Artemis
FINANCIAL ADVISORS LLC

Market Outlook & Strategy

Second Quarter of 2023

Leigh Bivings, Ph.D., CFP®

Scott Gillespie, CFA

Artemis Financial Advisors LLC

115 Newbury Street, Suite 302
Boston, MA 02116
617-542-2420

Executive Summary

- After an eventful start to the year, markets ended the quarter in positive territory with stocks rallying while bonds felt the pressure of continuing Fed rate hikes.

- For the quarter, the U.S. market ended up +8.1%, developed international equities were up +3.0%, and emerging markets gained +0.9%. Most bond segments were slightly negative for the quarter ~-0.5 to -1.0%. Within the U.S. market segments, value (+4.1%) underperformed growth (+12.8%), and small companies (+5.3%) underperformed large companies (+8.7%).

- Despite widespread expectations of an impending recession, major economies have proven quite resilient. The strength of the employment market and wage growth have supported consumer spending, even as inflation has led to higher prices.

- While the positives have been encouraging, the risks have remained high. This quarter we saw a narrowly-avoided U.S. debt ceiling impasse, a further bank failure in First Republic, continuing inflationary pressures, and no headway toward a resolution of the war in Ukraine.

- A key feature of this year's market rally has been the concentration of returns. The largest U.S. technology companies, perceived to be the most obvious beneficiaries of technological advancement with artificial intelligence (AI), have driven the lion's share of U.S. stock market returns thus far.

- In this report, we focus on an underlying technology that is foundational to a lot of the innovation occurring across many sectors – AI. We explore whether AI is a foundational technology worth investing in and how Artemis portfolios are currently positioned in the space.

- **Artemis Strategy.** Our strategy coming into 2023 was defensive and diversified with a focus on high-quality dividend-paying stocks, reduced exposure to growth stocks, and a fairly short duration on our fixed income exposure. As such, our portfolios missed some of the surprise AI-driven boom in the largest technology stocks. We adjusted portfolios in May to add overall exposure in these areas while maintaining the high-quality bent and diversified approach that we believe will serve investors well through an entire market cycle.

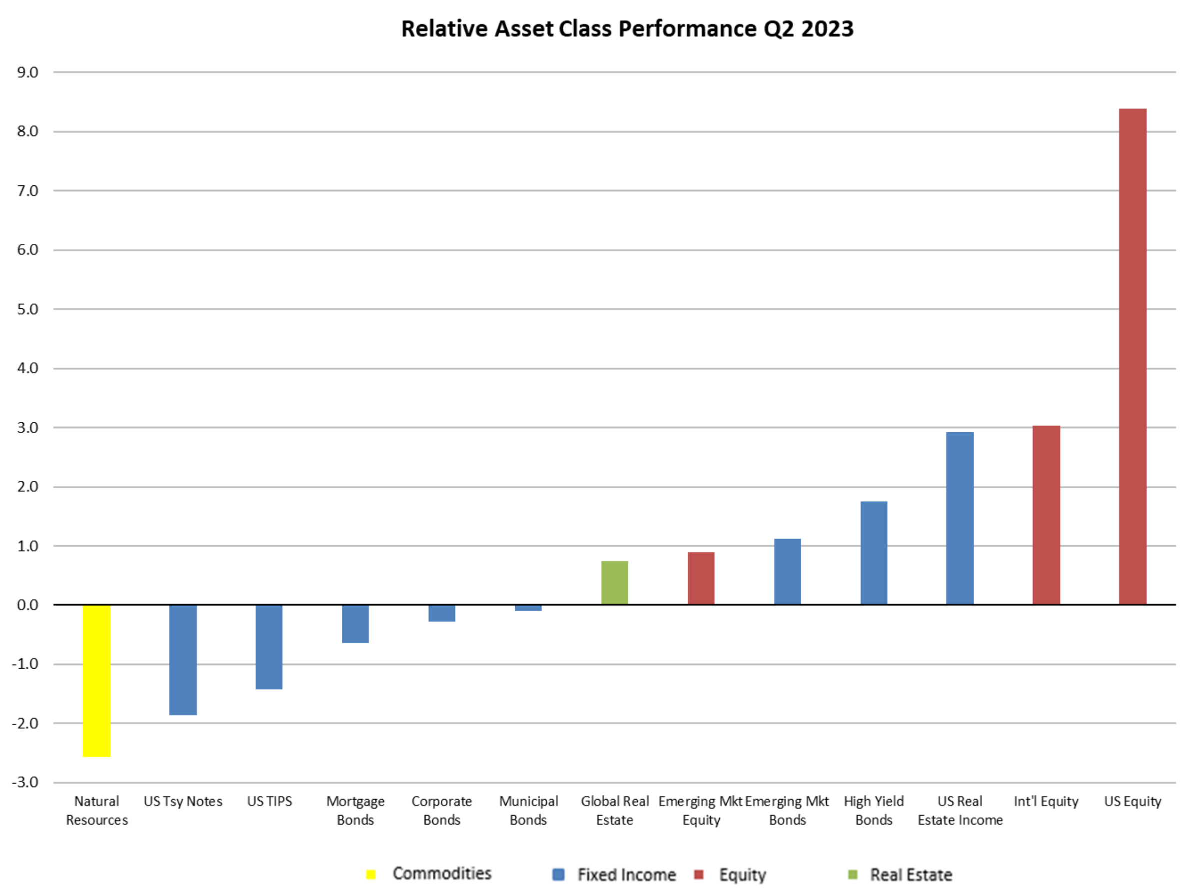
Artemis
FINANCIAL ADVISORS LLC

Markets in Review – Q2

After an eventful start to the year, markets ended the quarter in positive territory with stocks rallying while bonds felt the pressure of continuing Fed rate hikes.

For the quarter, the U.S. market ended up +8.1%, developed international equities were up +3.0%, and emerging markets gained +0.9%. Most bond segments were slightly negative for the quarter ~-0.5 to -1.0%. Within the U.S. market segments, value (+4.1%) underperformed growth (+12.8%), and small companies (+5.3%) underperformed large companies (+8.7%). (See Figure 1.)

Figure 1. Asset Class Returns in USD for Q2 2023 (%)



There has been extensive debate over the past year about the potential impacts of major central banks' rapid monetary tightening and the trajectory for inflation. Despite widespread expectations of an impending recession, most large economies have proven quite resilient. The strength of the employment market and wage growth have supported consumer spending, even as inflation has led to higher prices. Other economic activity has been resilient, and corporations have been able to pass on higher prices to consumers, leading to stronger than expected earnings. Additionally, a surprise boon for financial markets has been the hype and excitement powered by generative artificial intelligence (AI) and its potential applications (e.g., ChatGPT).

While the positives have been encouraging, the risks have continued to remain high. This quarter we saw a narrowly-avoided U.S. debt ceiling impasse, a further bank failure in First Republic, continuing albeit waning inflationary pressures, and no headway toward a resolution of the war in Ukraine. In addition, U.S.-China relations remain fractured, and central banks continue to combat inflationary pressures, leading to a volatile interest rate environment.

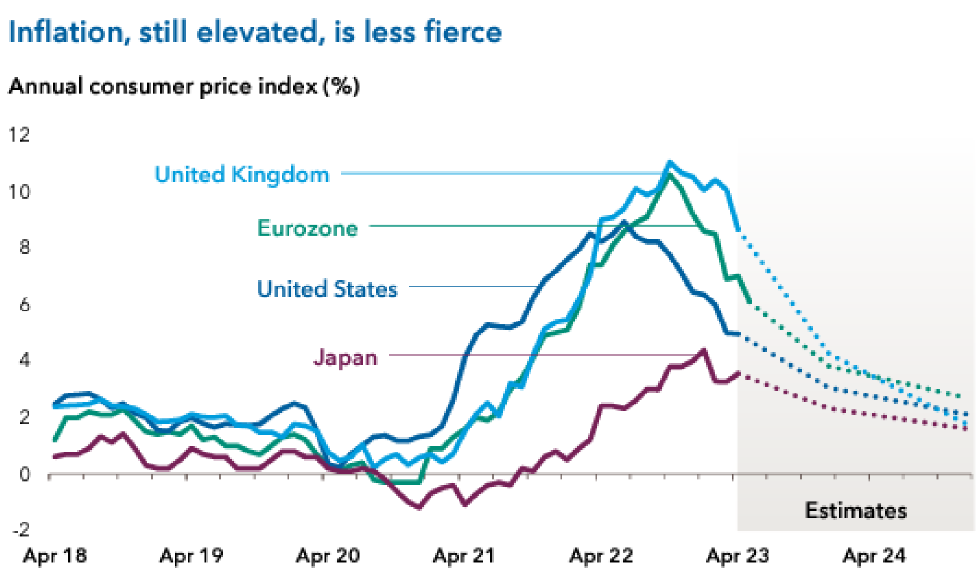
The most salient feature of this year's market rally has been the concentration of returns thus far. The largest U.S. technology companies, perceived to be the current beneficiaries of technological advancement with AI, drove the majority of index returns prior to June. In fact, seven companies drove over 70% of the gains in the S&P 500 in 2023 thru June: Alphabet, Amazon.com, Apple, Meta, Microsoft, Nvidia, and Tesla. These top seven companies now make up over 55% of the Nasdaq index *(source: Saxo Markets).*

On the economic front, the news is better than many had expected. Inflation in the U.S. has managed to maintain a downward trend since peaking in the summer of 2022 while other activity has remained resilient. The gradual but uneven decline in inflation has resulted in fluctuating expectations regarding interest rates. In June the Fed temporarily paused its rate hiking campaign, however, stronger than expected economic data, particularly in the job sector, and a better-than-expected banking sector outcome thus far (post-failures) raises the probability that the Fed will raise rates at least once more this cycle.

The speed with which inflation comes down over the remainder of the year and through 2024 will be a driving force for interest rates and the economic outlook. The best case is if inflation slows faster, growth holds up, and the Fed can pivot to lowering interest rates before too much damage is caused. So far, it's been a gentle landing, but there is a lot more adjustment that needs to be made.

Ultimately, the longer interest rates remain as high as they are, the bigger the drag on the economy and future expectations for growth. As shown in Figure 2, the rate of inflation is expected to continue to slow but level off around ~3-4% for most major economies by the end of 2023. Projections for 2024 have inflation more in line with the Fed's long-term target of 2%, but there is a lot that could happen between now and then (i.e., another supply shock, geopolitical event, or sharper decline in economic activity) that would affect those projections.

Figure 2. Annual Inflation Rate Changes, Q2 2023 (%)



Data as of June 5, 2023. Sources: Capital Group, FactSet, Bureau of Labor Statistics, Eurostat, UK Office for National Statistics, Japanese Statistics Bureau & Statistics Center, International Monetary Fund.

A large and striking impact on financial markets this year has been the buzz around AI and ChatGPT, which is the focus of our note this quarter. (See next section.) The excitement has led to a narrow band of AI "winners" that are driving much of the U.S. market return thus far. While the S&P 500 is up +16.8% YTD, the equal-weighted S&P 500 index, which has an equal stake in all of the top ~500 companies in the U.S., is up only +7.0%. A broadening of company participation from here would be a sign of a healthier market.

In fixed income markets this quarter, uncertainty about the path of economic growth, inflation, and interest rates had a negative impact on bonds. In fact, the strength of the economy has been a net negative for bond returns because it raises the prospect that the

Fed is not finished raising rates. This causes yields to rise across the board and bond prices to fall. The consensus is that the Fed's rate hiking cycle is nearing its peak. As such, we believe yields are quite compelling at these levels and that bonds should perform nicely over the coming years. In other words, buy the appropriate level of bonds now before interest rates fall.

Our Take

Our best guess is that global growth will continue to slow and flirt with falling into recession in the coming year or two, but that it is heading toward a period of more sluggish growth rather than a steep downturn. High interest rates are a drag on growth, and if a few bank failures have taught us anything, it is that the economy is more susceptible to negative surprises in this type of environment.

That said, there are many positives that make this a more balanced environment for investors. The strength of the labor market and consumer income is a major force; interest rates are peaking; and the innovation cycle born from the AI boom should provide a ballast as productivity and new opportunities emerge.

Looking Past the Noise – Promising Themes for the Next Decade II

In last quarter's report, we reviewed two new holdings in our thematic sleeve. These holdings represent our attempt to gain exposure to global environmental markets and healthcare innovation in a more stable and diversified way. We believe these investments hold the potential to outperform broad benchmarks over the next decade. This is the key premise behind thematic investing.

In this edition, we want to focus on an underlying technology that is foundational to a lot of the innovation occurring across many sectors – artificial intelligence. We have had some exposure to AI in client portfolios for several years via our investments in robotics, cybersecurity, and cloud computing. But given all of the recent excitement surrounding AI, we thought it was time to put a spotlight on our current exposure. As such, our evaluation seeks to address several key issues:

1. Is AI a foundational technology worth investing in directly versus targeting discrete use cases?
2. Do we already have sufficient exposure to AI by virtue of our allocation to large U.S. technology companies?
3. Are our existing, application-specific allocations to AI in our thematic sleeve the best investment approach?

In this report, we focus on the first two questions and will follow up on the third question in our fall report.

What is AI?

In simple terms, AI is the simulation of human intelligence by machines. Such machines (i.e., computer programs) are trained for decision-making and problem solving with minimal human intervention. Training an AI model involves using copious amounts of data and processing power to uncover patterns and make predictions with the data provided. A good use case might be a large healthcare provider mining its data to better understand and be able to predict the best treatment for a particular ailment given a host of other conditions.

While AI (or machine learning) has been around for some time (remember the computer Deep Blue that defeated chess champion Garry Kasparov in 1997?), the recent excitement surrounding the technology is in large part due to three factors:

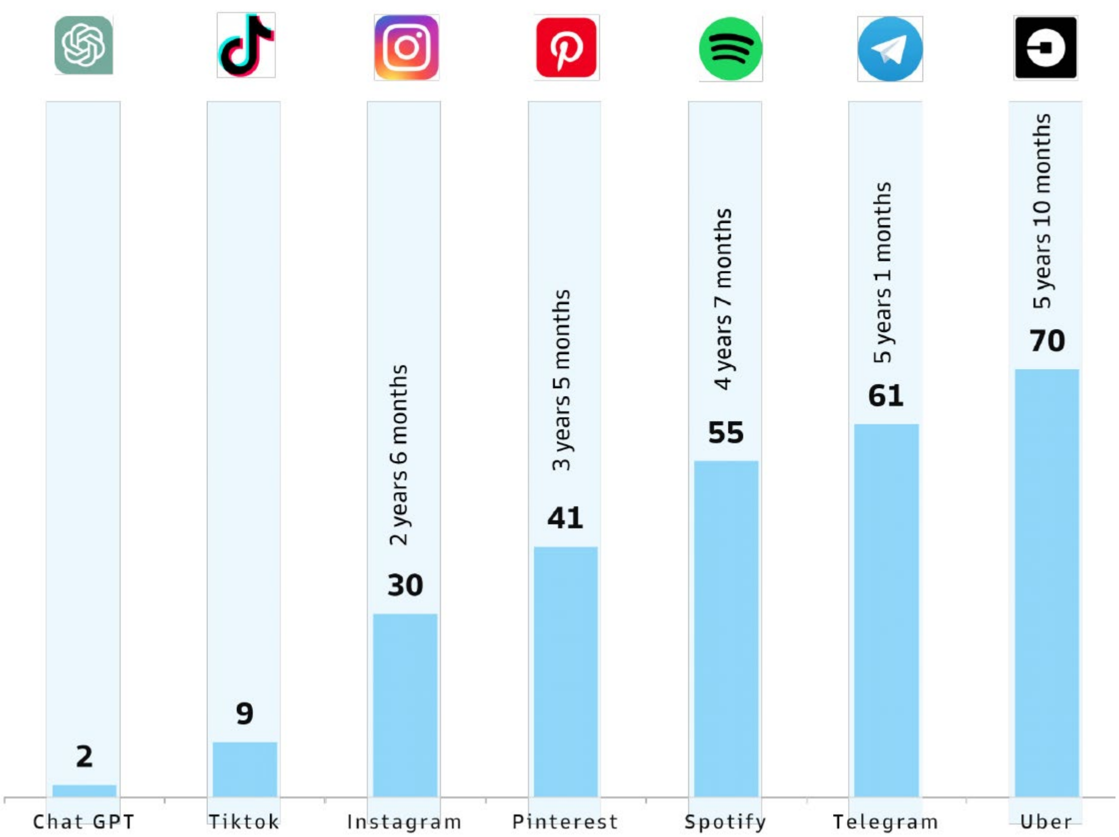
1. Development of specialized GPUs (Graphical Processing Units). GPUs are specialized processors that can optimize the training of large AI models. Recent advancements in GPUs have made it possible to run complex computations in AI models quickly and efficiently.
2. Big Data. The proliferation of data has enabled AI models to be smarter and more efficient.
3. Google's Transformer Model. A deep-learning algorithm introduced by the firm in 2017 enables a new way of processing sequential data.

Google's transformer model created what's known as generative AI. Unlike traditional AI, generative AI has creative capabilities to generate original ideas in the form of text, images, audio, video, and code all based on simple human text queries. As an example, you can ask generative AI, "Please write me a short speech on why younger people should care about the war in Ukraine".[1] With generative AI, humans can easily communicate with computers in their natural language rather than in a programming language. This is a very big deal.

ChatGPT (Chat Generative Pre-trained Transformer) is the most popular example of generative AI. In November 2022, the company OpenAI introduced ChatGPT and made the tool free and publicly available. Its ease of use immediately gave rise to its enormous popularity. Indeed, as shown in Figure 3, ChatGPT surpassed 100 million users in only two months, by far the fastest introduction on record of a new application.

[1] See appendix for the (unedited) speech ChatGPT wrote in approximately six seconds based on our query.

Figure 3. Number of Months Select Applications Surpassed 100M Users.



Source: Goldman Sachs

But the real excitement is the view held by many experts that, due to the advancements AI has made in the last few years, the technology now has the potential to drive substantial value creation by both enhancing productivity (e.g., when was the last time you wrote even a lousy speech in six seconds?), and by creating new markets and business models that one can't even imagine today. As Bill Gates recently wrote, *"The development of AI is as fundamental as the creation of the microprocessor, the personal computer, the Internet, and the mobile phone. It will change the way people work, learn, travel, get health care, and communicate with each other. Entire industries will reorient around it. Businesses will distinguish themselves by how well they use it." (The Age of AI Has Begun. Gates Notes. March 23, 2023)*

Where is the investment opportunity?

The introduction of ChatGPT has given a huge boost this year to the leader in developing AI (graphical) processors to train AI models – Nvidia. Nvidia currently owns nearly 80% of the market share in AI chips, and its stock price has tripled since the start of the year. As demand for AI chips has exploded, orders for new chips from Nvidia currently have a six-month backlog, and prices are rising rapidly. Not surprisingly, this is giving rise to some companies starting to develop their own chips, including Google and Microsoft.

Opportunity also appears to abound in what is called the traditional IT stack consisting of an infrastructure layer, a platform layer, and an application layer. The infrastructure layer includes chips but also storage, big data centers, servers, networking, and large language general AI models (e.g., ChatGPT). Most assume this layer is going to be dominated by a limited number of large players due to the high capital requirements, large dataset requirements, and high computing costs to host and train large, generalized AI models. These barriers to entry suggest that the infrastructure layer will be dominated by firms such as Nvidia, Google, Microsoft, and OpenAI.[2]

The next layer in the IT stack is the platform layer. This layer consists of software tools that enable developers to build specific applications without the hassle of maintaining the underlying infrastructure. This layer will be crucial in integrating the foundational models (large language models) with end applications. Many analysts believe that a few strong platforms will also dominate this layer, although it is still early days.

On top of all of this sits the application layer, and the current view is that SaaS (software as a service) companies will integrate AI with their existing solutions and leverage their industry-specific data to create customized solutions. This is where most of the innovation

---

[2] This point of view is hotly debated judging by a recently leaked internal memo from a Google executive who believes that both Google and Microsoft may already be in danger of being outrun by more agile competitors that are building smaller, cheaper, and more customizable open-source AI models and luring away some of the best AI researchers out there. "The future will belong to smaller, specialist generative AI models that are cheaper to train, faster to run and serve a specific use case."

is expected to occur. What is interesting here is that a key competitive advantage will likely accrue to companies that have proprietary data that they can leverage. This is the primary worry of the Google exec (see Footnote 2) who thinks the large, generalized models will get commoditized.

In summary, the opportunity spans the IT value chain/technology stack, but apart from the very large incumbent players, it is very hard at this stage to pick winners and losers. Much will depend on which companies find the best uses for AI technology and can get customers to pay up. In the meantime, we are likely to see just about every software company adding AI bells and whistles to their existing products, many without thinking through what real benefit the technology adds. It's clearly early days, and most software companies are currently offering new AI features free of charge while they work out which will catch on and how best to charge.

Today, the surer bet appears to be the "picks and shovels" companies that provide the tools, processors, and large language models for this technological transformation. They have the data, the deep pockets, and most of the world's AI researchers, giving them an enormous head start. Indeed, as one commentator wrote, "It is entirely possible that an investment in a broad index fund tracking publicly-listed technology firms will end up outperforming the equivalent investment in private equity AI-focused startups."

What is our current exposure to AI?

Anyone who owns a U.S. large company growth fund has exposure to the mega-cap technology companies currently in the lead today in artificial intelligence, especially as it relates to the infrastructure layer. To see this more clearly, we took the seven large companies Goldman Sachs deems to be best-positioned currently to succeed in an AI-driven paradigm[3] and quantified how much exposure we have to them in the funds we use. Looking first at the growth category, we learned that the two large growth ESG funds we use (from Calvert and Nuveen) are both underexposed to these firms by 8-9 percentage points relative to Vanguard's growth index fund, which tracks the growth sector overall on a market-cap weighted basis, without consideration for ESG risk factors. We also learned that the Nuveen fund with the lowest overall exposure to the AI theme has the most concentrated exposure to AI leaders, with Microsoft commanding 60% share of its AI total. Microsoft is the leader in the other two funds, but with only a 40% share of the total.

[3] "Generative AI – Part I: Laying Out the Investment Framework." Goldman Sachs Equity Research. March 26, 2023

Figure 4. Select Company Weights in Funds Used at Artemis

	US Large Company Growth Funds			US Large Company Core Funds		US High Quality
	ESG-Aligned		Non ESG-Aligned	ESG-Aligned	Non ESG-Aligned	Non ESG-Aligned
	Calvert US LC Growth Rspnb. Fund	Nuveen US ESG LC Growth ETF	Vanguard U.S. Growth ETF	Calvert US LC Core Rspnb Index	DFA US Large Company I	DFA US Hi Relatv Profitability Fund
Alphabet	4.8%	0.0%	6.9%	3.4%	3.4%	0.0%
Amazon	4.0%	0.0%	5.4%	2.7%	2.7%	0.0%
Meta	0.0%	0.0%	0.0%	0.0%	1.5%	0.0%
Microsoft	9.2%	12.6%	12.5%	6.3%	6.6%	5.5%
Nvidia	2.9%	6.5%	4.5%	2.0%	2.0%	0.0%
Oracle	0.7%	0.0%	0.0%	0.5%	0.4%	2.2%
Salesforce	0.9%	1.7%	1.1%	0.6%	0.6%	0.0%
TOTAL	22.5%	20.9%	30.4%	15.4%	17.1%	7.6%
Tech Share of Total	39.4%	39.8%	45.7%	29.5%	28.7%	30.5%
YTD Performance*	25.6%	27.2%	33.2%	17.5%	16.9%	12.4%

* Thru June 30, 2023. Note: Meta is not considered a growth stock, hence it's absence in growth funds.

The gap is not nearly as wide when we look at the two large company core funds we use in some portfolios (funds that broadly track the S&P 500), but the gap is large when compared to the high-quality fund we are using to tilt our allocation toward high quality.

We also have exposure to AI in our thematic sleeve via our long-standing investment in robotics and automation. The fund we use most often (ROBO) is not a pure-play AI fund (very few exist). Instead, the fund targets “global companies that are driving transformative innovations in robotics, automation and artificial intelligence.” AI does not appear to be a huge part of the total as the computing, processing. and AI subgroup makes up only 14% of the total portfolio.

We also have a tad of AI exposure in our cybersecurity thematic investment as AI is becoming essential to information security due to its ability to analyze copious amounts of data to help track down threats.

Bottom Line

If you believe that AI represents a true paradigm shift with huge potential (and broadly agree that Goldman Sachs list of current AI leaders is correct and reasonable), you are not getting market exposure to the AI leaders with an ESG overlay on your portfolio. Nor are you getting market exposure with a high-quality overlay, at least the quality fund we utilize at Artemis in most all portfolios.

Moreover, given that our exposure to ROBO is typically only 2-3% of portfolio assets in most client portfolios and only a portion is AI, this exposure does not make up for the shortfall identified above.

In truth, we have not yet decided whether we need or want greater exposure to AI than we have today, but we are starting to look very hard at the small range of funds more directly focused on AI.

Artemis Strategy

Our strategy coming into 2023 was defensive and diversified with a focus on high-quality dividend-paying stocks, reduced exposure to growth stocks, and a fairly short duration on our fixed income exposure. As such, we were caught flat-footed by the regional bank turmoil in the spring, which negatively affected value stocks, both large and small. We, along with most, also did not see the rapid resurgence of growth stocks due to the sudden excitement over AI. For these reasons, our portfolios underperformed their benchmarks in the first half of the year.

For those of you who follow the market closely, this ”flip-flopping” between growth and value over the last few years has become extreme relative to history and very hard to predict. As such, in May of this year, we executed on our decision to hew more to the middle by holding a balanced exposure to U.S. large company growth and value, while still keeping a tilt toward higher-quality companies. We also increased our allocation to our current themes yet remained defensive in terms of our fixed income exposure.

All of these moves have helped performance. Portfolios were mostly rebalanced in May and our June numbers exceed benchmark returns for most all clients. We continue to believe that a high-quality bent and diversified approach will serve investors well through an entire market cycle.

Appendix: Speech on Ukraine by ChatGPT (unedited)

Ladies and gentlemen,

Today, I stand before you to address a crucial matter that demands the attention of the younger generation—the war in Ukraine. While it may seem distant or disconnected from our daily lives, it is imperative that we, as young individuals, recognize the significance of this conflict and understand why it deserves our unwavering care and attention.

First and foremost, the war in Ukraine is not just a geopolitical struggle; it is a human tragedy. It involves real people, families, and communities who have been affected by violence, displacement, and immense suffering. By caring about this conflict, we demonstrate our empathy and solidarity with those who are enduring unimaginable hardships, many of whom are young, just like us. It is our duty to recognize the value of human life and advocate for peace and justice wherever they are threatened.

Moreover, the war in Ukraine presents an opportunity for us to learn and grow as global citizens. In this interconnected world, events happening thousands of miles away can have far-reaching consequences. The conflict in Ukraine has significant implications for international relations, security, and the future of our global order. By engaging with this issue, we can expand our understanding of geopolitics, international law, and the complex dynamics that shape our world. This knowledge empowers us to be informed advocates for peaceful resolutions and contribute to shaping a better future.

Furthermore, caring about the war in Ukraine aligns with our principles of democracy, human rights, and the pursuit of freedom. Ukraine, a country striving for sovereignty and self-determination, represents the aspirations of its people for a society free from oppression and external influence. By supporting their cause, we uphold the values of freedom, equality, and justice, which are essential to fostering a peaceful and inclusive world.

Additionally, the war in Ukraine serves as a reminder of the fragility of peace and the importance of preventing conflicts before they escalate. It is a wake-up call for us to recognize that peace is not a given; it requires constant vigilance, diplomacy, and the commitment of individuals across generations. By caring about this conflict, we take an active role in promoting a world where disputes are settled through dialogue, negotiation, and cooperation, rather than through violence and bloodshed.

Lastly, as young people, we are the leaders and decision-makers of tomorrow. The war in Ukraine presents an opportunity for us to shape our own values and develop a sense of responsibility towards the world we inherit. By engaging with global issues like this, we learn the importance of compassion, understanding, and active participation in matters that *affect not only our immediate surroundings but also the wider global community. Our generation has the potential to be a force for positive change, and caring about the war in Ukraine allows us to harness that potential and make a meaningful impact.*

In conclusion, the war in Ukraine should matter to younger people because it is a humanitarian crisis, an opportunity for learning and growth, a reflection of our shared values, a reminder of the fragility of peace, and a call to action for future leaders. By caring about this conflict, we demonstrate our commitment to a world where justice, peace, and solidarity prevail. Let us rise to the occasion, educate ourselves, engage with the issues, and work together towards a brighter, more compassionate future for all.

Thank you