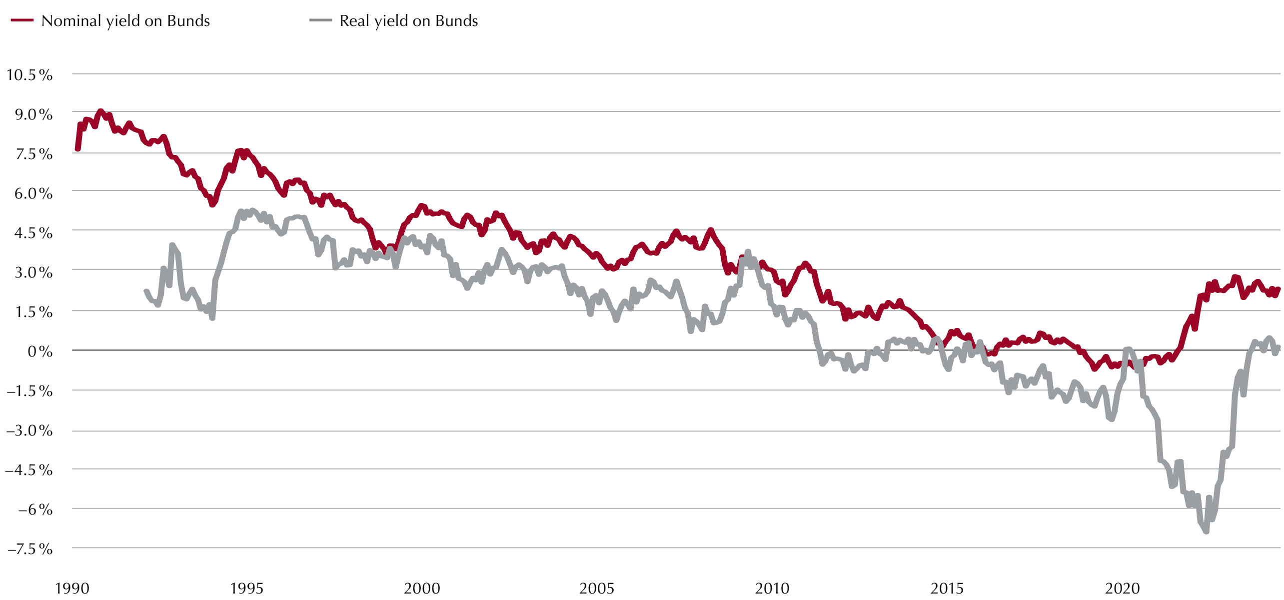
Alexander Raviol, CIO Derivative Solutions

In recent years, a zero and negative interest rate environment has been seen as the ‚new normal' in capital markets. However, 2022 marked a paradigm shift and a turning point in global interest rate policy. The rapid rise in inflation forced global central banks to raise interest rates unexpectedly quickly and sharply, something rarely seen in history. This abrupt turnaround in interest rates made many investors realise that even bonds perceived to be safe could suddenly be exposed to significant price losses and no longer fulfil their traditional role as an anchor of stability and diversification in a portfolio.

Although global monetary authorities have made significant progress in curbing record inflation, inflation remains above target in many regions. Although the major central banks have now begun the cycle of interest rate cuts long anticipated by the capital markets, the future path of inflation remains uncertain in the light of global economic and employment developments. It also remains unclear when and where the trough of interest rate cuts will be reached. Given this uncertainty, however, it is likely that interest rates will settle at a higher level in the longer term than investors have been accustomed to in the recent past, despite inflation stabilising. While bonds are now offering a modest real return, the real preservation of wealth in this asset class remains uncertain over the medium to long term, whether due to possible new spikes in inflation or the continuation of the cycle of interest rate cuts that has begun (see Chart 1).

Equities therefore remain an important building block in strategic asset allocation, contributing to long-term wealth preservation and growth. However, recent years have also shown that while equities offer high potential returns with good long-term inflation protection, they also carry high risks. The crash following the dotcom bubble at the start of the millennium and the financial crisis of 2008/2009 resulted in total losses of 50 % and more. The generally positive stock market year 2020 also shows that stock losses of more than 30 per cent within a few weeks are

1. Real yields on 10-year Bunds slightly positive again



Sources: Bloomberg, own calculations; observation period: 01. 01. 1990 to 31. 12. 2024.
Past performance is not a reliable indicator for the future performance

2. Slumps on the global equity market since 1990

Sources: Bloomberg, own calculations; observation period: 01.01.1990 to 31.12.2024; global equities = MSCI World Net Total Return Local Index (Ticker: NDDLWI Index).
Past performance is not a reliable indicator for the future performance.

possible with pure equity investments (see chart 2). For many investors, losses of this magnitude – even if only temporary – are difficult to absorb. In addition to the many geopolitical tensions and the increasing concentration of a few large (technology) companies in global equity indices, the current market environment harbours many other risk factors that make it a challenge to balance expected risk and return. The question is to what extent investors can achieve adequate returns over the long term with limited risk, after adjusting for inflation. This question is all the more pressing in the context of parallel losses in the bond and equity markets in 2022. Capital protection strategies provide the answer: By combining a real investment (equities) with a reliable capital protection system that has been tried and tested over many years, it is possible to participate in the equity market with limited risk, especially in the current highly uncertain environment. At the same time, because of their portfolio construction, capital protection strategies also benefit from a higher interest rate environment and can significantly improve their earnings prospects, as rising interest income also increases the available risk capital and thus the opportunity to participate in the equity market – without causing increased drawdown risk. However, when choosing an appropriate capital protection strategy, it is important for investors to understand the system used to avoid the problems of traditional capital protection approaches and to achieve the desired goals over the long term. The following section discusses this in more detail.

Different capital protection strategies: goals and challenges

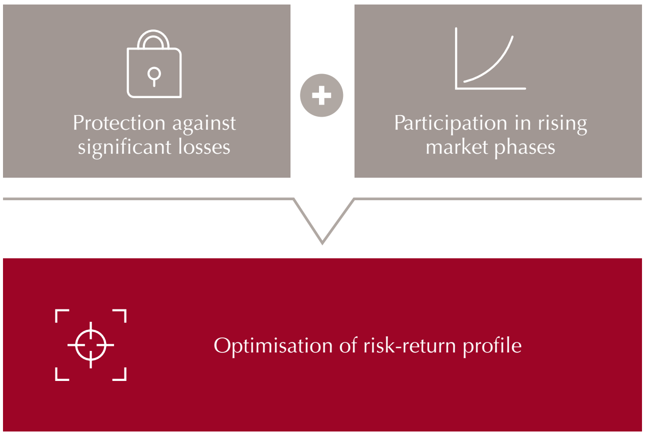
"Systematic capital protection strategies are often impacted by cash locks. Discretionary strategies are subject to uncertainty when it comes to investment decisions and costs. Asymmetric strategies exploit the characteristic attributes of derivatives and can significantly reduce the occurrence of a cash lock and avoid 'human error'."

Stephan Steiger, CFA, CAIA, Portfolio Management Derivative Solutions

The aim of capital protection strategies is to ensure that an underlying (equity) portfolio achieves a positive performance while at the same time adhering to a predefined floor*. The floor* is derived directly from the investor's risk tolerance, which in turn arises from regulatory or internal risk management guidelines.

In particular, it is possible to adhere to the floor* by effectively limiting losses ("drawdowns"). At the same time, positive performance can be achieved by increasing participation in rising market phases. Both aspects must be intelligently combined to enable them to effectively fulfil their crucial role in optimising the risk-return profile of a portfolio.

3. Factors in optimising the risk-return portfolio



Diagram, for illustrative purposes only. Source: Lupus alpha

Conflicting goals: risk vs. return

Combining loss limitation with effective participation in the equity markets is the biggest challenge for capital protection strategies. Investors are confronted with the equally important objectives of risk and return. High risk is usually rewarded with high expected returns while lower-risk investments are typically associated with low or even negative returns. The development of the bond market in recent years described at the start of this dossier offers a sobering example of this principle.

In this conflicting situation, a strategy's success very much depends on the method of implementation chosen. Here we make a distinction between three different approaches. While their objective does not differ (limiting the loss of risk in falling markets while participating in rising markets), their methods and outcomes deviate significantly from each other.

4. Capital protection strategy in the interplay of risk and return

Diagram, for illustrative purposes only. Source: Lupus alpha

***General note for the entire document:** loss avoidance, capital protection and adherence to the floor level cannot be assured or guaranteed at any time.

- **Systematic strategies** (e.g. Constant Proportion Portfolio Insurance [CPPI]) use a predefined, rule-based risk capital designed to generate the biggest return possible. They also use a dynamic approach that constantly switches between risk-free and higher-risk investments. These reallocations are generally based on the current distance from the floor* (simple version) or more complex risk models (more advanced versions).

The advantage of such systematic approaches is that the "human factor", prone to making emotionally-driven decisions ("irrational decisions"), can be excluded. One crucial disadvantage of this strategy is that systematic approaches can neither provide capital market experience nor pursue forward-looking strategies. This usually results in portfolio reallocations that incur enormous implicit and transaction costs. Another particular disadvantage of such strategies is the premature exhaustion of the available risk budget. Once this budget has been used up, investors are no longer able to participate in any subsequent rebound in prices (see "In focus" section on cash locks).

- **Discretionary strategies,** unlike systematic strategies, do not follow a clearly defined approach but instead rely on the opinions and experience of the relevant portfolio managers. These strategies allow a portfolio to be managed and market expectations to be taken into account according to a long-term strategy. The desired profile is generated by blending lower-risk and higher-risk securities. As these physical assets are traded on a regular basis, transaction costs have a central role to play here. The success of such a strategy depends almost entirely on the quality of the decisions made by the portfolio managers.

- **Asymmetric strategies** harness the advantages of both of the aforementioned approaches. However, continuous optimisation of the risk-return profile also plays a key role in portfolio management. The choice of instruments to be used also has a distinct role to play. While some instruments have a linear payoff profile, other elements of the portfolio can change the way the portfolio behaves to benefit investors in both bull and bear market phases. Derivatives also play a central role here. In the case of a call option, for example, the buyer can only lose a certain amount (the premium paid on the option) but can theoretically earn an unlimited amount. We look closer at the workings of this attractive financial instrument in the next chapter, in an "In focus" section called "How does a call option work?".

In summary, it is important to emphasise that each of these different approaches has advantages and disadvantages. Over the past few years, investors have come to realise that the dampening effect of bonds as a supposed anchor of stability in portfolios compared to equities in times of crisis is not a law of nature. The year 2022 has impressively demonstrated that bonds can also be affected by sharp price falls. At the same time – and particularly during the COVID-19 pandemic – investors learned the hard way what happens when your capital protection strategy does not work (both in terms of adhering to the floor* and with a view to participating in subsequent recoveries).

Lupus alpha has already been pursuing a clearly defined asymmetric approach since 2007 that has since proved itself over a wide range of different market phases. We provide more details on this approach in the following sections.

In focus: what is a cash lock?

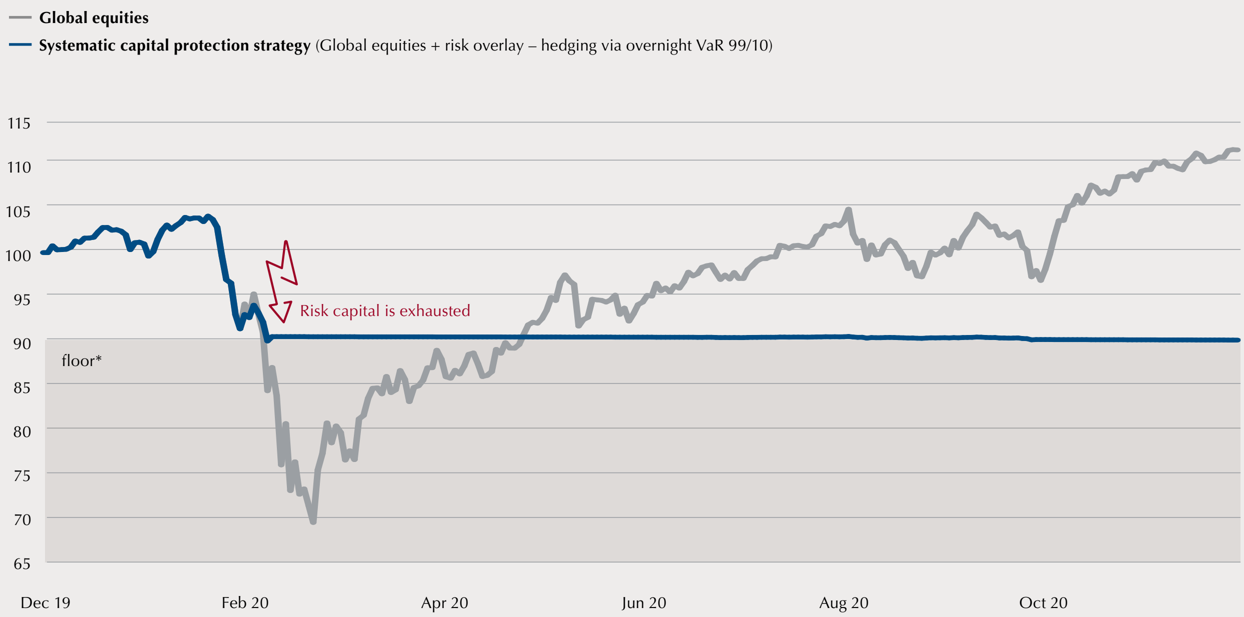
The term "cash lock" is often used in connection with capital protection strategies and overlay solutions. But what exactly is a cash lock and what impact does it have on investors? In this context, the question inevitably arises as to how the risk of a cash lock can be effectively reduced? Using the example of developments in the capital markets during 2020, let's look more closely at how cash locks can cause problems for many traditional capital protection concepts. Amid the highly volatile environment created by the COVID-19 crisis, the exceptionally rapid and sharp decline in the equity markets (e.g. S&P 500 dropped by more than 30 per cent in just a few weeks – an all-time record), followed by a similarly fast, almost V-shaped countermovement as share prices surged by almost 70 per cent from their low point to their year-end price, caused a major headache for many capital protection concepts.

How does a cash lock come about?

Whenever an investor decides to adopt an investment approach with reduced risk, they start by defining their risk budget and/or minimum value limit*. This specifies the degree of risk they are prepared to take. Systematic capital protection models use this budget statically to determine risk positions and thus effectively limit losses. In such cases, a slump in the market forces them to "consume" their risk budget. The higher the targeted limitation of losses, the faster the budget is used up and the risk position is fully or partially reduced. This becomes problematic as soon as the entire risk budget is used up by a sudden decline in the market or phases of extreme volatility such as the historically rapid and sharp share price movements observed at the start of the COVID-19 pandemic. In this case, the portfolio is completely "thwarted" as it becomes fully decoupled from the market. Typically, all high-risk investments are liquidated or positions neutralised by taking opposing positions in derivatives ("hedges") during such phases, thus achieving the desired objective of avoiding further losses. However, a decoupling of this nature can also mean that the portfolio cannot participate in any subsequent recovery phases that may occur in the market, as no return can be generated without "new" risk positions or budgets. Ultimately, the portfolio "falls" with the market until the risk budget is exhausted. However, any subsequent recovery will not have a significant impact on the portfolio. As a result, investors are

In focus:
what is a cash lock?

5. The impact of a cash lock on a systematic capital protection strategy in 2020



Past performance is not a reliable indicator for the future performance. Sources: Bloomberg, own calculations; observation period: 31.12.2019 to 30.12.2020. Global equities = MSCI World 100% Hedged to EUR Net Total Return Index (Ticker: MXWOHEUR Index).

(almost) completely "trapped" by the minimum value limit* until, for example, a new risk budget is defined at the start of the new financial year. This is known as a cash lock.

Figure 5 demonstrates this principle in the global equity markets (grey line: MSCI World index). Although the capital protection strategy deployed here (blue line: traditional CPPI model) fulfils its product promise of a maximum loss of ten per cent, it is "thwarted" from March 2020 onwards. As a result, investors cannot participate in the strong market recovery in the second half of the year.

Reduce the risk of cash lock

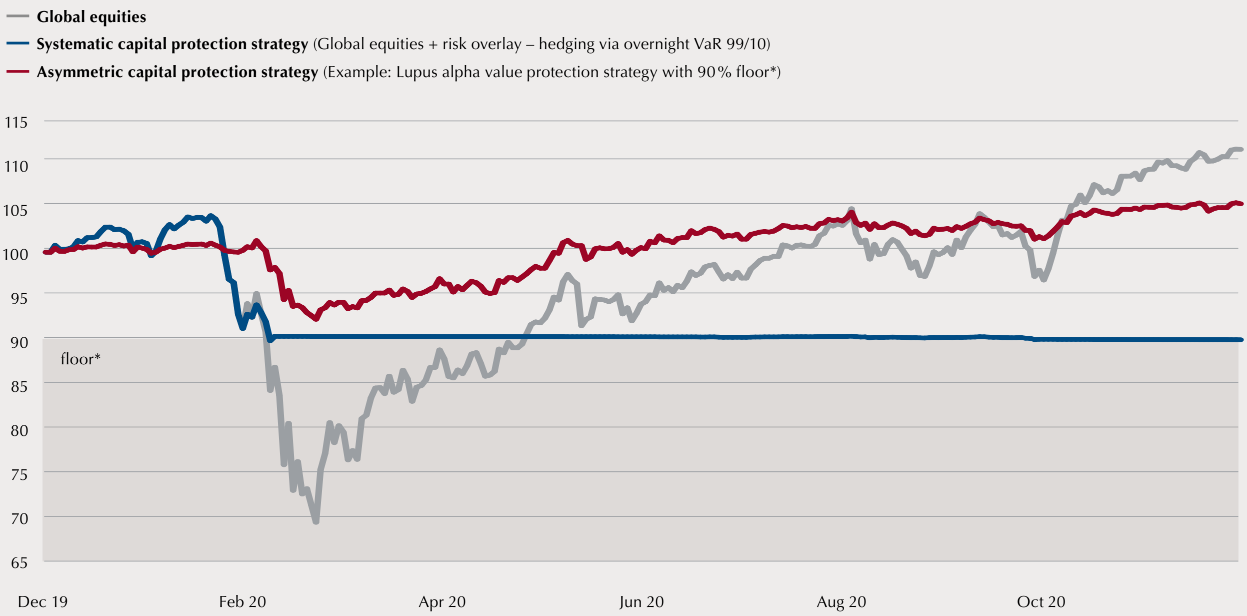
Lupus alpha pursues a different approach with its capital protection strategy. This approach relies on the non-linear payoff profile of options, enabling the market exposure to be managed dynamically. The "built-in" asymmetry of these options can be used to greatly reduce the likelihood of a cash lock. This gives portfolio managers the opportunity to continue to operate economically with the risk capital available.

Derivatives have a key characteristic that portfolio managers use to reduce a potential cash lock. The derivatives used always have a maximum loss that is known in advance (the option premium paid), which in turn enables investors to participate in upward movements until the end of their term.

The value of this option is reduced during phases of sharp market decline and can expire worthless in the worst-case scenario. The maximum loss is then equivalent to the option premium paid, of which the investor is aware of in advance. If the market then recovers strongly and rapidly as it did in 2020, (call) options steadily gain in value again while simultaneously increasing their sensitivity to the market (the delta of the option). This asymmetrical approach clearly shows that, despite targeting limited losses, active management means that attractive participation in global markets is still possible – with a very high probability of doing so without the risk of a possible cash lock.

This way of implementing a capital protection strategy was once again proven to work extremely well during 2020. In addition to the traditional systematic capital protection strategy illustrated in figure 5, figure 6 shows the performance of a tried and tested asymmetric strategy. In contrast to its traditional counterpart, the asymmetric strategy was able to participate in the market recovery from the second quarter onwards while still adhering to its floor*. While other concepts remained at their floor*, the asymmetric capital protection strategy ended the year with significant gains thanks to its attractive participation in the equity market.

6. Asymmetric strategy example avoids cash lock even in 2020



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Global equities = MSCI World 100 % Hedged to EUR Net Total Return Index (Ticker: MXWOHEUR Index).

Our approach: asymmetric participation in equity markets

"The Lupus alpha team has been successfully pursuing options-based asymmetric capital protection strategies for more than 15 years. The advantage of this is that options provide a way of automatically adapting the equity exposure, thus reducing the risk of misjudgements compared to discretionary approaches."

Mark Ritter, CFA, CAIA, Portfolio Management Derivative Solutions

Lupus alpha has been successfully implementing a vast array of derivatives-based strategies for more than 15 years. Since 2007, capital protection strategies have formed an integral part of our product range, with Lupus alpha using a specially developed approach that enables it to draw on its large proprietary database. The aim of our approach is to actively manage our exposure in order to generate long-term returns while at the same time adhering to a predefined level of capital protection*. These strategies are also designed to participate in income opportunities in the global equity markets on the one hand while reliably limiting the risk of loss* on the other. The level of the floor* or the level of protection in individual mandates depends on the investor's risk appetite; in our mutual funds with a floor*, it is 90% on a calendar-year basis.[1]

Lupus alpha's team and capital protection approach differs from other capital protection strategies in the market in three significant respects:

1. Using options for their flexibility and **"built-in" asymmetry,** thus avoiding one major flaw found in traditional capital protection concepts (the risk of a cash lock).
2. **Dynamically and actively** implementing the strategy and adjusting it to reflect the respective environment in the options market in order to keep the cost of the option structure as low as possible.
3. **Many years of experience:** Lupus alpha has been offering **capital protection concepts since 2007.** The core team managing these concepts has not changed during this time. The strength of our approach has been demonstrated in a variety of different market phases. Our experienced team can draw on a tried-and-tested technical infrastructure that incorporates our in-house trading desk and proprietary options database.

[1] Further information about the exact configuration of our funds is provided in the next chapter.

7. An experienced team and the principles underpinning our strategy

Many years of experience and deep expertise
A track record in capital protection strategies stretching back more than 15 years. Expertise in volatility and capital protection strategies, as well as risk overlay concepts delivering promising synergy effects.

Using derivatives

"We use the 'built-in' asymmetry of options. The resulting asymmetric profile means our portfolios participate more strongly in bull markets while being able to decouple themselves from bear markets."

Active approach

"We deliberately avoid taking a simple passive systematic approach. Dynamically adjusting our options strategy to reflect the relevant market environment enables us to keep hedging costs as low as possible."

Diagram, for illustrative purposes only. Source: Lupus alpha

Using derivatives for maximum flexibility

We use a derivatives structure to implement our investment strategy to make it as dynamic and flexible as possible using options and futures on selected international equities and equity indices. The corresponding derivatives are traded exclusively on the stock exchange to exclude counterparty risks, keep implementation costs low and ensure maximum liquidity as well as flexibility. Our positions are spread across the USA, Europe and Asia, with weighting based on the MSCI World's regional allocation. The attractiveness of the options structure within these regions is analysed and positions are chosen based on the outcomes of this analysis, taking trading costs into account (for more details, please see the next section entitled "Active approach for a cost-optimised derivatives investments").

Options: asymmetric profile "automatically" built in

The crucial advantage when using options is that they "automatically" adapt to the market situation at any given moment (see "In focus" section entitled "How does a call option work?"). This enables our portfolio managers to build a portfolio with an asymmetric or convex risk-return profile. That means that it loses less and less in the event of market declines but participates disproportionately strongly in upturns.

Another benefit of using derivatives is the exceptionally high degree of flexibility mentioned previously. For example, individual changes to the investment horizon or cash flow requirements can be taken into account extremely quickly and cost-effectively in consultation with the investor. In addition, the use of derivatives often results in significant advantages for banks in terms of capital requirements compared to investing in physical shares.[2]

Only a small part of the capital invested is actually required to implement the derivatives-based strategy, for option premium payments for example. This means that the majority of the capital provided is invested in a basic portfolio of liquid EUR bonds with very high credit ratings and low interest rate sensitivity, taking into account sustainability criteria depending on the strategy. This bond portfolio provides a broadly diversified way of storing capital, offers an ongoing interest yield and also serves as collateral for the derivatives used.

More upside and less downside participation

The result is an asymmetric risk-return profile. Our aim is to reduce participation in weak market phases (i.e. by losing less than the market) and increase participation in strong market phases (i.e. gain as much upside as possible). At the same time, the risk of a cash lock in a challenging environments can be significantly reduced.

[2] For more information on the regulatory treatment of our funds, please see the next section.

In focus: how does a call option work?

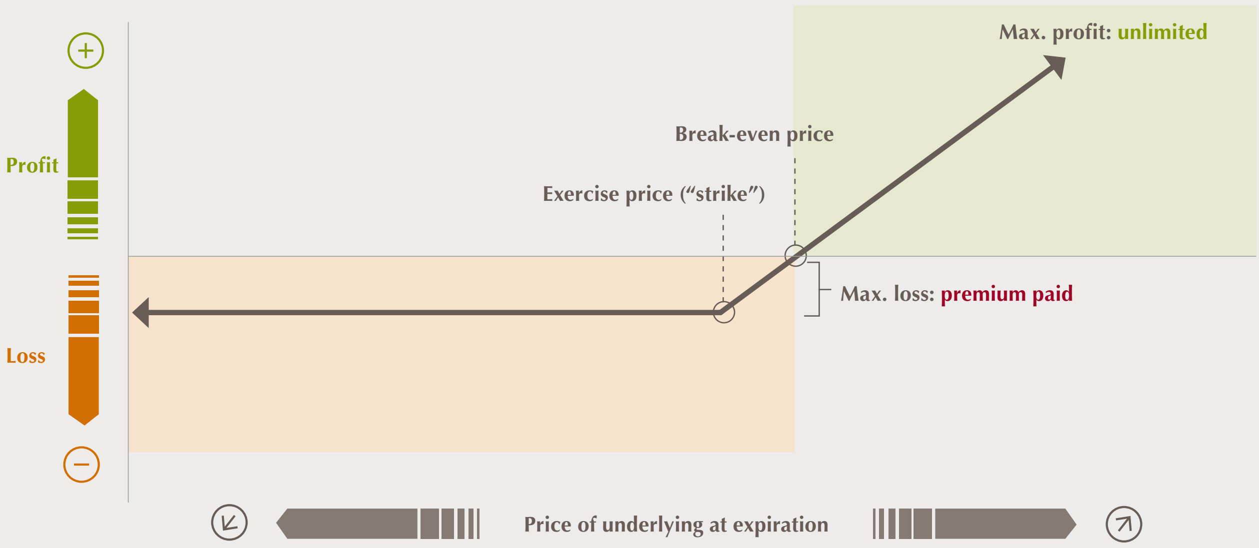
The owner of an option has the right, but not the obligation, to buy (known as a call option) or sell (known as a put option) a particular underlying asset such as a stock or equity index at a specific point in the future. The right to buy (call option) an underlying asset at a later point in time at a price agreed today enables the owner to participate in any rises in the price of this underlying without holding it. In return, the counterparty in this transaction is required to pay an option premium for this right.

The example of a call option is used below to demonstrate how advantageous an asymmetric profile can be when using options in the context of a portfolio.

Advantage for the investor (buyer of a call option)

The main advantage for the buyer of such an option is that while they can participate in any rises in the price of the underlying asset to a (theoretically) unlimited extent, they can only lose the option premium they have paid. As a result, they are aware of the maximum loss before the option expires. Options automatically offer the asymmetric or convex payoff profile (see figure 9) that investors in capital protection concepts expect: participation in rising markets combined with calculable losses.

8. Diagram of call option with clearly limited risk of loss



Diagram, for illustrative purposes only. Source: Lupus alpha

When does the option generate a profit?

If the price of the underlying asset rises above the option's exercise price, it makes sense for the buyer to exercise their option. However, the option has not yet reached the "profit zone". First, the price of the underlying asset has to rise high enough to offset the option premium paid at the outset. This means that the decisive factor at the end of an option's term is whether the price of the underlying asset has climbed high enough for the buyer to get back (i.e. to earn or offset) the option premium they paid at the start as well as generating additional profit.

Variable delta holds the key to participation

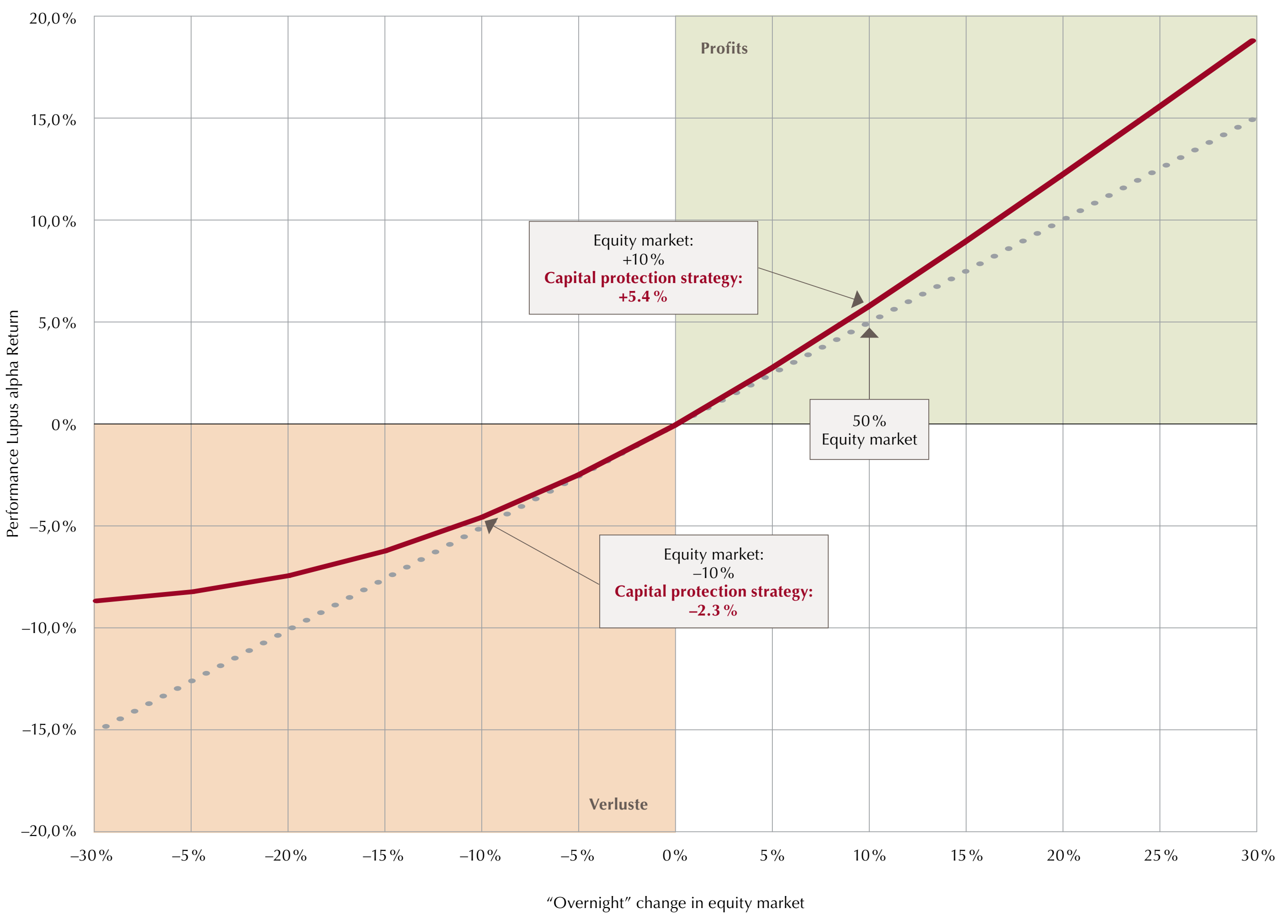
Another characteristic that is helpful for the buyer of a call option is variable sensitivity to the equity market, which is measured by what is known as the "delta" of an option. As one of the "option Greeks", delta measures the extent to which the value of an option changes when the price of the underlying asset changes. In the case of call options, the (positive) delta rises in line with the price of the underlying, i.e. the higher the price, the higher the sensitivity or responsiveness of the option. This means that investors automatically participate more strongly in rising markets (increasing sensitivity) than in falling ones (decreasing sensitivity).

Figure 9 illustrates how such a profile works using the example of Lupus alpha Return, a mutual fund with a capital protection strategy and a floor of 90 per cent*. It depicts the results of a stress test at a specific point in time. As part of this stress test, the fund's portfolio was subjected to several tests with different price change scenarios (with one strong "overnight" share price movement) with an effective date of 31. 12. 2024. The x-axis shows the degree of market stress, from –30 per cent to +30 per cent, while the y-axis shows the resulting strategy performance (red line). An investment with a simple 50 per cent equity ratio (dotted line) is also shown for comparison. This linear equity investment serves as a guide. If, for example, the equity market loses 20 per cent overnight, a 50 per cent equity investment suffers a loss of ten per cent. Conversely, an equally large rise in the market results in a ten per cent gain. While a direct investment in the equity market follows a linear progression that corresponds to the equity ratio, Lupus alpha's capital protection strategy* shows a clearly asymmetric (convex) payoff profile, with losses that are considerably lower than gains in absolute terms. The more extreme the downward market movement, the lower the sensitivity becomes and the flatter the fund price's development. The reverse is also true: the stronger the market upturn, the higher the participation. Overall, this results in the desired call-like profile.

Active approach for a cost-optimised derivatives investment

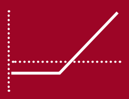
The challenge now is to achieve the desired payoff profile as cost-effectively as possible. One crucial factor here is to actively manage the strategy's

9. The asymmetric payoff profile of our capital protection strategy



Past performance is not a reliable indicator for the future performance. Source: Lupus alpha; as of 31. 12. 2024

10. Building blocks of Lupus alpha's capital protection strategy



Long Call/ Call replication (Index and single stocks)	**„built in" asymmetry:** – Maximum profit unlimited – Loss limited to premium invested – No adjustment required on times of crisis
Opportunistic strategies	Supplementary inclusions
Basic portfolio	Short-dated Euro bonds with very good credit rating

Diagram, for illustrative purposes only. Source: Lupus alpha

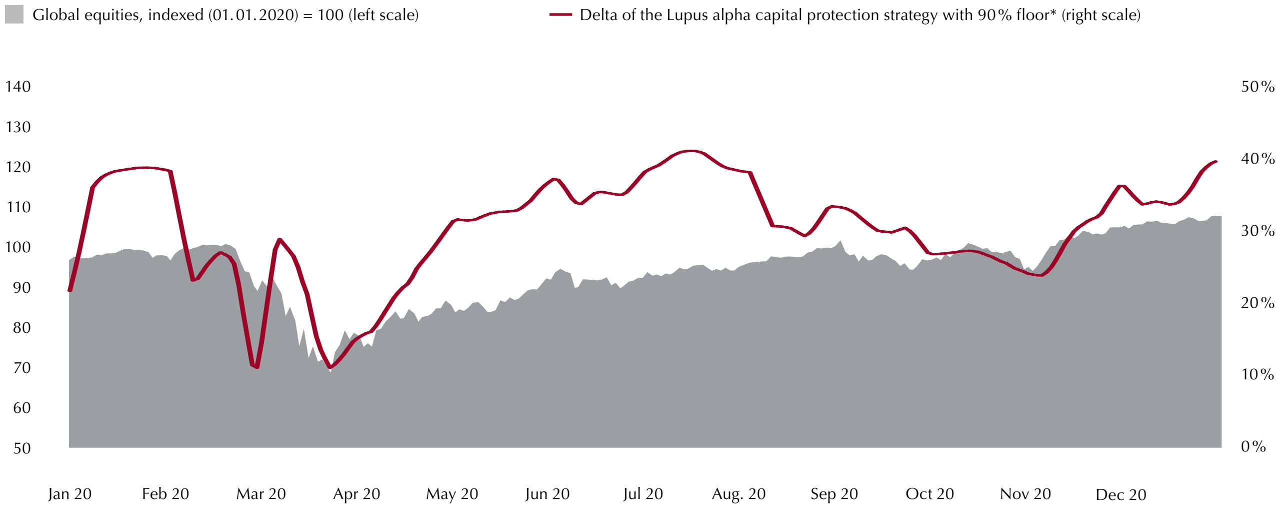
derivatives components, as the extremely dynamic nature of the options and volatility markets means that static implementation is not practical. The situation over the past years provides a good example of the changes in the options market. While index options in particular were cheap prior to the COVID-19 crisis, they became much more expensive during and immediately after the upheaval triggered by the pandemic. They then traded at multi-year highs for an extended period. Our experienced portfolio managers are therefore constantly monitoring the markets to identify attractive opportunities (e.g. the relative attractiveness of index options versus single stock options) and to make adjustments and optimisations at any time. This example shows that a static implementation based solely on the past is not ideal. To adapt as effectively as possible to the current environment, the portfolio managers of a successful capital protection strategy must have a comprehensive set of individual derivatives components at their disposal. The long-call position is particularly worth highlighting in light of the asymmetric payoff profile at overall fund level. This forms the basis, but can be supplemented with additional building blocks depending on the environment (see Figure 10).

A specific structure is implemented in each region depending on the current local situation in the volatility market, and this structure is used to build the desired asymmetric profile of the overall portfolio. As mentioned previously, the important factor here is that every derivative used is an exchange-traded contract with the maximum possible transparency and liquidity. Large regional equity benchmarks such as the S&P 500, EURO STOXX 50, Nikkei 225 or the Hang Seng Index are primariliy taken into consideration as the underlying indices. Individual stock selection focuses on highly liquid large caps from the USA and Europe.

A portfolio that "automatically" adjusts its equity market participation

These instruments are used to create a global portfolio that participates asymmetrically in the performance of the equity markets. The strategy's target equity exposure is a key parameter for investors. The level of exposure is influenced by the amount of risk capital available. In principle, the more risk capital available, the higher the potential participation in the equity market. During the zero interest rate phase, a portfolio with a floor* of 90 per cent could achieve an average equity ratio of around 40 per cent. Figure 11 shows an example of the change in the equity allocation of a capital protection strategy with a medium equity allocation (mutual fund with a floor* of 90 %) during the COVID-19 crisis. During periods of acute market stress, the equity exposure of the options is 'automatically' reduced and the overall portfolio adjusts without any active management. The best example of this is the period in

11. Technical "automatic" adjustments in equity market participation (2020)



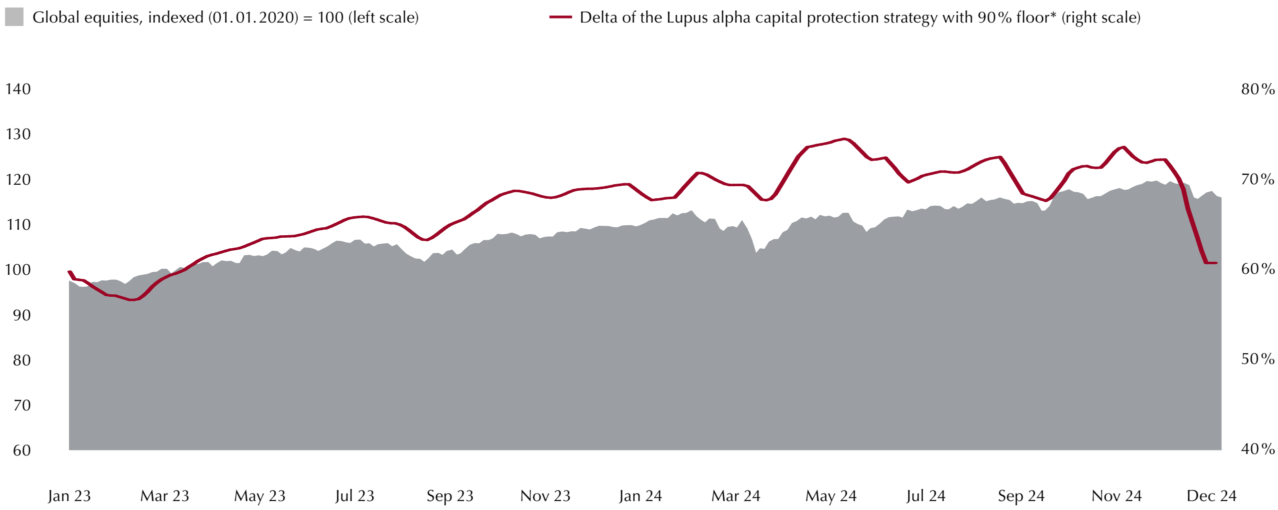
Past performance is not a reliable indicator for the future performance.
Sources: Bloomberg, own calculations; observation period: 31.12.2019 to 30.12.2020; global equities = MSCI World 100% Hedged to EUR Net Total Return Index (Ticker: MXWOHEUR Index)

March 2020, at the height of the COVID-19 crisis: the delta or equity sensitivity of the entire portfolio fell to around 10% in the wake of the severe market turmoil and then rose again to over 40% as the market recovered by the end of 2020. The average exposure tends to rise further in a higher interest rate environment. The development of key interest rates in recent years has therefore had a positive effect: The higher interest income in the basic portfolio also increases the available risk budget. With the same level of capital protection*, this tends to result in a significantly higher equity market exposure (see chart 12).

Making experience, specialisation and integrated processes count

Lupus alpha has been managing options-based strategies for institutional investors for more than 15 years. We offer innovative concepts and tailored components that enable you to achieve your long-term investment goals. As a result, Lupus alpha is one of the largest and most experienced providers of options-based strategies in Germany.

12. Increased equity market participation as a result of rising interest rates, using 2024 as an example



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Sources: Bloomberg, own calculations; observation period: 01.01.2023 to 30.12.2024; global equities = MSCI World 100% Hedged to EUR Net Total Return Index (Ticker: MXWOHEUR Index)

We have spent many years building up and demonstrating the expertise required to implement options-based strategies, including a quantitative analysis team with a proprietary volatility database that forms the core of our professional research. We also have an experienced and highly specialised portfolio management team, methodically sound and experienced risk management and complete control over all trading processes.

At Lupus alpha, our portfolio managers, quantitative analysts and trading desk work closely together on portfolio implementation, ensuring that all relevant information can be bundled together and used in the investment decision-making process.

13. Lupus alpha's capital protection strategy team*

Portfolio Management

Alexander Raviol
CIO, Head of Derivative Solutions

Mark Ritter, CFA, CAIA
Portfolio Manager

Marvin Labod
Portfolio Manager

Tobias Meyer, CFA
Portfolio Manager

Stephan Steiger, CFA, CAIA
Portfolio Manager

Quantitative Analysis

Marvin Labod
Head of Quantitative Analysis

Santiago Rojas Quintero, CAIA
Quantitative Analysis

Ben Wottge, CAIA
Quantitative Analysis

Portfolio Implementation

Dr. Maciej Kocan
Head of Trading & Implementation

Lars Bode
Portfolio Implementation

Heiko Felzmann
Portfolio Implementation

Martin Kalinski
Portfolio Implementation

Alexander Pril
Portfolio Implementation

Invest with Lupus alpha’s tried-and-tested capital protection strategies

“Investors can draw on our many years of experience in capital protection strategies to meet their requirements in a variety of ways, either in the form of mutual funds with different capital protection levels* or in the context of individually designed portfolio mandates.”

Marvin Labod, Head of Quantitative Analysis, Portfolio Management Derivative Solutions

Our capital protection strategy products and services can generally be divided into two groups: efficient, easily accessible mutual fund products and tailored mandates. While all of these implementation methods share the characteristics set out in the previous chapter, the specific configuration of each method differs. Over the next few pages, we will look more closely at the individual product groups and explain more about their strategy, key components and history.

13. Lupus alpha's capital protection strategies: investment opportunities

Mutual funds Capital protection	Lupus alpha Return	Lupus alpha Dynamic Return
Concept	**A flexible derivatives concept** that can adapt to the ever-changing conditions in the options market while striving to adhere to a floor*	A flexible derivatives concept that enables investors to participate in the global equity markets in a risk-controlled manner while limiting drawdowns
Market exposure	**risk-reduced**	**full**
Loss limitation	Losses limited to **10 % per calendar year***	Reduction of strong drawdowns
Implementation method	Mutual or special fund	Mutual or special fund

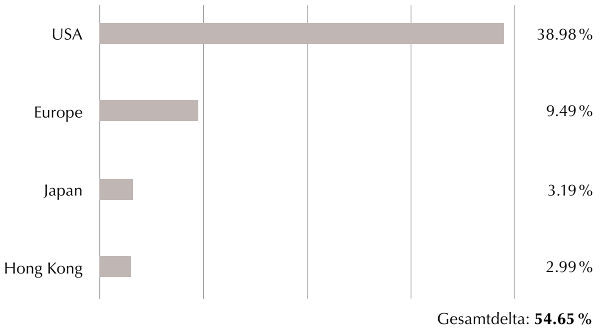
Custom solutions	Client-specific capital protection concepts
Concept	Applying our tried-and-tested **capital protection strategies** to **individual client requirements**
Market exposure	**customised**
Loss limitation	customised
Implementation method	special fund

Diagram, for illustrative purposes only. Source: Lupus alpha

Lupus alpha Return

Lupus alpha Return provides investors with a chance to participate in the return opportunities of global equity markets in an attractive way. Diversifying sources of return and actively managing portfolio risk allows investors to limit their risk of loss and optimise their risk-return profile. Exchange-traded derivatives are used to implement this strategy, with a basic portfolio consisting of a liquid portfolio of bonds with high credit ratings.

15. Lupus alpha Return: contribution to equity exposure



Sources: Bloomberg, own calculations; as of 31. 12. 2024

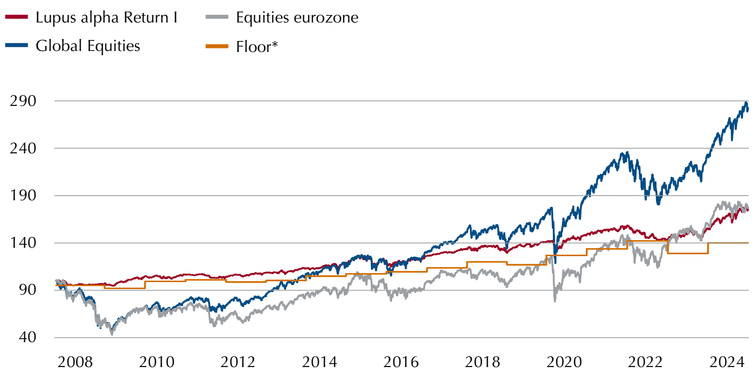
Market exposure of the product

The strategy invests in global equity markets and is oriented towards the composition of the MSCI World Index. The main core markets are therefore the US and Europe (including the UK), as well as companies in the Hang Seng Index and the Nikkei 225. Depending on market conditions and the attractiveness of derivatives markets, other markets may be added to take advantage of global opportunities. However, this requires sufficient liquidity in the traded derivatives. Our experienced portfolio managers therefore monitor the markets on an ongoing basis in order to be able to make adjustments and optimisations at any time.

Instruments used in the product

The Lupus alpha Return strategy uses various components to generate a long call profile that is as cost-effective as possible. Long call options on indices and individual stocks (large caps from Europe and the USA only) are used to create a long equity exposure (i.e. a positive delta) to various markets. These positions enable investors to participate in rising equity markets. Depending on the market environment and the dynamics of the options markets, call options may also be replicated using liquid exchange-traded instruments to achieve the desired long call profile.

16. Lupus alpha Return: performance since launch[3]



Key performance indicators and risk figures

	La Return I	Global Equities	Equities eurozone
Calendar year	12.45 %	20.23 %	10.41 %
5 years p. a.	4.42 %	10.51 %	7.82 %
Since launch	74.93 %	180.83 %	77.34 %
Since launch p. a.	3.30 %	6.17 %	3.38 %
Volatility p. a.	5.23 %	16.60 %	22.09 %
Sharpe ratio[3]	0.51	0.34	0.13
Max. drawdown	–10.28 %	–55.40 %	–58.06 %

[4] r = 0.61 %.

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Performance	–3.16 %	7.97 %	1.77 %	–2.47 %	4.41 %	4.65 %	5.15 %	2.13 %	3.60 %	5.67 %	–2.47 %	8.50 %	5.48 %	6.25 %	–9.43 %	8.76 %	12.45 %

[3] The gross performance (BVI method) takes into account all costs incurred at fund level. Past performance is not a reliable indicator for the future performance. Sources: Bloomberg, own calculations; observation period: 10. 10. 2007 to 31. 12. 2024. Equities eurozone = EURO STOXX 50 Net Return Index (Ticker: SX5T Index); global equities = MSCI World 100 % Hedged to EUR Net Total Return Index (Ticker: MXWOHEUR Index)

Product history and track record

Lupus alpha's capital protection strategy was developed in 2007 and has been used by the Lupus alpha Return mutual fund since then. There have been no significant changes to this investment approach during this time, and even the core management team has been working together since 2007. The success of our approach has been proven over the past 15 years. Despite the market turbulences of recent years (the Lehman/global financial crisis in 2008/2009; the Euro crisis in 2011; the US trade dispute, Brexit and Italy in 2018; COVID-19 in 2020; and 2022: 'Start of the war in Ukraine') the strategy has met all of its investment goals and adhered to its minimum portfolio value* throughout.

17. Lupus alpha Return: investor significance at a glance

Return
- 4.42 % p.a. (last 5 years)[4]
- Participation in global equity markets

Risk limitation
- Volatility 6.47 % (last 5 years)[5]
- Max. drawdown: 10.28 %
- Floor* maintained since 2007 launch

[4] The return generated over the past 10 years (30. 12. 2014–30. 12. 2024) is 3.91 per cent p. a.
[5] The volatility realised over the past 10 years (30. 12. 2014–30. 12. 2024) is 5.97 per cent p. a.
Past performance is not a reliable indicator for the future performance.
Sources: Bloomberg, own calculations; as of 31. 12. 2024.

Lupus alpha Return: significance for investors

All in all, this approach has demonstrated its reliability without exception for one-and-a-half decades and has even exceeded the expectations placed upon it during challenging market phases (e.g. during the COVID-19 crisis). We expect the success of this strategy to continue in the future. We are also confident that in Lupus alpha Return, we can provide risk-conscious investors with a tried-and-tested "all-weather investment" that offers significant diversification potential.

Invest sustainably – with Lupus alpha Sustainable Return

For investors with particular sustainability requirements, Lupus alpha offers Lupus alpha Sustainable Return, a mutual fund that pursues the aforementioned strategy while employing a sustainability methodology geared towards the Austrian Catholic Church's ethical investment guidelines[6], otherwise

[6] https://www.katholisch.at/finanko.

In focus: Lupus alpha Sustainable Return ESG methodology

Lupus alpha Sustainable Return combines Lupus alpha's tried-and-tested capital protection strategy with extensive sustainability criteria. The equity exposure for this product is built up using physical shares, with derivatives only used for hedging purposes.

Both the equities and bonds used in this product pass through our specially developed ESG filter. A selection of what are known as principal adverse impacts (PAIs), i.e. the adverse effects on sustainability indicators, are also explicitly considered to ensure, among other things, that the product meets the high ESG minimum standards. The voting rights arising from the equities within the portfolio are also actively exercised.

Detailed information about the ESG methodology we use can be found here:

known as the FinAnKo guidelines (see “In focus” section entitled “Lupus alpha Sustainable Return ESG methodology”). **This product is classified by Lupus alpha as compliant with Article 8 of the Sustainable Finance Disclosure Regulation (Regulation [EU] 2019/2088 – SFDR).**

Who should choose this product?

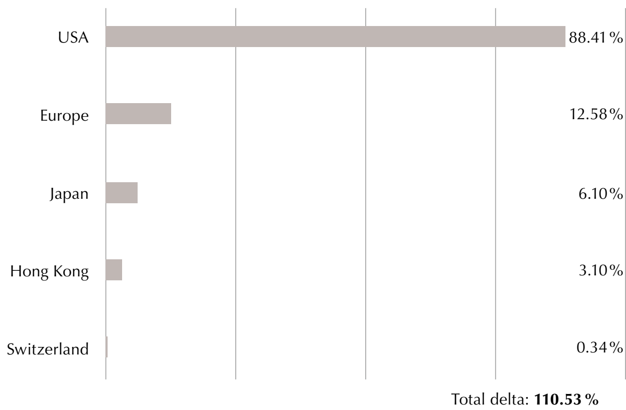
Lupus alpha Return is an excellent choice for investors who are looking for stable income yet are not prepared to bear the full risk associated with the equity market or suffer significant losses. The fund is designed to offer stable long-term returns by managing equity exposure within a range of 0–80 per cent (40 per cent on average) while at the same time limiting losses to ten per cent in any calendar year*. The capital protection strategy pursued by this product has one clear objective for investors: stress-free equity investment.

Further information about Lupus alpha Return can be found here:

Lupus alpha Dynamic Return

Lupus alpha Dynamic Return provides investors with the chance to participate fully in the return opportunities of global equity markets. Diversifying sources of return and actively managing portfolio risk allows investors to limit their risk of loss and optimise their risk-return profile. Exchange-traded derivatives (futures, options) are used to implement this strategy.

18. Lupus alpha Dynamic Return: contribution to equity exposure

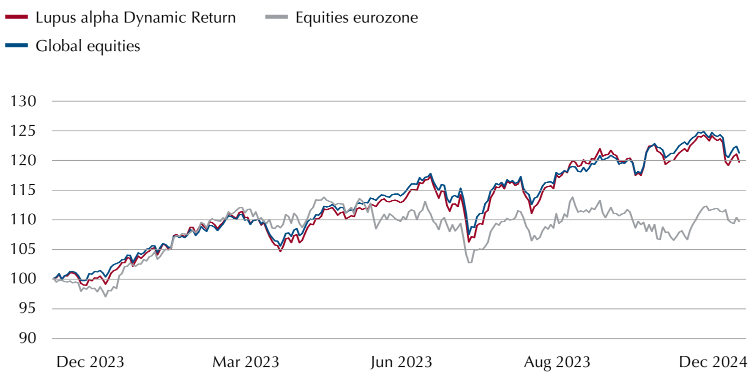


Sources: Bloomberg, own calculations; as of 31. 12. 2024

Market exposure of the product

The global portfolio focuses on the main international developed equity markets. Exposure is therefore concentrated in the US, Europe, Japan (Nikkei 225) and Hong Kong (Hang Seng). Other allocations may be added if the derivatives are sufficiently liquid and the environment is attractive. In addition, our experienced portfolio managers constantly monitor developments and the environment in order to make adjustments and optimisations as necessary.

19. Lupus alpha Dynamic Return: performance since launch[7]



Key performance indicators and risk figures

	La Dynamic Return C	Global Equities	Equities eurozone
Calendar year	19.01 %	20.23 %	10.41 %
since launch	19.88 %	21.44 %	9.73 %
since launch p. a.	19.01 %	20.50 %	9.32 %
Volatility p. a.	12.48 %	10.88 %	13.41 %
Sharpe ratio[8]	1.2	1.5	0.4
Max. drawdown	–9.58 %	–8.83 %	–9.84 %

[9] r = 3.79 %.

[7] The gross performance (BVI method) takes into account all costs incurred at fund level. Past performance is not a reliable indicator for the future performance. Sources: Bloomberg, own calculations; observation period: 15. 12. 2023 to 31. 12. 2024. Equities eurozone = EURO STOXX 50 Net Return Index (Ticker: SX5T Index); global equities = MSCI World 100 % Hedged to EUR Net Total Return Index (Ticker: MXWOHEUR Index)

Instruments used in the product
The Lupus alpha Dynamic Return strategy is implemented using a flexible derivatives concept via liquid and listed instruments. The strategy aims to generate the most cost-effective long call profile possible, primarily via options on indices and individual stocks, in order to participate fully in rising equity markets.

Product history and track record
Lupus alpha Dynamic Return was launched in December 2023 to offer investors a risk-controlled strategy with a higher equity market exposure. The fund thus complements our capital protection strategies with a more offensive product. In its first year, the fund has already successfully demonstrated that it has achieved this objective (see Figure 19).

Who should choose this product?
This product is aimed at investors with higher return expectations who are prepared to bear the full equity market risk, but wish to be protected against extreme price falls. The strategy thus offers risk-controlled participation in the upside potential of global equity markets, with the aim of significantly reducing price losses in times of pronounced capital market turbulence. The objective of portfolio management is therefore to achieve full equity market participation in a normal equity market environment. In times of crisis, the favourable portfolio construction via options leads to a significant decoupling from the market.

Further information about Lupus alpha Dynamic Return can be found here:

Client-specific capital protection concepts

Individual capital protection levels*: we are in a position and have the necessary experience to adapt our tried-and-tested capital protection concepts to fulfil the individual requirements of our clients. We can customise the return expectations together with both the capital protection level (e.g. the minimum portfolio value*) and the instruments used to meet your specific needs.

Allocations tailored to individual risk and/or ESG requirements: to achieve this, we work closely with the investors to create a personalised mandate that satisfies their needs with regard to time horizon, expected returns, risk budget and ESG requirements.

Your dedicated contact (see page 29) will be glad to discuss your requirements in more detail.

Derivative equity investments: Significant benefits for banks under CRR III

On 1 January 2025, Capital Requirements Regulation III (CRR III) came into force, bringing significant changes to regulatory capital requirements as part of the implementation of the Basel III framework. One of the most important changes is the gradual increase in capital requirements for equity risk exposures, which include stock investments. Between 2025 and 2030, the risk weighting for equity exposures will gradually increase from 100 % to up to 250 % and even 400 % for high risk exposures. This will lead to significantly higher capital requirements for equity exposures in the future and thus to a lower return on regulatory capital.

Listed derivatives can be an attractive alternative in this context, as they are subject to comparatively lower capital requirements due to their standardised structure and regulation by organised markets. The exposure value of these derivatives is determined on the basis of counterparty credit risk. The standard-

20. Pillar I regulatory requirements for the asset classes of capital protection funds from the perspective of investing banks

	Solvency indicator (Credit Risk Standardised Approach)
iShares MSCI World EUR Hedged	97.1 %
iShares MSCI World EUR Hedged – zukünftig unter CRR III	**250.00 %**
Lupus alpha Return	12.9 %
Lupus alpha Dynamic Return	12.7 %

Source: WM Daten Service; as of: October 2024

ised approach to counterparty credit risk 'SA-CCR', which was already introduced in the CRR in 2019, is subject to only minor adjustments in CRR III. The counterparty credit risk of derivatives is independent of the risk weight that would be assigned to the underlying in the case of a direct exposure. In this respect, the calculation of the risk value for derivative exposures remains unaffected by the increased risk weights for equity exposures. The risk weight of the counterparty is decisive for determining the risk-weighted exposure contribution: for institutions and eligible central counterparties with a credit rating of 2 (equivalent to an A rating), this is even reduced from 50 per cent (CRR II) to 30 per cent (CRR III). This results in attractive regulatory advantages for banks compared to direct investments in equities.

In summary, Lupus alpha's capital protection strategies with their derivative implementation offer significant advantages for banks. The significant reduction in risk weighting makes it possible to optimise capital requirements while maintaining a broadly diversified and risk-controlled global equity exposure. The preferential regulatory treatment of derivatives thus provides an opportunity to optimise capital allocation and minimise regulatory capital requirements (see Chart 20). In addition, derivatives provide greater flexibility to react quickly to market changes and offer effective hedging against market risks and drawdowns. At the same time, the underlying portfolio of high quality bonds on which the derivatives portfolio is based allows for a reasonable interest income and thus distributable interest result. Do you have any further questions about the regulatory treatment of our funds? Please do not hesitate to contact us.

Would you like further information about the allocation of capital protection strategies?

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Disclaimer:

***General note for the entire document: loss avoidance, capital protection and adherence to the floor level cannot be assured or guaranteed at any time.**

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