



Flossbach von Storch  
RESEARCH INSTITUTE

COMPANIES 25/06/2024

# US stock market: Expensive, but also good?

by THOMAS MAYER

## Abstract

Opinions are divided when it comes to valuations on the US stock market. It is easy to agree that US equities are expensive. But does the high price reflect high quality or emotional exaggeration, also known as "irrational exuberance"? In the following, I explore these questions and come to the conclusion that the valuations for the market as a whole are not exaggerated. Investors should not expect further increases in valuations, but continued strong corporate earnings growth should continue to provide attractive total returns on US equity investments going forward.

## Zusammenfassung

An den Bewertungen im US-Aktienmarkt scheiden sich die Geister. Zwar ist man sich schnell darüber einig, dass US-Aktien teuer sind. Aber reflektiert der hohe Preis hohe Qualität oder emotionale Übertreibungen, auch bekannt als „irrational exuberance“? Im Folgenden gehe ich dieser Frage nach und komme zu dem Schluss, dass die Bewertungen für den Markt insgesamt nicht übertrieben sind. Mit weiteren Anstiegen der Bewertungen sollten Anleger nicht rechnen, aber ein voraussichtlich weiterhin gutes Wachstum der Unternehmensgewinne sollte auch künftig für attraktive Gesamterrenditen auf US-Aktienanlagen sorgen.

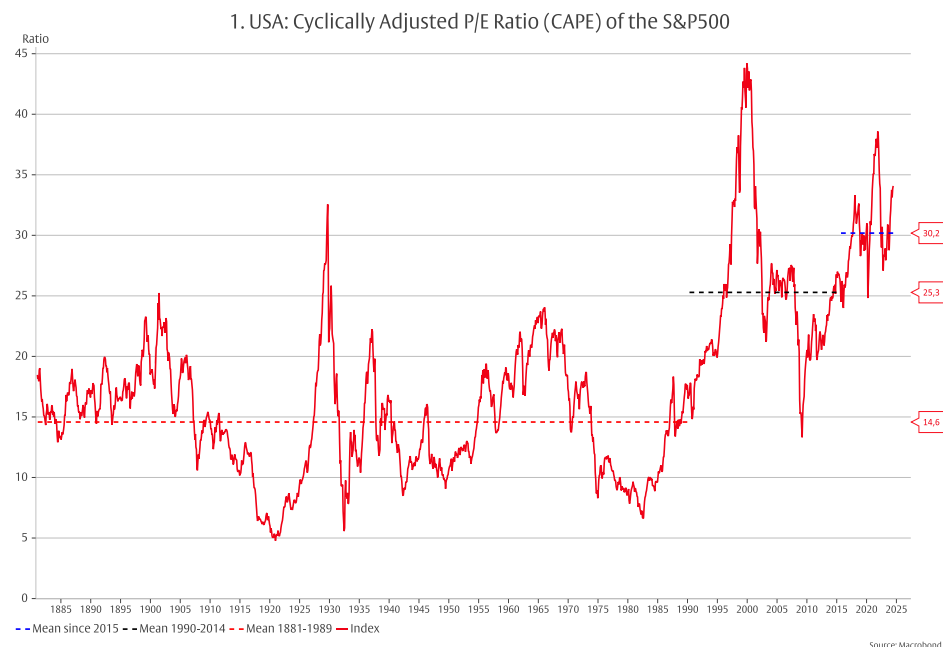


Opinions are divided when it comes to valuations on the US stock market. It is easy to agree that US equities are expensive. But does the high price reflect high quality or emotional exaggeration, also known as "irrational exuberance"? And if it is indeed fundamental factors that are responsible for high valuations, the question arises as to whether these factors will continue to justify high valuations.

In the following, I explore these questions and come to the conclusion that the valuations for the market as a whole are not exaggerated (although this may well be different for individual stocks). Investors should not expect further increases in valuations, but continued strong corporate earnings growth should continue to provide attractive total returns on US equity investments going forward.

### Structural breaks in the valuations

A measure commonly used for analytical purposes for the valuation of American shares is the "Cyclically Adjusted Price Earnings Ratio" (CAPE) developed by Robert Shiller for the S&P500 share price index. This price-earnings ratio (P/E ratio) compares the current share price with the average earnings over the last ten years. In the period from 1881 to 1989, CAPE fluctuated without any recognisable trend (like a stationary stochastic time series) around a mean value of 14.6 (Chart 1). This means that US equities (as defined by the S&P500) cost just under 15 times the corporate profits of the previous ten years over more than a hundred years.





In 1990, CAPE began to rise above its historical mean - which was nothing special at first. But the rise continued until CAPE reached an all-time high at the end of 1999. This was followed by a crash (after the bursting of the so-called technology bubble), recovery, sideways movement, another crash in 2009 (during the Great Financial Crisis) and another recovery. The swings were not significantly greater than in the period from 1920 to 1932 but were at a higher level. The average CAPE for the years 1990 to 2015 was 25.3.

In the following years, the P/E ratio rose again, reached another peak at the beginning of 2018, plummeted again during the coronavirus pandemic and reached the second-highest peak in its history in 2021. Since then, it has fluctuated around an even higher average of 30.2. One or two decades of very low valuations would now be needed to return to the long-term average of around 15. Although this is not impossible, it is also not very likely. It is more likely that one or more structural breaks have led to higher average valuations.

### **Reasons for the break**

A discussion has arisen among investors and financial analysts as to why these structural breaks could have occurred. Robert Armstrong summarised this discussion in his column "Unhedged" in the Financial Times on 29 May 2024 (<https://www.ft.com/content/62c362f2-0c58-42ed-a8ff-19ace3a11821>). He lists three "suspects": Interest rates, a change in the financial structure of companies and demographic change.

A change in valuations due to changes in the risk-free interest rate follows directly from the Gordon-Growth formula of the dividend discount model. As is well known:

$$\frac{P}{E} = \frac{D/E}{k - g},$$

where P stands for the price, E for earnings, D for dividends, k for the risk-free interest rate plus risk premium and g for earnings growth. P/E is therefore the price/earnings ratio and D/E indicates the proportion of earnings that companies pay out as dividends (and is referred to as the "payout ratio"). A fall in the risk-free interest rate under otherwise unchanged conditions reduces the denominator on the right-hand side of the formula and causes the P/E ratio on the left-hand side to rise.

A change in the financial structure of companies could be the result of technological progress through digitalisation. The so-called Cobb-Douglas production function provides a simple description of overall economic production:

$$Y = A * K^{\alpha} * L^{\beta},$$

in which Y stands for production, A for the general productivity level, K for the production factor capital and L for the production factor labour.  $\alpha$  and  $\beta$  indicate the so-called "production elasticities", i.e. how much Y increases when K or L increase.

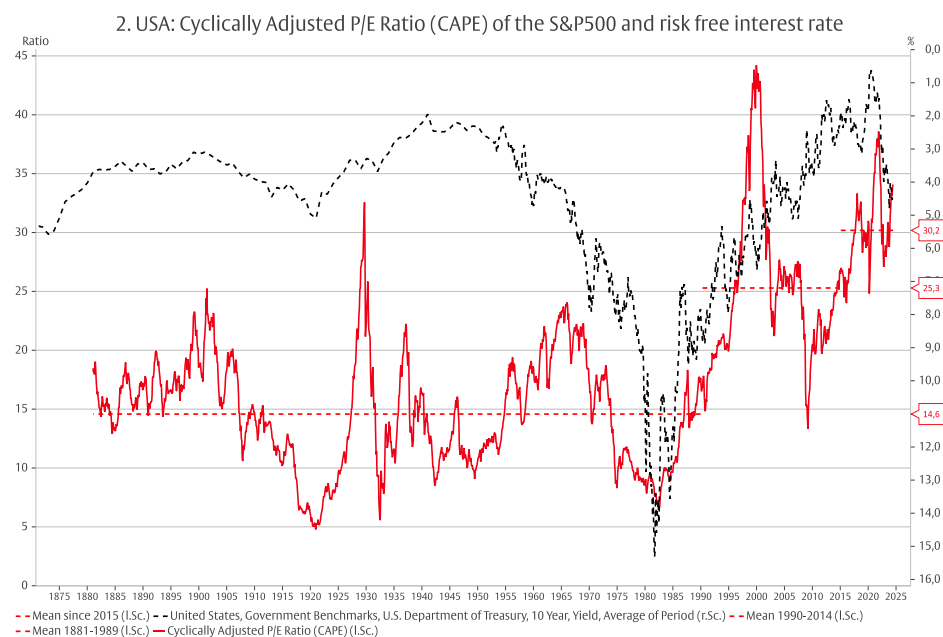


If technical progress increases the effectiveness of the factor capital through digitalisation,  $\alpha$  and consequently the marginal productivity of capital increases. The remuneration for the factor capital increases and the factor input ratio  $K/L$  decreases. The same production quantity is achieved with less capital input.

Finally, the ageing of the population could lead to working people saving more for their retirement. If the savings are invested in shares, this could drive up share valuations. As children and young families have little scope to save and older people use up their savings to support themselves, 40 to 65-year-olds are most likely to save for retirement. Whether this leads to higher share prices depends on whether the savings of 40 to 65-year-olds exceed the use of savings for consumption by older people.

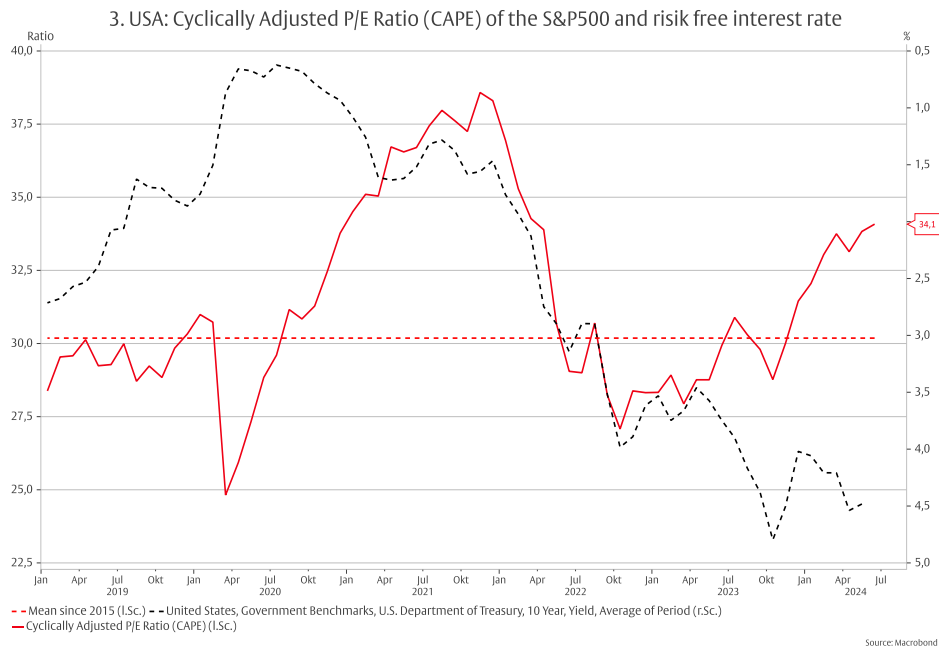
### Empirical evidence

In economic growth theory, the rule is that the risk-free real interest rate corresponds to the potential growth of the economy. In the dividend discount model, the P/E ratio would remain unchanged if the lower interest rate reflected lower growth in corporate profits. However, research has shown that the US Federal Reserve has a significant influence on the interest rate for ten-year government bonds, which is usually taken as a proxy for the risk-free interest rate in equity valuations (see Sebastian Hillenbrand, *The Fed and the Secular Decline in Interest Rates*. Harvard Business School, March 2023). Consequently, one would expect CAPE to be negatively correlated with the yield on US government bonds, if the decline in rates did not reflect lower growth but the manipulation by a central bank or similar institution. This has indeed tended to be the case since 1881 (see Chart 2, in which the yield on ten-year US government bonds is shown on the inverted right-hand axis).



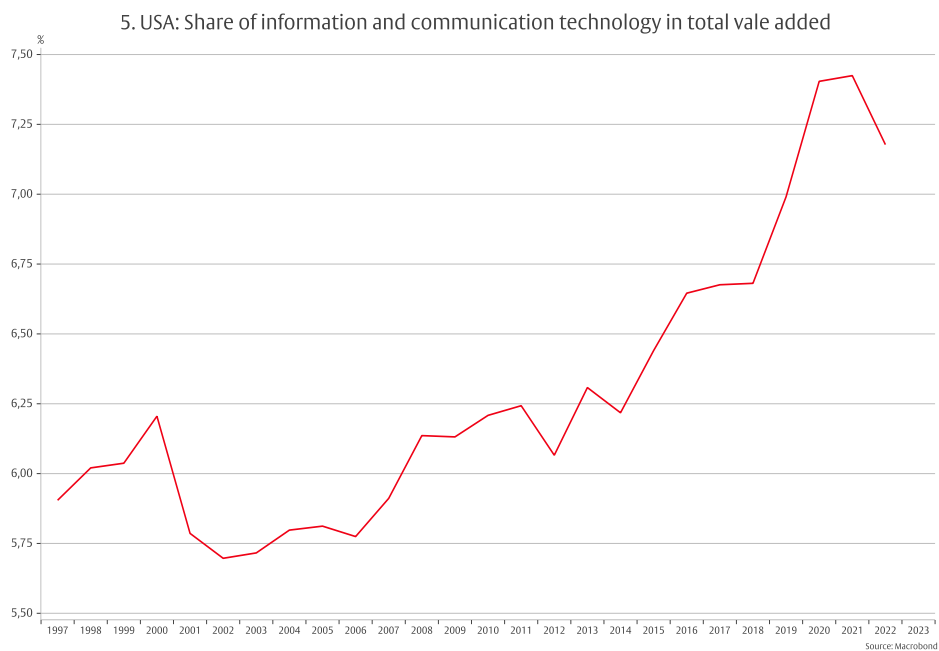
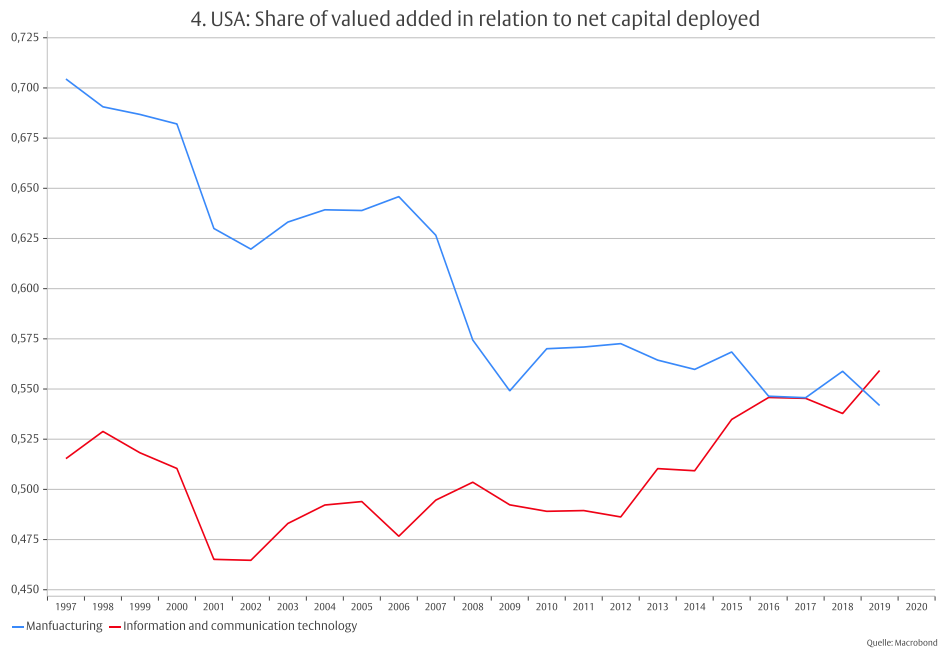


However, the correlation is statistically quite weak (with a correlation coefficient of -0.21). This is evident in more recent developments, where both valuations and interest rates have risen (Chart 3). This suggests that other factors are also influencing valuations.



It is striking that the mean value of the valuations has gradually shifted upwards since 1990. If this reflects the influence of capital-saving technical progress through digitalisation, the information and communications industry, in which digitalisation is being driven forward, should become increasingly profitable and gain in importance. There are some signs of this. As the following charts show, the return on capital (measured as value added in relation to the net capital stock) has risen in the information and communications industry, while it has fallen in manufacturing (Chart 4). And the information and communication industry is becoming more important (Chart 5).<sup>1</sup>

<sup>1</sup> The data is based on the national accounts in order to standardise the accounting for all industries and to disregard short to medium-term fluctuations on the stock markets. They therefore do not directly reflect the corresponding aggregated company data.

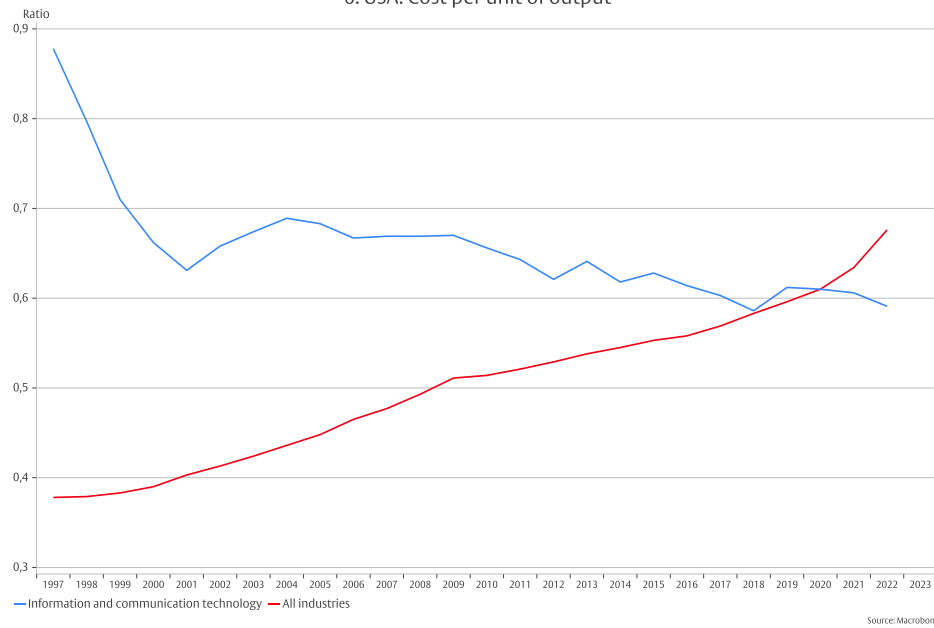


At the same time, costs per unit of production have fallen and the proportion of value added accounted for by labour is lower than in the economy as a whole (Charts 6 and 7). In the information and communications industry, "human capital", the knowledge in the heads of those working in the industry, plays a greater role than physical capital in the form of machinery and equipment. While physical capital is created in the form of capital goods and has to be paid for by users, "knowledge workers" come to companies with a large amount of human capital that has been created in advance.

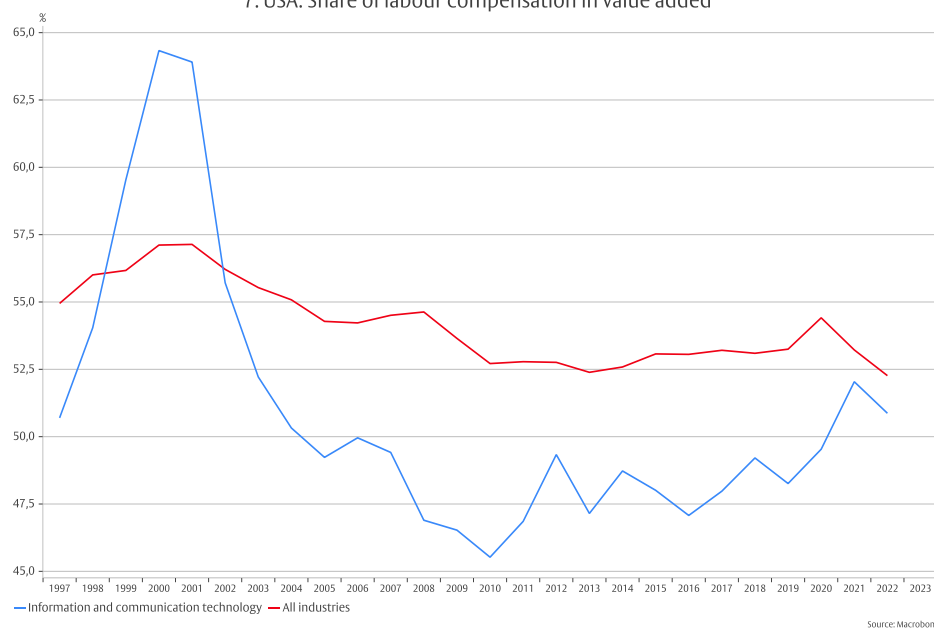


It appears that employers in the information and communication industry do not have to pay for the full amount of human capital they bring with them, so that the share of labour costs in value creation is relatively low. One reason for this could be that "knowledge workers" are able to outsource a significant proportion of the costs of building their human capital to third parties, such as the family or the state, and therefore do not insist on full reimbursement by employers. The beneficiaries are the owners of capital.

6. USA: Cost per unit of output



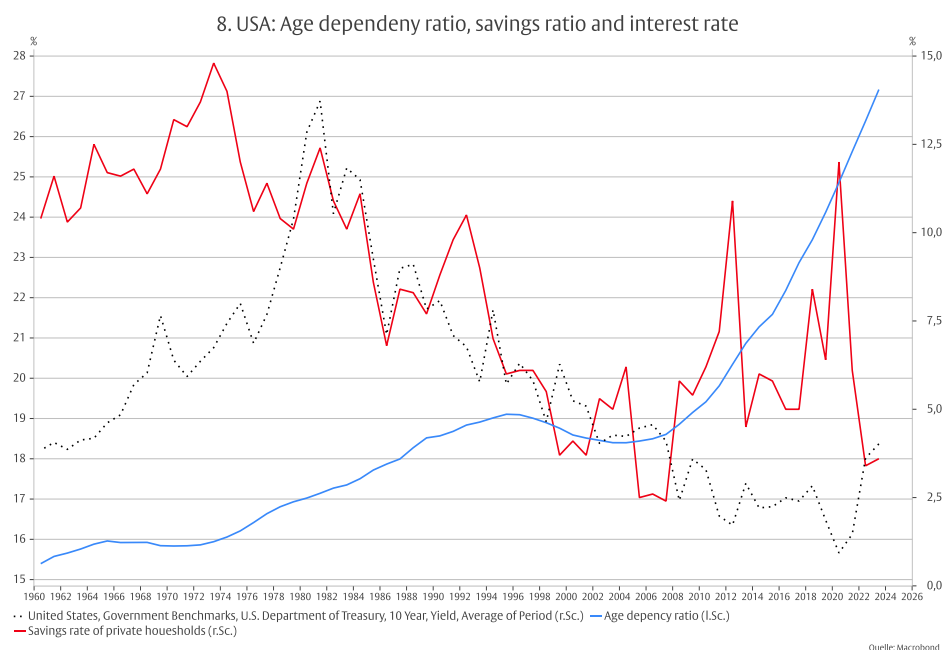
7. USA: Share of labour compensation in value added





If it were the case that households in an aging society saved more for old age, the savings rate would be positively correlated with the proportion of older people in the overall population. However, as the following Chart 8 shows, the opposite is the case. As the age dependency ratio has risen since the early 1970s, the household savings rate has fallen. Following a record low in 2007, it has fluctuated without any recognisable trend.

If the yield on ten-year government bonds is included in the analysis, it seems more likely that the fall in the savings rate from 1980 to 2007 was driven by the fall in interest rates. Many households may have seen the resulting increase in the value of their assets - particularly real estate - as a substitute for saving. The sharp fluctuations in the subsequent period are likely to reflect the various crises (major financial crisis, pandemic) of recent years.



## Conclusion

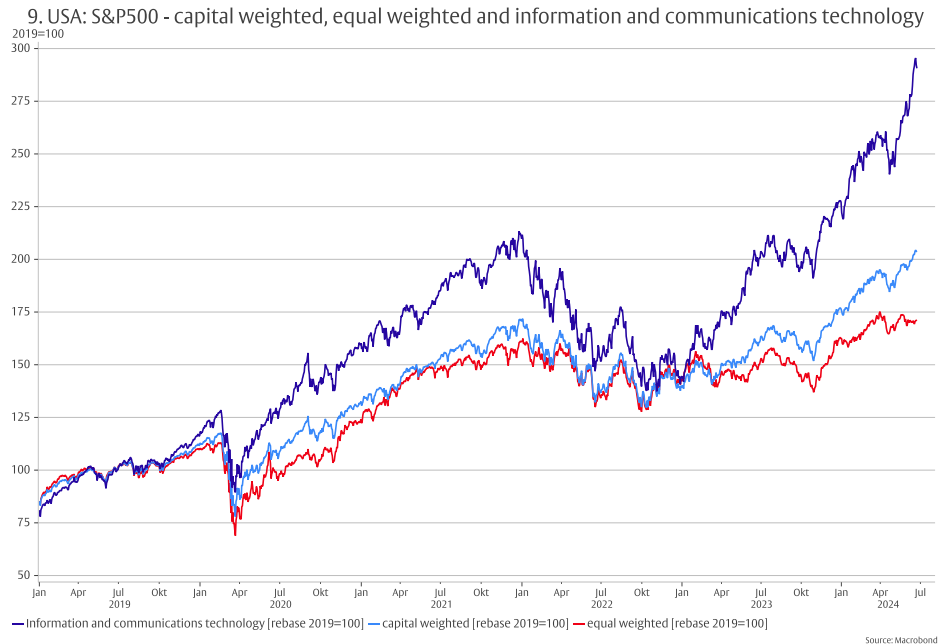
US equities are expensive, but there are good reasons for this. Low interest rates and capital-saving technological progress have caused both valuations and profits to rise. However, it seems unlikely that the ageing population will have a positive impact.

In future, investors should not expect a further increase in valuation due to falling interest rates. There is hardly any room for this in an environment of persistently higher inflation. On the other hand, the support of corporate profits through capital-saving technical progress is likely to continue. It seems that the market has





already adjusted to this. This can be seen by comparing the development of the capital-weighted S&P500 earnings index with the equally weighted S&P500 earnings index and the index for the information and communications industry. The divergence between cap-weighted and equal-weighted indices since the beginning of 2023 has been the subject of intense debate for some time. It may remain with us for some time to come.





## LEGAL NOTICE

The information contained and opinions expressed in this document reflect the views of the author at the time of publication and are subject to change without prior notice. Forward-looking statements reflect the judgement and future expectations of the author. The opinions and expectations found in this document may differ from estimations found in other documents of Flossbach von Storch AG. The above information is provided for informational purposes only and without any obligation, whether contractual or otherwise. This document does not constitute an offer to sell, purchase or subscribe to securities or other assets. The information and estimates contained herein do not constitute investment advice or any other form of recommendation. All information has been compiled with care. However, no guarantee is given as to the accuracy and completeness of information and no liability is accepted. **Past performance is not a reliable indicator of future performance.** All authorial rights and other rights, titles and claims (including copyrights, brands, patents, intellectual property rights and other rights) to, for and from all the information in this publication are subject, without restriction, to the applicable provisions and property rights of the registered owners. You do not acquire any rights to the contents. Copyright for contents created and published by Flossbach von Storch AG remains solely with Flossbach von Storch AG. Such content may not be reproduced or used in full or in part without the written approval of Flossbach von Storch AG.

**Reprinting or making the content publicly available – in particular by including it in third-party websites – together with reproduction on data storage devices of any kind requires the prior written consent of Flossbach von Storch AG.**

© 2024 Flossbach von Storch. All rights reserved.

## SITE INFORMATION

*Publisher:* Flossbach von Storch AG, Research Institute, Ottoplatz 1, 50679 Cologne, Germany; Phone +49 221 33 88-291, [research@fvsag.com](mailto:research@fvsag.com), *Directors:* Dr. Bert Flossbach, Dr. Tobias Schafföner, Dr. Till Schmidt, Marcus Stollenwerk, Kurt von Storch; *Registration:* No. 30 768 in the Commercial and Companies Register held at Cologne District Court; *VAT-No.* DE200075205; *Supervisory authority:* German Federal Financial Services Supervisory Authority, Marie-Curie-Straße 24 – 28, 60439 Frankfurt / Graurheindorfer Straße 108, 53117 Bonn, [www.bafin.de](http://www.bafin.de); *Author:* Prof Dr Thomas Mayer; *Editorial deadline:* 24. June 2024