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Index construction: Looking for alternatives! (Part 1)

In recent years, passive investment structures have gained increasing importance. More and more private and institutional investors are either buying ETFs that track indices, or are more or less directly replicating indices in their own portfolios and funds, or using them to closely align portfolios with them. In principle, taking this path was not a bad decision. The absolute performance on the equity side of many indices has been extremely encouraging, and at the same time, not many asset managers have succeeded in systematically beating these indices through active stock selection.

However, the question remains whether this path can be continued for many years to come. The relevant indices almost always base their weighting of individual stocks on the market capitalization of the respective stocks. And this may pose a problem: Today's market capitalization is always a function of past stock performance. This is not necessarily a bad thing. If the world is not subject to major upheavals, then it can be assumed as a working hypothesis that the successful companies of the past will, on average, also be the successful companies of the future. The last 20 years have been characterized by companies very often showing good development when they had both global sales and global production. But now the question arises as to whether this very trend will continue. In a world that increasingly (at least in part) exhibits characteristics of authoritarian mercantilism, maximum globalization is no longer a necessary criterion for success. However, there is another problem: The performance trends of the last few years have been so linear – also driven by network effects – that almost unimaginably high levels of concentration have built up in the indices. In many indices (and certainly not only in the US), the combined weightings of a few very large stocks easily reach 40 or 50 percent of the index construction. To even call this a broadly diversified index is a bold move. From a historical perspective, concentration measures have now reached such a level that a further concentration process seems almost inconceivable.

Two reasons that speak against weighting by market capitalization

There are actually two reasons why market-capitalization-weighted indices are not necessarily the optimal solution for portfolio structures. The world is currently undergoing fundamental changes, and the current weightings are the result of a world that will likely not continue in this form. Finally, the concentration measures also suggest that so-called mean reversion processes are taking hold. In this case, the stocks with the highest weightings tend to lose the most. This would put investors invested in passive vehicles such as ETFs at a comparatively high probability of being at a disadvantage.

Equal weighting as a solution?

To be fair, not all ETFs follow an index construction that is strictly based on the market capitalization of stocks. There are certainly indices in which weights are capped at a certain level (the DAX is a good example), and there are indices that completely ignore market capitalization. The most extreme form is equal weighting – here, all stocks in the investment universe are equally weighted (not every day, but on specific dates).

Viewed objectively, all forms of these alternative index constructions are not without flaws. For example, one could argue that capping weights is, to a certain extent, arbitrary. Why should a stock be capped at 10 percent when it accounts for 20 percent of the market capitalization? And equal weighting also has its pitfalls. While it may not seem unreasonable at first glance to give all stocks in an investment universe the same "chance" and assign them an identical weighting, However, this approach quickly reaches its technical limitations, because in such index constructions, small stocks can have such a high actual weighting relative to their low market capitalization that liquidity in trading is not sufficiently guaranteed at all times. This raises the question: Is there a good compromise between market capitalization and equal weighting that is not perceived as arbitrary?

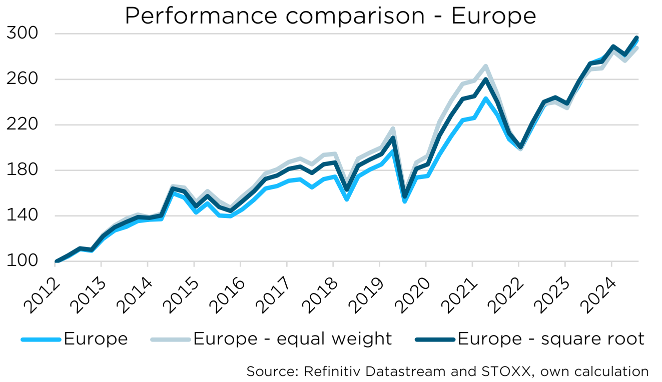
The root of market capitalization as a starting point

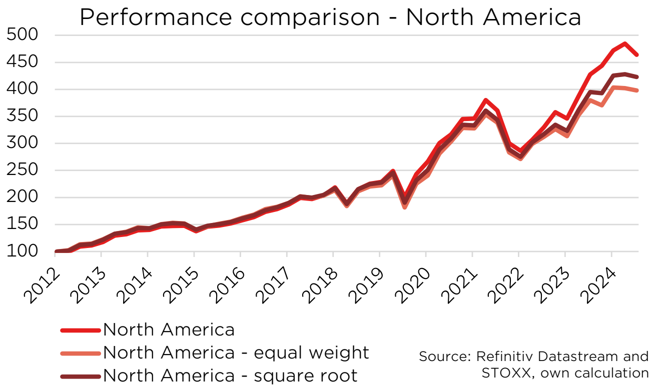
In our view, an index should ideally have the following characteristics:

- The ranking of market capitalization should be maintained. Small companies have a small weight, large companies a large weight.
- There should be no arbitrary capping of weighting at any point.
- The concentration in the index should be significantly lower than in market-capitalization-weighted indices.
- In the event of a significant regime change, such ideal-typical indices should perform better than market-capitalization-weighted indices and benefit from better diversification.

All of these criteria are met when using the square root of market capitalization as a metric for weighting stocks. Technically, the following happens: The square root of the market capitalization of all individual stocks is taken, and the sum of these values is calculated. The weight of an individual stock is then determined by the square root of the market capitalization relative to the sum of all square roots of the market capitalizations. This "trick" kills all birds with one stone: liquidity problems with small stocks are avoided, and the ranking order of company size remains completely intact. At the same time, concentration is lower, diversification is better, and the probability is quite high that this index construction will perform better, especially in the event of a regime change.

To examine how such an index construction would have performed, we conducted extensive calculations based on historical index compositions.





The calculations show that all index constructions in Europe have performed roughly identically since 2012. In the US, the market-capitalization-weighted variant was, unsurprisingly, the best variant on a cumulative basis, although a trend reversal appears to have been taking place in recent months. The decline in the market-capitalization-weighted variant has been significantly more severe recently, demonstrating the weakness of this index construction in the face of (potential) regime changes. So, does this represent an attractive alternative to traditional market-capitalization-based indices over the coming years? More on this in a second part of this series, where we will explore, among other things, why this slightly different weighting variant could also be interesting for stock pickers and thematic funds – and how this idea can be taken a step further.

Dr. Christian Jasperneite

Market data

Stock marktes	As of 09.05.2025 09:13	Change versus 10.04.2025 -1 week	14.03.2025 -1 month	16.01.2025 -3 months	16.04.2024 -1 year	31.12.2024 YTD
Dow Jones	41368	4,5%	-0,3%	-4,1%	9,4%	-2,8%
S&P 500	5687	8,0%	0,9%	-4,2%	12,6%	-3,3%
Nasdaq	17928	9,4%	1,0%	-7,3%	13,0%	-7,2%
DAX	23511	14,3%	2,3%	13,8%	32,3%	18,1%
MDAX	29661	15,4%	1,7%	16,3%	14,2%	15,9%
TecDAX	3745	13,1%	-0,8%	5,5%	13,7%	9,6%
EuroStoxx 50	5289	9,8%	-2,1%	3,6%	7,6%	8,0%
Stoxx 50	4445	8,2%	-4,1%	-0,2%	2,7%	3,2%
SMI (Swiss Market Index)	12062	7,3%	-6,6%	1,0%	7,7%	4,0%
Nikkei 225	37503	8,4%	1,2%	-2,8%	-2,5%	-6,0%
Brasilien BOVESPA	136232	7,8%	5,6%	12,4%	9,5%	13,3%
Indien BSE 30	79575	7,8%	7,8%	3,3%	9,1%	1,8%
China CSI 300	3846	3,0%	-4,0%	1,2%	9,5%	-2,2%
MSCI Welt	3708	8,4%	1,2%	-1,0%	12,5%	0,0%
MSCI Emerging Markets	1134	10,2%	1,2%	6,3%	12,3%	5,4%
Bond markets						
Bund-Future	131,17	81	394	-34	-4	-227
Bobl-Future	119,00	16	219	207	178	114
Schatz-Future	107,37	0	69	72	190	38
3 Monats Euribor	2,15	-12	-33	-59	-175	-56
3M Euribor Future, Dec 2025	1,69	-10	-39	-38	-96	-21
3 Monats $ Libor	4,33	-1	0	-1	-112	-4
Fed Funds Future, Dec 2025	3,69	20	-2	-23	-81	-22
10 year US Treasuries	4,38	-3	6	-24	-29	-19
10 year Bunds	2,56	2	-28	4	10	20
10 year JGB	1,36	2	-14	18	52	28
10 year Swiss Government	0,33	-15	-50	-9	-42	5
US Treas 10Y Performance	613,14	1,0%	0,6%	3,7%	7,5%	3,6%
Bund 10Y Performance	562,66	0,7%	3,3%	0,9%	2,5%	-0,3%
REX Performance Index	459,31	0,9%	2,5%	2,1%	4,1%	1,5%
IBOXX AA, €	3,07	-10	-23	-9	-37	3
IBOXX BBB, €	3,60	-11	-13	0	-43	14
ML US High Yield	8,33	-32	62	83	-8	68
Commodities						
MG Base Metal Index	400,44	0,7%	-9,1%	-4,3%	-5,8%	-1,3%
Crude oil Brent	63,33	-1,0%	-10,8%	-21,5%	-29,8%	-15,3%
Gold	3329,83	5,4%	11,4%	22,5%	39,5%	26,8%
Silver	32,93	6,7%	-2,1%	6,7%	16,6%	11,0%
Aluminium	2345,00	0,6%	-13,2%	-10,7%	-8,0%	-7,2%
Copper	9171,28	1,9%	-5,8%	0,5%	-2,0%	6,0%
Iron ore	98,23	-1,7%	-4,5%	-2,2%	-7,4%	-5,2%
Freight rates Baltic Dry Index	1316	3,7%	-21,2%	28,6%	-26,0%	32,0%
Currencies						
EUR/ USD	1,1245	1,5%	3,3%	9,5%	5,7%	8,2%
EUR/ GBP	0,8486	-1,6%	0,8%	0,8%	-0,7%	2,6%
EUR/ JPY	163,28	1,2%	0,9%	1,8%	-0,8%	0,1%
EUR/ CHF	0,9333	0,4%	-3,2%	-0,5%	-3,9%	-0,8%
USD/ CNY	7,2444	-1,0%	0,0%	-1,3%	0,0%	-0,9%
USD/ JPY	141,85	-1,8%	-4,6%	-8,6%	-8,3%	-9,8%
USD/ GBP	0,75	-2,2%	-2,5%	-7,7%	-6,1%	-5,5%

Source: Refinitiv Datastream

Carsten Klude
+49 40 3282-2572
cklude@mmwarburg.com

Dr. Rebekka Haller
+49 40 3282-2452
rhaller@mmwarburg.com

Martin Hasse
+49 40 3282-2411
mhasse@mmwarburg.com

Dr. Christian Jasperneite
+49 40 3282-2439
cjasperneite@mmwarburg.com

Simon Landt
+49 40 3282-2401
mlandt@mmwarburg.com

Jan Mooren
+49 40 3282-2132
jmooren@mmwarburg.com