Morgan Stanley

WEALTH MANAGEMENT

SPECIAL REPORT

Global Investment Committee | January 19, 2024

Consequences of Concentration

Following the 2022 bear market and coinciding with the emergence of generative artificial intelligence (AI), 2023 offered a unique opportunity for rising index concentration, as accommodative liquidity conditions overwhelmed the expected impact of fundamental drivers. In fact, fueled largely by gains in the "Magnificent Seven" group of US megacap stocks, it reached its highest level ever. But just as starting points matter for markets, so too, does index concentration—and the S&P 500's current degree of concentration presents underpriced risks and vital implications.

Notably, today's concentration features strong correlation among the most valuable names by factor, sector and subsector—thereby favoring stock-picking and active management, as well as the equal-weighted index for passive investors. Furthermore, with concentration heavily skewed toward the most expensive stocks, the duration of the S&P 500 benchmark has effectively become extended; in other words, it is more highly correlated with interest rates, essentially causing stock-bond correlations to turn or remain positive.

These structural shifts, combined with the end of the 40-year bull market in US bonds, have greatly diminished the portfolio-risk-diversification benefits of a traditional 60/40 asset allocation. In our view, this points to another key implication for investors: the importance of noncorrelated alternative assets. With this in mind, the Global Investment Committee (GIC) favors real assets and hedge funds, especially—and private investments secondarily.

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Special thanks to Van Hoang for all of his contributions to this report.

Executive Summary

Investors, portfolio managers, economists and strategists are all apt to study 2023 for decades, as virtually no historical analytic paradigm adequately explained or forecast events and their skewed market impact.

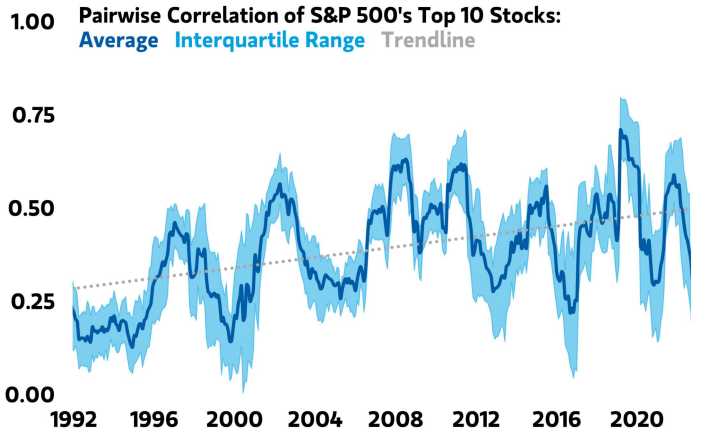
To begin with, resilience in the face of the steepest Federal Reserve rate-hiking cycle in nearly 50 years, which took the federal funds rate from the zero bound in March 2022 to 5.5% by July 2023, was unprecedented, with the US economy delivering annualized nominal and real growth of 8.3% and 4.9%, respectively. Certainly, $1.6 trillion in fiscal spending, which produced record nonrecessionary government deficits of more than -6% of GDP, cushioned results. So, too, did the Fed's emergency liquidity program, which absorbed systemic risks related to the failure of three major regional banks. We must also acknowledge the economy's reduced sensitivity to short-term interest rates, as 15 years of deleveraging, along with prolonged negative real rates, allowed the household and corporate sectors to lock in and term out their liabilities, helping to insulate them from Fed action.

Amid these crosscurrents, most macroeconomic models failed, as healthy liquidity overwhelmed the expected impact of fundamental drivers. Despite an inverted yield curve, a contraction in bank lending and negative M2 growth for only the second time since World War II, financial conditions actually loosened. This development also came amid rising bankruptcies, lower ISM manufacturing indexes and 15 consecutive months of negative leading economic indicators. The surprise of avoiding any material net economic impact or negative implications for corporate profits, which remained flat for the year in aggregate, proved to be a significant driver of strong equity returns, as was the fact that the highest real rates since before the Great Financial Crisis failed to dent equity valuations, which hit 20 times 12-month forward earnings.

While these elements, challenging enough on their own, offer ample foundation for study, things were further complicated by the euphoria around generative AI—a theme activated by the commercial release of large language models like ChatGPT in late 2022. While equity investors routinely deal with investment themes, 2023's AI-related concentration of returns in the Magnificent Seven represented yet another unprecedented complication. The seven stocks came to account for nearly 30% of the S&P 500's market capitalization (besting 1999's record) and almost two-thirds of its full-year return.

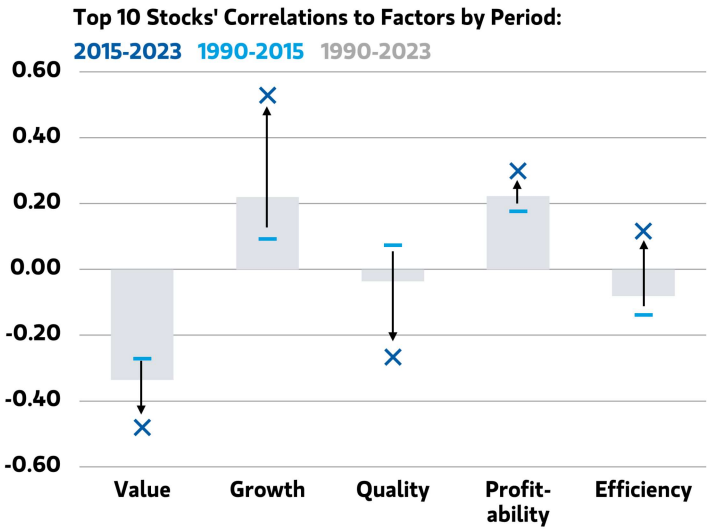
Megacap stocks' rich valuations have exacerbated index concentration, as their capital share continues to exceed their share of index-level earnings and revenue by an increasingly wide margin. We examined this concentration across three different metrics since 1986, and, based on all three, 2023 concentration far exceeded that of the late 1990s—the most recent period of significant concentration. The "effective diversification" metric suggests that the S&P 500 has effectively been operating as a basket of just 60 stocks, down from an average of 137 prior to 2017. Such results have made active risk management and outperformance, especially on the part of regulated mutual funds, almost impossible. Not only has taking active share in these names been structurally prohibitive, but the stocks have key characteristics in common. For instance, many are components of similar sectors, virtually competing in areas like advertising, cloud computing, streaming and AI. Furthermore, they are all extremely expensive, share momentum- and quality-factor exposure and boast above-average betas. Essentially, they are correlated with one another, inhibiting portfolio diversification.

Exhibit 1: The Largest Stocks' Returns Have Become More Correlated



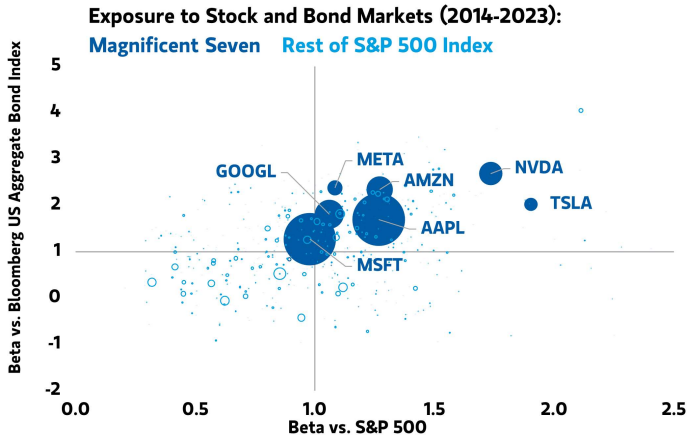
Source: FactSet, Morgan Stanley Wealth Management GIC. Data as of Dec. 31, 2023

Exhibit 2: Megacaps' Factor Relationships Pivoted Meaningfully Around 2015



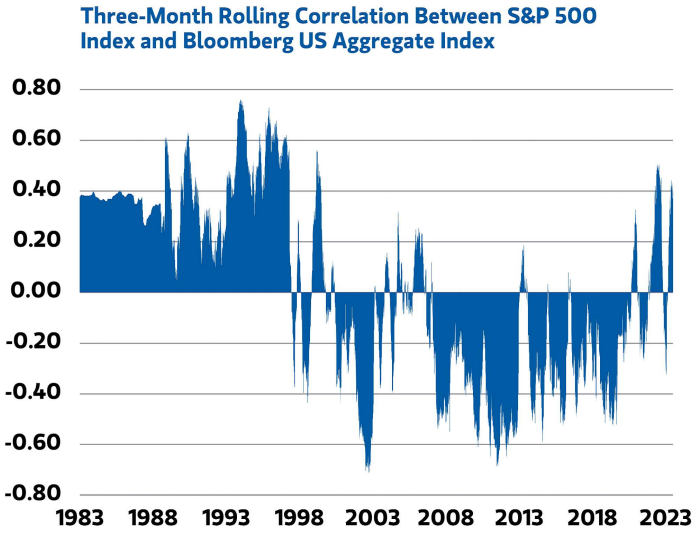
Source: FactSet, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

Exhibit 3: The Magnificent Seven's Betas to Both Equities and Fixed Income Appear Quite Elevated Relative to Other S&P 500 Constituents



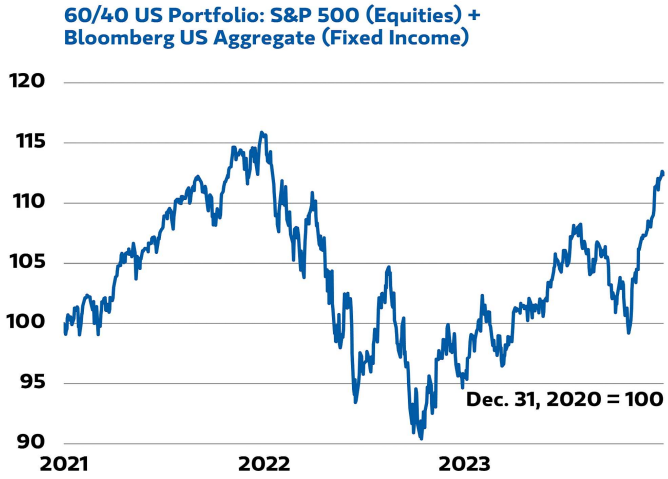
Source: FactSet, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

Exhibit 4: US Equities Have Become Correlated With Interest Rates



Source: Bloomberg, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

Exhibit 5: Higher Correlation Has Lessened the Risk-Diversification Benefits of a Traditional 60/40 Portfolio



Source: Bloomberg, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

Historically, index concentration has proved self-correcting, with some combination of regulatory, market and competitive forces, along with business cycle dynamics, undermining static leadership. In fact, our analysis suggests that equity returns have typically struggled following peaks in concentration, with non-megacap equities and core fixed income typically outperforming. But this time, history may be defied, given the potential for structural monopolies and network-based competitive moats to inhibit a shift in market leadership. Unchecked market power, enhanced by excessive cash-flow generation that can be recycled to buy up potentially disruptive innovators, may keep today's leaders entrenched in a way not observed since World War II. Furthermore, the growth, and now dominance, of investor flows toward passive strategies may counteract indexes' natural tendency to rebalance to reflect the realities of shifting economic momentum and leadership.

A final consideration is whether that economic and financial concentration inhibits innovation and productivity growth via inefficient capital allocation, which has been the case historically. Consider that the 10 largest US megacap stocks, in aggregate, have the same market capitalization as all the listed companies in the UK, France, Germany and Japan put together! US megacaps are dominant, but will they remain so forever? This time, the surge of the shadow-banking system via private equity and private credit may facilitate the disruption of even monopolistic incumbents, ensuring that concentration is undermined even if regulatory forces are ineffective.

Coming in the wake of the 2022 bear market, which was concentrated in tech stocks, and coinciding with the emergence of generative AI, 2023 presented a unique backdrop for index concentration to increase amid accommodative liquidity. But starting points matter, and 2024 begins in a very different place than 2023. Rate cuts and an "immaculate soft landing," both part of the consensus view, have been fully priced by exuberant investors, especially with regard to the largest megacaps. Furthermore, our analysis suggests that index composition matters, and the current nature of the S&P 500, with its concentration and valuation dichotomies, poses underappreciated risks. While the Magnificent Seven stocks certainly drove the broad narrative in 2023, we anticipate that they will cease to trade as a monolithic group in 2024, as midcycle soft-landing dynamics begin to overwhelm generic AI valuation premiums. We believe that idiosyncratic risks around earnings achievability and leverage to cyclical growth will reemerge, with the S&P 500 Equal Weight Index benefiting from lower rates, fairer valuations and disinflationary growth. We also anticipate that the renewal of shadow-banking financing and deal-making will reignite economic competition and lead to more effective and balanced capital allocation.

Ultimately, our conclusions and their implications are threefold:

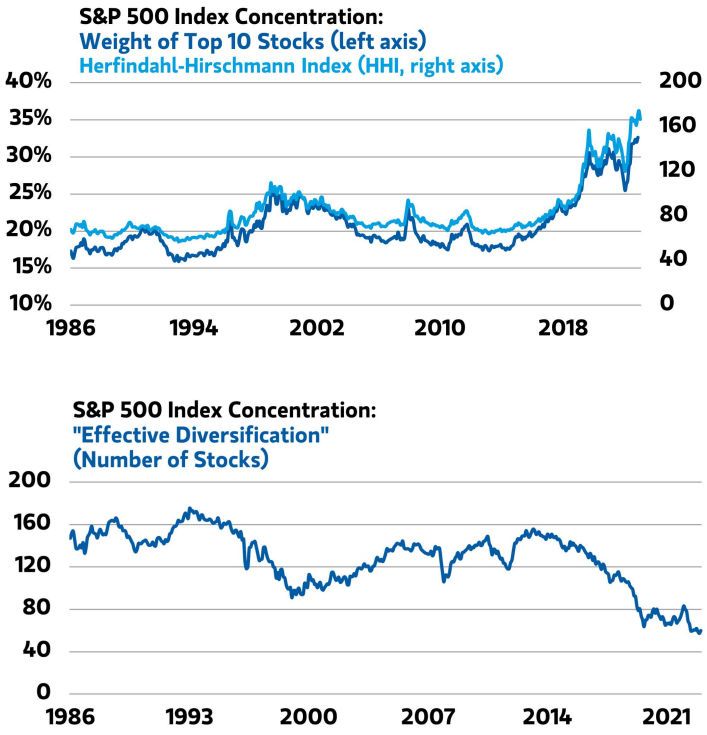
- S&P 500 concentration is at a historic extreme—producing unanticipated and underpriced risks. The concentration prevalent today is especially differentiated in that the most valuable names are highly correlated with each other, by factor, sector and subsector. History suggests that high levels of concentration are rarely sustainable and ultimately self-undermined. This favors stock-picking and active management in the short term and the equal-weighted index for passive investors.
- This time, S&P 500 concentration is also heavily skewed toward the most expensive stocks, suggesting that the duration of the benchmark index has become extended. Said another way, it is highly correlated with interest rates. The implication is that, among the largest names, macro factors like Fed policy and inflation can swamp idiosyncratic drivers of earnings, essentially causing stock-bond correlations to turn or remain positive. (See Exhibit 4.)
- The combination of these equity-index risks and structural shifts in stock-bond correlations, along with the end of the 40-year (1981-2021) US bond bull market, greatly diminishes the effective portfolio-risk-diversification benefits of a traditional 60/40 asset allocation. The implication is that the importance of noncorrelated alternative assets increases meaningfully. The GIC believes this especially favors real assets and hedge funds, and private investments secondarily. (See Exhibit 5.)

1. Characterizing the Greatest-Ever Concentration for US Large-Cap Core and Growth

1.1 Compositional Effects: Studying US and Global Indexes

The cap-weighted US equity indexes, such as the S&P 500 and Russell 3000 Index, have reached their most concentrated point in observable history. In Exhibit 6, we measure the S&P 500's concentration based on simple index weights, the Herfindahl-Hirschman Index (HHI) and "effective diversification." On all three metrics, concentration has far exceeded that of the late 1990s—the most recent episode with significant concentration. The "effective diversification" metric suggests that the S&P 500 effectively operates as a basket of just 60 stocks, down from an average of 137 prior to 2017.

Exhibit 6: The S&P 500's Effective Diversification Has Fallen Sharply as Concentration Has Risen



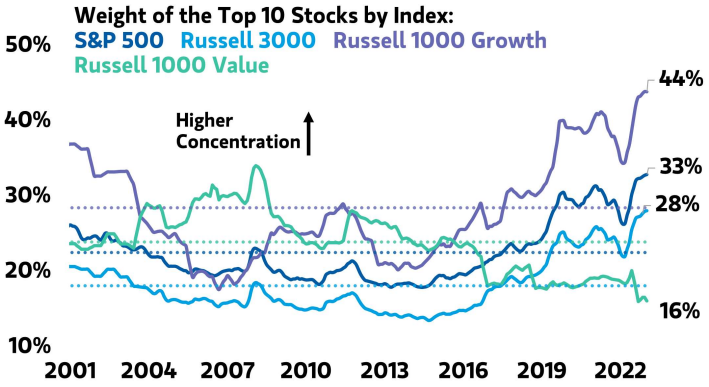
Source: FactSet, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

Data limitations on the S&P 500's constituents require quantitative analysis to focus on a relatively recent window, beginning in 1986. As an earlier example of index concentration, in the late 1960s and early 1970s, investors piled into that era's "Nifty Fifty" stocks. Attracted by their solid earnings growth, investors took a buy-and-hold approach, inherently accepting their increasing valuations until facing headwinds in an extended rolling bear market. We review other historical periods of economic concentration in Section 3 below.

Looking beyond the S&P 500, we observe that large-cap core and growth-style benchmarks show similar concentration characteristics, given material overlap in their 10 largest stocks. Exhibit 7 indicates that the S&P 500, Russell 3000 (core), Nasdaq Composite and Russell 1000 Growth all feature the Magnificent Seven among their largest holdings at different aggregate levels, given each benchmark's individual focus. As seen in the top chart, those four benchmarks have exhibited similarly increasing weights in the 10 largest stocks, while the Russell 1000 Value Index and a leading small-cap benchmark, the Russell 2000 Index (not pictured), have demonstrated contrary patterns—toward greater deconcentration.

Moreover, the concentration skew appears mainly at the extreme top end of these indexes. That is, the current weight of the 25 and 50 largest holdings does not appear to be a significant historical outlier, as it does for the 10 largest holdings.

Exhibit 7: Concentration Has Risen Sharply Among Most Major US Equity Benchmarks, Leading to Increasing Similarities Among Them

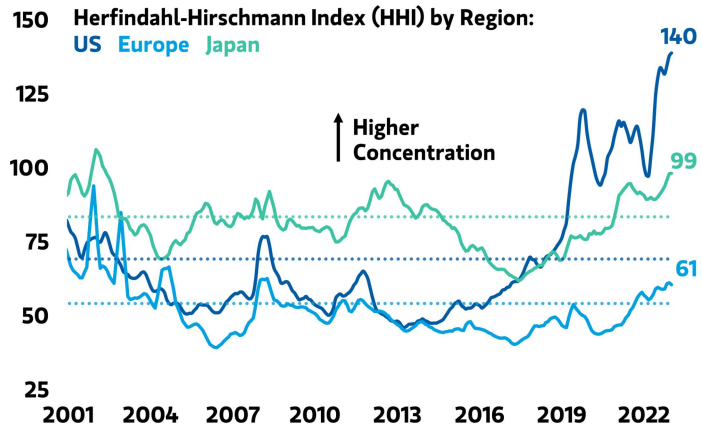


No.	S&P 500	Russell 3000	Russell 1000 Growth	NASDAQ Composite	Russell 1000 Value
1	MSFT (7.0%)	MSFT (6.1%)	MSFT (11.9%)	AAPL (12.0%)	BRK (3.3%)
2	AAPL (6.8%)	AAPL (5.9%)	AAPL (11.7%)	MSFT (11.7%)	JPM (2.5%)
3	GOOG (3.8%)	GOOG (3.3%)	GOOG (6.6%)	GOOG (6.8%)	XOM (2.1%)
4	AMZN (3.5%)	AMZN (3.0%)	AMZN (5.9%)	AMZN (6.6%)	JNJ (1.9%)
5	NVDA (3.0%)	NVDA (2.5%)	NVDA (4.9%)	NVDA (5.0%)	PG (1.4%)
6	META (1.9%)	META (1.7%)	META (3.3%)	META (3.2%)	CVX (1.3%)
7	TSLA (1.7%)	TSLA (1.4%)	TSLA (2.8%)	TSLA (3.2%)	MRK (1.2%)
8	BRK (1.7%)	BRK (1.5%)	LLY (2.2%)	AVGO (2.1%)	BAC (1.1%)
9	UNH (1.3%)	LLY (1.1%)	AVGO (2%)	COST (1.2%)	WMT (1.1%)
10	JPM (1.2%)	UNH (1.1%)	UNH (1.8%)	ADBE (1.1%)	CSCO (1%)

Note: The cell shading indicates the stocks' GICS Sector classification: Light Blue: Information Technology; Purple: Communication Services; Dark Blue: Consumer Discretionary; Green: Financials; Rose: Health Care; Tan: Consumer Staples; and Gray: Energy.
Source: FactSet, Bloomberg, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

Expanding the focus to global equities, the US stands out in terms of degree of concentration. Exhibit 8 shares the HHI values for US equities as well as for European and Japanese markets over time. While both European and Japanese concentration levels have increased since 2017, only the S&P 500 has reached a multidecade high, sitting well above its long-term average. Notably, Japan's HHI values outpaced those of both Europe and the US through the late 2010s, perhaps owing to the prevalence of *keiretsu* (conglomerate) structures for Japanese companies such as Sumitomo, Mitsubishi and Mitsui.

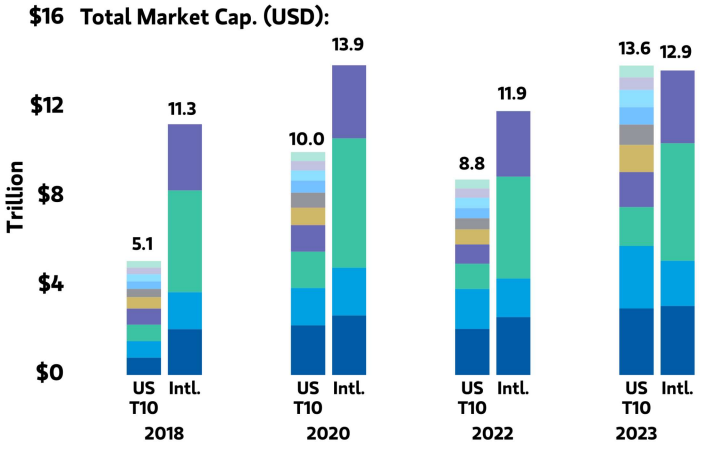
Exhibit 8: Among Global Equity Regions, US Index Concentration Stands Out



Source: FactSet, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

Exhibit 9 underscores the extent to which the largest US firms' market cap growth has dwarfed that of global peers. In 2023, the 10 largest US stocks surpassed the combination of France, Germany, Japan and the UK, as measured by aggregate market cap. Moreover, the US' Top 10 stocks achieved this stunning feat remarkably quickly. A decade ago, the Top 10 US stocks represented just 40% of the capitalization of those four major non-US markets. Over the following 10 years, US equities experienced powerful relative growth, with more than 15% annualized outperformance in the past five.

Exhibit 9: The Top 10 US Stocks' Market Cap Has Surged Past That of France, Germany, Japan and the UK Combined

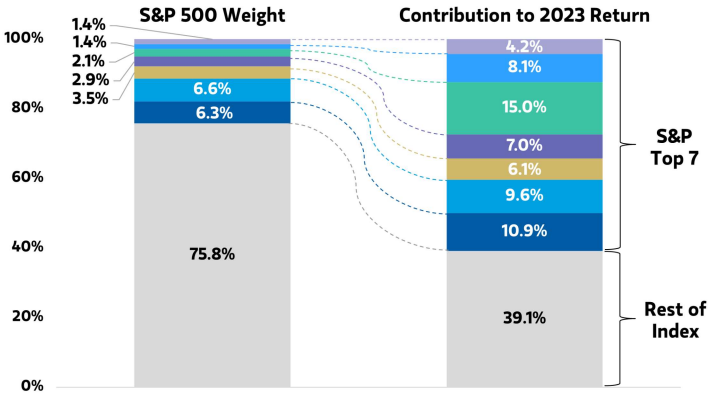


Source: FactSet, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

1.2 Performance Effects: Return Contributions

In addition to constituent weights, we may observe the impact of index concentration through relative return contributions. This approach more directly considers what ultimately matters to investors: risk-adjusted returns. In 2023, US equities experienced even more concentrated returns than index weights themselves would have suggested. While making up less than 30% of the S&P 500's weight, the Magnificent Seven accounted for almost two-thirds of its returns, as seen in Exhibit 10.

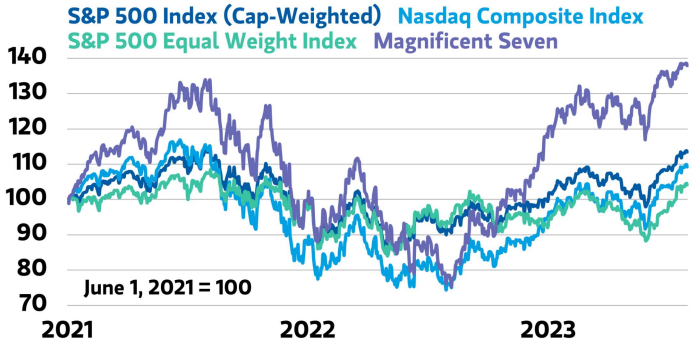
Exhibit 10: The Magnificent Seven Dominated 2023's Returns, Contributing Well Above Their Weights



Source: Bloomberg, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

In Exhibit 11 below, we decompose 2023's price gains by looking at earnings growth and valuation changes for the S&P 500, the Nasdaq Composite Index, the S&P 500 Equal Weight Index and the Magnificent Seven. While the components of the three indexes exhibited falling earnings, on average, developments in AI technology helped to power a 17.4% gain in earnings of the Magnificent Seven. Investor enthusiasm, furthermore, allowed their collective valuations to rise more than 50%. While bear-market dynamics continued to dominate US equities, as measured by the S&P 500 Equal Weight Index, the Magnificent Seven's 2023 breakout compounded already-high index concentration.

Exhibit 11: The Increase in the Magnificent Seven's Valuations Outpaced Impressive Gains in Their 2023 Earnings



2023 Changes	S&P 500 Index (Cap-Weighted)	Nasdaq Composite Index	S&P 500 Equal Weight Index	Magnificent Seven
Price Index	24.2%	43.4%	11.6%	106.6%
Earnings, Trailing 12-Months	-2.3%	-5.8%	-9.0%	17.4%
P/E Multiple	25.7%	39.1%	9.3%	50.5%

Source: Bloomberg, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

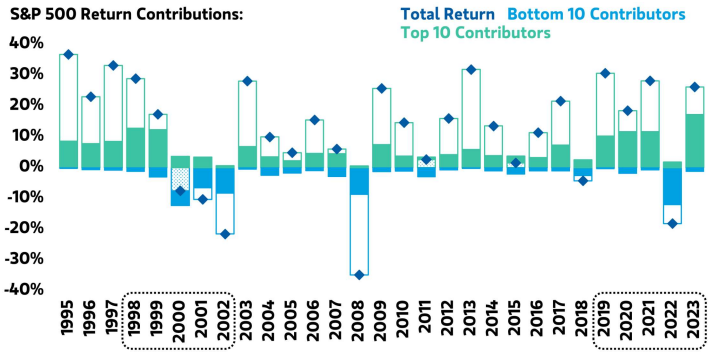
In Exhibit 12, we computed the relative contributions to the S&P 500 of the 10 largest and 10 smallest return contributors for each calendar year since 1996. We observed that return contributions have been more concentrated in periods with greater weight concentration. Amid higher concentration, an index's effective diversification declines, leading to greater probability of outsize returns or skewness.

This phenomenon featured heavily in the 1998-2002 and 2018-2023 periods, with index performance driven by a small number of stocks. Since 2018, the 10 stocks with the most significant return contributions have accounted for more than 60% of the index's return, on average; from 1998 to 2002, the 10 largest contributors notched two-thirds of index returns.

Most dramatically, in 2000, the 10 largest contributors combined to contribute more than 100% of the index's -7.5% return, highlighting that return contribution can cut both ways. More recently, in 2022, the Magnificent Seven featured prominently in the S&P 500's -18% decline, accounting for 60% of those losses.

As a result of compositional changes, the S&P 500 has increasingly resembled a megacap growth-style index, with its performance characteristics diverging materially from value-style and small-cap indexes. In 2022 and 2023, the Magnificent Seven's returns determined the relative sorting of the Russell 1000 Growth, the S&P 500 and the Russell 1000 Value—plus the Russell 2500 Index, a small- and mid-cap benchmark. In short, index concentration may have diminished the differentiation for style-box investors between growth and core but amplified the differentiation between 1) growth and value and 2) large- and small-cap.

Exhibit 12: Concentrated Return Contributions Have Tended to Coincide With Weight Concentrations and Have Driven Returns to the Upside and Downside



Source: Bloomberg, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

2. Tracking the Active/Passive Feedback Loops That Have Reinforced Index Concentration

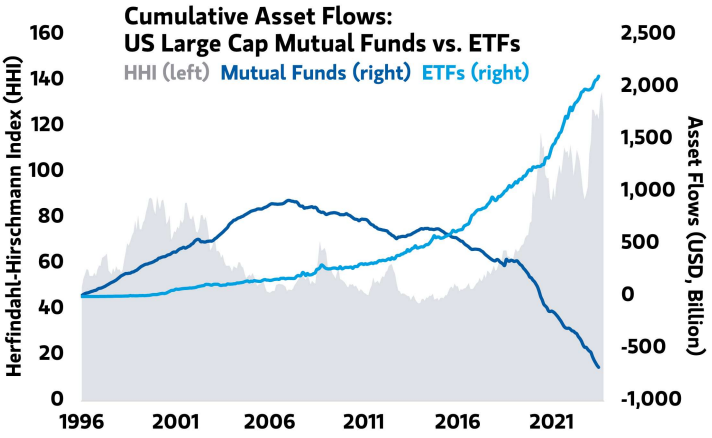
The growth in passive investing has helped to accelerate index concentration. In the post-Great Financial Crisis period, investors have increasingly shifted assets to lower-cost, passive strategies, typically in the form of exchange-traded funds (ETFs). Over this period, passive strategies in US large-cap equities have outperformed their actively managed counterparts sharply. By August 2019, assets under management (AUM) of passive US equity funds surpassed those of actively managed funds—a watershed event for the markets and investment managers.

Exhibit 13 highlights the shift from active to passive strategies relative to the S&P 500's increasing HHI. While this comparison considers publicly available data for mutual funds and ETFs, strong anecdotal evidence suggests that institutional investors, who often either manage money

in-house or allocate to vehicles other than mutual funds, have followed a similar path.

In the following subsections, we explore the feedback loops that likely propelled the coincident growth in passive equity strategies and index concentration. In the first subsection, we consider active managers' structural disposition against concentrated positions, which has encouraged them to systematically underweight the largest stocks. In turn, these dynamics have challenged active strategies' value proposition, as lower and often negative alpha generation has been accompanied by higher tracking error—a measure of divergence from relevant benchmarks. That disappointing relative performance, coupled with a growing focus on cost, speed and simplicity, has compounded these trends.

Exhibit 13: Increasing Index Concentration Has Coincided With a Material Asset Shift in Favor of Passive Strategies



Source: Morningstar, FactSet, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

2.1 Active Strategies Face Structural Headwinds From Index Concentration

Actively managed equity strategies typically seek to outperform their benchmarks through differentiated sector allocations and security selection in the face of headwinds from transaction costs and expense ratios. Index concentration poses an additional challenge, owing to operational constraints. Active managers operate under guidelines and constraints, either self-imposed or prescribed by regulators. Asset managers often establish their own guidelines regarding sector allocation, security selection and trading parameters, all of which may influence the number and size of individual holdings. They also frequently set guidelines pertaining to sector overweights and underweights; portfolio-level exposure to specific factors, styles, beta and cash level; rebalancing frequency; and turnover. (See Exhibit 14.)

Moreover, the Investment Company Act of 1940's "75-5-10" rule determines the definition of "diversified." That is, to be classified as an adequately diversified fund, a strategy must have at least 75% of its total assets in securities of other issuers and cash; must have no more than 5% of its total assets in the securities of any one issuer; and must own no more than 10% of any company's outstanding voting stock. To avoid violating these rules, investment managers often impose guardrails that may limit their single-security positioning even further. Aside from these regulatory considerations, clients generally prefer that active strategies avoid significant position concentration in order to minimize idiosyncratic risks.

Exhibit 14: Actively Managed Strategies Typically Include Guardrails to Hedge Investors From Assuming Idiosyncratic Risks, Including Position Concentration

Investment Objectives and Constraints for Active Managers	
Maximum No. of Positions	Maximum number of positions in portfolio (e.g., 40 to 60 positions)
Maximum Position Size	Maximum allocation to any one position (e.g., no more than 10% of total AUM)
Maximum Sector Allocation	Sector guidelines (e.g., no more than double the index weight—or 40% maximum)
Style Limitations	Limited by style boxes or benchmarks
Rebalancing Frequency	Limited by decisions made at rebalancing intervals (e.g., semi-annually)
Position Specific	Idiosyncratic position constraints (e.g., "sell winners but keep losers")
Tax Considerations	Desire to manage taxable events (e.g., tax sensitivity)
Strategy Objectives	Objectives specific to a investment strategy (e.g., focusing on names with high free cash flow)

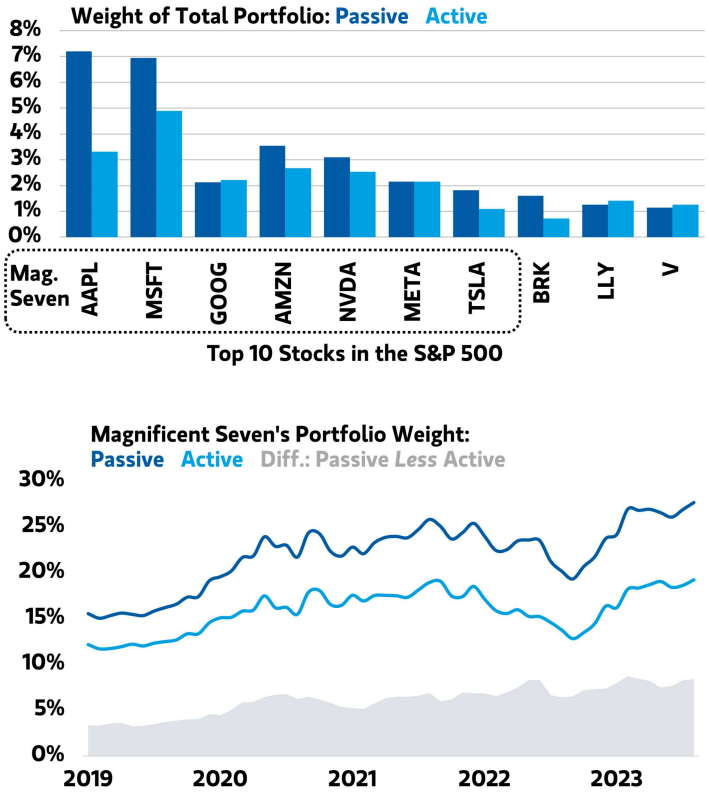
Source: Bloomberg, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

Congress passed the 1940 Act to hedge investors from undue risk by establishing a standard measure of diversification. The Act was a response to early developments among mutual funds, the first of which was launched in 1924. Notably, their speculative activity may have contributed to the 1920s bull market and the subsequent crash in 1929. In addition to mitigating risks for investors, the Act implicitly addressed the boom-bust cycles that helped produce the Roaring '20s and the Great Depression.

Looking at current practices, strategies operating under the Act's diversification principles (and in keeping with investors' expectations of limited position concentration) unsurprisingly tend to underweight the Top 10 or Magnificent Seven stocks, particularly as index concentration becomes more severe. Based on strategy-level holdings data that starts in 2019, Exhibit 15 shows that passive strategies hold materially larger allocations to the megacap stocks than do active strategies.

Most passive strategies seek to follow cap-weighted benchmarks, like the S&P 500; as such, they systematically allocate more capital to stocks with larger market caps. In contrast, actively managed strategies have become increasingly underweight the Magnificent Seven, as illustrated in the bottom panel.

Exhibit 15: Passive Strategies Hold a Much Greater Weight in Concentrated Names Than Their Actively Managed Counterparts



Source: Bloomberg, FactSet, Morgan Stanley & Co. Research, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

Investors' growing appetite for passive strategies has therefore encouraged a virtuous cycle of increasing allocations to megacap names. Largely freed from limitations on position concentration, passive strategies consistently add to their index components at market cap weights, according to their objective of tracking their underlying indexes. As such, each dollar that migrates from active to passive (quantified in Exhibit 13) effectively reallocates capital from smaller index constituents to their larger counterparts.

While most managers operate under these diversification guidelines, some have reclassified their strategies as "non-diversified," which would potentially narrow the concentration gap. Current index weightings might raise the question of whether the Investment Act's limits have become too restrictive. According to a recent Security and Exchange Commission (SEC) report, however, "… *it is possible that increasing the 10% threshold would reduce investor confidence in funds because the funds that represent themselves as diversified may not be as diversified as investors expected. This could result in shifting the burden to investors to investigate and monitor the actual diversification of individual funds, which may increase investment and monitoring costs.*" This conclusion suggests that the concentration gap between active and passive strategies will likely persist in the intermediate term.

2.2 Rising Index Concentration Has Diminished Active Managers' Value Proposition

2.2.1 Performance: Poor Alpha and Increasing Tracking Errors

Definitionally, during periods of rising index concentration, the largest stocks have outperformed their smaller peers. As Exhibits 10 and 11 highlighted, concentrated positions have indeed contributed materially to index performance, pointing to the relative underperformance of smaller stocks. Despite marked COVID-induced volatility in early 2020, the largest stocks broadly benefited from macro and micro drivers from 2017 to 2023, which we discuss in Section 3 below. Moreover, starting with the post-crisis low on March 6, 2009, the S&P 500 has notched a 16.3% annualized return—and a 13.4% annualized return from Dec. 31, 2016. Those steady gains have encouraged investors to "stay the course" amid intermittent bouts of volatility.

Staying the course has meant remaining invested in US large-cap equities, increasingly in passive strategies. As detailed in Section 2.1, that inertia has extended passive strategies' outperformance, given the nature of index concentration, and has likely contributed to lowering investor confidence in active strategies.

As illustrated in Exhibit 16, actively managed strategies' outperformance has varied widely by asset category, based on Morningstar's categorizations. In concentrated asset classes, such as US large-cap growth and US large-cap blend, as well as in international large blend, active strategies have overwhelmingly underperformed, with fewer than 20% outperforming in the 10-year trailing period. In contrast, active strategies have delivered consistent outperformance in US small-cap growth, value and blend over the preceding three-, 10- and 20-year periods.

Exhibit 16: Actively Managed Strategies Have Struggled in US Large-Cap Growth, US Large-Cap Blend and International Large Blend—But Have Thrived in US Small-Cap Categories

Active Management Scorecard		Percentage of Strategies With Positive Excess Returns			
Morningstar Category	Benchmark Index	1Y	3Y	10Y	20Y
US Large-Cap Growth	Russell 1000 Growth	31%	14%	6%	18%
US Large-Cap Value	Russell 1000 Value	51%	68%	50%	42%
US Large-Cap Blend	S&P 500	23%	23%	6%	17%
US Mid-Cap Growth	Russell Midcap Growth	17%	38%	23%	27%
US Mid-Cap Value	Russell Midcap Value	52%	70%	32%	28%
US Mid-Cap Blend	Russell MidCap	33%	66%	19%	12%
US Small-Cap Growth	Russell 2000 Growth	38%	63%	73%	81%
US Small-Cap Value	Russell 2000 Value	62%	88%	55%	72%
US Small-Cap Blend	Russell 2000	44%	87%	61%	61%
International Large Blend	MSCI EAFE	17%	17%	19%	28%
Emerging Markets	MSCI Emerging Markets	61%	46%	41%	34%

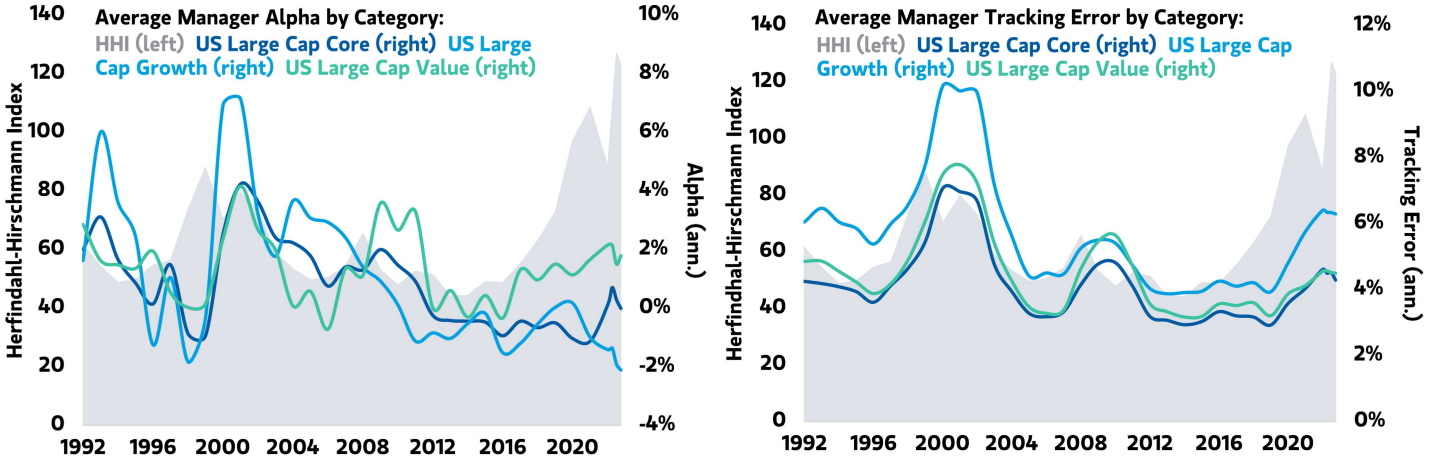
Source: Morningstar, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

Our Active-Passive Framework seeks to identify where and when active strategies may prove more valuable, considering the potential choice of higher-quality active strategies versus low-cost passive strategies. For each of 27 asset classes, we provide a strategic, long-term "base component" and a tactical, shorter-term "cycle-sensitive component." For the former, we believe that each asset class's market efficiency and the breadth of underlying securities help to define active management's opportunity set. By market efficiency, we mean the degree to which analysts and portfolio managers can scope out the fundamentals behind underlying constituents and identify prospective opportunities. More efficient markets tend to feature greater depth of analyst coverage, with more widespread attention paid to the asset class's underlying securities. Breadth indicates the degree to which an asset class features a higher number of securities that are less closely related. On both market efficiency and breadth, US large-cap growth and US large-cap blend score particularly poorly, prompting the "base component" to suggest limited allocations to active strategies in those two asset classes.

In Exhibit 17, we present the trends in actively managed strategies' alpha generation and tracking errors, using three-year rolling data starting in January 1990 and comparing those results to the S&P 500's HHI readings. Looking specifically at four periods of interest—the early 1990s, the late-1990s Tech Wreck, the 2007-2009 Great Financial Crisis and the 2018-2023 period—we observe several details. For US large-cap growth and core, increasing HHI levels have historically corresponded to relatively poor alpha generation, while falling HHI levels have prompted more favorable opportunities for alpha generation. Notably, US large-cap growth registered remarkable alpha in the early 1990s and following the Tech Wreck—both periods in which the HHI Index had become relatively elevated. Meanwhile, US large-cap value exhibited a similar pattern through the aftermath of the Great Financial Crisis, but with lower amplitudes. Since then, US large-cap value strategies have delivered more consistently positive alpha, perhaps even modestly correlated with rising HHI levels. Based on factor decomposition of the US large-cap growth and value categories, we conclude that both categories' managers tend to reach for "greener grass" by including value- and growth-tilted exposures, respectively, in greater weights than within their benchmark indexes. In recent years, that tendency likely served as a welcome tailwind for the perceived alpha generation of US large-cap value managers but as a strong headwind for their US large-cap growth counterparts.

For each of the three categories, tracking error levels have tended to rise in the period surrounding HHI peaks. Tracking error measures the divergence between a portfolio's total returns and those of its benchmark index, calculated as the annualized standard deviation of the monthly performance differentials. Unsurprisingly, increasing index concentration has caused greater divergence between active strategies, which face limits on position concentration, and their unconstrained benchmark indexes, which we reviewed in Section 2.1 above. Taken together, active strategies' low-to-negative alpha generation and rising tracking error during periods of increasing index concentration have translated into unfavorable risk-adjusted returns—an unwelcome outcome for investors.

Exhibit 17: Increasing Index Concentration Has Diminished Alpha Generation for US Large-Cap Growth and Core Managers and Increased Managers' Tracking Error Levels for All Three Categories



Source: Morningstar, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

2.2.2 Preferences: Against the Grain of Greater Simplicity, Lower Costs and Tax Efficiency

In addition to the performance drivers discussed in Section 2.2.1, active strategies have become disadvantaged, given investors' preferences for greater simplicity, lower costs and tax efficiency. In Exhibit 18, we detail the differentiated characteristics of passive and active strategies, which have recently shifted in active's favor.

In recent years, individual investors have noticed, rightly, that simpler portfolios have often delivered more attractive risk-adjusted returns. From October 1981 to December 2021, a secular disinflationary trend allowed nominal and real yields to decline steadily, prompting a 10.9% annualized return for a portfolio tracking a 60/40 blend of the S&P 500 and the Bloomberg US Aggregate Index. Narrowing the focus to the post-crisis period, from March 2009 to December 2021, the 60/40 portfolio's annualized return improved to 12.5%. On the other hand, more complicated portfolios, particularly those including multiple active strategies, largely disappointed relative to the lofty standards established by the 60/40 portfolio's historically excellent run. That said, in 2022, the 60/40 portfolio struggled during a period of elevated inflation and normalizing interest rates.

Passive strategies have allowed investors collectively to gain asset class exposure at lower expense ratios and in a tax-efficient manner. Investors naturally prefer lower expense ratios, particularly when coupled with greater simplicity and more attractive performance. Moreover, owing to their structure, ETFs typically avoid capital gains distributions, enabling investors to compound capital without an intermediate tax drag. Meanwhile, direct indexing strategies often track major benchmark indexes, much like ETFs, but they target realization of intermediate capital losses. Given passive strategies' pre-tax performance advantage, US large-cap equity ETFs and direct indexing strategies have even further outpaced active strategies in after-tax terms. After holding passive strategies (or single-name positions in the S&P 500's largest stocks) through a period of double-digit annualized returns, taxable investors likely sit on sizable unrealized gains, diminishing their desire to rebalance their portfolios away from highly concentrated positions. By delaying their realization of these capital gains, these investors have indirectly supported greater index concentration.

Exhibit 18: Investors Have Preferred Passive Strategies' Characteristics in Recent Years

		PASSIVE	ACTIVE
	Return Profile	**Benchmark** Total Returns	**Market Timing + Security Selection** Excess Returns
Characteristics	Index Replication	✓	✗
	Transparency	✓	✗
	Liquidity	•••	••
	Turnover	•	•••
	Cost	•	•••
	Tax Efficiency	•••	Varies
Performance	Beta Exposure	✗	Varies
	Potential Alpha	✗	✓
	Tracking Error	•	•••
Risk Mgmt.	Drawdown Mitigation	•	Varies
	Concentration	•••	Varies
	Valuation vs. History	•••	Varies

Source: Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

2.2.3 Programmatic Investing: Disfavored by Slow (Long-Term) and Fast (Short-Term) Investors

As detailed in Exhibit 13 and motivated by the considerations in Sections 2.2.1 and 2.2.2, longer-term investors have voted with their flows, choosing passive strategies over active ones. Perhaps unknowingly, long-term investors' preferences for simplicity, lower costs and tax efficiency have caused them to adopt greater concentration in their US equity allocations. Given the solid track record, inertia has tended to reinforce the perceived value of these preferences, potentially leading to investor complacency.

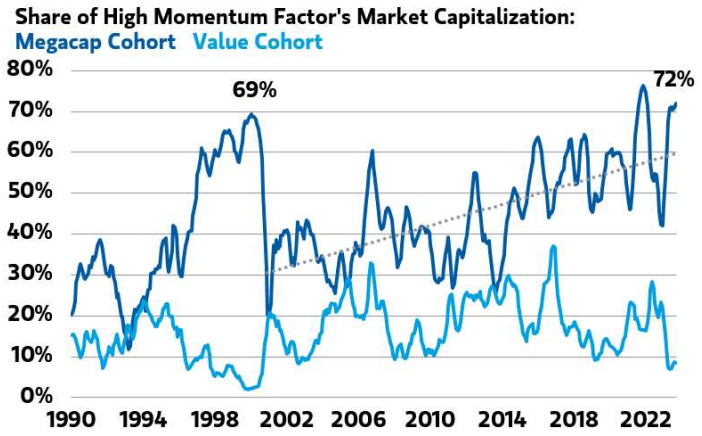
Responding to investor interest, asset managers have offered an expanding menu of ETFs, passive models and target-date portfolios. Total equity market cap has received support from longer-term investors, particularly given the low interest rates and contained equity volatility in the post-crisis period, with a demonstrated willingness to stay invested and even "buy the dip." Moreover, many retirement savers have elected for programmatic investment plans, with defined-contribution menus increasingly populated with passive investment strategies. Institutional investors have also welcomed the simplicity and lower costs of passive strategies, with equities having delivered higher returns than fixed income at a well-contained level of volatility since early 2009.

To expand on one example, target-date funds are common investment options for individual retirement accounts (IRAs) and many defined-contribution plans. Asset managers often structure these portfolios as fund-of-fund vehicles, allocating to both active and passive strategies according to a predetermined asset allocation glidepath that corresponds to the time horizon related to a target retirement date. Importantly, these strategies generally rely on rebalancing algorithms to maintain their portfolios' asset allocation weights, which can potentially contribute to and exacerbate concentration.

Meanwhile, short-term investors have likely provided a marginal boost to index concentration. Given the availability of algorithmic trading, investors can take advantage of low transaction costs and deep liquidity, particularly in US large-cap equities and ETFs. This facility in trading has allowed investors to deploy quantitative strategies to follow defined sets of instructions and to trade automatically. As an example, momentum or trend-following strategies can leverage technical patterns, potentially amplifying existing tendencies.

As displayed in Exhibit 19, US megacap stocks have become dominant members of the momentum factor cohort in the post-crisis period—and particularly in 2023. The momentum factor seeks to capture those stocks with strong recent price performance, typically measured over the preceding one to 12 months. Given its construction, the momentum factor can change its composition abruptly, depending on pivots in market leadership. This tendency makes momentum a useful gauge of short-term investors' preferences over time. Using our Tactical Equity Framework 2.0, we measured the market-cap-based weight of megacap stocks in the high-momentum basket, constructed to represent the top-third of US stocks, according to their momentum characteristics. The overrepresentation of megacaps in this high-momentum basket has trended upward alongside the concentration in US indexes, peaking around 70%—at or above the prior peak in 1999.

Exhibit 19: US Megacap Stocks Have Come to Dominate the Momentum Factor to a Historic Degree



Source: FactSet, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

3. Contextualizing the Economic Drivers of Index Concentration

Across industries and time, corporate revenues and market caps appear loosely related. In recent years, the Magnificent Seven have effectively translated their economic advantages into elevated market caps, benefiting from high margins and healthy investor sentiment. In this section, we explore what has propelled the Magnificent Seven to such a leading position.

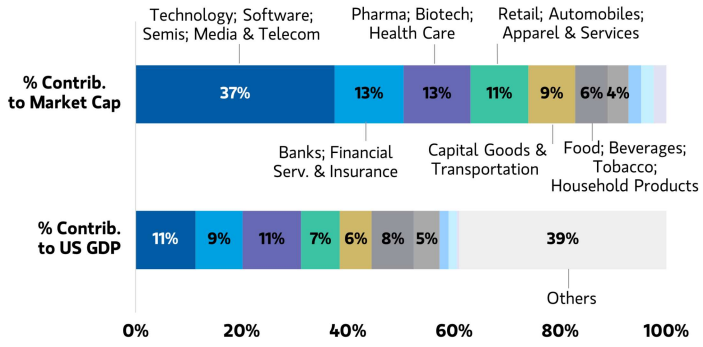
We can decompose a company's or index's market cap into the price/earnings (P/E) multiple and earnings per share (EPS). Logically, it follows that index concentration emerges from a combination of either concentrated corporate earnings or elevated equity valuations. Smaller-country indexes could naturally display higher degrees of index concentration, due to limited representation. For a major global index like the S&P 500, concentration appears more noteworthy. (Looking to these variables' rates of change, we can decompose a company's or index's price gains, as seen in Exhibit 11.)

As we review in Section 4.1 below, outsize valuations have caused the index weights for the Top 10 and Magnificent Seven to exceed their earnings and revenue shares, as

captured in Exhibit 28. Those premium valuations have emerged, in part, from investors' collective confidence in these names' efficient profitability, evidenced by high corporate margins; expectations for future growth in profitability; and the perception of limited cyclicality. Given their healthy balance sheets, including hefty cash balances, the Magnificent Seven enjoy lower exposure to interest rate and credit risks than their S&P 500 peers. The fundamental strengths contrast with 1998-2002's concentration, which was driven by valuation premiums to a far greater extent.

Exhibit 20 points out the disproportionate market cap share of the technology, media and telecom (TMT) sectors, at 38% in aggregate of the S&P 500, compared to their GDP contribution share of just 11%. Exhibit 21 quantifies the remarkable divergence in the relationship between 1) economic concentration; and 2) financial market concentration for the Magnificent Seven and other S&P 500 constituents. We discuss the drivers of this remarkable divergence in the Magnificent Seven's favor in Section 3.3 below.

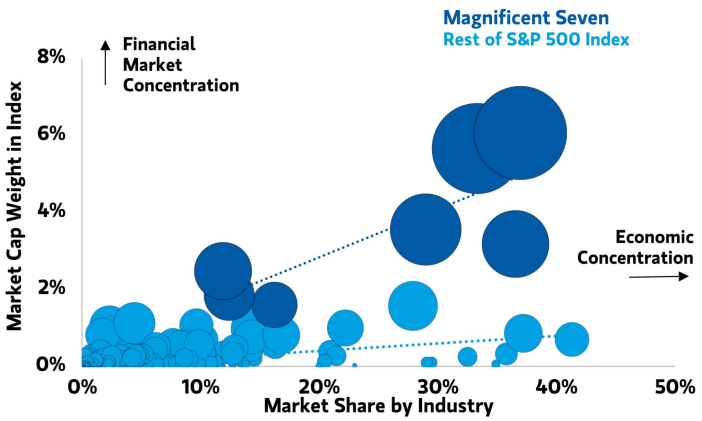
Exhibit 20: TMT's Market Capitalization Far Exceeds Its Contribution to US GDP



Source: Bloomberg, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

In many cases, however, economic concentration does not correspond to financial market dominance. Transportation industries (automakers, aircraft manufacturers and airlines) and tobacco producers show high degrees of concentration but relatively limited market cap weights. In these examples, economic concentration exists to take advantage of economies of scale. Even with that scale, however, profitability may remain relatively pedestrian, with low corporate margins and constrained opportunities due to mature markets that are unlikely to outpace overall economic activity. Moreover, transportation industries remain highly vulnerable to macro cyclicality. As such, these concentrated industries benefit from neither outstanding earnings nor premium valuations.

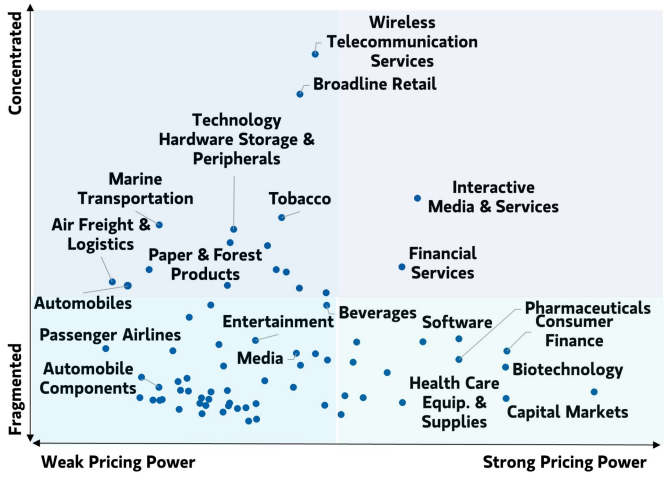
Exhibit 21: The Magnificent Seven Demonstrate a Materially Different Relationship Between Their Index Weights and Levels of Economic Concentration Than Their S&P 500 Counterparts



Source: Bloomberg, FactSet, Morgan Stanley Wealth Management GIC as of Dec. 30, 2023

Exhibit 22 provides a scatterplot comparing S&P 500 industries' concentration (as measured by HHI) to their pricing power (as measured by operating margins). The analysis corroborates the foregoing observations on concentrated transportation industries. While tobacco producers do benefit from above-average pricing power, their stagnant addressable market has weighed on their market caps.

Exhibit 22: Economic Concentration May Not Guarantee Pricing Power



Note: We measure 1) concentration by the HHI; and 2) pricing power by gross margin.
Source: Bloomberg, FactSet, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

3.1 Scale Economies and Competition Have Helped to Distinguish Eras in Modern Corporate History

Historically, the US economy has not experienced durable stretches of economic concentration by the same few firms. Typically, periods of vigorous economic growth, the broad diffusion of technological innovation and business dynamism have correlated with disruption and changing industry leadership. Economic concentration has enabled incumbents to capitalize on their financial scale as a virtuous wedge, driving them to distance themselves from their competition. Yet, these advantages have often proved short-lived, interrupted by technological breakouts, regulatory changes or radical shifts in the economic backdrop.

Looking to modern US corporate history, we identified three notable eras, designated by how dominant companies took advantage of scale economies. (See Exhibit 23.) In the first era, ending around 1950, industrial leaders typically benefited from improved access to scarce resources. The second era, partially overlapping with the first and covering 1880 to 1990, pivoted to leaders' ability to automate manufacturing and scale their distribution. The third era has evolved with the widespread distribution of computers, with waves involving hardware, software, the Iinternet, mobile computing and now data-driven applications.

Industrialization Era. In this first Industrialization Era, leading companies benefited from superior access to scarce resources. As an early example, the British East India Company, founded in 1600, became dominant by establishing fortified trading posts and achieving a firm grasp on trade in spices, fabrics and tea. Backed by military might and boldness in ocean exploration, the Company built a commercial empire through its physical control of trading resources and markets.

The Standard Oil Company, founded in 1870, offers another example. It thrived by achieving a dominant size and then maintained its supremacy by controlling resources, price-setting and revenues. By 1904, it controlled over 90% of US oil production and 85% of final sales. In 1906, the US government leveraged provisions of the Sherman Antitrust Act (1890) and sued Standard Oil, claiming that it had used its monopolistic position to gouge consumers. As a result, it forcibly dissolved in 1911, splitting into 34 separate entities. Despite this dissolution, several of Standard Oil's corporate descendants have remained relevant and have emerged as leaders into the 21st century. ExxonMobil, which traces its roots back to Standard Oil, regained prominence later and has maintained a leadership position for a similar period as its predecessor. Still, the modern oil industry features much greater diversity and competition than in the early 1900s.

In short, during the Industrialization Era, scale allowed certain players to profit handsomely from controlling scarce resources, but regulatory powers could thwart monopolistic overreach. The commoditized nature of that era's goods made corporate breakups, such as that of Standard Oil, a credible remedy.

Manufacturing Era. The Manufacturing Era emerged in the late 1800s, as economic power transitioned from resource control to automation-enabled mass production and scaled distribution. These developments allowed industry leaders to generate healthy corporate margins, with scale becoming an inherent barrier to entry.

Exhibit 23: In Different Eras, Leading Companies Have Capitalized on Evolving Drivers of Scale

	Historical Developments in Scale Economies		
	Industrialization Era	Manufacturing Era	Digital Era
Timing	Pre-1950	1880–1990	Post-1980
Drivers	Access to scarce resources	Automation and distribution	Technology infrastructure and digitization
Keys to Success	Companies acquired resources, such as oil, ports and railroads, to establish dominant positions.	Manufacturing advantages, including automation, electrification and R&D enabled exponential growth in production and greater profit margins.	Technology diffusion and knowledge power drove scale economies, expedited by the benefits of network effect and "walled gardens."
Major Players	East India Co. (Trade)	General Motors (Automobiles)	Apple (Technology)
	Standard Oil (Energy)	General Electric (Industrials)	Microsoft (Technology)
	Dupont (Chemicals)	AT&T (Telecom)	Alphabet (Communication Serv.)
	Union Carbide (Chemicals)	IBM (Technology)	Meta (Communication Serv.)
	Sears (Retail)	Kodak (Machinery)	Amazon (Retail)

Source: Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

The US auto industry offers a helpful example. At the turn of the 20th century, more than 100 automakers operated in the US, centered in Detroit. Shortly thereafter, however, the industry consolidated into the Big Three of General Motors, Ford and Chrysler. The Big Three took advantage of more scalable production (through the assembly line and electric power) and decreasing input costs to solidify their dominance. Meanwhile, the Big Three enjoyed efficient nationwide distribution through their brand-specific dealer networks and created consumer financing arms, which tied buying power to income versus liquid assets.

The Big Three became among the world's most valuable companies by World War II, until global competition and labor disputes dented their success, ultimately leading to Great Financial Crisis-era insolvency and reorganizations. From the 1960s on, the Big Three often diminished their own pricing power through 1) overproduction and surplus inventories, which forced them to introduce sales incentives to balance the market; and 2) undifferentiated products. The onslaught of global competition, particularly from Japan and South Korea, diminished the Big Three's market share, eroding their price-setting ability. The Big Three largely ceded the small-car market and lumbered into the 2000s by virtue of America's appetite for trucks and SUVs.

The Manufacturing Era's leaders were vulnerable to changing consumer preferences and slowing growth in total addressable market share. In a concentrated industry, potential market-share gains for entrenched leaders become limited, as antitrust considerations can thwart mergers and acquisitions (M&A) activity. As prisoners of their own success, leaders were forced to address the unappealing tradeoff between stagnant profitability and dilutive growth. For super-incumbents, returns on investment (ROIs) in new endeavors often fell short of the ROIs from existing business lines, thus disincentivizing them from pioneering change. The Big Three's recent foray into electric vehicles highlights this phenomenon.

To combat market-share ceilings, some Manufacturing Era firms turned to a conglomerate structure. By pursuing multiple business lines, conglomerates offered the hope of continued revenue growth, even with maturing businesses. While the structure has thrived outside the US, corporate strategists came to frown on the approach by the 1980s. By placing multiple diversified divisions in a single corporate entity, conglomerates required multiple layers of executives and opaque accounting practices. The potential for internal competition also threatened to dampen capital efficiency, ultimately leading investors to discount the whole as less than the sum of its parts.[1]

Digital Era. With its launch around 1980, the Digital Era first featured broad adoption of desktop computers. Later, the Internet, and then mobile computing, powered growth in the 1990s, 2000s and 2010s. Finally, data-driven applications, such as AI, have come onto the scene in the 2020s.

Early entrants into the Digital Era, particularly hardware providers, bore some resemblance to their Manufacturing Era predecessors. Through the mid-2000s, Digital Era companies remained largely disparate, with each focusing on a relatively limited business line. Since the mid-2000s, however, leading firms have redeployed their free cash flow into reinvestments and acquisitions. Advancements in technology infrastructure, such as the cloud, and these companies' access to troves of data, have driven their economies of scale. Investors welcomed the broadening activities of these firms, given their limited capital needs, high profit margins and dominant positions in industries with growing total addressable markets. Distributing software or algorithms in the Digital Era required far less physical presence than Manufacturing Era firms generally needed. This flexibility expedited innovation and market growth.

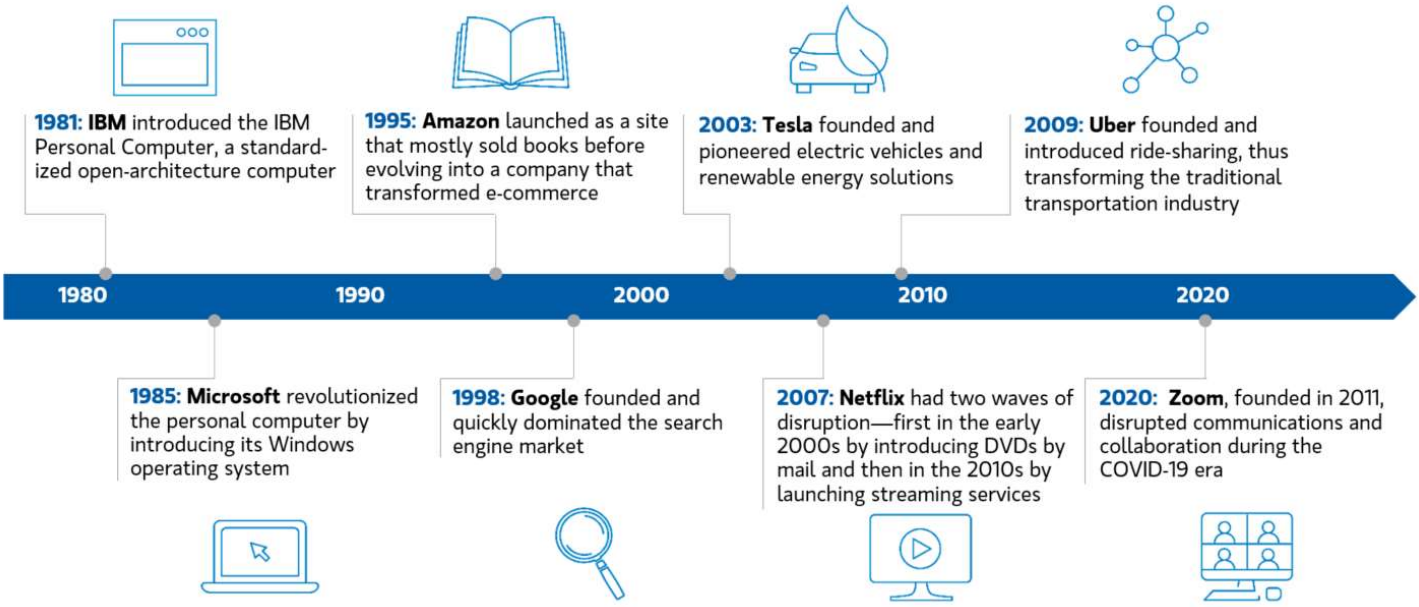
In the 2010s, technology leaders benefited from consumers' adoption of mobile computing, including through smartphones and wearables. Increasingly, leading firms extended their economic advantages from network effects and "walled garden" structures. With network effects, popular products or services (like social media platforms) can attract rising numbers of users, expanding reach across demographic groups and geographic areas. "Wallen garden" concepts have allowed incumbents to control users' access to hardware, applications and network-based content and to stymie migration away from the ecosystem. Consumers effectively have traded digital convenience for mobility.

In Exhibit 24, we review a brief timeline of the Digital Era's disruptive innovation, tracing the movement from IBM's physical Manufacturing Era-like innovation to digital, Internet-driven innovation in the 2010s and 2020s. In recent years, incumbent players have increasingly expanded their business lines through acquisitions, as discussed in Section 3.3 below, or through internal "moonshot" research and development (R&D) efforts.

As discussed in our January 2023 special report, "The Next American Productivity Renaissance," several disruptive technologies have emerged in recent years, potentially shifting value creation from "makers" to "takers." Enabled by innovative technologies, such as generative AI, quantum and memory-driven computing, and DNA decoding, among others, these "takers" could process data to empower improved decision-making and lower costs.

In 2023, investors particularly focused on the "makers" of these technologies. Index concentration has only deepened in recent years, as the dominance of the Internet-enabled FAANG stocks has shifted to the supremacy of the Magnificent Seven. Even among technology "takers," investors rewarded companies that mentioned AI during earnings calls with improved stock performance versus peers that did not.

Exhibit 24: The Digital Era Has Produced Multiple Waves of Disruptive Innovation



Source: Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

This latest chapter in the Digital Era relies on the abundance of data, which algorithms can employ for a widening set of challenges. Since the rollout of ChatGPT in November 2022, the public has experienced the potential value of generative AI for research and creative purposes. Tech "makers" are racing to create monetizable applications, including for customized advertising or service-business automation. In health care, quantum computing and fast DNA sequencing could allow for more customized medical treatments. Aside from AI-enabling chips, however, AI hype has not yet translated into true adoption and clear profitability. In his team's June 2023 piece, "Tech Diffusion: 10 Lessons from 100 Years," MS & Co.'s Ed Stanley observed that "killer apps" have typically taken 18 months to emerge. Investors will watch closely for any signs that the Magnificent Seven's potential growth may not match the rosy expectations embedded in current valuations.

3.2 Concentration Has Tended to Shift Over Time

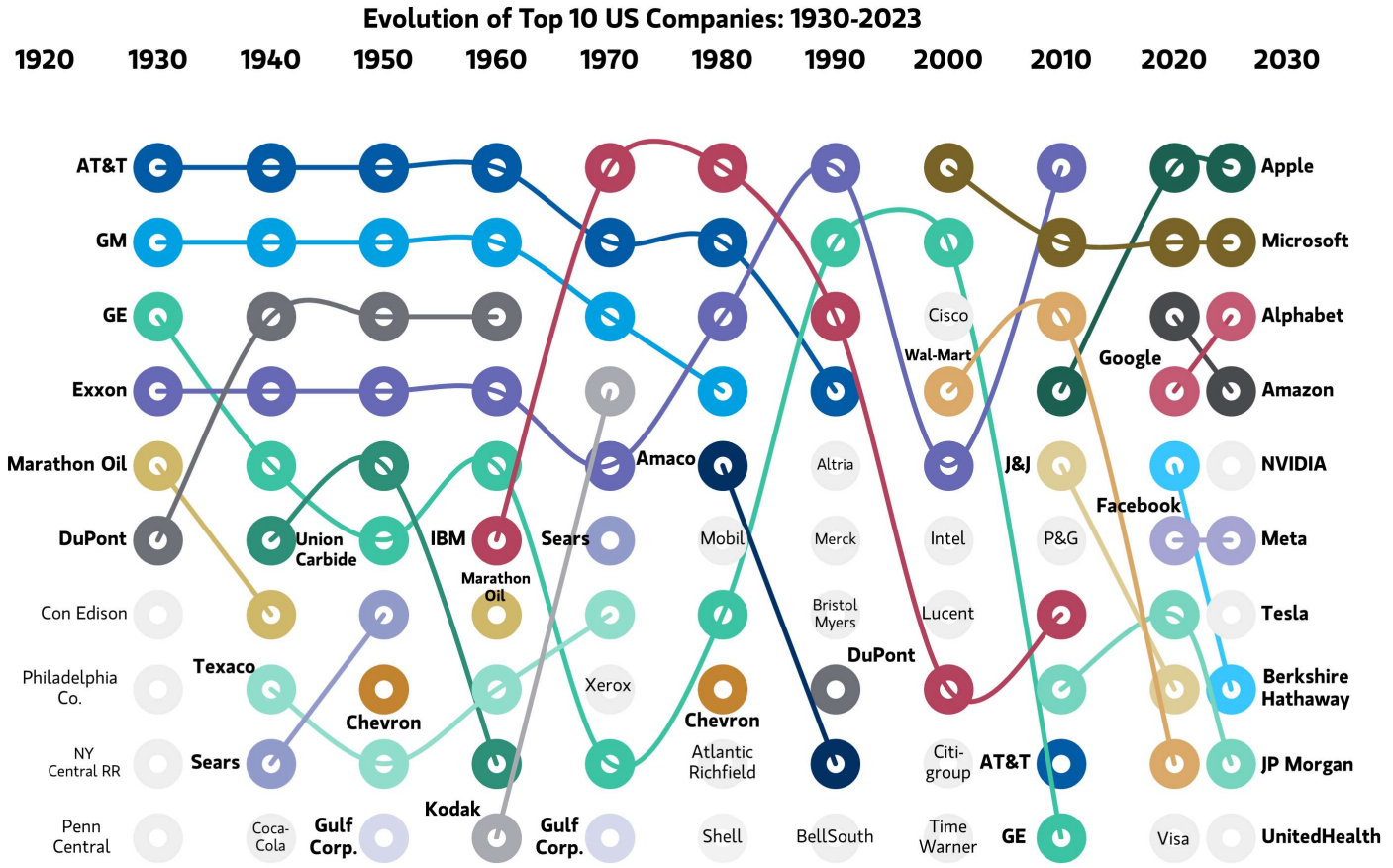
With the benefit of hindsight, Section 3.1's historical survey contextualized US corporate history into three eras. Section 3.3 below reviews how the Magnificent Seven have become entrenched incumbents through their strategic and financial decisions.

Yet, concentration has shifted over time, even within the same era. In Exhibit 25, we observe that the leading firms in the Manufacturing Era enjoyed greater staying power than those of the 1980s through the 2020s. For the Industrialization Era, regulation checked the growth of monopolistic incumbents, while capped addressable markets eventually slowed leaders in the Manufacturing Era.

In the Digital Era, the top companies have historically been reshuffled by technology transitions, including the move toward mainframes in the late 1960s, personal computers in the early 1980s, the Internet around 2000 and mobile computing in the 2010s. The Magnificent Seven have established what appears to be a more defensible dominance in the current wave. Limited regulatory intervention, growing addressable markets and data's currency status have combined to turbocharge concentration in technology industries.

Nonetheless, further AI and computing innovation could allow early-stage competitors to invade the Magnificent Seven's turf. Moreover, the Magnificent Seven may encounter natural limits to their addressable market, in contrast to the environment that has powered their seemingly inexorable rise in recent years.

Exhibit 25: The Top 10 US Companies Have Shifted From Decade to Decade, With Increasing Turnover in the Digital Era (Post-1980)



Source: Dimensional Fund Advisors, Bloomberg, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

3.3 The Magnificent Seven Have Capitalized on a Period of Stagnation

Economic concentration has notably increased over the past 15 years of this Digital Age, coinciding conveniently with a period of stagnating growth. Given the backdrop of sluggish growth, weak business dynamism, limited gains in productivity and constrained opportunities, investors have flocked to companies that have demonstrated reliable growth leadership. While the COVID-19 pandemic brought economic lockdowns and significant inflationary pressures, the Digital Age's leading firms have embraced these dynamics. The expansion of AI technology may have broadened the megacap "in crowd"—from the FAANG stocks of Facebook, Amazon, Apple, Netflix and Google, to the Magnificent Seven—by adding Nvidia and Tesla while dropping Netflix, but it did not alter the overarching investment narrative.

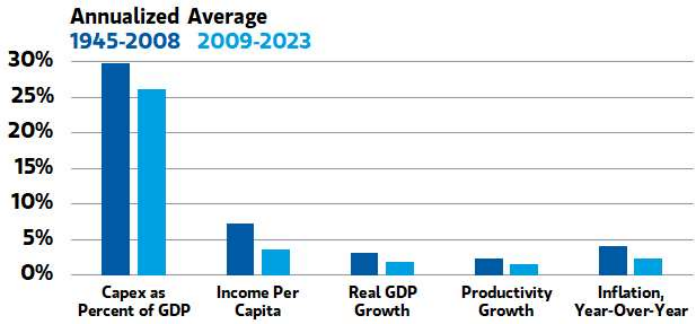
In this section, we highlight three environmental factors that have allowed the Magnificent Seven to establish their position of economic dominance: growth scarcity, financial leverage and limited checks on their expansion.

Growth scarcity amid stagnation. The Magnificent Seven have reached this level of economic concentration in a macro environment characterized by secular stagnation. Following the 2007-2009 Great Financial Crisis, central banks adopted a multiyear zero-interest-rate policy and conducted several rounds of quantitative easing, in a bid to cushion the effects of financial system deleveraging and to support households' balance sheet repair. Despite this monetary stimulus, global growth languished, with lingering threats of deflation until the post-COVID period.

Exhibit 26 illustrates the material downshift that the US economy experienced in the post-crisis period. Since Dec. 31, 2008, US real GDP growth has averaged just 2.2% annually, compared to a 3.8% annualized rate from 1945 to 2008. Meanwhile, productivity growth clocked in at 1.4% annually over the same period versus a 2.3% annualized rate from 1945 to 2008. In this lackluster environment, investors have rewarded companies with steady and above-average earnings

growth, allowing them to achieve premium valuations. Meanwhile, their earnings have ballooned, bolstered by the inherent scalability of their digital operations.

Exhibit 26: Secular Stagnation Has Defined the Post-Crisis Period



Source: Bloomberg, Piper Sandler, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

Previous periods of US economic expansion were marked by widespread competition, which prompted flourishing innovation. In many cases, smaller enterprises introduced creative disruptions and threatened earlier entrants, resulting in contained levels of economic concentration. In this period of stagnation, however, new business formation slowed, particularly in the pre-COVID years. Outside of technology leaders, the scarcity of growth caused other firms to become more cautious, which in turn boosted corporate savings. Austere capital investment, particularly in R&D, has hindered innovation and productivity growth. Surprisingly, ultra-low interest rates have done little to incentivize or stimulate innovation; instead, in many cases, they have provided a capital-unproductive lifeline to zombie companies. Outside of the technology leaders, this inefficiency stifled the typical path for economic innovation, whereby new entrants develop creative solutions, leading to the retirement of older, less productive business models.

Financial leverage: a competitive wedge. Given their limited capital needs, high profit margins and dominant positions in industries with growing total addressable markets, leading firms have consistently expanded their business operations, powered by distributed computing and access to copious amounts of data. With healthy doses of free cash flow, they have aggressively pursued reinvestment and acquisitions.

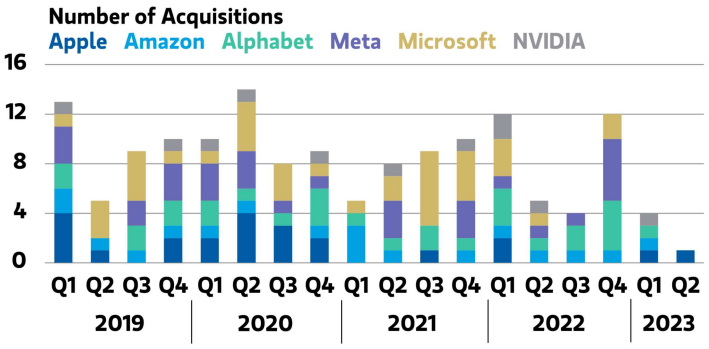
In the post-crisis period of stagnation, unprecedented monetary policy played a pivotal role in reshaping capital markets. For technology leaders, equity market gains and abundant balance sheet cash combined to lower their cost of capital, paving the way to fund increasing economies of scale through organic investment and acquisitions. In the past decade, the Magnificent Seven have collectively acquired more than 500 companies, mainly smaller competitors (see Exhibit 27). Their business lines have expanded well beyond their initial focus, such as Amazon's bookstore or Google's search engine, and into cloud computing, streaming media, AI and quantum computing. Given the major opportunity in health care's digitization, the Magnificent Seven have even invested in pharmaceutical development, despite their limited experience.

Through their acquisitions, the Magnificent Seven have taken a controlling position in innovation, gobbling up fast-growing firms and subsequently electing to feed or starve certain ideas. Even with valuable patents and fresh talent from acquirees, the Magnificent Seven have enjoyed the freedom to shut down efforts that may have threatened their bigger-picture goals. For example, Meta bought the location-sharing app Gowalla in 2012 but killed the project just three months later. In 2013, Alphabet acquired eight robotics makers, including Boston Dynamics, only to shed some assets four years later.

Nonetheless, the Magnificent Seven have effectively wielded their acquisition power to capture momentum of competitor firms before they become challengers. These acquisitions have therefore boosted the Magnificent Seven's pricing power and business scope. In their 2019 article, "Are US Industries Becoming More Concentrated?," Gustavo Grullon, Yelena Larkin and Roni Michaely argued that economic concentration has resulted from "higher profit margins and more profitable mergers-and-acquisitions deals." The authors found that "market power" had become an "important source of value."[2]

In short, while the Magnificent Seven face the natural challenge of finding attractive opportunities for capital investment, their financial prowess has powered a self-fulfilling cycle, ultimately creating a winner-take-all setup, potentially leading to competition only among themselves.

Exhibit 27: The Magnificent Seven Have Deployed Acquisitions to Increase Their Pricing Power and Widen Their Business Lines



Source: CB Insights, Morgan Stanley Wealth Management GIC as of June 30, 2023

Antitrust's and legislation's limited checks on expansion. Lax enforcement of US antitrust law has likely contributed to the Magnificent Seven's increased economic concentration. Historically, the US Department of Justice has pursued antitrust claims to promote economic fairness and competitiveness, threatening monopolistic business practices. In recent years, antitrust regulation has shifted to consider consumer welfare, with the goal of delivering low prices. Prior to the 2020s, that standard largely protected the Magnificent Seven's core business lines.

Since then, however, the Federal Trade Commission has become more aggressive in pursuing claims of anti-competitive practices. Among other proceedings, recent actions have been directed toward and addressed the following:

1. Alphabet's Google, for dominance in advertising, Google Play and search;
2. Amazon, for actions allowing it to "stop rivals and sellers from lowering prices, degrade quality for shoppers, overcharge sellers, stifle innovation, and prevent rivals from fairly competing against Amazon"[3];
3. Apple, for the exclusive status of Apple Pay;
4. Meta, for implications related to its acquisitions of Instagram and WhatsApp;
5. Microsoft, for its (completed) acquisition of Activision Blizzard;
6. Nvidia, for its (completed) acquisition of fellow chipmaker Arm; and
7. Tesla, for alleged monopolization of maintenance for its cars—on "right-to-repair" grounds.

Congress, meanwhile, has not enacted legislation that has meaningfully imperiled the Magnificent Seven. Indeed, Tesla's electric vehicle production has received notable support from federal subsidies. Amid a US-China trade conflict, Congress may think twice before taking action that could inhibit US tech dominance. Moreover, the Magnificent Seven have substantial resources to pursue lobbying efforts to influence future legislation. In recent years, these tech leaders have benefited from the defeat of antitrust bills, online privacy bills and legislation to funnel advertising revenue from digital platforms to news outlets.

Bottom line. Any reversal of these benefits could serve as a potential driver of technology deconcentration in the coming years.

4. Assessing Concentration's Implications for 2024 and Beyond

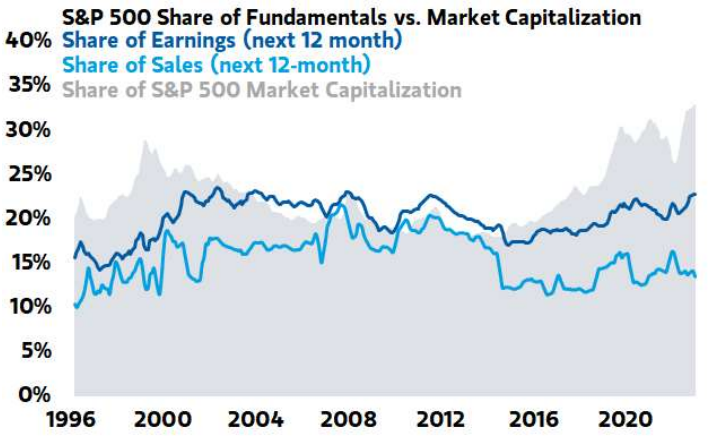
4.1 Portfolio Construction

4.1.1 A "Buyer's Guide" to US Megacap Equities: Assessing Fundamentals

As noted in Section 3, the largest US stocks have generated considerable revenue and attractive profits. Nonetheless, investors are responsible for critically reviewing current and future fundamentals while considering valuations. We will endeavor such an assessment before turning to the broader portfolio and tactical implications that index concentration has introduced.

Earnings and revenues. In Exhibit 28, we compared the 10 largest stocks' share of the S&P 500's total forward earnings and total forward revenues. On both counts, the megacap stocks' share of total market cap exceeds their fundamental shares. This may be one of the clearest signs of growing index concentration; that is, when the largest stocks' share of market cap exceeds these two fundamentals, investors have effectively assigned a premium valuation to them. Investors collectively made that judgment in the late 1990s and have done so since 2015.

Exhibit 28: Megacap Market Capitalization Shares Have Far Exceeded Their Forward Index-Level Revenue and Earnings Shares



Source: FactSet, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

Growth. Beyond earnings and revenues, investors could assign premium valuations to above-index growth prospects. Exhibit 29 illustrates the Top 10's index-relative growth in earnings per share (EPS) and free cash flow (FCF) for the S&P 500. Recently, the megacap cohort has generated an impressive run of significantly above-average EPS growth that may partially

justify its lofty market caps. In FCF terms, however, megacaps' edge has appeared less outstanding. EPS growth forecasts inherently come with a high degree of uncertainty, and we may naturally wonder if equity analysts have collectively become too optimistic on the largest companies' ability to continue growing at above-index rates.

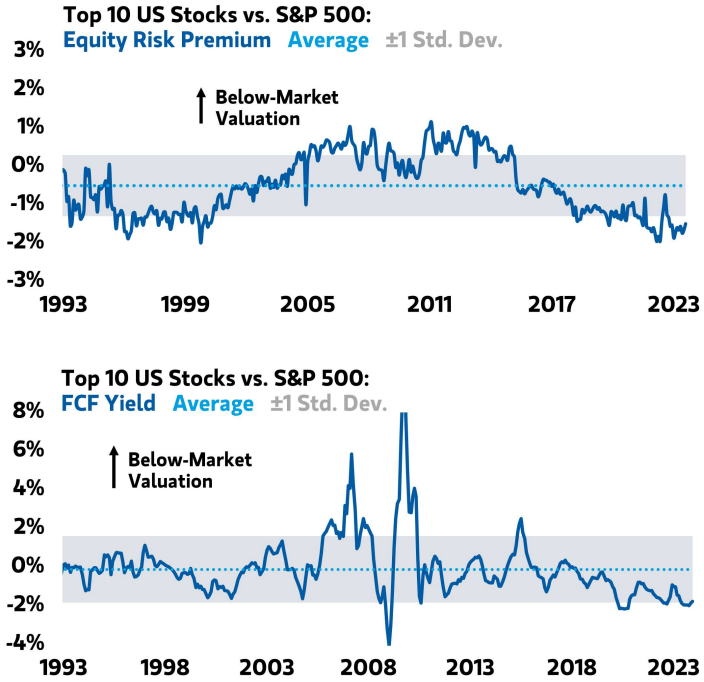
Valuation. In Exhibit 30, we examine valuation metrics beyond P/E multiples, noting that megacap stocks look historically expensive according to their index-relative equity risk premiums (ERPs) and FCF yields.

As interest rates rose in 2022 and 2023, the divergence between ERPs of the S&P 500 and the megacaps widened, despite megacaps' "longer-duration" profile. Borrowing a concept from fixed income, "equity duration" refers to the timing of anticipated cash flows to investors. As a result, stocks with higher shareholder yields (through dividends and buybacks) or lower P/E multiples feature lower equity durations. Megacaps' index-relative ERPs have approached the historical extremes of the late 1990s. Moreover, while investors and analysts alike have lauded megacaps' prowess in cash-flow generation, their FCF yields have fallen well below those of the S&P 500—one standard deviation below their long-term average.

Exhibit 29: Current EPS Growth Rate for the Largest Stocks Relative to the S&P 500 Is One Standard Deviation Above the Long-Term Average

Source: FactSet, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

Exhibit 30: Investors Have Attached a Significant Valuation Premium to Megacaps



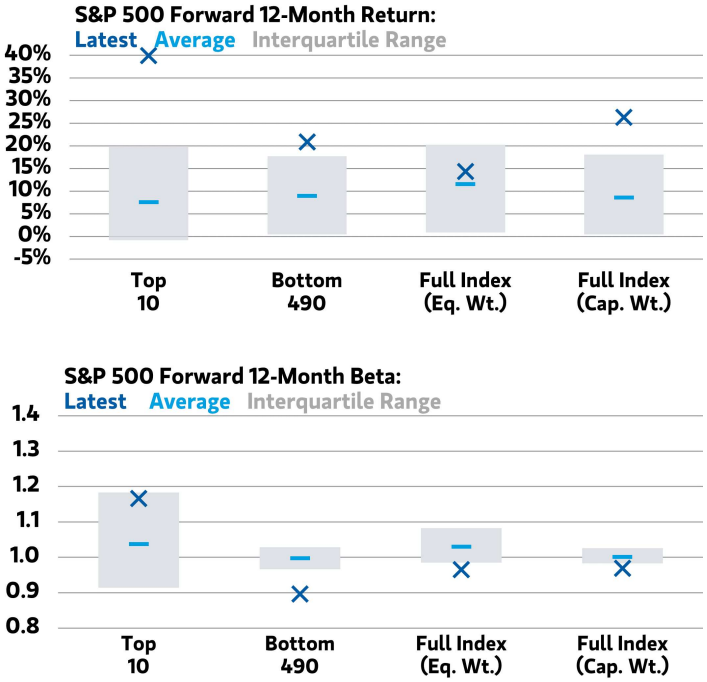
Source: FactSet, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

Risk and return. To supplement this review of fundamentals, we also considered megacaps' return and risk characteristics relative to the "Bottom 490" S&P 500 stocks and the market cap- and equal-weighted S&P 500. Exhibit 31 examines the rolling 12-month returns (top panel) and risk (bottom panel), measured by beta, reconstituting the Top 10 and Bottom 490 at the start of each rolling 12-month period. Historically, the Top 10's rolling 12-month returns have modestly trailed those of the Bottom 490 and the equal-weighted S&P 500, with the past 12 months appearing as a marked outlier. Were we to consider rolling three- and five-year periods, the Top 10 would show similar recent dominance.

Turning to beta, the Top 10's rolling 12-month beta has also appeared quite high relative to its own history and particularly relative to the Bottom 490 and equal-weighted S&P 500. That higher beta has coincided with higher absolute volatility. In contrast, the largest stocks have historically been associated with lower market beta and lower volatility, given typically more stable, slower-growing businesses.

This risk-reward combination implies some vulnerability for megacaps, should macro conditions and their own fundamentals fall short of investors' expectations. Despite that setup, investors collectively became more confident in the megacaps' supposed defensiveness in 2023, based on the contention that a slowing macro environment would prove their mettle.

Exhibit 31: Recently, the Top 10 Stocks Have Experienced Higher Returns, Accompanied by Above-Average Market Risk (Beta)



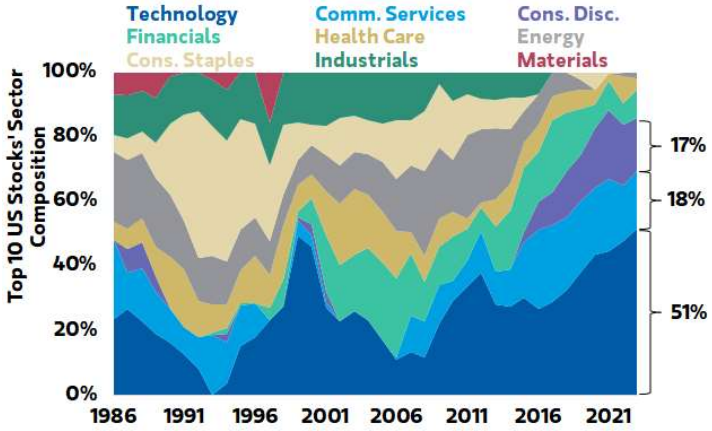
Note: Average and Interquartile Ranges are calculated using historical monthly observations beginning Dec. 31, 1999. As of each month, the return and beta of each cohort are calculated using the subsequent 12-month daily returns.
Source: FactSet, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

4.1.2 Index Concentration Has Diminished Diversification

Next, we evaluate how the current megacap stocks have grown more similar to one another (and less diversified) than ever, with significant portfolio construction implications. In Exhibit 1, we present the Top 10's average pairwise correlations on a rolling 12-month basis, reconstituting the cohort at the start of each rolling 12-month period. These pairwise correlations exceed the prevailing levels for the S&P 500 broadly.

Rising concentration has also shifted the sector and industry composition of US equity indexes. Exhibit 32 shows how the Top 10 has become more concentrated from a sector perspective—with fewer sectors making up a greater portion of the group. At the index level, these changes have translated into historic disparities in sector weights, among both core and growth-style indexes. For example, the technology sector accounts for 29% of the S&P 500's market cap, which corresponds to the 94th percentile over the past three decades. This sector dominance reflects both economic concentration (see Section 3) and the similarities among the Top 10 stocks. With greater weights and more similarity for the top constituents, the S&P 500 has become less diversified and likely more vulnerable to idiosyncratic risks regarding 1) those large constituents themselves; and 2) the economics of their concentrated, overlapping business lines.

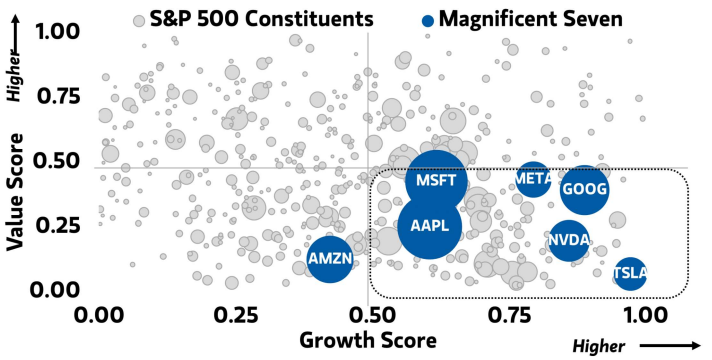
Exhibit 32: The Technology, Consumer Discretionary and Communication Services Sectors Have Come to Dominate the S&P 500's Top 10 Stocks



Source: FactSet, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

Moreover, the Top 10 stocks have become more similar in terms of their quantitative factor characteristics. In Exhibit 33, we visualize the S&P 500 constituents' value and growth characteristics, based on the global ranks from our Tactical Equity Framework,[4] a proprietary factor model. Whereas the index displays a reasonably even distribution of factor scores, the Magnificent Seven appear clustered in the low-value and high-growth region. Exhibit 2 displays how the Top 10's factor profile has shifted since 2015, coincident with the dramatic rise in concentration. Since then, megacaps' relationships to the high-growth, low-value, high-efficiency and high-momentum factors have strengthened. Meanwhile, their relationship to our definition of quality has weakened.[5] This analysis highlights 1) megacaps' current factor extremes; and 2) the changing nature of the factor relationships, in response to structural shifts in macro or market dynamics.

Exhibit 33: Megacaps Show Nearly Overlapping Factor Characteristics: High Growth and Low Value



Source: FactSet, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

Beyond their similar sector and factor exposures, the sensitivity of megacaps to both equity and fixed income markets has increased and converged. As demonstrated in Exhibit 3, the largest stocks have significantly higher betas to both equity and fixed income markets than do other S&P 500 constituents. As a result, these companies benefit from "moderation" environments like the 2010s, characterized by loose financial conditions and contained inflationary pressures. That backdrop boosted current megacaps' fortunes through 1) more valuable future cash flows, due to low discounting yields; and 2) greater investor appetite for secular growth themes. Conversely, in a higher-for-longer or stagflationary regime, these companies could lose their luster, according to their factor and risk tendencies. We review the implications of megacaps' interest rate sensitivity for multi-asset portfolio construction in Section 4.1.4 below.

Finally, US equity index concentration has strongly influenced returns for diversified global equity investors, given megacaps' outsize capitalization and performance weights. Morgan Stanley Wealth Management's Global Investment Committee (GIC) primarily uses the MSCI All-County World Index (ACWI) as its global equity benchmark. The ACWI comprises roughly 3,000 stocks across 30-plus developed and emerging markets. Yet, even this broad index has become highly concentrated in US megacaps, with 20% of its weight represented by 10 US stocks. Megacap stocks' idiosyncratic sector, factor and risk characteristics have come to dominate even a globally diversified index like the ACWI, with their high betas causing significant skews for that index's performance. Furthermore, the ACWI's total US weight reached 63% several times in 2023, up from less than 50% in 2009, highlighting its diminished geographic diversification.

4.1.3 Index Concentration Has Helped to Define the Favorability of Equity Regimes

As we reviewed in Section 1.1, the S&P 500 has experienced multiple cycles of greater and lesser index concentration. Here, we evaluate potential signals from past index concentration that could provide some guidance for the S&P 500's prospects following 2023's rebound and the broader post-COVID rally.

Equity market cycles tend to feature extended rallies, benefiting certain themes or sectors and leading to greater index concentration. A material macro change, such as a recession or change in the direction of interest rates, typically interrupts the pattern. Following an equity selloff, the focus often shifts to another set of themes or sectors, with the process initiating a period of deconcentration. This concentration-deconcentration pattern may have important implications for equity positioning, both in terms of portfolio-level exposure and approach to concentrated index constituents.

Exhibit 34, which summarizes the S&P 500's performance following the six most significant peaks and troughs in index concentration since 1989, as measured by HHI, provides numerical evidence of this behavior. Despite the small sample size, we observe that troughs have exhibited a stronger tendency to presage higher total returns than peaks. The current peak in the HHI level represents an all-time high in the 30-year dataset, suggesting a relatively unfavorable setup for forward returns, all else equal. Moreover, as we noted earlier, increasing index concentration requires outperformance from already-concentrated names, while decreasing index concentration implies a broadening of equity participation and consequent underperformance from concentrated constituents.

Exhibit 34: The S&P 500 Has Historically Experienced Higher Returns Following Troughs in Index Concentration and Suffered After Peaks

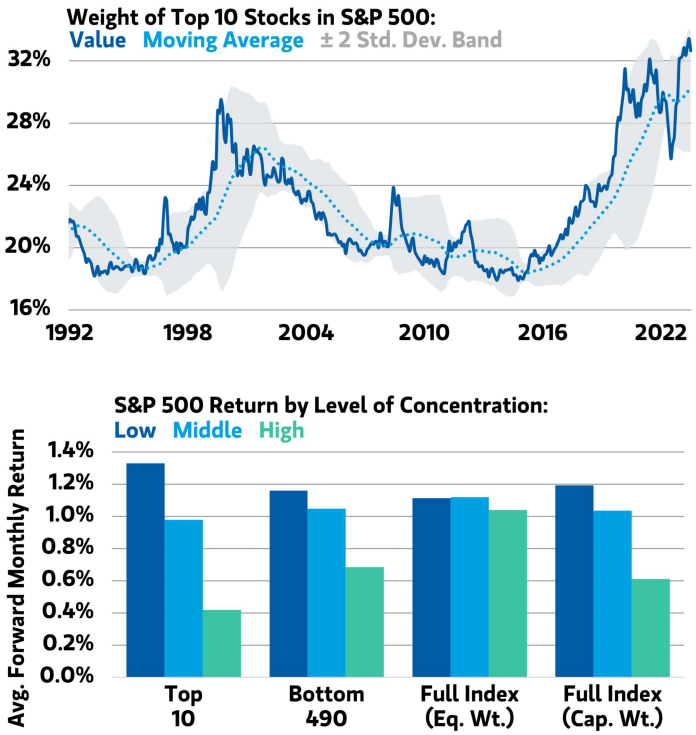
S&P 500's Historical Performance Following Peaks and Troughs in Index Concentration

					Forward Returns (annualized)				
No.	Date	Concentration Extreme	HHI	Z-Score	1Y	2Y	3Y	5Y	10Y
1	Sep-89	Peak in Concentration	88.5	1.4	-12.3%	5.4%	6.2%	5.8%	13.9%
2	Aug-95	Trough in Concentration	47.2	(1.0)	16.0%	26.5%	19.4%	22.0%	8.1%
3	May-00	Peak in Concentration	83.7	1.1	-11.6%	-13.3%	-12.1%	-3.5%	-2.6%
4	Apr-06	Trough in Concentration	47.8	(1.0)	13.1%	2.8%	-12.7%	0.8%	4.7%
5	Jan-09	Peak in Concentration	66.1	0.1	30.0%	24.8%	16.7%	16.6%	12.6%
6	Mar-14	Trough in Concentration	42.9	(1.2)	10.4%	4.9%	8.1%	8.6%	9.2%
7	Nov-23	Peak in Concentration	135.2	4.1	?	?	?	?	?
		Avg. for Peaks	**93.4**	**1.7**	**2.0%**	**5.6%**	**3.6%**	**6.3%**	**8.0%**
		Avg. for Troughs	**46.0**	**(1.1)**	**13.2%**	**11.4%**	**4.9%**	**10.5%**	**7.3%**

Source: FactSet, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

In Exhibit 35, we build upon this concept, attempting to harness the apparent mean-reverting nature of index concentration. First, we sought to identify periods of high and low concentration over time. The top panel indicates the Top 10's weight in the S&P 500 over time, with the upper and lower bands two standard deviations above or below the rolling 30-month average. In the bottom panel, we tested the efficacy of index concentration as a potential gauge of more and less favorable equity setups. Corroborating the evidence in Exhibit 31, this chart suggests that equities have broadly achieved higher returns when starting from a point of relatively lower index concentration—and experienced far less favorable outcomes in periods of higher relative concentration. The forward-return disparities appeared most pronounced for the Top 10. Comparing those results to the Bottom 490, we can track the impact on returns for concentration-deconcentration patterns. As a tag-along effect, during historical periods of high index concentration, equal-weighted indexes sizably outperformed cap-weighted indices. These results point to the potential value of tracking index concentration as an input for tactical asset allocation decisions.

Exhibit 35: Concentration in the S&P 500 Has Historically Shown Mean-Reverting Tendencies, With Valuable Implications for Index-Level Returns and Concentration-Deconcentration Patterns

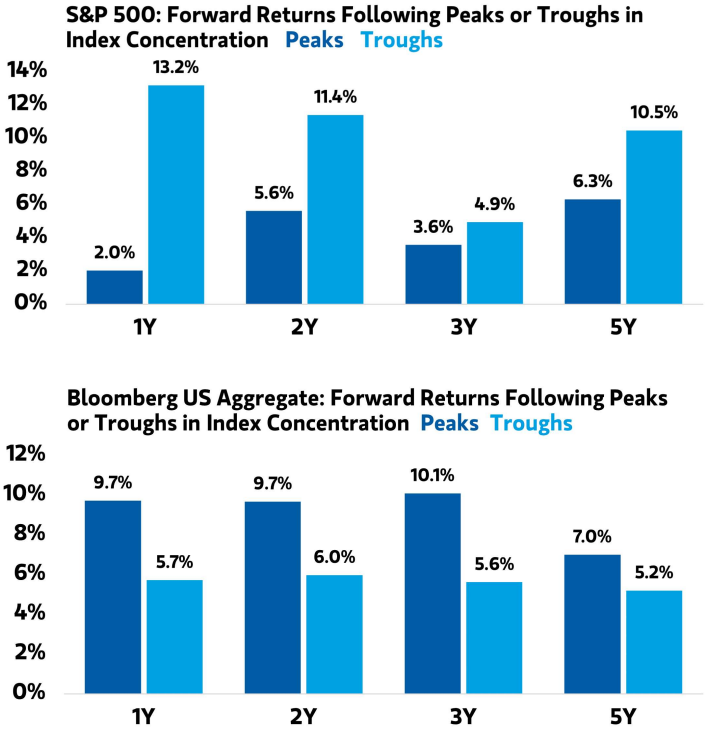


Average returns are computed using monthly data since Jan. 1990.
Source: FactSet, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

4.1.4 Index Concentration's Implications Carry Over for Multi-Asset Portfolios

Here, we consider index concentration's influence on a blended stock-bond portfolio. To begin, we studied the Bloomberg US Aggregate Index's historical performance, conditional upon the S&P 500's concentration level. Exhibit 36 captures the average forward-looking returns of the S&P 500 and the Bloomberg US Aggregate Index following peaks and troughs in index concentration. The chart suggests starkly divergent outcomes for equities and fixed income in these concentration-defined regimes. That is, while equities have tended to struggle during periods of high concentration, US taxable fixed income has thrived. This observation underscores fixed income's relative value over the tactical-to-intermediate horizon, in the event that index concentration has reached or approached a peak.

Exhibit 36: The S&P 500 and the Bloomberg US Aggregate Index Have Shown Markedly Different Forward Returns After Peaks and Troughs in Index Concentration



Source: FactSet, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

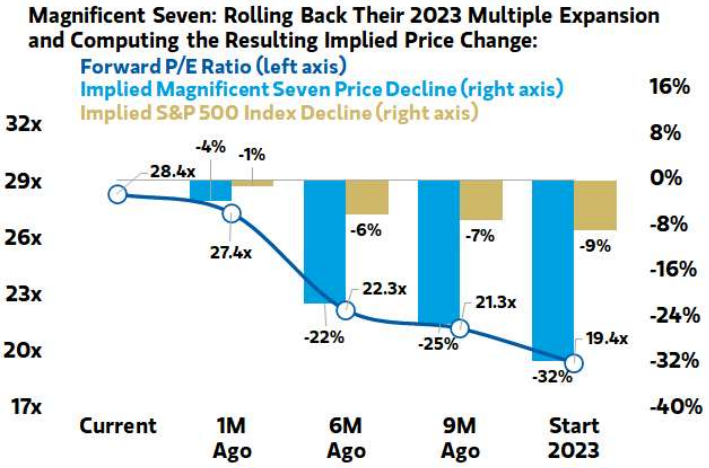
In addition to relative performance trends, high index-concentration potentially alters the overall risk characteristics of multi-asset portfolios. In Section 4.1.2, we reviewed how index concentration has magnified the S&P 500's exposure to certain sectors, factors, macro variables and asset classes. Due to their elevated valuations and high betas, megacaps offer

greater potential to disappoint investors. As indicated in Section 3, overlapping economic exposure among megacap stocks increases the likelihood that spillover effects could impact multiple megacaps simultaneously.

As noted in Section 1.1, investors willingly accepted much higher valuations for the Magnificent Seven in 2023, with total gains coming more from expanding multiples than earnings growth. Valuation-driven rallies are vulnerable to sharp reversals, however. In Exhibit 37, we illustrate price declines that would potentially result from a reversion in the Magnificent Seven stocks' valuation multiples from their Dec. 31, 2023, levels (28.4 times forward earnings, on average), back to several historical markers. Retracing to December 2022 valuations would imply a one-third drop in the Magnificent Seven's total market cap—equating to roughly a -9% decline for the S&P 500.

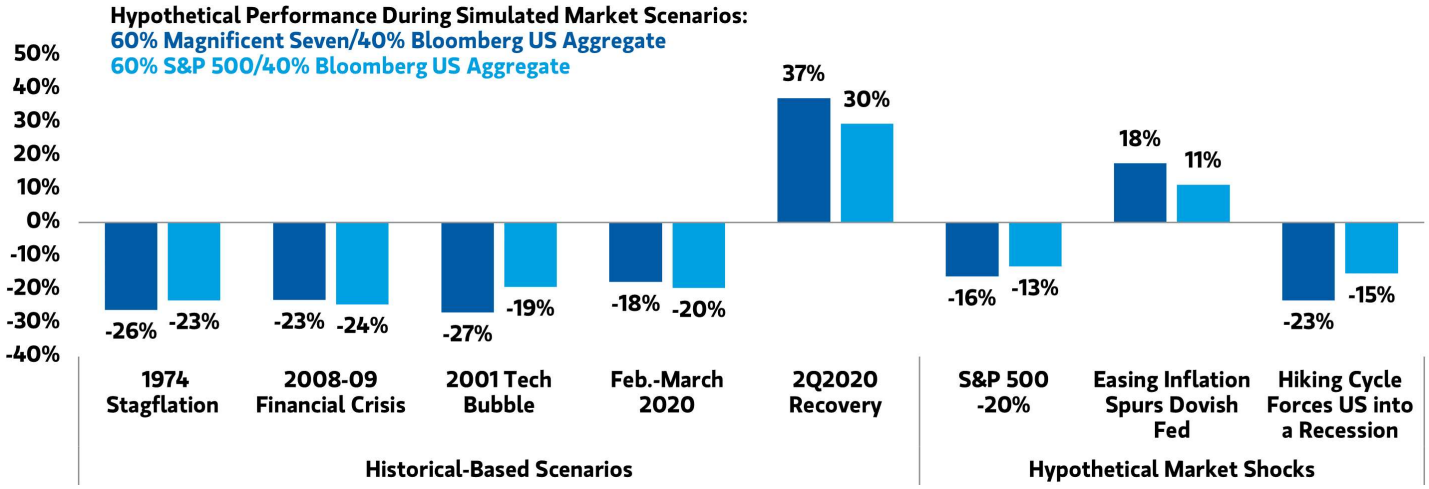
In Exhibit 38, we leveraged Morgan Stanley's Portfolio Risk Platform, powered by BlackRock's Aladdin engine, to quantify the downside risk for multi-asset investors. We evaluated the potential performance of two stock-bond portfolios under a battery of historical and hypothetical market shocks. The first portfolio's 60% equity allocation was fully invested in the cap-weighted basket of the Magnificent Seven stocks, while the second portfolio's equity allocation was invested in the S&P 500 instead. The portfolio tilted toward the Magnificent Seven showed reasonable results under several scenarios but was more sensitive to an S&P 500 decline or a US recession spurred by monetary tightening.

Exhibit 37: If the Magnificent Seven Were to Experience a Reversal in Its Valuation-Driven Rally, There Could Be Material Drawdowns for the Group and the Index



Source: Bloomberg, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

Exhibit 38: According to Our Portfolio Risk Platform, a Magnificent Seven-Driven Equity Portfolio Introduces Greater Sensitivity to Equity Volatility, Rate Volatility and Shifts in Monetary Policy



The portfolios above are not provided as part of an investment advisory service offered by Morgan Stanley Wealth Management, are not available to be directly implemented as part of an investment advisory service and should not be regarded as a recommendation of any Morgan Stanley Wealth Management investment advisory service. The performance above does not reflect the investment or performance of actual portfolios. These results do not reflect fees or commissions. Had the results reflected these costs, the performance would have been lower. This material has been prepared for informational purposes only and is not an offer to buy or sell or a solicitation of any offer to buy or sell any security or other financial instrument or to participate in any trading strategy. Do not use this material as the sole basis for your investment decisions. For more information about the risks to hypothetical performance please refer to the Risk Considerations section at the end of this material.
Source: Bloomberg, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

4.1.5 The Forward Path of Index Concentration Will Likely Have Material Effects in 2024 and Beyond

Considering the analysis altogether, we believe that index concentration will play an outsize role in the coming quarters, just as it did in 2023. Below, we summarize the potential impacts for multi-asset investors:

1. Megacaps' higher betas to the S&P 500 increase their vulnerability to a broad equity drawdown and heighten their potential risk impact on US equity and multi-asset portfolio returns.
2. Given their high, positive beta to the Bloomberg US Aggregate Index, higher-for-longer inflation or an extended period of higher interest rates could present a headwind.
3. Megacap stocks have likely boosted the correlation between US equities and fixed income, which has trended positive since the 10-year US Treasury yield hit its secular low in August 2020.
4. The S&P 500's concentration has dampened diversification for global equity investors.

Should a period of deconcentration ensue, the following potential outcomes could emerge:

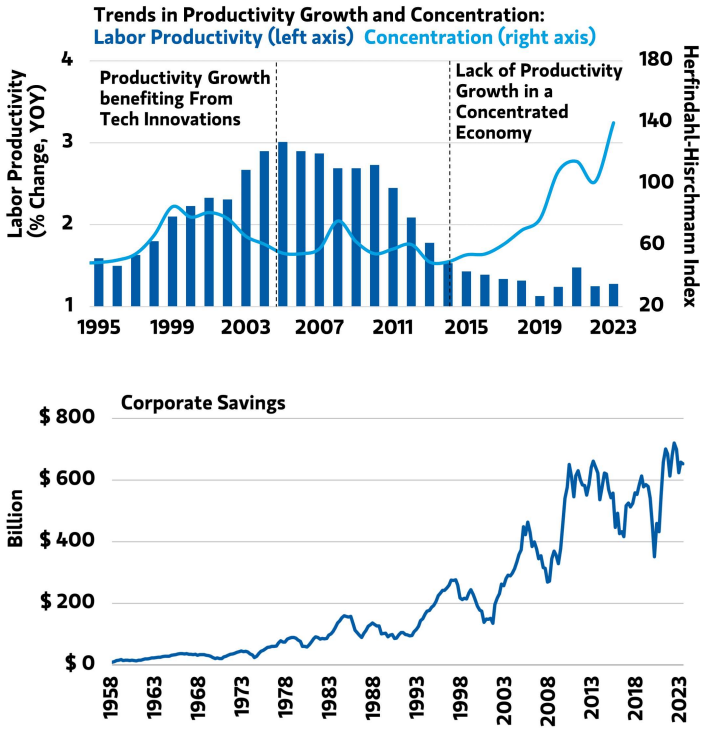
1. Index-level equity volatility would likely rise, as higher-beta concentrated equities could experience a bout of increased volatility themselves.
2. Megacaps would likely underperform the S&P 500, while the cap-weighted S&P 500 would likely trail the equal-weighted index.
3. Broad US fixed income would likely outperform US equities.
4. Non-US equities would likely outperform US equities, with global indexes such as the ACWI becoming less US-concentrated.

4.2 Economic Growth and Dynamism

In addition to the implications for portfolio construction, we believe that index concentration could hamper long-term productivity and capital efficiency, potentially weighing on economic growth and dynamism.

From 1995 to 2005, US productivity growth accelerated with the adoption of early-Internet applications. Over that period, economic concentration exhibited an inconsistent relationship with productivity growth. More recently, however, productivity growth has weakened to relatively low levels amid surging economic and index concentration, as indicated in Exhibit 39. Rising concentration has coincided with rising corporate savings, which may have hindered innovation and stalled long-term productivity growth.

Exhibit 39: Productivity Growth Has Floundered Amid Rising Concentration in the Recent Decade, With the Outcome Potentially Captured in High Levels of Corporate Savings



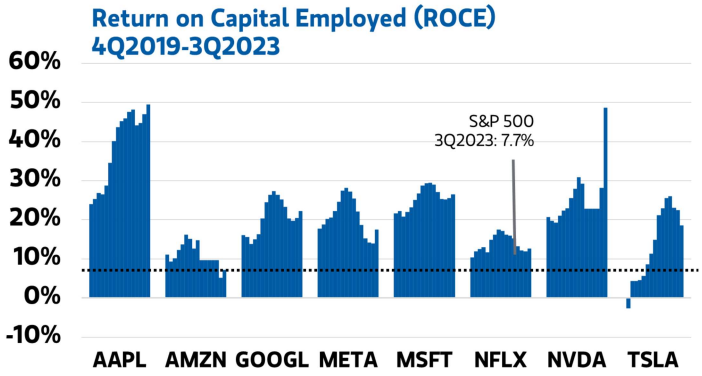
Source: Federal Reserve Bank of St. Louis, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

We have written several reports on the evolution of capital spending, including 2017's "The Capex Conundrum and Productivity Paradox" and 2023's "The Next American Productivity Renaissance." Over the past two decades, US corporations' capital expenditures have turned lower and have targeted applications to improve consumer convenience and deliver entertainment and social media content.

During the 2010s, many investments in innovation benefited consumer applications, which may have dampened measurable gains in productivity. In recent years, technology leaders have ramped up capital investment in cloud computing infrastructure and AI development. Early prognostications suggest that AI may improve advertisers' return on investment and free employees from repetitive tasks. Still, the Magnificent Seven companies will require healthy demand from their customers to offset the significant costs of the AI race. It stands to reason that those decisions may remain tied to the business cycle, which could challenge the conventional wisdom that the Magnificent Seven have somehow reached escape velocity from macro headwinds.

In Exhibit 40, we display the return on capital employed (ROCE) for the Magnificent Seven (plus Netflix). While Apple and Nvidia have bucked the trend, the other technology leaders have signaled a slowdown from 2021's peak levels of ROCE. Given the substantial capital investments ahead in the AI race, investors will closely monitor the likelihood of success and the risk associated with these outlays. It may be that the AI race will cause these firms to become less efficient in capital deployment. Should these names suffer from overinvesting and underearning, investors could question the group's premium valuations.

Exhibit 40: Megacap Companies Have Started to Experience Declining Level of ROCE



Source: Bloomberg, Morgan Stanley Wealth Management GIC as of Dec. 31, 2023

Conclusion

The Magnificent Seven dominated US and global equity markets in 2023, delivering almost two-thirds of the S&P 500's total returns. In a year that defied macroeconomic modeling, the group benefited from their shared factor characteristics and overlapping business lines. This Digital Era has featured greater industry concentration, as stagnant growth, low interest rates and a relatively favorable regulatory climate have allowed technology leaders to cement their advantage through tactical acquisitions. Given historic levels of index concentration, investors must assess the road ahead for US megacaps as an integral part of their portfolio construction decisions. While further concentration could extend 2023's themes, any retracement would likely threaten index-level returns and even diversified portfolios.

Endnotes

1. Ramachandan, J.; K.S. Manikandan; and Anirvan Pant. "Why Conglomerates Thrive (Outside the U.S.)." Harvard Business Review, December 2013. Accessed at https://hbr.org/2013/12/why-conglomerates-thrive-outside-the-us.
2. Grullon, Gusavo; Yelena Larkin; and Rony Michaely. "Are US Industries Becoming More Concentrated?" Review of Finance, Volume 23, Issue 4 (July 2017), 697–743. Accessed at https://doi.org/10.1093/rof/rfz007.
3. Federal Trade Commission. "FTC Sues Amazon for Illegally Maintaining Monopoly Power." Sept. 26, 2023. Accessed at https://www.ftc.gov/news-events/news/press-releases/2023/09/ftc-sues-amazon-illegally-maintaining-monopoly-power.
4. Tactical Equity Framework 2.0: Guiding Allocations Through Dynamic Factors
5. In the Tactical Equity Framework, we define the Quality factor based on a blend of metrics intended to capture the financial health of a company, including balance sheet strength, solvency, stability of earnings and management.

Disclosure Section

Risk Considerations

For index, indicator and survey definitions referenced in this report please visit the following: https://www.morganstanley.com/wealth-investmentsolutions/wmir-definitions

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Steve Edwards, Lisha Ge, Spencer Cavallo, Sonny Mendez, Emily Kunst and Matt Armstrong are not members of the Global Investment Committee and any implementation strategies suggested have not been reviewed or approved by the Global Investment Committee.

Glossary

Alpha is the excess return of an investment relative to the return of a benchmark index.

Beta is a measure of the volatility, or systematic risk, of a security or a portfolio in comparison to the market as a whole.

Correlation This is a statistical measure of how two securities move in relation to each other. This measure is often converted into what is known as correlation coefficient, which ranges between -1 and +1. Perfect positive correlation (a correlation coefficient of +1) implies that as one security moves, either up or down, the other security will move in lockstep, in the same direction. Alternatively, perfect negative correlation means that if one security moves in either direction the security that is perfectly negatively correlated will move in the opposite direction. If the correlation is 0, the movements of the securities are said to have no correlation; they are completely random. A correlation greater than 0.8 is generally described as strong, whereas a correlation less than 0.5 is generally described as weak.

Drawdown s the peak-to-trough decline during a specific period.

Equity risk premium is the excess return that an individual stock or the overall stock market provides over a risk-free rate. The risk-free rate represents the interest an investor would expect from an absolutely risk-free investment over a specified period of time.

Excess return represents the average quarterly total return of the portfolio relative to its benchmark. A portfolio with a positive excess return has on average outperformed its benchmark on a quarterly basis. This statistic is obtained by subtracting the benchmark return from the portfolio's return.

Expense ratio a measure of what it costs an investment company to operate an exchange-traded fund or mutual fund.

M2 is a measure of the money supply that includes all elements of M1 as well as "near money." M1 includes cash and checking deposits, while near money refers to savings deposits, money market securities, mutual funds and other time deposits.

Mean reversion is the theory suggesting that prices and returns eventually move back toward the mean or average. This mean or average can be the historical average of the price or return, or another relevant average such as the growth in the economy or the average return of an industry.

Return on capital employed (ROCE)—sometimes referred to as the "primary ratio"—is a financial ratio that is used to measure the profitability of a company and the efficiency with which it uses its capital. Put simply, it measures how good a business is at generating profits from capital.

Standard deviation This statistic quantifies the volatility associated with a portfolio's returns by measuring the variation in returns around the mean return. Unlike beta, which measures volatility relative to the aggregate market, standard deviation measures the absolute volatility of a portfolio's return.

Tracking error is a divergence between the price behavior of a position or a portfolio and the price behavior of a benchmark.

Risk Considerations

Charts and graphs are provided for illustrative purposes. The charts and graphs may contain hypothetical performance displays. As such, Morgan Stanley is providing information below regarding the risks and limitations related to such hypothetical performance displays. The inclusion of these displays in this material is in no way a solicitation of advisory services.

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IMPORTANT: The projections or other information provided in the Report regarding the likelihood of various investment outcomes (including any assumed rates of return and income) are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. Hypothetical investment results have inherent limitations.

CONSEQUENCES OF CONCENTRATION

There are frequently large differences between hypothetical and actual results.

Hypothetical results do not represent actual results and are generally designed with the benefit of hindsight. They cannot account for all factors associated with risk, including the impact of financial risk in actual trading or the ability to withstand losses or to adhere to a particular trading strategy in the face of trading losses. There are numerous other factors related to the markets in general or to the implementation of any specific strategy that cannot be fully accounted for in the preparation of hypothetical risk results and all of which can adversely affect actual performance. Any recommendations regarding external accounts/holdings are asset allocation only and do not include security recommendations.

Hypothetical Performance

General: Hypothetical performance should not be considered a guarantee of future performance or a guarantee of achieving overall financial objectives. Asset allocation and diversification do not assure a profit or protect against loss in declining financial markets.

Hypothetical performance results have inherent limitations. The performance shown here is simulated performance not investment results from an actual portfolio or actual trading. There can be large differences between hypothetical and actual performance results.

Despite the limitations of hypothetical performance, these hypothetical performance results may allow clients and Financial Advisors to obtain a sense of the risk / return trade-off of different asset allocation constructs.

Investing in the market entails the risk of market volatility. The value of all types of securities may increase or decrease over varying time periods.

This analysis does not purport to recommend or implement an investment strategy. Financial forecasts, rates of return, risk, inflation, and other assumptions may be used as the basis for illustrations in this analysis. They should not be considered a guarantee of future performance or a guarantee of achieving overall financial objectives. No analysis has the ability to accurately predict the future, eliminate risk or guarantee investment results. As investment returns, inflation, taxes, and other economic conditions vary from the assumptions used in this analysis, your actual results will vary (perhaps significantly) from those presented in this analysis.

The assumed return rates in this analysis are not reflective of any specific investment and do not include any fees or expenses that may be incurred by investing in specific products. The actual returns of a specific investment may be more or less than the returns used in this analysis. The return assumptions are based on hypothetical rates of return of securities indices, which serve as proxies for the asset classes. Moreover, different forecasts may choose different indices as a proxy for the same asset class, thus influencing the return of the asset class.

Equity securities may fluctuate in response to news on companies, industries, market conditions and general economic environment.

Investing in foreign markets entails risks not typically associated with domestic markets, such as currency fluctuations and controls, restrictions on foreign investments, less governmental supervision and regulation, and the potential for political instability. These risks may be magnified in countries with emerging markets and frontier markets, since these countries may have relatively unstable governments and less established markets and economies.

Investing in small- to medium-sized companies entails special risks, such as limited product lines, markets and financial resources, and greater volatility than securities of larger, more established companies.

Bonds are subject to interest rate risk. When interest rates rise, bond prices fall; generally the longer a bond's maturity, the more sensitive it is to this risk. Bonds may also be subject to call risk, which is the risk that the issuer will redeem the debt at its option, fully or partially, before the scheduled maturity date. The market value of debt instruments may fluctuate, and proceeds from sales prior to maturity may be more or less than the amount originally invested or the maturity value due to changes in market conditions or changes in the credit quality of the issuer. Bonds are subject to the credit risk of the issuer. This is the risk that the issuer might be unable to make interest and/or principal payments on a timely basis. Bonds are also subject to reinvestment risk, which is the risk that principal and/or interest payments from a given investment may be reinvested at a lower interest rate.

High yield bonds (bonds rated below investment grade) may have speculative characteristics and present significant risks beyond those of other securities, including greater credit risk, price volatility, and limited liquidity in the secondary market. High yield bonds should comprise only a limited portion of a balanced portfolio.

Yields are subject to change with economic conditions. Yield is only one factor that should be considered when making an investment decision.

Companies paying dividends can reduce or cut payouts at any time.

Alternative investments often are speculative and include a high degree of risk. Investors could lose all or a substantial amount of their investment. Alternative investments are appropriate only for eligible, long-term investors who are willing to forgo liquidity and put capital at risk for an indefinite period of time. They may be highly illiquid and can engage in leverage and other speculative practices that may increase the volatility and risk of loss. Alternative Investments typically have higher fees than traditional investments. Investors should carefully review and consider potential risks before investing. Certain of these risks may include but are not limited to: Loss of all or a substantial portion of the investment due to leveraging, short-selling, or other speculative practices; Lack of liquidity in that there may be no secondary market for a fund; Volatility of returns; Restrictions on transferring interests in a fund; Potential lack of diversification and resulting higher risk due to concentration of trading authority when a single advisor is utilized; Absence of information regarding valuations and pricing; Complex tax structures and delays in tax reporting; Less regulation and higher fees than mutual funds; and Risks associated with the operations, personnel, and processes of the manager. Further, opinions regarding Alternative Investments expressed herein may differ from the opinions expressed by Morgan Stanley Wealth Management and/or other businesses/affiliates of Morgan Stanley Wealth Management.

Certain information contained herein may constitute forward-looking statements. Due to various risks and uncertainties, actual events, results

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Alternative investments involve complex tax structures, tax inefficient investing, and delays in distributing important tax information. Individual funds have specific risks related to their investment programs that will vary from fund to fund. Clients should consult their own tax and legal advisors as Morgan Stanley Wealth Management does not provide tax or legal advice.

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An investment in an exchange-traded fund involves risks similar to those of investing in a broadly based portfolio of equity securities traded on an exchange in the relevant securities market, such as market fluctuations caused by such factors as economic and political developments, changes in interest rates and perceived trends in stock and bond prices. Investing in an international ETF also involves certain risks and considerations not typically associated with investing in an ETF that invests in the securities of U.S. issues, such as political, currency, economic and market risks. These risks are magnified in countries with emerging markets, since these countries may have relatively unstable governments and less established markets and economics. ETFs investing in physical commodities and commodity or currency futures have special tax considerations. Physical commodities may be treated as collectibles subject to a maximum 28% long-term capital gains rates, while futures are marked-to-market and may be subject to a blended 60% long- and 40% short-term capital gains tax rate. Rolling futures positions may create taxable events. For specifics and a greater explanation of possible risks with ETFs, along with the ETF's investment objectives, charges and expenses, please consult a copy of the ETF's prospectus. Investing in sectors may be more volatile than diversifying across many industries. The investment return and principal value of ETF investments will fluctuate, so an investor's ETF shares (Creation Units), if or when sold, may be worth more or less than the original cost. ETFs are redeemable only in Creation Unit size through an Authorized Participant and are not individually redeemable from an ETF.

Please consider the investment objectives, risks, charges and expenses of the fund(s) carefully before investing. The prospectus contains this and other information about the fund(s). To obtain a prospectus, contact your financial advisor. Please read the prospectus carefully before investing.

Environmental, social, and governance-aware investments (ESG) in a portfolio may experience performance that is lower or higher than a portfolio not employing such practices. Portfolios with ESG restrictions and strategies as well as ESG investments may not be able to take advantage of the same opportunities or market trends as portfolios where ESG criteria is not applied. There are inconsistent ESG definitions and criteria within the industry, as well as multiple ESG ratings providers that provide ESG ratings of the same subject companies and/or securities that vary among the providers. Certain issuers of investments may have differing and inconsistent views concerning ESG criteria where the ESG claims made in offering documents or other literature may overstate ESG impact. As a result, it is difficult to compare ESG investment products or to evaluate an ESG investment product in comparison to one that does not focus on ESG.

There is no assurance that an ESG investing strategy or techniques employed will be successful. Past performance is not a guarantee or a dependable measure of future results.

Asset allocation and diversification do not assure a profit or protect against loss in declining financial markets.

Because of their narrow focus, sector investments tend to be more volatile than investments that diversify across many sectors and companies. Technology stocks may be especially volatile. Risks applicable to companies in the energy and natural resources sectors include commodity pricing risk, supply and demand risk, depletion risk and exploration risk. Health care sector stocks are subject to government regulation, as well as government approval of products and services, which can significantly impact price and availability, and which can also be significantly affected by rapid obsolescence and patent expirations.

Nondiversification: For a portfolio that holds a concentrated or limited number of securities, a decline in the value of these investments would cause the portfolio's overall value to decline to a greater degree than a less concentrated portfolio. Portfolios that invest a large percentage of assets in only one industry sector (or in only a few sectors) are more vulnerable to price fluctuation than those that diversify among a broad range of sectors.

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Growth investing does not guarantee a profit or eliminate risk. The stocks of these companies can have relatively high valuations. Because of these high valuations, an investment in a growth stock can be more risky than an investment in a company with more modest growth expectations.

Value investing does not guarantee a profit or eliminate risk. Not all companies whose stocks are considered to be value stocks are able to turn their business around or successfully employ corrective strategies which would result in stock prices that do not rise as initially expected.

Rebalancing does not protect against a loss in declining financial markets. There may be a potential tax implication with a rebalancing strategy. Investors should consult with their tax advisor before implementing such a strategy.

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