GERD
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WHITE PAPER

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Preliminary remarks

This white paper summarises the key elements of the investment approach of the Gerd Kommer group of companies. We refer to this approach as the *World Portfolio Concept*.

The aim of this approach is to offer private investors a robust, long-term oriented strategy for investing with ETFs – irrespective of whether they live in Germany, Italy or elsewhere.

The World Portfolio Concept is based on insights from modern financial market research and is guided by the empirically well-documented fact that broad diversification, low costs and disciplined behaviour are usually the key drivers of investment success – not market forecasts or the supposedly skilful selection of individual securities.

The contents presented in this white paper are supported by academic sources, enabling interested readers to verify statements and explore the subject matter in greater depth. A list of references can be found at the end of the document.

The Gerd Kommer brand does not refer solely to the person Dr Gerd Kommer, but encompasses the entire team around Dr Gerd Kommer. In order to avoid misunderstandings, those cases in which we refer to Dr Gerd Kommer as an individual can be recognised by the doctoral title preceding his name.

Do you have any comments or feedback for us? If so, please feel free to send us an e-mail at mail@gerd-kommer.de. We look forward to hearing from you.

We hope you enjoy reading our white paper.

Yours sincerely,
The Gerd Kommer team

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1 Basic assumptions of the World Portfolio Concept

1.1 The market economy creates prosperity

The market economy in its modern form emerged in Europe and North America in the late 18th century with the beginning of the Industrial Revolution and the end of religiously motivated feudalism. In societal and political terms, the American Revolution of 1776 and the French Revolution of 1789 were important milestones.

Thanks to the, in retrospect, almost unbelievable dynamism and productivity of the market economy, the economic condition of humanity has improved dramatically over the past roughly 250 years, as illustrated by the global indicators of prosperity and quality of life listed below. (In the roughly 1,800 years between the birth of Christ and the emergence of the modern market economy in the mid/late 18th century, global economic output per capita hardly grew at all.) Here are the figures: [1]

- global per-capita gross domestic product rose by 1,050% in real terms from 1870 to 2016, corresponding to more than a tenfold increase;
- the share of the world's population living in extreme poverty fell from 91% in 1820 to 10% in 2016 (according to the UN definition of poverty);
- life expectancy for the average world citizen was 29 years in 1820 compared with 72 years in 2020;
- the share of children dying before the age of five declined globally from 42% in 1800 to 4% in 2017;
- the share of the world's population unable to read or write fell from 88% in 1800 to 14% in 2015;
- in 1800, slavery was legal in 193 out of 194 states; in 2017, it was legal in only three.

In our view, no social organisational system exists that creates more prosperity and quality of life than the market economy.

We are convinced that the world economy – consisting of companies in around 195 countries – will continue to grow in the long term in a manner broadly similar to the past roughly 200 years.

All of us participate in this value creation as employees, pensioners, consumers and, more generally, as citizens.

Investors who provide risk capital to the world economy – that is, to companies and governments – for example by purchasing shares or bonds, additionally benefit as capital providers from the remarkably stable global economic growth. In the roughly 75 years since the Second World War up to 2023, there were only two years (2009 and 2020) in which real

[1] The data cited originate from the website https://ourworldindata.org/ created by the German economist Max Roser at the University of Oxford. The dramatic improvement in humanity's circumstances over the past 200 years is also extensively documented in the following books: Steven Pinker, *Enlightenment Now: The Case for Reason, Science, Humanism, and Progress* (2018); Hans Rosling, *Factfulness: Ten Reasons We're Wrong About the World – and Why Things Are Better Than You Think* (2018); Martin Schröder, *Warum es uns noch nie so gut ging und wir trotzdem ständig von Krisen reden* (2019); Andrew McAfee, *More from Less: The Surprising Story of How We Learned to Prosper Using Fewer Resources – and What Happens Next* (2020); Johan Norberg, *Progress: Ten Reasons to Look Forward to the Future* (2020).

global economic growth was not positive. By contrast, the economy of an individual country will experience a negative growth rate in more than one out of every ten years.

1.2 The informational efficiency of capital markets

In line with the prevailing view in academic financial market research, we believe that organised capital markets price securities correctly. In this context, “correctly” means that the current price of a security represents the best estimate of its fundamental value, and that investors cannot achieve a systematic (i.e. reliable) excess return merely by using publicly available information.[2]

The technical term for this is the “informational efficiency” of financial markets. “Systematic” means persistent and continuous, i.e. not merely the result of chance (luck, with misfortune being its mirror image). “Excess return” means a return above an appropriate benchmark, taking into account the level of risk assumed, the transaction and investment costs, and taxation.

In 2013, the American economist Eugene Fama was awarded the Nobel Prize in Economic Sciences, in part for his groundbreaking research on the so-called *Efficient Market Hypothesis,* which explains the causes and implications of the informational efficiency described above.

1.3 Active investing produces unattractive returns

Active investing is what “everyone” does – the attempt to achieve an especially attractive risk–return combination through targeted timing (“in-and-out”) or the deliberate selection and concentration on certain securities. Well over 90% of all private investors’ portfolios constitute some form of active investing.

Every form of active investing, regardless of the specific strategy, is either:
(a) “asset picking” (referred to as “stock picking” in the case of equities), i.e. the targeted selection of individual investments believed to be attractive;
(b) market timing, i.e. moving in and out of entire asset classes[3] over time in order to exploit supposedly favourable market phases and avoid unfavourable ones; or
(c) a mix of asset picking and market timing.

Over the past roughly 60 years, academic finance has demonstrated in hundreds of rigorous studies that:

- the average investor – whether a professional or an amateur – underperforms a correctly chosen benchmark, colloquially “the market”, once risk, costs and taxes are taken into account;
- this underperformance tends to increase with the length of the observation period. Over time horizons of ten years or more, typically more than 90% of all actively managed securities portfolios lag behind passive comparison portfolios in terms of

[2] The use of non-public information for investment purposes (insider information) in securities investments is a criminal offence in Germany and in most other industrialised countries.

[3] Asset classes (asset = item of value) are logically defined categories of investments (assets), such as equities, bonds, money-market investments (cash-like instruments), real estate, commodities and collectibles. These main asset classes can be subdivided in various ways into sub-asset classes. Individual assets within an asset class exhibit statistically very similar properties with respect to return, risk and liquidity.

returns. Over periods of 15 to 20 years, studies frequently show that 95% to 100% of all actively managed portfolios underperform the passive benchmark;

- the small group of investors who outperform a correctly chosen benchmark (a passive portfolio) in a given time window changes more or less randomly from one time window to the next, and cannot be reliably predicted in advance. There is therefore no "performance continuity" observable from the past on which an investor could rely ex ante.

Why is this the case? The main reason is the informational efficiency of financial markets. In this respect, financial markets differ from all other markets, such as the market for used cars, airline tickets or real estate. This makes financial markets unique among all markets in that regularities and tendencies that hold elsewhere often cannot be transferred to them.

Fortunately, investors do not have to accept the unattractive risk–return profile of active investing, as a superior alternative is available.

1.4 Passive investing is superior to active investing

Passive investing is the better alternative to active investing. It is free from the disadvantages of conventional active investing described above and therefore produces better results on average. In the long run, there is a high probability that a passive investor will rank among the top 10% of their correctly chosen peer group in terms of return and terminal wealth. Passive investing typically leads not only to higher returns, but also to lower risk, greater transparency and, overall, more peace of mind for the investor.

Passive investing is forecast-free, non-speculative investing in entire asset classes, such as the global equity market, on a buy-and-hold basis, including rule-based rebalancing. No costly and predominantly return-damaging attempt is made to "beat the market".

The costs of passive investing are only a fraction of those incurred with active investing.

The term "passive" is somewhat misleading in that it suggests that a passive investor "does nothing". This interpretation would be incorrect. Passive investors or their advisers also make many active decisions initially and on an ongoing basis – but only those that, from a scientific perspective, can reasonably be expected to add value. A large part of the hectic activity associated with conventional investing has a negative expected benefit from a scientific perspective and, on balance, causes harm (real losses and/or poorer returns than would be achievable with a passive approach). However, because the somewhat misleading term "passive investing" became established many years ago, we use it as well to distinguish ourselves from unscientific "active" investing.

Passive investing is still a minority practice, although its market share has been growing faster than that of all other investment approaches for several years. The three largest asset managers in the world (BlackRock, Vanguard and State Street) predominantly offer "passive" products (traditional index funds and ETFs, i.e. exchange-traded index funds). The largest investment fund in the world is an index fund – the Vanguard Total Stock Market Index Fund. The largest sovereign wealth fund in the world, Norway's well-known Government Pension Fund Global, also relies on the principles of passive investing for the majority of its capital market investments.

2 Central principles of the World Portfolio Concept

2.1 Returns are risk premiums

Returns are primarily the compensation for bearing expected risk (risk as anticipated by the market community). Those who bear no risk cannot expect a return. Those who wish to bear only low levels of risk can expect only low returns. Returns are therefore, in essence, “compensation for discomfort”. This applies across all market phases: good, neutral and bad.

We do not believe that it is systematically possible to identify segments of the financial market that offer a “free lunch” in this respect. This is the “no-free-lunch principle”, to which we attach great importance. The only exception is intelligent diversification consistent with academic evidence – a topic we address in section 2.6.

In bad market phases (i.e. immediately after market returns have fallen), the expected returns for the future are higher than in normal or good market phases.

One of the most important insights of capital market research over the past five decades is the distinction between “good” and “bad” risks. Good risks are those for which the capital market compensates investors *ex ante*. Bad risks are those that the capital market does *not* compensate *ex ante*. We deliberately incorporate good, i.e. “paid”, risks into our clients’ portfolios and ensure that bad, uncompensated risks remain outside. The most important risk types that fall into the category of bad risks are listed in the following section 2.2.

We consider it essential for rational investing to engage thoroughly with the complexity of the concept of risk and with the unavoidable necessity of taking risk. Below are several aspects of risk that form part of our investment approach:

- Risk can be measured using different methods and metrics, which may produce markedly different results. Recognising these differences is important.
- Investors’ risk tolerance and risk-bearing capacity change over the course of their life cycle. These changes must be anticipated and taken into account.
- Risk must primarily be measured at the level of the household’s total wealth. Measuring risk at the level of a single investment may be misleading.
- The risk tolerance of most investors is higher in positive or neutral (“normal”) market phases than in bad market phases. This must be reflected in the asset allocation process[4], which determines the risk level of a portfolio.

The World Portfolio approach aims to “harvest” market risk premiums through disciplined, long-term investing. Naturally, this is only possible if, and as long as, an investor actually maintains exposure to these market risk premiums, such as the equity market premium – in other words, remains invested “in the market”.

The World Portfolio approach explicitly does not seek to achieve excess returns relative to “the market” (i.e. the respective asset class), because we consider this attempt, statistically and in the long run, to be detrimental to returns.

[4] Asset allocation is the division of an investment portfolio into asset classes.

2.2 Forecast-free investing

Conventional active investing by private investors – whether on their own or with the support of an adviser or fund manager – is based on two assumptions:
(a) there is someone who is able to produce profitable financial forecasts systematically (that is, consistently and repeatedly), and
(b) an investor is able to identify this person or institution (or a private investor believes that they themselves are capable of doing so).

We consider both assumptions to be unconvincing and, in the long term, detrimental to returns. For this reason, we apply a fully forecast-free investment approach.

Forecasts are bets. The following bets (risks) are ones we would never take:

- bets on individual equities (stock picking) or bonds;
- bets on individual countries;
- bets on individual sectors;
- bets on "themes" such as artificial intelligence or water scarcity;
- bets on individual fund managers;
- bets on specific time periods (market timing);
- bets on changes in central bank monetary policy.

These bets represent "bad risks", which should not be accepted because they offer no expected compensation (return) (see previous section). We "bet" only on the entire world economy and on the expectation that the market economy will, in the long-term future – as it has for more than 200 years since the beginning of the Industrial Revolution – continue to produce economic growth, prosperity and progress at the global level.

2.3 Irrelevance of recent and short-term historical returns

Returns of individual securities, of individual actively managed funds, or of individual active investment strategies over the past six months to 20 years have, for numerous reasons well documented in academic research, no reliable relevance for the future. This is one of the many reasons why investments in individual securities and, more generally, active strategies should be rejected from a purely rational perspective.

At the level of entire asset classes (the ETFs we recommend or use always represent a clearly defined asset class), historical returns in the recent past (e.g. the last five years) are likewise almost always irrelevant for formulating an investment strategy and for making forward-looking investment decisions, because these short-term returns generally have no, or only very limited, explanatory power. Of course, recent returns are "interesting" and are monitored continuously by us and by investors, but from a scientific perspective they say little to nothing about the next six months or three years. More importantly, investors who base major decisions on returns observed over short time periods risk causing themselves significant financial harm.

For this reason, attempts to draw reliable conclusions about the correctness or incorrectness of an investment strategy solely from the performance of an asset-class portfolio over periods of less than five or ten years will regularly lead to misguided outcomes.

In contrast to returns from the recent past (such as the last five years), valuation levels at the asset-class level (e.g. the price-earnings ratio, or P/E ratio, of broad equity markets) do indeed have relevance for future returns. Low (“cheap”) valuations signal high expected returns, and high (“expensive”) valuations signal low expected returns. However, this does not imply that valuation-driven market timing works. This mistaken conclusion ignores the opportunity costs of “waiting” (i.e. the foregone return from not being fully invested) and other disadvantages of market timing (transaction costs, taxes and potential timing errors).

2.4 Equities are the most profitable of all asset classes

From historical data covering the past 120 years and from economic logic, we know that equities are the most profitable of all asset classes. Over the long term, they generate higher returns than real estate, corporate bonds, government bonds, gold, commodities and collectibles such as classic cars or art.

2.5 Cost minimisation

The ancillary costs of investing have a substantial impact on an investor’s terminal wealth over the long term. Our aim is to minimise these costs wherever possible. The inevitably higher costs of active investing are one of the reasons why we reject this form of investing.

2.6 Global diversification

Diversification is the only “free lunch” in investing, and is therefore used intensively and systematically in the World Portfolio Concept. Diversification is the opposite of concentration. Concentration is reflected in the bets we reject in the context of active investing, listed above in section 2.2.

Diversification reduces the risk of a portfolio without reducing its expected return (hence the term free lunch). Portfolio diversification takes place both within asset classes and across different asset classes.

In the equity component of the World Portfolio, a regional allocation (geographical weighting) based on a pragmatic compromise between market-capitalisation weighting and economic weighting (measured by the gross domestic product of the respective regions) is advisable. If a traditional market-capitalisation weighting were used, the weight of North America would currently, in mid-2025, be more than 60%, while the weight of emerging markets (including Brazil, China and India) would be just over 10%. In these two regions, and for Europe, the portfolio weighting deviates significantly upward from the market-capitalisation weighting. For the Asia-Pacific region (Japan, Australia, New Zealand, Hong Kong, Singapore), the deviations are smaller.

The main reason for the “fundamental” (real-economic) weighting method used in the World Portfolio Concept is, first, to reduce the concentration risk associated with the USA and, second, to question whether the “historical accident” of the higher proportion of publicly listed companies in the United States relative to other regions should influence that region’s weight in a world portfolio to such an extent. We do not believe it should.

Over very long periods, GDP-based weighting has historically produced a slight outperformance relative to market-capitalisation weighting.

2.7 Long-term perspective

Investing with the objective of building, preserving or using wealth over the long term – whether for retirement or for passing assets on to heirs – is a marathon. In such a long-distance endeavour, it is of little or no relevance, from an ex-ante perspective, what happens in the first 1,000 metres or during kilometres 17 to 19. Similarly, attempts to draw reliable conclusions about the validity of an investment strategy from portfolio returns over periods of less than five or ten years regularly lead investors astray.

World Portfolio investors should be aware that the goal of the World Portfolio is not to achieve the highest possible short-term returns – over six months or three years, for example – or even to generate a positive return every calendar year. We believe that such short-term objectives are counterproductive. Our aim is therefore to achieve an attractive risk-return profile over the long term (>10 years).

2.8 Buy-and-hold (buying and holding)

Our investment strategy is based on a radical buy-and-hold (BAH) approach with rules-based rebalancing (see section 2.11). We neither take particularly strong returns in the recent past within an asset class as a reason to "top up" or shift into that asset class, nor do we take poor returns or losses as a reason to sell.

Why buy-and-hold? The answer is simple: BAH leads, statistically, to higher terminal wealth than the alternative – short- or medium-term trading of individual securities or asset classes (stock or asset picking), or attempts to identify the "perfect" entry or exit point.

The reasons for the statistical superiority of BAH are as follows: active investing performs poorly in general (see section 1.3 above); BAH has the lowest possible costs; and over the long term BAH provides tax advantages due to the present-value effect of deferred taxation on capital gains.

Anyone who wishes to replicate "the market" with their investments – as we do – must be a BAH investor, because the market itself is, by definition, a BAH concept.

BAH does not mean that no changes may occur within the portfolio over time. It simply means that such changes are not triggered by subjective interpretations of recent trends or speculative bets on short- or medium-term future events. In addition, adjustments take place through rules-based rebalancing (see section 2.11 below).

2.9 "Omission" versus "active doing" (the via negativa principle)

Private investors are often told that successful investing is primarily a matter of making the right active decisions – or, more generally, "doing certain things right". This is only half true. Successful investing is the result of (a) beneficial active actions and (b) refraining from harmful actions, i.e. avoiding or ending mistakes. We are even of the view that (b) tends to have a greater influence on a household's long-term wealth than (a).

Avoiding/ending mistakes means: not buying poor financial products[5], or disposing of them if they are already held; not pursuing poor strategies; and making unfavourable timing decisions (such as in-out or back-and-forth trading) as infrequently as possible.

[5] Three examples of this are endowment life insurance policies, closed-end funds (real estate, containers, ships, aircraft, renewable energy, films, etc.) and structured products (certificates).

We refer to the substantial economic contribution of “omission” to long-term financial success as *via negativa* (“the negative way”). We devote significant attention to this aspect – avoiding behavioural errors and ending poor investments – when managing the assets of our clients.

2.10 Freedom from conflicts of interest

“Conflicts of interest are the plague of the financial industry”, as a media article put it in 2017. This assessment hits the nail on the head. Ultimately, no other factor has caused more damage to retail investor portfolios over the past 30 years than the presence of conflicts of interest among the various “traditional” parties influencing retail investment outcomes: banks, financial advisers, asset managers, product providers (e.g. banks, life insurance companies, fund companies, certificate issuers, real estate brokers) and the media.

At Gerd Kommer we rigorously eliminate conflicts of interest in our work and are subject to a regulatory regime that prohibits us from accepting commissions from product providers in any form whatsoever. Our management fee structure and the remuneration structure for our employees have also been designed to ensure that no conflicts of interest arise.

2.11 Rebalancing

In the context of passive investing, rebalancing refers to the rules-based, periodic restoration of the original, deliberately chosen portfolio structure after it has shifted due to differing return developments of the portfolio components – an outcome that is inevitable and normal over longer periods.

Because risky asset classes (e.g. equities) generate higher long-term returns than low-risk asset classes (e.g. bonds), forgoing rebalancing causes the weight of risky assets to rise over time. This makes the overall portfolio riskier – a result that is undesirable from a rational perspective, as it contradicts the investor’s original asset-allocation decision. An investor chooses a particular asset allocation because (until revised or adjusted) they desire a specific risk–return profile. This profile has now shifted due to market developments. Rebalancing corrects this shift.

Rebalancing primarily serves risk management – that is, the preservation of the originally chosen level of risk. Helpfully, rebalancing within asset classes with similar return potentials can also provide a small return-enhancing effect, known as the rebalancing bonus.

Rebalancing reflects the principle of contrarian investing: buy low, sell high. Because it is strictly rules-based and non-speculative, it does not conflict with the buy-and-hold principle (see section 2.8 above).

In the World Portfolio, rebalancing should be carried out regularly – specifically whenever the current allocation deviates sufficiently from the target allocation.

Furthermore, all transactions (contributions to and withdrawals from the portfolio) should always be executed with rebalancing considerations in mind. When making an additional investment, the weights of the individual products (ETFs) in an existing portfolio should therefore not correspond to the target allocation; instead, they should be adjusted so that the portfolio, after the transaction, moves closer to its target allocation.

A simple example illustrates this: suppose a portfolio worth €10,000 contains two ETFs (asset classes) in a ratio of 67%/33%, while the defined asset allocation is 50%/50%. If €5,000 is invested, the funds are not allocated €2,500 to each ETF; instead, €800 flow into the first ETF and €4,200 into the second ETF. The result is that the 50/50 target allocation is restored.

This type of rebalancing is also known as *cashflow-based rebalancing*.

3 Possible philosophies of passive investing

Within the World Portfolio Concept (forecast-free investing with maximum diversification on a buy-and-hold basis), there are – besides pure market-capitalisation weighting – two key investment philosophies. Both follow the core principles set out in Sections 1 and 2:

- **GDP investing:** In this approach, the equity component of the portfolio consists of globally diversified, index-oriented funds and/or ETFs without overweighting so-called factor premiums (see Section 4 below). The aim is to reflect the global economy as comprehensively as possible. In regional terms, we base the weighting of the main regions of the global equity market on global economic output (GDP weighting).
- **Factor investing:** Here, certain factor premiums in the equity component of the portfolio are overweighted (see Section 4) in order to achieve slightly higher long-term returns (after costs) than would be expected from purely market-neutral investing.

4 Why factor premiums are overweighted in the World Portfolio

“Factor premium” is the technical term for a statistically identifiable characteristic of an asset class that systematically determines the return and risk of securities within that asset class. From a scientific perspective, factor premiums are the central drivers of risk and return in an asset class. Other drivers either offer no advantageous or no systematic influence on risk and return (after costs) and are therefore not reliably exploitable.

Within the World Portfolio Concept, we use those factor premiums in equities that – in our view – are most convincingly supported by academic research, i.e. those for which scientific consensus is strongest.

We implement this by overweighting the corresponding market segments in a portfolio. “Overweighting” means assigning a higher portfolio weight to that segment than it has in the market based on market capitalisation. In equities, the relevant factor premiums are:[6]

- **(Small) Size:** Shares of small companies have a higher statistical expected return than shares of large companies (based on market capitalisation).
- **Value:** Shares whose price is low relative to certain accounting metrics (e.g. earnings or book value) have higher expected returns than otherwise identical shares for which this is not the case. In other words, “cheap” shares (value stocks) have higher expected returns than “expensive” shares (growth stocks).

[6] If you would like to learn more about factor investing, you may find our introductory blog post helpful: *Factor Investing – the basics*.

- **Profitability/Quality:** Shares of companies with above-average profitability, low asset turnover and/or low leverage exhibit higher expected returns than comparable shares lacking these characteristics.
- **Investment/(Low) Asset Growth:** Shares of companies with low balance-sheet growth have higher expected returns than those with high balance-sheet growth.
- **Momentum:** Shares with above-average returns over recent months exhibit – over short periods thereafter – higher expected returns than shares that performed poorly in the same timeframe.
- **Political Risk:** Emerging-market equities exposed to higher levels of political risk have higher expected returns than equities from developed markets.

These factor premiums have been identified and documented over the past five decades of academic research. They are not exceptions to the **no-free-lunch principle** (see Section 2.1). Instead, they represent compensation for (a) additional risk (e.g. higher volatility or other forms of risk), (b) systematic investor irrationalities and (c) certain market frictions ("arbitrage barriers")[7]. Factor premiums themselves are volatile – that is, they do not appear consistently (not every month or every year) and can shift from providing a bonus to producing a penalty over long periods. If factor premiums were continuous (i.e. guaranteed), they would long since have been arbitraged away through demand, becoming too "expensive" to deliver any further return advantage.

Factor premiums also exist in interest-bearing asset classes, including bonds. For reasons of space, we do not discuss them in this document.

Factor investing inevitably leads to a portfolio developing differently over time than a market-neutral portfolio without factor premiums. In practice, this means that year-to-year deviations in return and risk between these two variants of passive investing may be substantial.

One may fairly debate whether factor investing is still "passive" investing – yes and no. More fundamentally, we consider the term "passive investing" somewhat misleading, as truly "passive" investing is in fact impossible (see also Section 1.4). Factor investing is, in any case, more "active" than classic market-neutral passive investing.

Further information on factor investing can be found in Dr Gerd Kommer, Souverän investieren mit Indexfonds und ETFs, 7th edition, 2025, Section 6, and in the blog articles referenced in footnote 8 and in the bibliography (the content is predominantly in German).

5 Why commodities tend not to be included in a World Portfolio

Direct investments in commodities, with the exception of precious metals, are not possible for ordinary private or institutional investors. In practice, commodity investments can only be implemented in the form of so-called commodity futures.

For direct investments in physical commodities, the costs of transport, storage and insurance would absorb ("eat up") any conceivable positive gross return and turn it negative.

[7] Explaining points (b) and (c) in greater detail would go beyond the scope of this white paper.

The historical returns of commodities (spot market) and commodity futures are lower than many private investors assume. The risk of commodity futures – for example measured by their volatility – is higher than that of the global equity market.

Commodity futures, which also exist in the form of ETFs (commodity ETFs), have lost the attractive return prospects they offered until around 2007, following the sharp rise in popularity of this asset class from approximately 2002 onwards. For this reason, we do not consider commodities, with the exception of gold, to be a sufficiently attractive component of a World Portfolio.

6 The role of gold in a World Portfolio

Gold is not, by default, part of the World Portfolio concept.

In the roughly 50 years since the gold price has been freely determined on global markets (from 1975 onwards), without substantial central bank intervention or ownership restrictions ("gold bans") as was previously the case, gold has delivered a less attractive risk–return profile than equities. Its return pattern has also been more erratic (less reliable) than that of equities, the most profitable of all established asset classes.

Nevertheless, there are several arguments that may support including a modest allocation of gold – around 5% to 10% – within a World Portfolio.

- Gold returns exhibit low correlation with those of equities and interest-bearing securities. From a portfolio-theoretical perspective, this is an advantage when considering gold as a complementary component in an equity-heavy portfolio.
- In periods of global political or economic crisis, the gold price can develop more favourably than equity markets. (However, gold's "crisis-insurance" properties are by no means reliable; during both the First and the Second World War, the USD gold price declined.)
- In phases of high inflation, gold tends to deliver comparatively good returns. (Yet even this form of inflation protection has not functioned consistently across all such periods.)

If clients of Gerd Kommer Invest's discretionary wealth management explicitly request that gold be included as part of their World Portfolio, we can implement this for them in the form of a gold ETF.

Gold ETFs receive the same favourable tax treatment as a direct investment in gold. Such ETFs are backed by physical gold and are just as "real" as owning physical gold directly. From a security and handling perspective, there are even good arguments to prefer a gold ETF to a physical gold investment.

7 Why cryptocurrencies are typically not part of a World Portfolio

Cryptocurrencies are not, by default, part of the World Portfolio concept.

Under certain circumstances, however, Bitcoin and/or Ethereum may serve as a complementary component within the risk-bearing portion of a portfolio. Gerd Kommer

Invest can implement such an allocation within a World Portfolio for clients who explicitly request it.

Entire libraries have been written in recent years about Bitcoin and cryptocurrencies more broadly. The opinions of qualified commentators range from “Ponzi scheme” to “investment opportunity of the century” to “Bitcoin as a societal revolution”.

A striking feature of the public Bitcoin/crypto debate is that many Bitcoin enthusiasts – particularly in the media and online – fail to clearly distinguish between two entirely different topics:
(A) cryptocurrencies as a potential revolution in monetary policy (and perhaps even social organisation) on the one hand, and
(B) Bitcoin (or cryptocurrencies) as an investment and retirement vehicle for private households on the other.
Because many Bitcoin supporters – in part for ideological reasons – deliberately blur these two levels, their conclusions about cryptocurrencies are often questionable or outright incorrect. This white paper addresses exclusively topic (B).

As cryptocurrencies are still relatively new, there are no long-term return data series from which reliable conclusions can be drawn about the future risk–return characteristics of this asset class. A sufficiently long horizon would be around 25 years or more. Available time series, however, cover only about 15 years for Bitcoin, and considerably less for all other cryptocurrencies. The very high historical crypto returns up to November 2021 do not invalidate this point. Because cryptocurrencies generate no cash flows and currently have no meaningful commercial utility (e.g. as a payment method), estimating their “fundamental value” using standard financial-economic methods – as is done for equities, bonds or real estate – is not possible.

The state of academic research on cryptocurrencies remains unclear and highly preliminary. There is no real consensus among researchers.

Political risk – specifically the risk of governments restricting or prohibiting the use of cryptocurrencies – has been comparatively high. Although this risk remains elevated compared with established asset classes, it has, in our view, declined significantly since the approval of crypto ETFs in the United States in early 2024. This regulatory “seal of approval” for Bitcoin by the financial regulator in the world’s most important economy marks a key milestone, effectively integrating Bitcoin into the “mainstream investment universe”. In Europe, crypto ETFs for private investors have existed since 2018. (Although technical and legal differences exist, US and European crypto ETFs are, from an economically relevant investor perspective, broadly comparable.)

In our view, only the two largest cryptocurrencies by market capitalisation (and thus market traction), Bitcoin and Ethereum, are suitable candidates for investment. For all other cryptocurrencies, uncertainties are materially higher. (In total, more than 20,000 cryptocurrencies have existed over the past 15 years; most are no longer “active”, meaning they have disappeared entirely or still exist formally but have no meaningful liquidity or trading volume.)

Anyone wishing to invest in Bitcoin or Ethereum should allocate cryptocurrencies to the risk-bearing part of their World Portfolio. The crypto component should not exceed one-tenth of the risk-bearing portion.

For reasons of space, we do not address the many additional important considerations, questions and risks that are discussed in relation to Bitcoin and Ethereum.

A technically straightforward and operationally secure way to implement a Bitcoin or Ethereum investment is through the purchase of a Bitcoin ETF (technically an ETN or ETC). This approach is operationally less risky and less complex than purchasing coins directly. It avoids, for example, the risk of losing private keys. Hacking risks and risks arising from the insolvency of a crypto exchange – such as FTX – are likewise significantly lower. The crypto ETN sits neatly and transparently in the client's securities account.

Under current information and legal conditions in Germany, there is no difference in taxation between Bitcoins acquired directly and Bitcoins acquired indirectly via an ETN, provided the product issuer grants a delivery right to the underlying coins.

8 Are real estate investments considered in the World Portfolio?

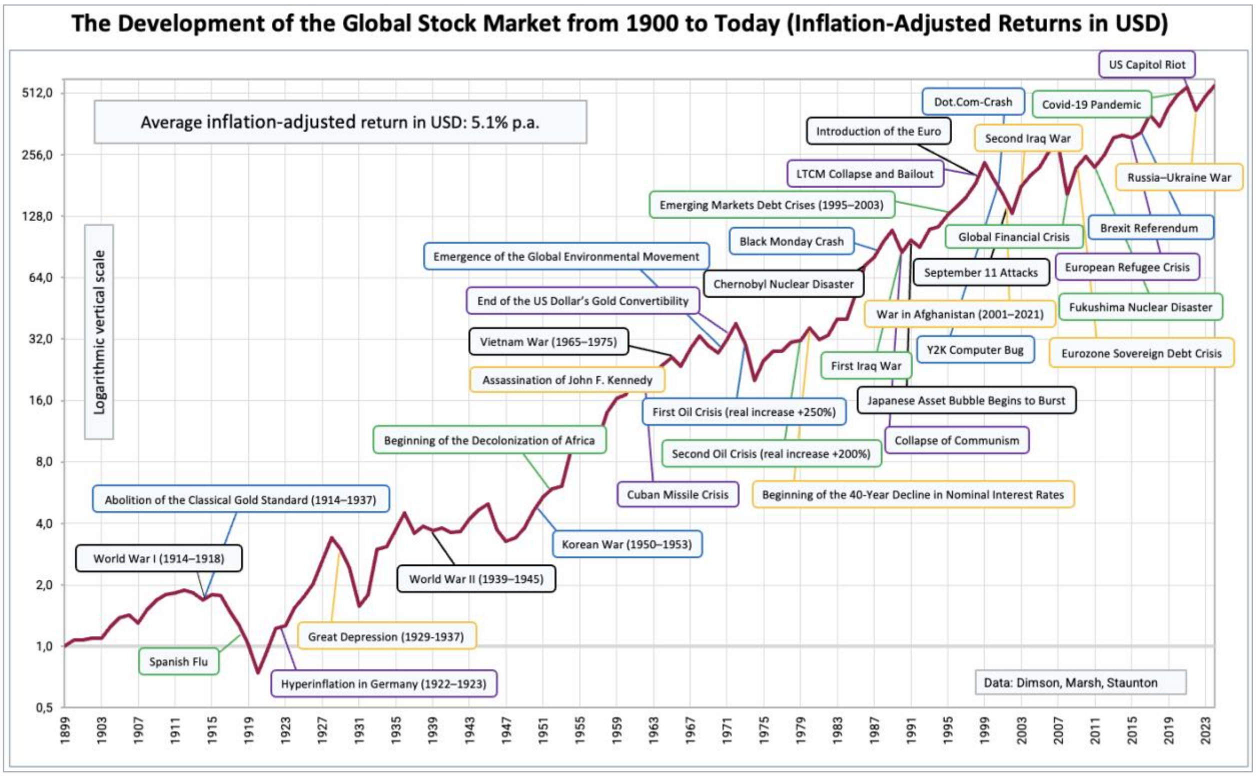
The real estate sector is a standard component of the global equity market, just like, for example, chemicals, information technology, healthcare, mechanical engineering, transport, finance, media or utilities. One example is Germany's largest real estate company, Vonovia SE, headquartered in Bochum. The company owns around 550,000 rental apartments across the country.

Globally, the real estate sector accounts for roughly five per cent of the total equity market. Because real estate equities have the advantageous characteristic of exhibiting a low correlation with the rest of the equity market, there is nothing to be said against slightly overweighting them (e.g. by around five per cent) within the equity portion of a World Portfolio.

9 How to act during a market crisis or crash?

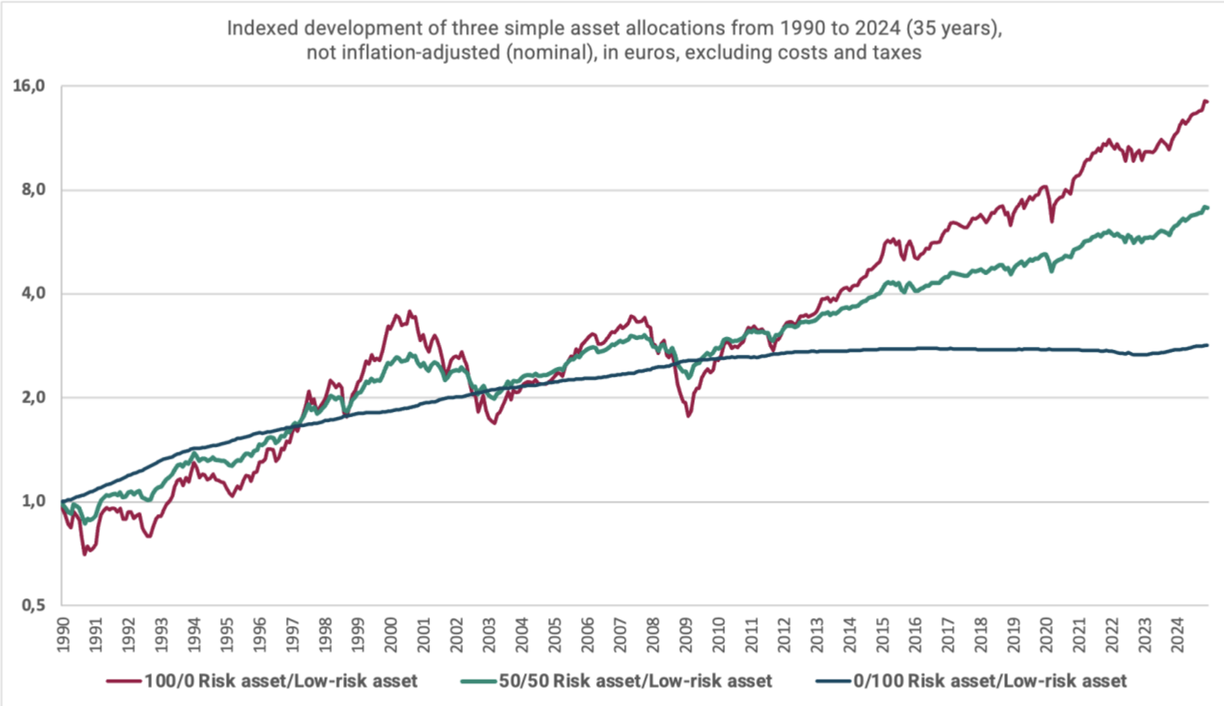
In the event of a crash, the simplest and most rational course of action is to do nothing – that is, neither sell investments nor rebalance the portfolio, nor delay planned securities purchases. Investors who adjust their asset allocation in response to a sharp market decline, for example by selling equities or other risk-bearing securities, thereby reveal that they had previously overestimated their own risk-bearing capacity. Provided that one has assessed this capacity correctly, a crash does not provide any justification for sales or other reallocations.
The number of academic studies showing that "crash timing" – attempting to predict the beginning and end of major market downturns and engaging in market timing on the basis of such forecasts – is statistically detrimental to returns is vast.

Over the past roughly 120 years, there have been countless global or national stock-market and financial-market crises across all asset classes (equities, bonds, bank deposits, property, commodities, precious metals and art). Several of these were as severe as, or more severe than, the financial crisis beginning in 2008 or the COVID-19 crisis in early 2020. After each of these crises, markets recovered and, within a reasonable period, exceeded their pre-crisis highs. These recoveries occurred because the world economy continued to grow.
The following chart illustrates these crises for the global equity market over the past 124 years, from 1900 to 2023. Thanks to the invention of index funds in the early 1970s, investors can participate in this development and resilience through a globally diversified equity portfolio containing thousands of individual securities.



Source: Calculations by Gerd Kommer based on data from Morningstar.

In addition, the following chart illustrates, for the shorter period of the past 35 years (1990 to 2024), this long-term upward trend – with pronounced interim fluctuations – for three asset allocations that represent different risk–return profiles: from very return-oriented (the 100/0 allocation) to a medium risk–return profile (the 50/50 allocation) and a very conservative, low-risk profile (the 0/100 allocation). After two major equity-market drawdowns of more than 40% each (in 2002 and 2009), the equity market recovered on both occasions and subsequently reached new all-time highs. This pattern can be observed in the global equity market for at least 120 years (see the previous chart), and almost certainly for even longer, although high-quality data are not available for earlier periods.



Source: Calculations by Gerd Kommer based on data from MSCI and DFA (logarithmic scale).

We consider broad global diversification within asset classes and diversification across asset classes, together with a carefully designed and sufficiently conservative asset allocation, to be the most effective means of mitigating the unpleasant side effects of an equity-market crisis (short- or medium-term drawdowns).

It is also important to bear in mind that financial-market crises or stock-market crashes – however one chooses to define them[8] – cannot be reliably identified in advance or in real time, even though the media, certain perennial doomsayers and our own instincts may suggest otherwise.

As mentioned above, the statistically expected, forward-looking return of an asset class (as opposed to individual securities) rises after it has declined in value due to negative returns, i.e. when it has become “cheaper”. This is a powerful argument for buy-and-hold. If one were to take recent price movements over the past twelve or twenty-four months into account at all (which we generally consider unwise), then negative returns in an asset class in the recent past would be an argument not to sell – and indeed to invest immediately. The analogy is straightforward: if a consumer or investment good becomes significantly cheaper, this is usually a reason to demand more of it, not less.

Additional arguments for refraining from selling during market downturns can be found in greater detail in all of Dr Gerd Kommer’s investment books.

[8] There is no universally valid or even remotely precise definition for a “crash”, a “market crisis” or any of the terms used synonymously with them.

10 How should highly valued (expensive) markets be approached?

10.1 General considerations

From a scientific perspective, it is unlikely that so-called “market crash timing” will outperform a disciplined, academically grounded buy-and-hold strategy over the long term.

Market timing regularly leads to investors remaining on the sidelines for too long instead of being “on the field”. Over time, this results in opportunity costs (foregone returns). Market timing also inevitably leads to higher costs and avoidable tax disadvantages. Moreover, it encourages procyclical (and therefore harmful) timing decisions: entering the market only after most of an upswing has already occurred – thus buying at high prices – or exiting after most of a downturn has already taken place. In effect, this means involuntarily practising “buy high, sell low”. The long-term result is disappointing returns.

An English investment adage puts it succinctly: *“Time in the market is more important than timing the market.”*

Rational investment decisions regarding the inclusion and weighting of asset classes in an investor’s portfolio should primarily be based on the relative characteristics of return, risk and liquidity, and only secondarily on their absolute levels. All asset classes should be compared simultaneously and in parallel – just as any rational decision weighs all relevant alternatives against one another rather than examining individual alternatives in isolation.

As of mid-2025, residential property as an asset class remains highly valued – i.e. “expensive” – in most major cities in Germany, Austria and Switzerland. As a result, forward-looking return expectations for this asset class are below average. Compounding this are the increased property-financing costs of the past 24 months.

High-quality, interest-bearing securities (short-dated government bonds and corporate bonds of the highest credit quality without currency risk) have – after the significant rise in nominal interest rates in 2022 – once again become relatively attractive in terms of yield. Prior to 2022, after roughly 40 years of declining interest rates, the valuation level of such bonds was very high; it has since become more favourable.[9] Even though interest rates have risen quickly and noticeably since early 2022, they remain low from a historical perspective. For bonds, long maturities should be avoided, as further nominal rate increases could lead to additional price losses (as already seen in 2022). (In the World Portfolio concept, the bond component always consists of short-dated securities.)

Bank deposits are – notwithstanding the gradual realisation among many households in recent years – not a sensible long-term investment. Over the long run, their return, after inflation and taxes, is close to zero. Although bank deposits are “99.9% of the time” free of volatility, for amounts exceeding the statutory deposit guarantee of EUR 100,000 per customer–bank combination (in the EU), they represent an unacceptable default risk for investment periods of more than a few months.

A reliable statement about the valuation levels of gold, commodities and cryptocurrencies is structurally impossible.

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[9] When interest rates are low, the bond market is described in economic terms as “expensive” or highly valued. The valuation level of bonds is inversely proportional to the level of interest rates.

Among the three most important asset classes for private investors – equities, high-quality bonds and real estate in the DACH region – only equities are, as of mid-2025, not "expensive".

10.2 Valuation metrics of different equity indices

To assess whether a given asset class is currently "cheap" or "expensive", market prices must be considered in relation to another meaningful metric. Price levels alone (such as the index level of the DAX or a so-called "all-time high") provide no basis for conclusions about a market's valuation level—just as a person's height does not allow conclusions about their body composition.

The most common valuation metric in the equity market is the price-to-earnings ratio ("P/E ratio"), which relates the price of a share (or an index) to earnings per share (or to the average earnings of the companies represented in an index). The current P/E ratio, together with its historical range, allows conclusions to be drawn about the valuation level of a single share, an index, or an entire asset class.

11 How we take emotions into account in turbulent times

Human beings are emotional creatures—and rightly so. In the field of investing and wealth building, only very few of us could or would claim to act with 100% rationality and be free from the many behavioural biases (cognitive errors and self-deceptions) that are extensively documented in academic research. [10] At the same time, economic science leaves no doubt: to safeguard our financial wellbeing, emotions should be kept as far away as possible from the investment process.

We address this challenge in the following ways:

- Our investment approach is deliberately ultra-rational and based exclusively on scientific evidence.
- We aim to communicate the risks and opportunities of investing in a clear, "brutally realistic" manner, because we want to prevent investors from overestimating their risk-bearing capacity—something that will inevitably be tested in difficult market phases, during which some investors may be tempted to "throw in the towel".
- During severe market downturns, we support followers of the World Portfolio concept with our numerous publications, such as our blog or our YouTube videos (currently available only with automatic English subtitles), to help them continue pursuing a well-considered and rational investment process with discipline.

[10] This refers to the numerous cognitive biases that the academic field of behavioural economics has documented and analysed over the past 30 years. Two researchers — Daniel Kahneman and Richard Thaler — received the Nobel Prize in Economic Sciences for their contributions in 2002 and 2017 respectively.

12 Books by Dr Gerd Kommer

All statements made in this white paper are developed and explained in greater depth and detail in the following investment books by Dr Gerd Kommer. At present, these are available only in German::

- **Der Leichte Einstieg in die Welt der ETFs. Unkompliziert vorsorgen – ein Starterbuch für Finanzanfänger**; Finanzbuch Verlag 2022; 180 pages
- **Souverän investieren für Einsteiger. Wie Sie mit ETFs ein Vermögen bilden**; Campus Verlag 2024 (3rd edition); 270 pages
- **Souverän investieren vor und im Ruhestand. Mit ETFs Ihren Lebensstandard und Ihre Vermögensziele sichern**; Campus Verlag 2025; 357 pages
- **Souverän Vermögen schützen – Wie sich Vermögende gegen Risiken absichern – ein praktischer Asset Protection-Ratgeber** (with co-author Olaf Gierhake); Campus Verlag 2021; 410 pages
- **Souverän investieren mit Indexfonds und ETFs. Ein Investmentbuch für fortgeschrittene Privatanleger**; Campus Verlag 2025 (7th edition); 550 pages – This book won the 2016 German Financial Book Award, sponsored by Deutsche Börse AG and Citibank.

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