

Time for a change in styles

The turbulence in tech stocks has highlighted the dangers of high market concentration. We are reducing risk by switching from the quality to the minimum volatility factor.

IN A NUTSHELL



Björn Jesch
Global Chief
Investment Officer

- The MSCI Quality Index has had an incredible run since the end of 2023. In our opinion, it has become too expensive as a result and, due to its technology-heavy nature, also carries too much concentration and individual stock risk.
 - We therefore decided at the beginning of July to switch from the quality factor to the minimum volatility (MinVol) factor in our multi-asset model portfolio.
 - In addition to its broader sector positioning, MinVol should also perform relatively better than the overall market in the nervous investment environment we expect for the rest of '24.
-

Anyone who believes in efficient capital markets, including textbook "random walk" price movements for securities, might want to stop reading here. However, those who have followed the markets for some time know there are factors beyond those relevant to valuation that drive prices. Seasonal patterns and investment styles are also affected by the business cycle. The influence of the economic cycle itself is often easy to demonstrate ex-post but not so easy for the investor to assess correctly in advance. The U.S. is a good example of that. Since early 2023 many observers of the U.S. economy have been expecting a recession "in some months' time" but have had to keep pushing these expectations back. The consensus growth forecast for 2024 plunged from 2.1% at the beginning of 2022 to just 0.6% in mid-2023 – only to recover to 2.4% this year. On top of this, the inflation trend was out of sync with the economic cycle. This is not an environment in which either bond or equity investors can invest according to a formula, though some of the factor-based investment strategies have proven to be successful in the longer term for equity investors. Of the seven most common factor indices calculated by MSCI¹, two have managed to beat the broad MSCI World over a period of 10, 20, 25, 30 and 40 years: momentum and quality (which are described in more detail below and are also shown in the chart on page two). It will perhaps surprise younger market participants that growth only really began its strong performance march 15 years ago.

Our decision now to abandon the quality factor in favor of the minimum volatility factor (MinVol) is primarily tactical (whereas style investing normally has a strategic investment horizon of 12 months). Even though quality has beaten almost everything else over a long period of time², it had been subject to strong fluctuations in the short term: for example, it underperformed significantly in 2022. An important point for us is that the rally since mid-2023, in which quality had beaten the broad market by 15 percentage points (ppts) and the equally weighted market by over 30 ppts, has seemed quite exaggerated since the middle of this year. In addition, quality, like the S&P 500, suffers from a high concentration in a few stocks, which is not the case with MinVol. Another consideration for the switch is the economic cycle, which has the potential for some nasty setbacks.

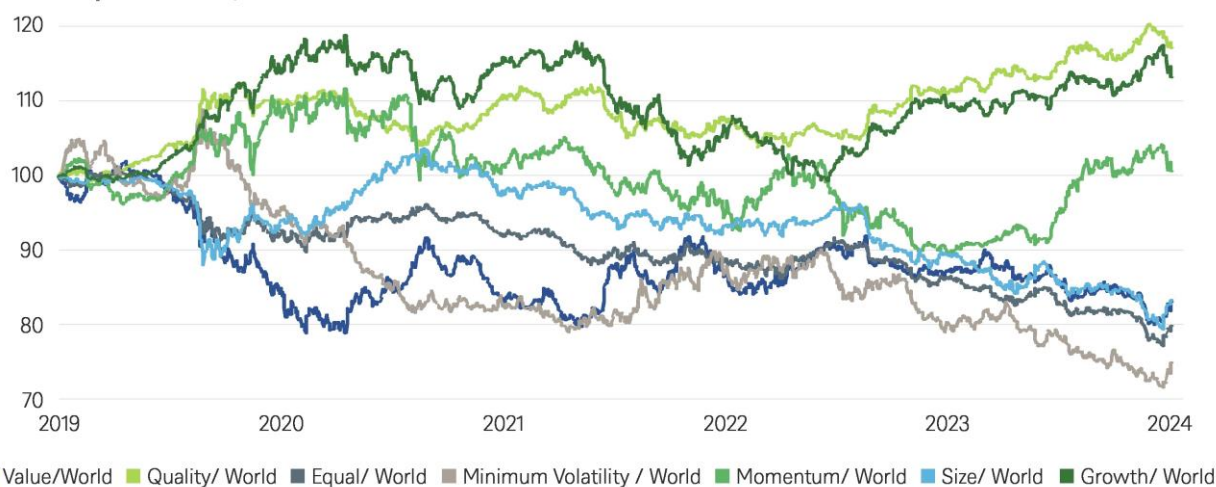
¹ The seven most common factor indices calculated by MSCI are: MSCI World Value / MSCI World Quality / MSCI World Equal / MSCI World MinVol / MSCI World Momentum / MSCI World Size / MSCI World Growth

² Long period of time refers to time horizons between 8 and 15 years

This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. Past performance is not indicative of future returns. Forecasts are not a reliable indicator of future performance. Forecasts are based on assumptions, estimates, opinions and hypothetical models that may prove to be incorrect. Alternative investments may be speculative and involve significant risks including illiquidity, heightened potential for loss and lack of transparency. Alternatives are not suitable for all clients. Source: DWS Investment GmbH.

Strong outperformance from Quality and Momentum sectors while MinVol and Value struggled

relative performance, indexed: 7/25/19 = 100*



Source: Bloomberg Finance L.P., DWS Investment GmbH as of 7/25/24

*MSCI World "Style"index (i.e. MSCI World Value / MSCI World Quality / MSCI World Equal / MSCI World MinVol / MSCI World Momentum / MSCI World Size / MSCI World Growth) vs MSCI World Index total USD return

Data from 7/25/19 till 7/25/24

1 / Our market view from a multi asset perspective

1.1 Capital markets - balanced

Macro view: the economy is growing, in small steps. Inflation is retreating, also in small steps

In the U.S., first quarter growth provided a positive surprise, but a cooling off is now evident in many sentiment, consumption, industrial production and labor market indicators. In Europe, Germany is still the economic laggard, with its economy improving only very gradually. However, we still feel the labor market is robust in Europe overall. Despite weaker data recently, Japan is expected to grow healthily as the labor market is strong, the yen weak and tourist numbers are at record highs. In China, economic data in the first quarter was surprisingly good but the second quarter was rather disappointing; a multi-dimensional crisis in confidence and sentiment could continue to weigh on the country. Inflation rates in the U.S. and Europe are still above target, but we expect further declines in the second half of the year, although the downward trend is unlikely to be linear. Central banks therefore have leeway to cut interest rates, though at different speeds. The European Central Bank (ECB) has already cut rates and the Federal reserve (Fed) is likely to follow, possibly as early as September. The Bank of Japan (BoJ), on the other hand, is on a different course: it has ended the era of negative interest rates and is normalizing its central bank policy. In China, monetary policy is loose.

Our overall market view...

Our risk preference from an overall portfolio perspective remains neutral. Big Tech and the S&P 500 recently reached new highs but have corrected to some degree since mid-July. The Nasdaq 100 is still up 13% year-to-date, and the MSCI World 11%.³ Europe is lagging because of political factors and weaker growth. Euphoria about a growth transformation stemming from artificial intelligence and other new technologies has been the main market driver. Whether they remain so will also

³ Bloomberg Finance L.P.; as of 7/26/23

This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. Past performance is not indicative of future returns. Forecasts are not a reliable indicator of future performance. Forecasts are based on assumptions, estimates, opinions and hypothetical models that may prove to be incorrect. Alternative investments may be speculative and involve significant risks including illiquidity, heightened potential for loss and lack of transparency. Alternatives are not suitable for all clients. Source: DWS Investment GmbH.

depend heavily on the current earnings season. So far, the picture is rather mixed, especially as the market's expectations for the second half of the year were high. Earnings growth in the U.S. still seems reasonably solid, but valuation levels are challenging. Some weakness in leading indicators and in hard data such as industrial production in the U.S. and Europe should limit further upside. In addition, seasonality weighs on riskier asset classes in the less liquid summer months. On the other hand, the beginning of a cycle of interest rate cuts and neutral equity market sentiment and positioning data as indicated by institutional investor surveys⁴ continue to support a constructive view of the equity markets. Therefore, despite a neutral risk stance, we want to exploit market setbacks to increase risk exposure.

...and what it means for bonds and equities where we upgrade Health Care and downgrade Communication Services

Equities: We are sticking to our neutral stance on the U.S. and Japan and our positive assessment of Europe, particularly in the small cap segment. We remain positive on consumer cyclicals and prefer European banks in the now neutrally rated financial sector. Within the styles, we are maintaining our relative preference for value stocks, but are changing the second preferred style from Quality to MinVol.

In line with this change, we are also switching preferences for two sectors. We **upgrade Health Care to overweight** and **downgrade Communication to neutral**. Health Care might benefit from ongoing sector rotation towards growth and innovation beyond AI. A sector PE-premium of 10% versus global equities is in line with history. Unlike in previous U.S.-election cycles, health care reform is not core to the political agenda of either candidate. In addition, falling U.S. short-term rates should benefit U.S.-biotech names on cheaper funding conditions.

We downgrade global **communication services** to neutral, following a strong outperformance. The sector has served as a reasonably priced AI-alternative to the IT-sector (neutral) due to the dominance of Alphabet and Meta (50% of sector market cap). However, from here we feel that investors will require not only strong financial results of the mega large caps for the "AI-train to re-accelerate." In addition, fresh evidence will be needed, that the USD 150bn-plus annual spend on new data centers will soon become the foundation of new business models and revenue streams.

Bonds: We continue to prefer short to medium maturities for government bonds (2 to 7-year segment) and are also betting on a steepening of the yield curve, particularly in the 5 to 30-year range. We continue to prefer euro corporate bonds with investment grade status in a multi-asset context, as the fundamentals and investor demand are strong and the risk premiums (spreads) are still relatively attractive compared to euro government bonds and U.S. corporate bonds. We are tending to avoid U.S. corporate bonds, including those in the high yield segment. We are neutral on government bonds from emerging markets.

1.2 Switching styles: from the quality to the minimum volatility factor

Reasons for the switch

There were essentially three important drivers for our switch to the MinVol factor: 1. relative valuation and performance; 2. the current phase in the economic and stock market cycles; and 3. concentration risk: the ten largest individual stocks in the quality index account for 38% of its market capitalization. For the momentum index the figure is similar: 37%, and for the growth index even worse: a full 46%. In stark contrast the top ten stocks in the MinVol index account for only 15% of the index's value.⁵

We expect the performance and valuation gap between Quality and MinVol to narrow

The MinVol strategy received a lot of attention in the aftermath of the 2008 financial crisis. This was understandable after the drastic falls that had occurred; the S&P 500, for example, had lost more than half of its value. MinVol then enjoyed two interim highs at the beginning of the Covid crisis and in the 1H22 half-year, a disappointing one for the overall market, but it

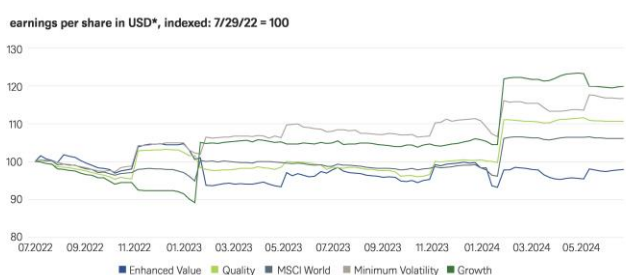
⁴ See for example the Fund Manager Survey from Bank of America as of 7/16/24.

⁵ Number of constituents for different indices: MSCI World Quality: 300 / MSCI World Momentum: 350 / MSCI World Growth: 641 / MSCI World MinVol: 264

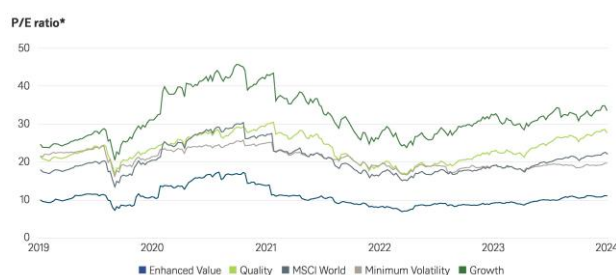
This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. Past performance is not indicative of future returns. Forecasts are not a reliable indicator of future performance. Forecasts are based on assumptions, estimates, opinions and hypothetical models that may prove to be incorrect. Alternative investments may be speculative and involve significant risks including illiquidity, heightened potential for loss and lack of transparency. Alternatives are not suitable for all clients. Source: DWS Investment GmbH.

has actually been lagging the market since April 2020. The rapid rise of U.S. mega-tech stocks means MinVol's underperformance has accelerated over the past year and a half. Compared to the MSCI World Index, MinVol lost around 15 percentage points during this period, and 26% compared to the quality index. Accordingly, MinVol's traditional valuation premium compared to the broader market has turned into a valuation discount: its price-earnings ratio (P/E) of 20 compares to 22 for the MSCI World. With a P/E ratio of 28 Quality is even 40% more expensive than MinVol. Here our expectation is that there will be a gradual normalization (a mean reversion), especially given that the reporting season has so far painted a rather mixed picture and market volatility has increased by 30% within two weeks. It should also be emphasized that MinVol's earnings growth has not at all been outdone by the Quality factor in recent years.

EPS growth of MinVol factor could keep up with Quality. Valuation gap has increased again over past 2 years



Source: Bloomberg Finance L.P., DWS Investment GmbH as of 7/25/24
*MSCI World "Style" (MSCI World Enhanced Value / MSCI World Quality / MSCI World MinVol / MSCI World Growth) net total return USD index



Source: Bloomberg Finance L.P., DWS Investment GmbH as of 7/25/24
*MSCI World "Style" (MSCI World Enhanced Value / MSCI World Quality / MSCI World MinVol / MSCI World Growth) net total return USD index

The MinVol-style is likely to better cope with macro and earnings disappointments than the Quality style

It is important also to emphasize that the MinVol strategy is only one component of our model portfolio and is therefore also intended to cover scenarios that, from a macroeconomic perspective, do not correspond to our core scenarios, but do correspond to our risk scenarios. They include the U.S. sliding into a major period of weakness or even recession; together with the ongoing weakness in demand from China, this would then also put further pressure on European companies. But, even with a so-called soft landing for the U.S. economy, there are other factors that could unsettle the rather expensive stock market. Even falling central bank rates, which are likely to be preceded by an economic slowdown, could make investors nervous, for example, if they are followed by resurging inflation rates. In all of these scenarios, we believe the MinVol strategy should prove its worth.

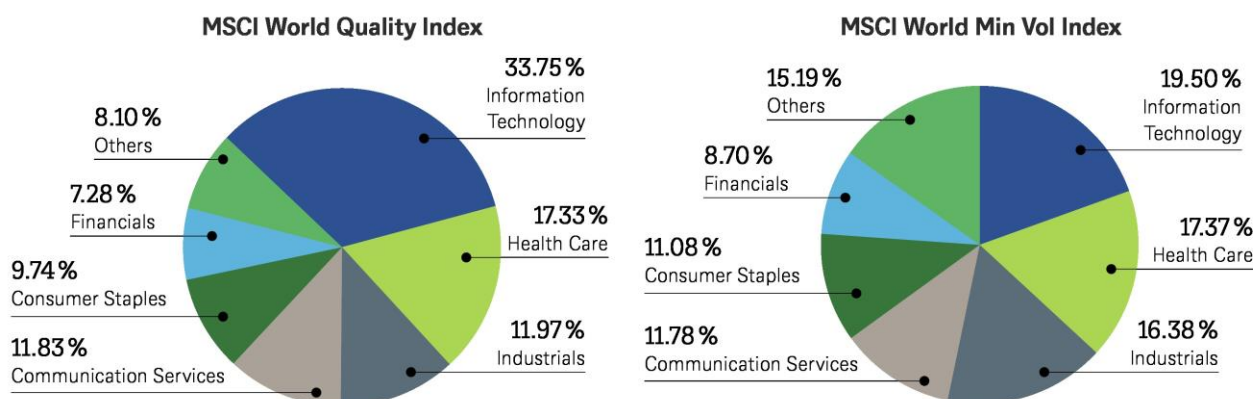
The MinVol-index has less concentration risk than the Quality index

Where the much-cited high concentration of market capitalization is concerned, a related point is the performance of a few stocks in recent quarters. The ten largest stocks, mostly from the tech sector, have been responsible for almost the entire increase in value in the S&P 500 this year (and, due to the dominance of the U.S. market, also in the global MSCI World), and now account for over a third of the S&P 500's market capitalization.⁶ Therefore, investors in the quality, momentum or growth factors are exposing themselves potentially to high individual stock risks. The MinVol factor, on the other hand, could benefit not only from a broader portfolio of individual stocks, but also potentially from greater diversification compared to other styles, reduced interest rate sensitivity, and the previously mentioned lower risk profile compared to other factors.

⁶ Bloomberg Finance L.P., as of 7/26/24.

This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. Past performance is not indicative of future returns. Forecasts are not a reliable indicator of future performance. Forecasts are based on assumptions, estimates, opinions and hypothetical models that may prove to be incorrect. Alternative investments may be speculative and involve significant risks including illiquidity, heightened potential for loss and lack of transparency. Alternatives are not suitable for all clients. Source: DWS Investment GmbH.

Minimum Volatility Index shows less sector concentration than Quality Index



Source: MSCI Inc., DWS Investment GmbH as of 7/25/24

2Q24 reporting season testing investor's nerves

The current quarterly reporting, particularly in the third week of July, indicated what we had already feared: that even with positive quarterly figures, stocks could be punished if investors fear that their ambitious profit forecasts for the second half of the year might not materialize because corporate outlooks are cautious. The U.S. technology sector (and thus also the quality factor) has corrected sharply, while the MinVol factor has held up better. In a negative market scenario, the full-year forecasts for the S&P 500 could be revised downwards as a result of the 2Q24 reporting season, which would particularly affect tech stocks, as they account for almost all of the forecast profit growth in 2024.

2 / Investment cycles and factors

2.1 The economic cycle determining the investing style

Aligning investment with the economic cycle – sounds logical...

There are many books on the subject of investing in line with the economic cycle. The "All-Season Investor" by Martin J. Pring from 1992 is worth mentioning, or, more recently, "Mastering the Market Cycle" by the founder of the Oaktree hedge fund, Howard Marks. Roughly speaking, the economic cycle is divided into four phases – the upswing and downswing, as well as the top and the trough. There are ideal asset classes or sectors for each phase. In a downswing, or at the first signs of an impending downswing, for example, you should consider investing in defensive sectors (utilities, telecoms, pharmaceuticals) whose sales tend to be less correlated with the cycle. Also consider government bonds due to the guaranteed coupon and redemption price, as well as the prospect of price gains if the central banks lower interest rates during the downswing. On the other hand, corporate bonds, cyclical sectors or small caps are worth consideration if it becomes apparent that markets have gone beyond the low point.

...there are some problems, however

One thing that is undisputed is that economic growth in the long term forms the underlying basis for stock performance (which we want to focus on here). Also, it is certainly the case that future prospects appear less good in an economic downturn than when everything is going well. Investing in line with the cycle certainly makes a good degree of sense. But the cycle is only one of many influencing factors. It is, in other words, an "objective" quantitative signal generator that we compare with many "subjective" qualitative factors.

– Historically, especially before the financial crisis, there were many phases in which asset classes, styles, and sectors developed along the economic cycle. However, this correlation has weakened in recent times due to numerous fiscal and

This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. Past performance is not indicative of future returns. Forecasts are not a reliable indicator of future performance. Forecasts are based on assumptions, estimates, opinions and hypothetical models that may prove to be incorrect. Alternative investments may be speculative and involve significant risks including illiquidity, heightened potential for loss and lack of transparency. Alternatives are not suitable for all clients. Source: DWS Investment GmbH.

monetary programs by political actors. The challenge lies in the regular simultaneity of asset performance and incoming macroeconomic data, which indicate where one stands in the cycle—or perhaps where one ‘could’ stand if the macro indicator turns out to be an outlier. In short, the direction in which the economic cycle develops, or even where it currently stands, is anything but a foregone conclusion. Above we mentioned the constantly changing expectations for U.S. growth during the past two years. Another frequent uncertainty is whether we are in a full-blown downturn or just a “mid-cycle slowdown”.

- The economic cycle is also no longer what it used to be. With the transition to a largely service economy and the growing importance of software in the economic cycle, classic cyclical drivers such as capex and inventory are becoming increasingly unimportant.
- Heavy interventions by central banks since the financial crisis of 2007, with quantitative easing and negative interest rates, are also having a major impact on the classic cycle.
- Shocks such as Covid or wars disrupt every cycle.
- And, finally, the market perspective is important. Even if the cycle was somewhat predictable, every investor is looking to position themselves earlier than others. If you anticipate consistently enough what others might later anticipate, then you start buying cyclical sectors at the beginning of a downturn. Which is certainly taking the entire exercise a bit too far.

None of this is a reason not to use cyclical models as a decision-making factor and a means to review your asset allocation. We do, but they are part of many building blocks.

2.2 Factor investing according to the index providers

Style factors do not cover the entire market

Depending on your taste, you can distinguish between 6 or 7 common factors. We largely use the logic of the large index provider MSCI, which provides a lot of information and historical data available on the different styles. It is important to state right from the start that the factors are not mutually exclusive. On the contrary, some have very large overlaps, as can be seen from individual stocks that are components of different factors. At the same time, all factors combined do not cover the entire investment universe which they draw upon (be it the U.S. market or the MSCI World). Perhaps it is this ambiguity that leads to only two factors being talked about frequently: value and growth. This is because they are thought to tell opposite stories in terms of investor preferences. Over the past ten years these two factors have been negatively correlated at 0.76.

MSCI sees its factor indices as long-term winners

The seven MSCI rule-based factor indices – value, small caps, low volatility, high dividend yield, quality, momentum and growth – all of which, as MSCI argues, have been able to beat the broad market (which is the MSCI World) over long periods, now have USD 236 billion in investor money.⁷

Below are the MSCI descriptions of the two factors covered in this study. However, this is only intended to serve as additional information, as our decision was also based on other considerations, as outlined above.

The **Minimum Volatility** factor index selects stocks based on an estimate of their volatility and correlations with other stocks. Minimum volatility is classified as a “defensive” factor, meaning it should tend to prove beneficial in times of economic recession. Paradoxically, the strategy has beaten the MSCI World over long periods, contradicting the principle that investors should not be rewarded with higher risk-adjusted returns for taking less than market risk. There could be two main behavioral explanations for this: 1. Investors pay too little for low-volatility stocks because they see them as less worthwhile, and too much for high-volatility stocks because they expect too high a return. 2. Investors trust their ability to predict the future too much. And it is precisely in high-volatility stocks that their view tends to deviate most from overall market opinion.

The **MSCI Quality** Index uses three basic variables to measure the quality factor: 1. return on equity; 2. debt ratio and 3. consistency of earnings.

⁷ MSCI factor indexes, MSCI, as of 7/26/24

This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. Past performance is not indicative of future returns. Forecasts are not a reliable indicator of future performance. Forecasts are based on assumptions, estimates, opinions and hypothetical models that may prove to be incorrect. Alternative investments may be speculative and involve significant risks including illiquidity, heightened potential for loss and lack of transparency. Alternatives are not suitable for all clients. Source: DWS Investment GmbH.

Glossary

Artificial intelligence is the theory and development of computer systems able to perform tasks normally requiring human intelligence

The **Bank of Japan (BoJ)** is the central bank of Japan.

The **business cycle** is the oscillating movement of gross domestic product around its long-term trend during expansions and contractions

Cyclical is something that moves with the cycle.

The **European Central Bank (ECB)** is the central bank for the Eurozone.

Factor-based investment strategies are specific strategies targeting specific drivers of return across asset classes

Federal Reserve Bank is a regional bank of the Federal Reserve System, the central banking system of the United States. There are twelve in total.

High-yield bonds are issued by below-investment-grade-rated issuers and usually offer a relatively high yield.

Inflation is the rate at which the general level of prices for goods and services is rising and, subsequently, purchasing power is falling.

Investment grade (IG) refers to a credit rating from a rating agency that indicates that a bond has a relatively low risk of default.

The **Japanese yen (JPY)** is the official currency of Japan.

A **minimum volatility factor** involves buying stocks based on the estimate of their volatility and correlations with other stocks.

Monetary policy focuses on controlling the supply of money with the ulterior motive of price stability, reducing unemployment, boosting growth, etc. (depending on the central bank's mandate).

The **MSCI World Index** tracks the performance of mid- and large-cap stocks in 23 developed countries around the world.

The **Nasdaq-100** is an equity index which contains the 100 biggest common stocks listed on the Nasdaq Stock Market.

The **price-to-earnings (P/E) ratio** compares a company's current share price to its earnings per share.

Quality factor refers to the tendency of high-quality stocks with typically more stable earnings, stronger balance sheets and higher margins, over a long time horizon.

Quantitative easing (QE) is an unconventional monetary-policy tool, in which a central bank conducts broad-based asset purchases.

A **recession** is, technically, when an economy contracts for two successive quarters but is often used in a looser way to indicate declining output.

The **risk premium** is the expected return on an investment minus the return that would be earned on a risk-free investment.

The **S&P 500** is an index that includes 500 leading U.S. companies capturing approximately 80% coverage of available U.S. market capitalization.

Sector PE-premium the percentage difference between the market PE ratio and the sector PE ratio.

A **soft landing** is when an economy's rate of growth slows in a controlled fashion without major disruptive effects on employment, external balances etc.

Volatility is the degree of variation of a trading-price series over time. It can be used as a measure of an asset's risk.

A **yield curve** shows the annualized yields of fixed-income securities across different contract periods as a curve. When it is inverted, bonds with longer maturities have lower yields than those with shorter maturities.

This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. Past performance is not indicative of future returns. Forecasts are not a reliable indicator of future performance. Forecasts are based on assumptions, estimates, opinions and hypothetical models that may prove to be incorrect. Alternative investments may be speculative and involve significant risks including illiquidity, heightened potential for loss and lack of transparency. Alternatives are not suitable for all clients. Source: DWS Investment GmbH.

Important information – EMEA, APAC & LATAM

DWS is the brand name of DWS Group GmbH & Co. KGaA and its subsidiaries under which they do business. The DWS legal entities offering products or services are specified in the relevant documentation. DWS, through DWS Group GmbH & Co. KGaA, its affiliated companies and its officers and employees (collectively “DWS”) are communicating this document in good faith and on the following basis.

This document is for information/discussion purposes only and does not constitute an offer, recommendation or solicitation to conclude a transaction and should not be treated as investment advice.

This document is intended to be a marketing communication, not a financial analysis. Accordingly, it may not comply with legal obligations requiring the impartiality of financial analysis or prohibiting trading prior to the publication of a financial analysis.

This document contains forward looking statements. Forward looking statements include, but are not limited to assumptions, estimates, projections, opinions, models and hypothetical performance analysis. No representation or warranty is made by DWS as to the reasonableness or completeness of such forward looking statements. Past performance is no guarantee of future results.

The information contained in this document is obtained from sources believed to be reliable. DWS does not guarantee the accuracy, completeness or fairness of such information. All third party data is copyrighted by and proprietary to the provider. DWS has no obligation to update, modify or amend this document or to otherwise notify the recipient in the event that any matter stated herein, or any opinion, projection, forecast or estimate set forth herein, changes or subsequently becomes inaccurate.

Investments are subject to various risks. Detailed information on risks is contained in the relevant offering documents.

No liability for any error or omission is accepted by DWS. Opinions and estimates may be changed without notice and involve a number of assumptions which may not prove valid. DWS does not give taxation or legal advice.

This document may not be reproduced or circulated without DWS’s written authority.

This document is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction, including the United States, where such distribution, publication, availability or use would be contrary to law or regulation or which would subject DWS to any registration or licensing requirement within such jurisdiction not currently met within such jurisdiction. Persons into whose possession this document may come are required to inform themselves of, and to observe, such restrictions.

For institutional / professional investors in Taiwan:

This document is distributed to professional investors only and not others. Investing involves risk. The value of an investment and the income from it will fluctuate and investors may not get back the principal invested. Past performance is not indicative of future performance. This is a marketing communication. It is for informational purposes only. This document does not constitute investment advice or a recommendation to buy, sell or hold any security and shall not be deemed an offer to sell or a solicitation of an offer to buy any security. The views and opinions expressed herein, which are subject to change without notice, are those of the issuer or its affiliated companies at the time of publication. Certain data used are derived from various sources believed to be reliable, but the accuracy or completeness of the data is not guaranteed and no liability is assumed for any direct or consequential losses arising from their use. The duplication, publication, extraction or transmission of the contents, irrespective of the form, is not permitted.

© 2024 DWS Investment GmbH

Issued in the UK by DWS Investments UK Limited which is authorised and regulated in the UK by the Financial Conduct Authority.
© 2024 DWS Investments UK Limited

In Hong Kong, this document is issued by DWS Investments Hong Kong Limited. The content of this document has not been reviewed by the Securities and Futures Commission.
© 2024 DWS Investments Hong Kong Limited

In Singapore, this document is issued by DWS Investments Singapore Limited. The content of this document has not been reviewed by the Monetary Authority of Singapore.
© 2024 DWS Investments Singapore Limited

In Australia, this document is issued by DWS Investments Australia Limited (ABN: 52 074 599 401) (AFSL 499640). The content of this document has not been reviewed by the Australian Securities and Investments Commission.
© 2024 DWS Investments Australia Limited

as of 7/26/24; 102109_1 (07/2024)

Important information – North America

Any mentions of specific securities are for illustrative purposes only and should not be considered a recommendation.

The brand DWS represents DWS Group GmbH & Co. KGaA and any of its subsidiaries, such as DWS Distributors, Inc., which offers investment products, or DWS Investment Management Americas Inc. and RREEF America L.L.C., which offer advisory services.

Index returns do not reflect fees or expenses, and it is not possible to invest directly in an index.

Diversification neither assures a profit nor guarantees against loss.

This document has been prepared without consideration of the investment needs, objectives or financial circumstances of any investor. Before making an investment decision, investors need to consider, with or without the assistance of an investment adviser, whether the investments and strategies described or provided by DWS, are appropriate, in light of their particular investment needs, objectives and financial circumstances. Furthermore, this document is for information/discussion purposes only and does not and is not intended to constitute an offer, recommendation or solicitation to conclude a transaction or the basis for any contract to purchase or sell any security, or other instrument, or for DWS to enter into or arrange any type of transaction as a consequence of any information contained herein and should not be treated as giving investment advice. DWS, including its subsidiaries and affiliates, does not provide legal, tax or accounting advice. This communication was prepared solely in connection with the promotion or marketing, to the extent permitted by applicable law, of the transaction or matter addressed herein, and was not intended or written to be used, and cannot be relied upon, by any taxpayer for the purposes of avoiding any U.S. federal tax penalties. The recipient of this communication should seek advice from an independent tax advisor regarding any tax matters addressed herein based on its particular circumstances. Investments with DWS are not guaranteed, unless specified. Although information in this document has been obtained from sources believed to be reliable, we do not guarantee its accuracy, completeness or fairness, and it should not be relied upon as such. All opinions and estimates herein, including forecast returns, reflect our judgment on the date of this report, are subject to change without notice and involve a number of assumptions which may not prove valid.

Investments are subject to various risks, including market fluctuations, regulatory change, counterparty risk, possible delays in repayment and loss of income and principal invested. The value of investments can fall as well as rise and you may not recover the amount originally invested at any point in time. Further-more, substantial fluctuations of the value of the investment are possible even over short periods of time. Further, investment in international markets can be affected by a host of factors, including political or social conditions, diplomatic relations, limitations or removal of funds or assets or imposition of (or change in) exchange control or tax regulations in such markets. Additionally, investments denominated in an alternative currency will be subject to currency risk, changes in exchange rates which may have an adverse effect on the value, price or income of the investment. This document does not identify all the risks (direct and indirect) or other considerations which might be material to you when entering into a transaction. The terms of an investment may be exclusively subject to the detailed provisions, including risk considerations, contained in the Offering Documents. When making an investment decision, you should rely on the final documentation relating to the investment and not the summary contained in this document.

This publication contains forward looking statements. Forward looking statements include, but are not limited to assumptions, estimates, projections, opinions, models and hypothetical performance analysis. The forward looking statements expressed constitute the author's judgment as of the date of this material. Forward looking statements involve significant elements of subjective judgments and analyses and changes thereto and/or consideration of different or additional factors could have a material impact on the results indicated. Therefore, actual results may vary, perhaps materially, from the results contained herein. No representation or warranty is made by DWS as to the reasonableness or completeness of such forward looking statements or to any other financial information contained herein. We assume no responsibility to advise the recipients of this document with regard to changes in our views.

No assurance can be given that any investment described herein would yield favorable investment results or that the investment objectives will be achieved. Any securities or financial instruments presented herein are not insured by the Federal Deposit Insurance Corporation ("FDIC") unless specifically noted, and are not guaranteed by or obligations of DWS or its affiliates. We or our affiliates or persons associated with us may act upon or use material in this report prior to publication. DB may engage in transactions in a manner inconsistent with the views discussed herein. Opinions expressed herein may differ from the opinions expressed by departments or other divisions or affiliates of DWS. This document may not be reproduced or circulated without our written authority. The manner of circulation and distribution of this document may be restricted by law or regulation in certain countries. This document is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction, including the United States, where such distribution, publication, availability or use would be contrary to law or regulation or which would subject DWS to any registration or licensing requirement within such jurisdiction not currently met within such jurisdiction. Persons into whose possession this document may come are required to inform themselves of, and to observe, such restrictions.

Past performance is no guarantee of future results; nothing contained herein shall constitute any representation or warranty as to future performance. Further information is available upon investor's request. All third party data (such as MSCI, S&P & Bloomberg) are copyrighted by and proprietary to the provider.

For Investors in Canada: No securities commission or similar authority in Canada has reviewed or in any way passed upon this document or the merits of the securities described herein and any representation to the contrary is an offence. This document is intended for discussion purposes only and does not create any legally binding obligations on the part of DWS Group. Without limitation, this document does not constitute an offer, an invitation to offer or a recommendation to enter into any transaction. When making an investment decision, you should rely solely on the final documentation relating to the transaction you are considering, and not the information contained herein. DWS Group is not acting as your financial adviser or in any other fiduciary capacity with respect to any transaction presented to you. Any transaction(s) or product(s) mentioned herein may not be appropriate for all investors and before entering into any transaction you should take steps to ensure that you fully understand such transaction(s) and have made an independent assessment of the appropriateness of the transaction(s) in the light of your own objectives and circumstances, including the possible risks and benefits of entering into such transaction. You should also consider seeking advice from your own advisers in making this assessment. If you decide to enter into a transaction with DWS Group you do so in reliance on your own judgment. The information contained in this document is based on material we believe to be reliable; however, we do not represent that it is accurate, current, complete, or error free. Assumptions, estimates and opinions contained in this document constitute our judgment as of the date of the document and are subject to change without notice. Any projections

are based on a number of assumptions as to market conditions and there can be no guarantee that any projected results will be achieved. Past performance is not a guarantee of future results. The distribution of this document and availability of these products and services in certain jurisdictions may be restricted by law. You may not distribute this document, in whole or in part, without our express written permission.

For investors in Bermuda: This is not an offering of securities or interests in any product. Such securities may be offered or sold in Bermuda only in compliance with the provisions of the Investment Business Act of 2003 of Bermuda which regulates the sale of securities in Bermuda. Additionally, non-Bermudian persons (including companies) may not carry on or engage in any trade or business in Bermuda unless such persons are permitted to do so under applicable Bermuda legislation.

© 2024 DWS Investment GmbH, Mainzer Landstraße 11-17, 60329 Frankfurt am Main, Germany.
All rights reserved.

as of 7/26/24; 102110_1 (07/2024)