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CIO Strategy Bulletin

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Chatbots at a Reasonable Price: Seeking to Add Growth to Portfolios

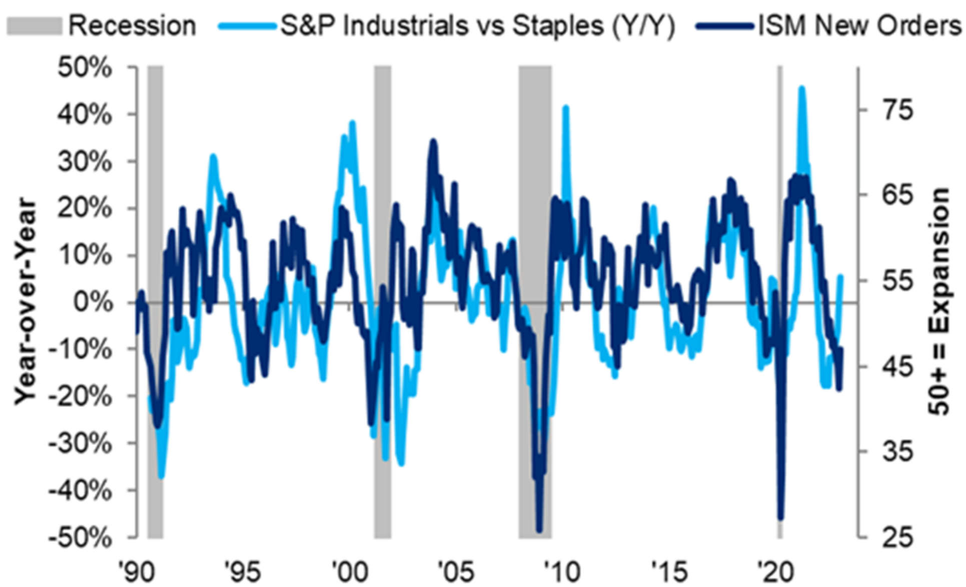
SUMMARY

- Growth shares have been rising recently, ignoring the collapse of three banking institutions last month. While both cash-generating and money-losing tech have rebounded in this period, the bounce in profitless firms has been unconvincing. There's been poor market breadth within the Nasdaq index, as the very largest, well capitalized firms drive much of the US equity gains in 2023 to date.
- In our view, less cyclical growth sectors are better positioned for continued outperformance in the current market backdrop. In a still tightening credit environment, firms whose profits can self-fund their growth is critical.
- Within non-cyclicals, we prefer software firms which tend to deliver more stable profits, as well as firms tied to government subsidies and spending like electric-vehicle-battery producers and semiconductor equipment firms. We think these "defensive growth shares" will benefit from falling rates, and their profits won't be as impacted by a shallow recession.
- We do believe that with a higher level of discipline, growth investing will become one of the ways to potentially generate above-average returns in the next business cycle. Three factors shape our framework for identifying compelling high-growth opportunities: thinking thematically (to the next generation of technological advancement); putting a premium on companies that can self-finance future growth; and focusing on both growth and valuation when seeking high risk-adjusted returns (so-called Growth at a Reasonable Price, or GARP, investing).
- We also apply our investment growth investment philosophy to the theme of artificial intelligence, a breakthrough technology set to have profound impacts on the world. Companies that can provide computing power and infrastructure to accommodate growth in AI are opportunities for investment, while regulation and data concerns are key risks to watch in this space.

Growth stocks in a period of slowing economic growth

We believe the US equity market is pricing in a brief slowdown and a recovery to follow. We observe this in the hopeful dichotomy of manufacturing activity declining while the shares of industrial firms are outperforming (**Figure 1**). This past week, the president of a leading freight and logistics company, described the current operating environment as a "freight recession." Yet the company's shares barely budged in response. The question ahead is whether sectors, from housing to construction machinery, will remain immune to a weakening economy and reduced earnings.

Figure 1: S&P 500 Industrials vs Staples and ISM New Orders



Source: Haver Analytics as of Jan. 18, 2023. Grey areas note recessions. The indexes are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Index returns do not include any expenses, fees or sales charges, which would lower performance. Past performance is no guarantee of future results.

Growth investing sees a burst of optimism

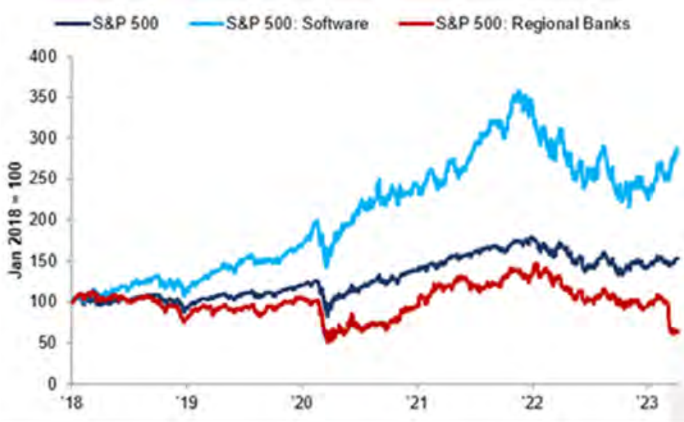
Beyond the performance of cyclicals - ignoring the collapse of three banking institutions last month - growth shares have also been rising recently,. The poor performance of financial shares and better performance of technology issues is consistent with the decline in interest rates since mid-March (Figures 2 and 3). While both cash-generating and money-losing tech have rebounded during this period, the bounce in the most beaten-down stocks has been appropriately underwhelming. In fact, there is a clear lack of "market breadth" within the Nasdaq index with the larger, stronger and more well capitalized companies driving much of its gains. If this were the true beginning of an early cycle recovery, we would expect the bear market's worst victims (i.e., unprofitable tech) to be the best performers.

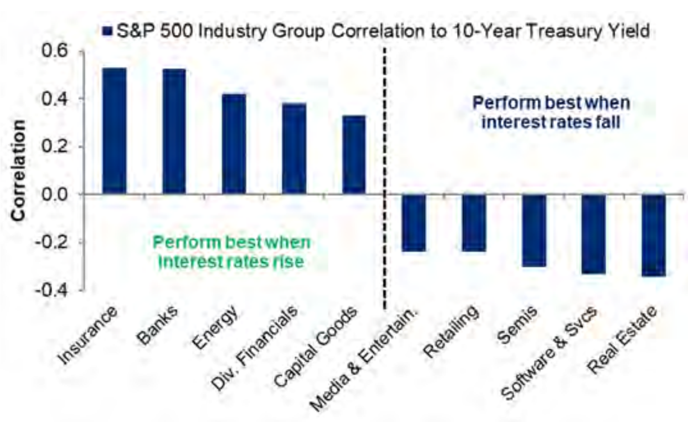
In contrast, with the Fed still focused on fighting inflation and reducing its balance sheet, funding will be both scarce and more expensive for firms that lack a near-term profit trajectory. There is no doubt that some loss-making firms with transformative technologies will be the positive "wish I had invested then" headlines of tomorrow. Technology continues to develop at an incredible rate, be it the development of mRNA vaccines or 3nm computer chips. Good ideas and strong management teams are likely to receive continued investment and show grit and persistence. We doubt, however, that such returns will be earned in the short term. Survival will be in question for many of the experimental firms born in the Fed-driven easy money era.

In the current environment, therefore, less cyclical growth sectors are better positioned for continued potential outperformance. These include areas of the software space which tend to deliver more stable profits, as well as firms tied to government subsidies and spending like electric-vehicle-battery producers and semiconductor equipment firms. These "defensive growth shares" may benefit from falling rates and see less of the impact of a shallow recession on their profits.

Figure 2: S&P 500, Software and Regional Banks

Figure 3: Top and bottom 5 industry groups by correlation to interest rates





Source: Haver Analytics as of April 18, 2023. The indexes are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Index returns do not include any expenses, fees or sales charges, which would lower performance. Past performance is no guarantee of future results.

Figure 4: Nasdaq 100 vs Nasdaq Advancers Less Decliners

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"Responsible growth investing" for the next cycle

We do not expect growth investing to mimic the euphoric markets of 2020 and 2021. The times of indiscriminate outperformance for shares, coins or NFTs that don't have sustainable value trajectories is over. But we do believe that with a higher level of discipline, growth investing will become one of the best ways to generate above-average returns in the next business cycle.

Our framework for identifying compelling, potential high-growth opportunities incorporates the following considerations:

1. **Think thematically:** Identify sectors and themes with high total addressable market and relatively low penetration today.
2. **Quality matters when money isn't free:** Find companies with a strong position within these industries and, particularly in the current environment, an ability to self-finance future growth.
3. **GARP over pure growth:** Consider valuation in conjunction with a firm's expected growth rate.

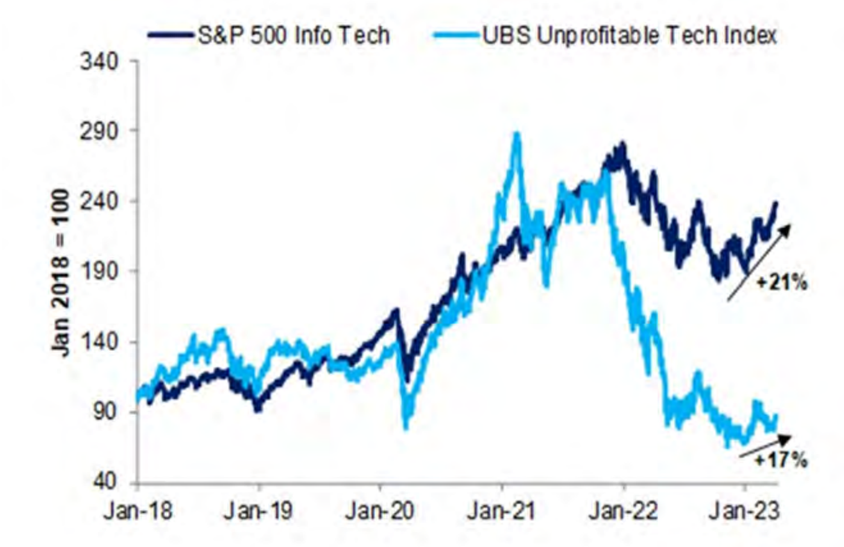
Think thematically

Taking a thematic approach is essential, in our view, when deciding among opportunities in the universe of growth investing. Leading growth themes of the last cycle, like social media and smartphones, have evolved into more mature industries that are likely to see moderate sales and profit growth going forward. Backward-looking revenue and sales growth screens can therefore be misleading. We must instead look to the next generation of technological advancement, in areas like AI, robotics, and cutting-edge computing as better avenues for identifying market-beating companies over the next decade. Many of these themes are incorporated in our semi-annual Outlook reports, which detail four global "Unstoppable Trends": Digitization, Greening the World & Energy Security, G2 Polarization, and Investing in Longevity.

Quality matters when money isn't free

When considering investments in a given theme, growth managers are constantly faced with the choice of whether to invest in "pure plays" or instead own more established firms seeking to make headway in a new fast-growing industry. There are often merits to both approaches, and the ultimate decision will come down to industry-specific factors and an investor's risk tolerance. But in the current moment, we believe investors should place an additional premium on growth that can be self-financed. This therefore suggests a bias toward larger, profitable firms over smaller upstarts (**Figure 5**). Companies with the ability to use "cash cow" businesses to finance future innovation will also be better positioned than those needing to tap debt or equity markets to raise capital. Once the Fed truly pivots toward easing, we would expect relief for early-stage investments. Unfortunately, some startups and small tech ventures may run out of money before we get to that point.

Figure 5: S&P 500 Info Tech vs Unprofitable Tech Index



Source: Haver Analytics and Bloomberg as of April 18, 2023. The indexes are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Index returns do not include any expenses, fees or sales charges, which would lower performance. Past performance is no guarantee of future results..

GARP over pure growth

It's easy to get caught up in an exciting new trend and ride the wave of hype. This is even easier (and often quite lucrative) when monetary and fiscal policy is in aggressive easing mode. While riding a wave of euphoria can work in the near term, over the long run, the price you pay for any asset – even a fast-growing one – will matter a lot for overall returns. In our view, a strategy combining both growth and valuation (known as GARP or "growth at a reasonable price") is likely to be the best way to potentially earn high risk-adjusted returns. While faster-growing firms will almost always trade at a premium to more mature businesses, we want to know if a firm's expected growth is already priced in or if the market is underestimating its earnings potential. This strategy has historically outperformed both pure growth and value investing, as it weeds out both overvalued growth stocks as well as value stocks in secular decline (**Figure 6**).

Running our favorite themes through this filter, we find that cyber security, EM consumption, and Infrastructure & Onshoring score best when looking across valuation, growth, quality, and risk metrics (**Figure 7**). Our themes related to longevity and biologics, which held up relatively well since the bear market began in 2022, look somewhat expensive when scaled by their typical growth rates. This suggests that some of the benefits from owning health care's stable earnings profile is already baked into market pricing.

As you can see, our approach incorporates both quantitative and qualitative analysis at the sector and company level. While advancements in artificial intelligence (AI) are likely to shake up our industry among many others, we believe our investing philosophy will be hard to replicate without human involvement. That said, we are certainly bullish on AI as an *investable theme* going forward. Let's now bring our growth investing philosophy to life by applying it to the theme of artificial intelligence.

Figure 6: Equity style returns since 1995

Figure 7: Ranking our themes by valuation, growth, and quality

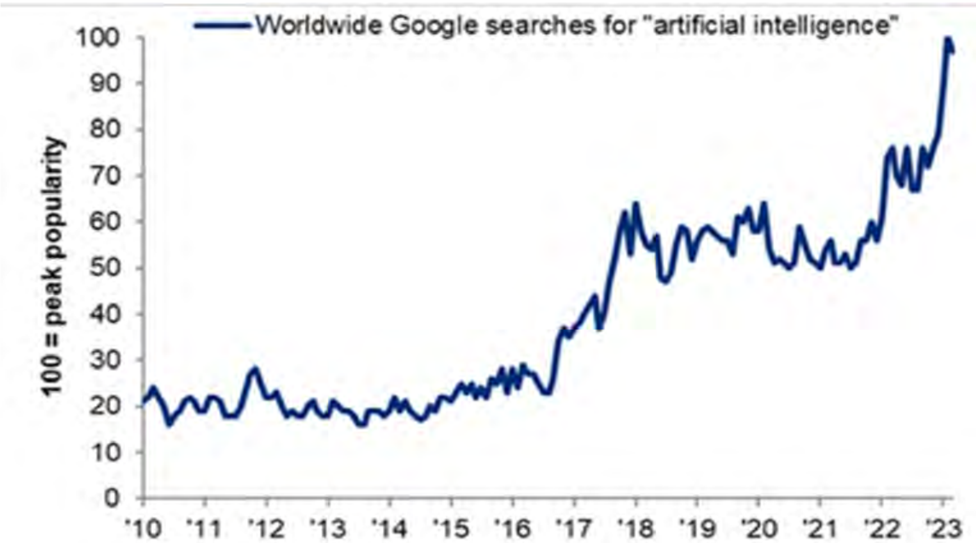
Theme	Citi Theme Machine Overall Attractiveness Score (1= Best)	Valuation	Growth	Price Momentum	Quality	Low Risk	Earnings Momentum
Cyber Security	**1**	8	4	5	2	2	1
EM Consumer	**2**	7	3	4	4	5	3
Infrastructure & Onshoring	**3**	2	12	3	3	12	9
Fintech	**4**	4	6	14	5	7	2
Defense	**5**	9	11	1	1	11	8
Cloud Computing	**6**	11	5	8	10	4	4
Automation & Robotics	**7**	10	9	2	6	8	11
Energy Efficiency	**8**	5	8	6	9	9	7
Renewable Energy	**9**	3	10	9	8	13	5
Artificial Intelligence	**10**	12	7	7	11	6	6
Electric Vehicles	**11**	6	2	10	12	10	10
Replacing Russian Energy	**12**	1	1	13	7	14	14
Aging Demographics Healthcare Spend	**13**	13	14	12	13	1	12
Biologics	**14**	14	13	11	14	2	13

Source: **Figure 6**: Bloomberg as of April 2023. The indexes are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Index returns do not include any expenses, fees or sales charges, which would lower performance. Past performance is no guarantee of future results. Real results may vary. **Figure 7**: Citi Research as of April 2023. Attractiveness score is calculated using a combination of valuation, growth, quality, risk and momentum rankings. The basis for our style classification and choice of style descriptors comes from the Citi Style Addin Software. This style classification or framework has been in existence for over ten years now and is an important investment tool used by the Citi Global Quantitative Research team. The overall stock universe is based on the MSCI AC World index but can be extended to most stock universes or indices around the world. Aggregate style "scores" for each theme are constructed from the bottom-up using constituent stock data and/or fundamental metrics. For every stock a composite style factor is created based on an equal weighting of each style descriptor. A list of all the styles and descriptors can be found in the appendix of our first Theme Machine publication. A broad range of descriptors are used to in order to provide an unbiased representation of the style we are aiming to mimic. For example, for Value we use a range of cyclical and defensive valuation factors. For Low Risk, we look at number of facets of company risk that aren't just restricted to price risk: we also consider balance sheet and earnings risk factors. In terms of interpretation of style ranks, all should be considered as "high" (e.g. High Price Momentum, high rank), except Valuation and Risk where Low Risk and Low Valuation score highest.

All In for AI

The internet is awash with stats about ChatGPT, including the fact that it took just five days to reach 1 million users (compared to 10 months for Facebook and 3.5 years for Netflix to hit that milestone). Now, as earnings season hits high gear over the next week, tech giants at the center of the artificial intelligence (AI) race will provide an update on the development of their respective AI algorithms and the cash flow opportunities they see as the next generation of computing leaps forward.

Figure 8: Worldwide Google searches for ‘artificial intelligence’



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Source: Google as of April 18, 2023.

ChatGPT and similar programs are what’s known as Generative AI. Whereas previously AI could read and write, now it can understand and create content. The technology is not connected to the internet but uses billions of data inputs to formulate content. Importantly, generative AI has been used for some time – an example most mobile phone users are familiar with is when the next words are suggested in a sentence or autocorrecting words when writing an email or text message. However, the release of ChatGPT has taken the technology and its use cases to the next level, capable of creating entirely new “copy” and content.

PwC estimates that AI could contribute up to $15.7 trillion to the global economy by 2030.[1] A large chunk of this is estimated to come from productivity gains ($6.6 trillion), ranging from educators grading exams to software developers writing or debugging code, job seekers creating resumes, or helping online content providers sell and advertise products and services. The technology’s impact could be so wide-ranging that former US Treasury Secretary Larry Summers recently said: “ChatGPT is a development on par with the printing press, electricity and even the wheel and fire.” While not everyone will agree with the extent of Mr. Summers’ bold assessment, it’s likely that generative AI will be a key building block upon which many future technologies will rest.

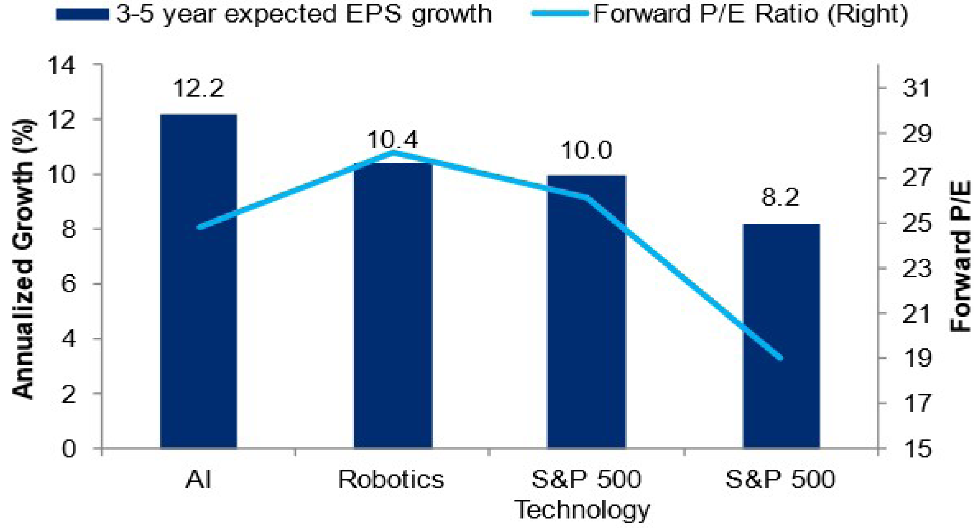
Separating promising AI investments from hype

Investing in the hype of AI will be dangerous. Pure AI equity opportunities are few and far between. Many of the most advanced AI functionality is either privately held or housed within larger companies with diverse sources of revenues.

We see companies that can provide the computing power and infrastructure to accommodate the growth in AI as major potential growth opportunities (**Figure 9**). These include hardware manufacturers of the most advanced semiconductors and cloud players on the infrastructure side. Other enablers and adopters of generative AI that form part of the ecosystem also stand to benefit, as well. Semiconductor capital-equipment companies will produce the machines that manufacture the chips. Adopters that integrate the technology into their processes should see increased demand. Cyber security companies are another potential winner.

1 PwC’s Global Artificial Intelligence Study, 2017.

Figure 9: Valuations and EPS growth rates for AI, robotics and technology shares



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It's also important to monitor the risks of this new technology. Larger, well-established companies have more to lose when rolling out generative AI into search because of their current positioning as a credible source for customers and advertisers. If they rush AI too quickly and provide incorrect or misleading answers, it could hurt their reputation.

Copyright and intellectual property issues may also arise. If someone uses generative AI to write a paper, will the sources of the information be correctly attributed? In addition, given the technology's code-writing ability, cyber criminals may find it easier to write malicious code or create new phishing scams aimed at vulnerable users.

Overall, generative AI has the potential to be a truly transformative technology, likely to drive enormous productivity gains and incremental economic growth in the years ahead. Winners and losers will emerge from across all sectors of the economy, be they part of the supply chain or those best/worst able to integrate the technology's capabilities. Regulation, patents, and data concerns are key risks to watch, and are likely to mean that regional winners will emerge, rather than a handful of global players.

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Investment Grade			
Highest quality	Aaa	AAA	AAA
High quality (very strong)	Aa	AA	AA
Upper medium grade (Strong)	A	A	A
Medium grade	Baa	BBB	BBB
Not Investment Grade			
Lower medium grade (somewhat speculative)	Ba	BB	BB
Low grade (speculative)	B	B	B
Poor quality (may default)	Caa	CCC	CCC
Most speculative	Ca	CC	CC
No interest being paid or bankruptcy petition filed	C	D	C
In default	C	D	D

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