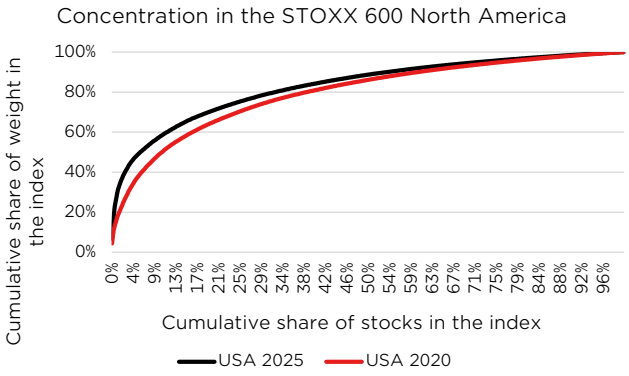
27 March 2025

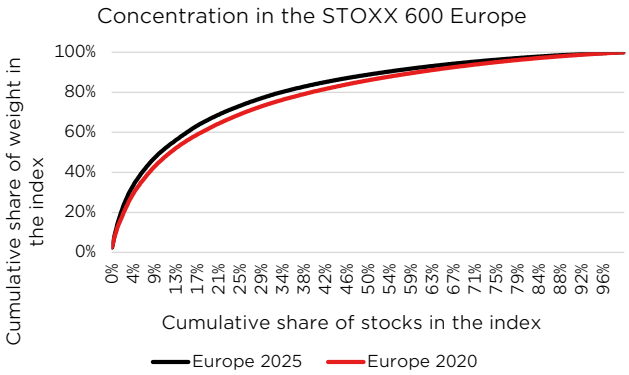
Market capitalization weighted indices: the ultimate wisdom?

Equity indices are designed to represent stock markets as representatively as possible. Therefore, it is initially expedient and logical to link the weightings of securities in the respective indices more or less directly to the market capitalization of the respective stocks. Thus, if one stock doubles its market capitalization while the other stocks move more or less sideways, then, according to this logic, it is also correct for the weighting of this stock to roughly double while the other weightings decrease slightly proportionally.

In recent years, more and more investors have decided to transfer index structures directly into portfolios via ETFs and other vehicles. The reasons for this are relatively obvious. The costs of passive investment vehicles are manageable, and transparency is very high. At the same time, the absolute performance of index products in recent years has been more than encouraging overall. Furthermore, there have recently been a rather unusually few actively managed portfolios that have systematically and significantly outperformed passive structures.

Behind the scenes, however, developments are emerging that raise the question of whether passive, index-oriented, and market-capitalization-weighted portfolio structures will still represent an ideal solution for investors in the coming years. The problem lies in the increasingly poor diversification of these indices. Taking the STOXX 600 North America as an example (the situation is very similar in the S&P 500), approximately 35 of the 600 companies in the index together account for 50% of the weighting of all stocks. However, this also means that the other 565 stocks have as much influence on the index's performance as a very few large stocks. Our calculations also show that this concentration has increased massively again in the last five years.





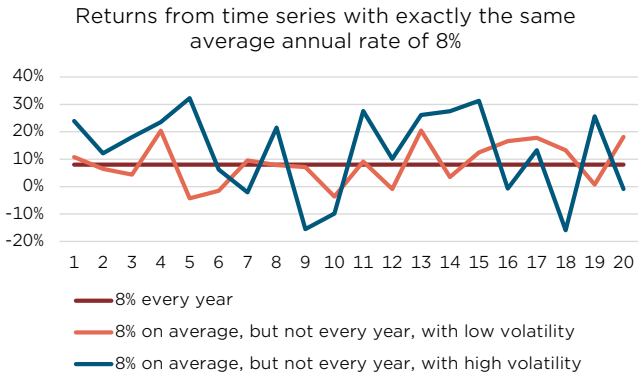
A similar development can be observed in Europe; here, too, concentration has increased since 2020 – albeit not quite as much as in the US. But even in Europe (measured by the STOXX 600 Europe), less than ten percent of all stocks account for just over 50% of the index weights. Here, too, good diversification can hardly be spoken of. However, suboptimal diversification due to excessive concentration risks inevitably increases portfolio volatility.

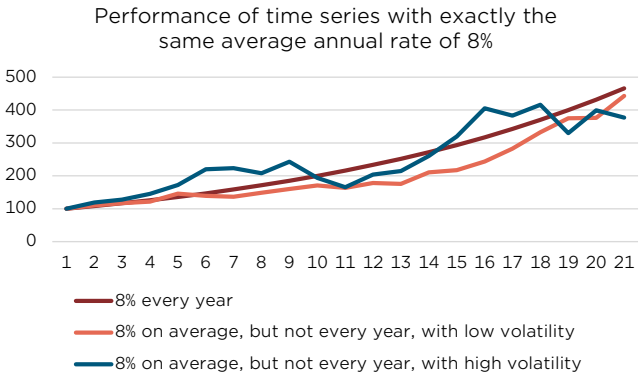
This fact is considered undisputed; however, many investors do not consider it particularly critical, as they assume that it only affects volatility, not long-term performance. And since passive investments in particular are held for a very long time, increased short-term volatility becomes less significant, while the expected long-term return appears unaffected – this is the common thinking of many investors.

In fact, this pattern of thinking contains a flaw that is completely obscure to the vast majority of investors (and even many professionals!). The fundamental problem is as follows. The implicit basic assumption behind this way of thinking is that realized returns over long periods depend on the average of actual returns over shorter periods. For example, if the return of a stock index is exactly eight percent every year, then the realized annualized return of the portfolio will also be exactly eight percent after many years. If there are slight fluctuations in returns from year to year, but the average return is also eight percent, then at the end of a long period, an annualized return of eight percent should again be on paper. At least, this is the typical idea, which in turn implicitly assumes that, with the same average returns, risk has no influence on the realized return at the end of a long investment horizon.

We now asked ourselves whether this is actually the case. To do this, we first constructed an example in which three portfolios compete against each other. All three portfolios have exactly an average return of eight percent over a period of 20 periods; however, all three portfolios exhibit different volatility.

As this example shows, the three portfolios do not reach the same value at the end of the final period, even though the average return in all three portfolios was exactly the same across all periods. In this example, the final value of the portfolio is a function of volatility. The higher the volatility, with the same average returns, the lower the long-term performance. Now the question arises: Are we dealing with an unfortunate example here, or is there a fundamentally valid systematic underlying this? A look at the literature reveals that this is not a random result. Quite the opposite. The literature refers to this as a "volatility tax." The realized return of a portfolio can even be approximated using a formula (see also Aswath Damodaran, NYU Stern School of Business); according to this formula, the realized return depends on the average of the returns over all periods, reduced by half the variance (or half the volatility) of the returns over all periods.





There's a lot of explosive potential in this formula. This formula—which isn't a far-fetched academic construct, but rather describes the reality of capital markets quite accurately—literally calls for portfolio constructions that don't reduce the average expected return, but rather reduce the "fat tails" in the return distribution. And even if these measures slightly reduce the average expected return (in the sense of the arithmetic mean across all periods), the realized performance can still be higher with lower volatility. This should be a wake-up call for all those who still feel comfortable with highly concentrated passive, index-replicating structures. Not everything that worked well in the past will necessarily work just as well in the future!

Dr. Christian Jasperneite

Market data

Stock marktes	As of 28.03.2025 09:40	Change versus 21.03.2025 -1 week	27.02.2025 -1 month	27.12.2024 -3 months	27.03.2024 -1 year	31.12.2024 YTD
Dow Jones	42300	0,7%	-2,2%	-1,6%	6,4%	-0,6%
S&P 500	5717	0,9%	-2,5%	-4,2%	8,9%	-2,8%
Nasdaq	17804	0,1%	-4,0%	-9,7%	8,6%	-7,8%
DAX	22570	-1,4%	0,1%	12,9%	22,1%	13,4%
MDAX	28516	-0,9%	-0,1%	10,9%	5,3%	11,4%
TecDAX	3680	-1,9%	-3,2%	6,6%	6,5%	7,7%
EuroStoxx 50	5362	-1,1%	-2,0%	9,4%	5,5%	9,5%
Stoxx 50	4632	-1,1%	-2,7%	7,6%	4,9%	7,5%
SMI (Swiss Market Index)	12873	-1,5%	-0,7%	11,1%	10,0%	11,0%
Nikkei 225	37120	-1,5%	-3,0%	-7,8%	-8,9%	-7,0%
Brasilien BOVESPA	133149	0,6%	6,7%	10,7%	4,3%	10,7%
Indien BSE 30	77225	0,4%	3,5%	-1,9%	5,8%	-1,2%
China CSI 300	3915	0,0%	-1,3%	-1,7%	11,8%	-0,5%
MSCI Welt	3696	0,2%	-1,9%	-1,6%	7,5%	-0,3%
MSCI Emerging Markets	1131	-0,1%	0,6%	4,4%	9,0%	5,1%
Bond markets						
Bund-Future	128,35	-13	-454	-467	-502	-509
Bobl-Future	117,84	42	9	19	-41	-2
Schatz-Future	106,97	19	7	2	124	-2
3 Monats Euribor	2,37	-2	-12	-31	-154	-35
3M Euribor Future, Dec 2025	1,97	-6	4	6	-39	8
3 Monats $ Libor	4,33	0	1	2	-112	-4
Fed Funds Future, Dec 2025	3,72	6	-6	-23	-20	-19
10 year US Treasuries	4,33	8	5	-29	14	-24
10 year Bunds	2,72	-2	34	33	45	36
10 year JGB	1,54	3	16	45	82	46
10 year Swiss Government	0,59	-13	12	30	-5	32
US Treas 10Y Performance	607,74	-0,8%	-0,4%	3,1%	2,8%	2,7%
Bund 10Y Performance	549,49	0,0%	-2,9%	-2,4%	-1,3%	-2,7%
REX Performance Index	451,10	0,1%	-0,9%	-0,4%	1,9%	-0,4%
IBOXX AA, €	3,20	0	26	14	-6	16
IBOXX BBB, €	3,62	0	30	15	-22	17
ML US High Yield	7,73	9	41	11	-12	8
Commodities						
MG Base Metal Index	434,92	-0,6%	2,7%	6,3%	11,8%	7,2%
Crude oil Brent	73,67	2,1%	-1,0%	-0,5%	-14,3%	-1,4%
Gold	3070,29	1,9%	6,8%	17,3%	40,1%	16,9%
Silver	34,30	4,3%	9,1%	15,6%	39,8%	15,6%
Aluminium	2548,97	-3,3%	-3,8%	0,8%	13,2%	0,9%
Copper	9800,17	-0,1%	4,5%	10,5%	12,1%	13,3%
Iron ore	102,36	0,4%	-4,4%	-1,5%	-6,8%	-1,2%
Freight rates Baltic Dry Index	1621	-1,3%	39,9%	62,6%	-12,1%	62,6%
Currencies						
EUR/ USD	1,0778	-0,5%	2,9%	3,3%	-0,4%	3,7%
EUR/ GBP	0,8324	-0,7%	0,9%	0,5%	-2,8%	0,7%
EUR/ JPY	162,12	0,7%	3,4%	-1,5%	-0,9%	-0,6%
EUR/ CHF	0,9508	-0,4%	1,1%	1,2%	-3,1%	1,0%
USD/ CNY	7,2623	0,1%	-0,4%	-0,6%	0,4%	-0,6%
USD/ JPY	151,06	1,2%	0,8%	-4,3%	-0,2%	-3,9%
USD/ GBP	0,77	-0,4%	-2,4%	-2,8%	-2,4%	-3,2%

Source: Refinitiv Datastream

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