Mag7: Breaking up is hard to do

November 5, 2025

Blu Putnam

Over the last decade, the Magnificant-7 (Mag-7) high-technology stocks have led the whole US equity market up and up. With occasional exceptions, these seven high-flying stocks have increasingly traded as a pack, with the correlations between the various stocks moving higher and higher, especially since the pandemic of 2020 and the Artificial Intelligence (AI) boom that took off with the release of ChatGPT3.5 at the end of November 2022. But these companies all do very different things. Nvidia sells computer chips, Tesla sells electronic vehicles with auto-pilot capabilities, Amazon runs a merchandise sales platform and provides cloud services. Google specializes in internet search. Microsoft sells business software and cloud services. Meta Platforms (Facebook) is all about social media. Apple is in the smart phone business.

For risk managers, a big question is whether these stocks will someday go their own way and dance to different drummers? For sure, someday these stock returns will take different paths, but it may not happen without a correction to this long-lasting bull market in equities. To appreciate the correlation patterns, an empirical examination using the Diversification Ratio method yields some useful insights to guide our analysis.

Diversification Ratio

When just looking at the correlation between the returns provided by two stocks, a simple linear correlation analysis tracked through time can provide useful insights into the correlation pattern. With portfolios of stocks, however, it is also important to recognize differences (and changes through time) in the volatilities of the stocks in the portfolio as well as observing how the correlations dynamically evolve. One very useful quantitative technique is to use the diversification ratio method developed by Choueifaty and Coignard ("Toward maximum diversification", published by The Journal of Portfolio Management, 2008).
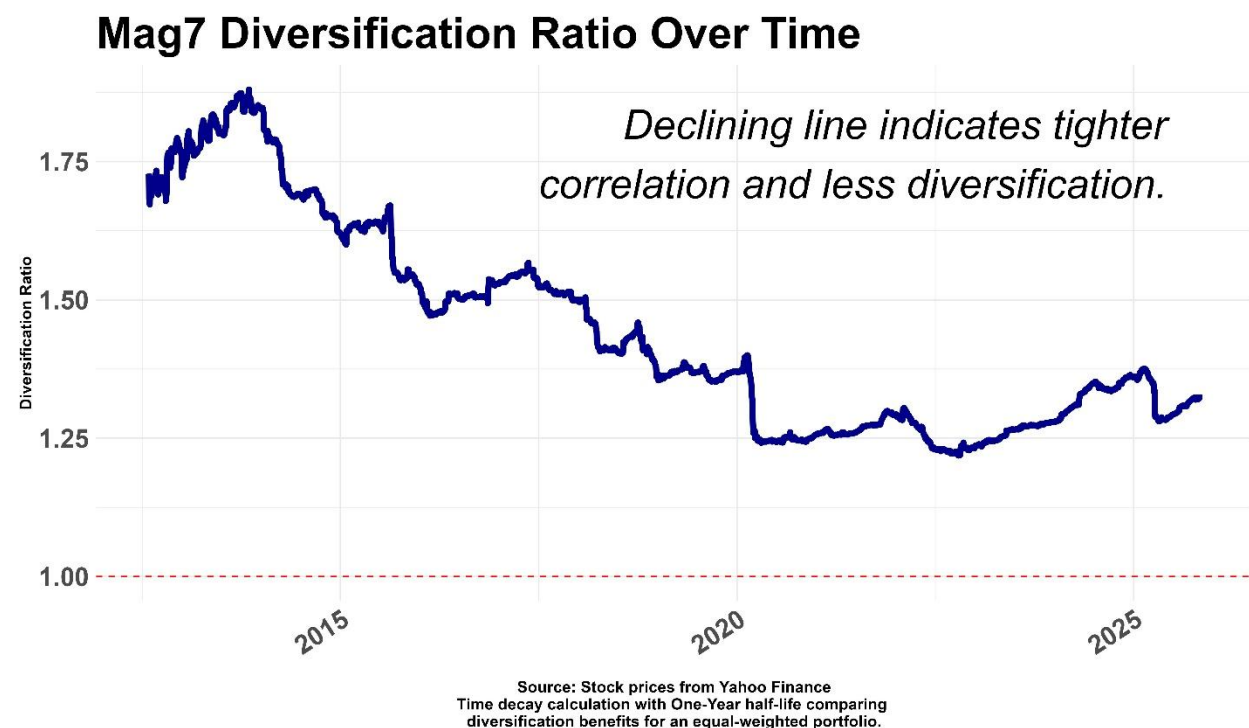
The diversification ratio compares two experiments with the same stocks. One experiment assumes zero correlation among the securities in the portfolio, which would provide the theoretically most advantageous diversification for a long-only portfolio. In the zero-correlation case, each stock moves independently of the others and has its own volatility pattern through time. The second experiment uses a set of portfolio weights (we will assume equal weights for our purposes) to observe the shifts in volatilities and correlations over time. Notice that we are using a covariance

process that picks up changes in volatility for each stock as well as how they correlate.

The ratio of the total portfolio volatilities of the two experiments allows one to appreciate how much diversification is provided in the marketplace and how it changes over time. For example, a diversification ratio of one means that all the stocks in the portfolio are essentially the same and there are no benefits from diversification. As the correlations between the different securities decline, there are greater and greater benefits from diversification, and the diversification ratio rises above one.

Mag-7 Correlations and Diversification Benefits

In our analysis of an equal-weighted Mag-7 portfolio, there are several key observations.

Mag7 Diversification Ratio Over Time

Source: Stock prices from Yahoo Finance
Time decay calculation with One-Year half-life comparing diversification benefits for an equal-weighted portfolio.

(1) The diversification ratio was much higher as one goes further back in time. Our data tracks the diversification ratio from mid-2012 to the present.

(2) The diversification ratio was declining even before the pandemic of 2020, but that is when it reached its lowest point – that is the least diversification benefits implying the highest relative correlations.

(3) There are several episodes of quick drops in the correlation or diversification benefits, and these are associated with broad equity market declines.

It is typical of securities in the same asset class to see their correlations rise dramatically in a market sell-off, and this is what has happened with the Mag-7 portfolio. In each case – the pandemic 2020 sell-off, the interest rate increases of 2022, and the tariff "Liberation Day" market decline – correlations rose in the selling frenzy and any benefits from diversification disappeared. This is a common problem with many ostensibly diversified portfolios, as they provide benefits when the market is rising and one does not need them and when the market declines so do any benefits from diversification – just when one needs it.

Mag-7: The Evolution of the AI Revolution

The AI revolution has lifted all the boats in the Mag-7 fleet, as they all are highly technologically dependent and all have the potential for strong growth as they apply AI. As we noted at the beginning, though, each of the Mag-7 companies are in quite different businesses.

We would argue that companies such as Tesla, Apple, and Meta (Facebook) are essentially governed by how well consumers receive their products. These companies all face marketplace competition. And we know technology evolves and consumer tastes will change. On the other extreme is Nvidia, which sells its chips to computer makers, data centers, and cloud operators. Nvidia faces competition, too, but for now it is lagging behind. Microsoft, Amazon, and Alphabet (Google) mix business and consumer products, yet they all face potential competitors in their different markets.

Given the differences in the consumer and business marketplaces for each of these companies, we would be surprised if their fortunes, growth prospects, and stock returns did not diverge over the next decade. Still, we expect the currently tight correlation structure to be a feature of this bull market, at least as long as it lasts. We now have Exchange Traded Funds (ETFs) that focus on the Mag-7 stocks. The very high combined capital weight of the Mag-7 in the S&P500® Index also means that passive investors will be supporting the Mag-7 in the rally. And we are in the early stages of how AI develops and changes the shape of the global economy. In short, our perspective is that the Mag-7 will hang together until they don't, which is likely to occur only after a bear market episode, the possibility of which we are not analyzing here, but perhaps in a future article. For now, just in case there is a market downturn, our caution for risk managers is to run scenario tests where the overall market declines and the Mag-7 sinks as one.