



# Artisan Focus Fund

QUARTERLY  
Commentary

Investor Class: ARTTX | Advisor Class: APDTX | Institutional Class: APHTX

As of 31 March 2023

## Investment Process

Our investment approach is based on idea generation, a systematic framework for analyzing companies and proactive risk management. Utilizing this approach, we seek to construct a focused portfolio designed to maximize alpha while limiting downside risk over the long term.

### Idea Generation

We believe a key element in alpha generation is finding areas where our views on industry fundamentals differ from consensus estimates. In this pursuit, we seek to identify inflections in multi-year trends which may be caused by changes in supply/demand dynamics, societal behavior, market conditions, technology, laws/regulations and business models, among other variables. We believe these inflections are often misunderstood by market participants, and can lead to powerful re-ratings of industries and companies. Identifying themes helps us develop a focused universe of companies to analyze more thoroughly.

### Systematic Analytical Framework

We apply a systematic framework for analyzing companies across sectors and themes, creating a repeatable and methodical decision-making process. Our proprietary company models focus on multi-year earnings power differentiation, expected outcome scenario analysis, return on invested capital and discounted cash flow valuations. Visual outputs are then produced through our internally developed technology solutions, allowing us to consistently evaluate positions across the portfolio.

### Proactive Risk Management

We incorporate risk management into all stages of our investment process. Metrics evaluated include crowding, correlation, volatility, stress tests, liquidity, factor analysis and macro drivers, all of which inform portfolio construction and position sizing. We also use various instruments, such as options, in an effort to magnify alpha and minimize downside.

## Team Overview

The investment team applies the same approach to thematic idea generation and fundamental company analysis that Portfolio Manager Chris Smith has honed throughout his career. Research analysts are sector specialists with deep knowledge of their coverage areas. Our process blends a collaborative team mentality with individual accountability.

## Portfolio Management



Christopher Smith  
Portfolio Manager

## Investment Results (%)

As of 31 March 2023	Average Annual Total Returns						
	QTD	YTD	1 Yr	3 Yr	5 Yr	10 Yr	Inception
<b>Investor Class: ARTTX</b>	<b>3.34</b>	<b>3.34</b>	<b>-14.41</b>	<b>12.57</b>	<b>11.00</b>	—	<b>15.41</b>
<b>Advisor Class: APDTX</b>	<b>3.39</b>	<b>3.39</b>	<b>-14.28</b>	<b>12.74</b>	<b>11.15</b>	—	<b>15.54</b>
<b>Institutional Class: APHTX</b>	<b>3.38</b>	<b>3.38</b>	<b>-14.19</b>	<b>12.84</b>	<b>11.18</b>	—	<b>15.56</b>
S&P 500® Index	7.50	7.50	-7.73	18.60	11.19	—	11.68

Source: Artisan Partners/S&P. Returns for periods less than one year are not annualized. Class inception: Investor (24 April 2017); Advisor (31 July 2018); Institutional (3 February 2020). For the period prior to inception, each of Advisor Class and Institutional Class's performance is the Investor Class's return for that period ("Linked Performance"). Linked Performance has not been restated to reflect expenses of the Advisor or Institutional Class and each share's respective returns during that period would be different if such expenses were reflected.

Expense Ratios	ARTTX	APDTX	APHTX
Annual Report 30 Sep 2022	1.24	1.10	1.01
Prospectus 30 Sep 2022 <sup>1</sup>	1.25	1.11	1.02

<sup>1</sup>See prospectus for further details.

Past performance does not guarantee and is not a reliable indicator of future results. Investment returns and principal values will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than that shown. Call 800.344.1770 for current to most recent month-end performance. Performance reflects agreements to limit the Fund's expenses, which would reduce performance if not in effect. The Fund's investments in initial public offerings (IPOs) made a material contribution to performance. IPO investments may contribute significantly to a small portfolio's return, an effect that will generally decrease as assets grow. IPO investments may be unavailable in the future.



*"The real problem is not whether machines think but whether [humans] do."*

—BF Skinner

The first quarter of 2023 was volatile and macro driven. In Q1 2023, the Artisan Focus Fund gained 3.34% while the S&P 500® Index gained 7.5% (all returns in USD unless stated otherwise). Like the second half of last year, earnings estimates continued to move lower, leading economic indicators further weakened, and the interaction of macro events (in this case a regional banking liquidity crisis) and Federal Reserve policy had a major impact on interest rates and stock returns. Yet by the end of the quarter, the S&P 500® Index gained 7.5%. The construction of this return was remarkably narrow. The largest seven technology stocks accounted for more than 88% of the total index return. The remaining 493 stocks were up only 1%.

We believe that the next major paradigm shift in technology will likely be artificial intelligence, and questions like the one BF Skinner—a renowned yet controversial psychologist and professor—raised in the quote above have become more and more relevant to us today. His drive to understand human behavior played a major role in the advancement of behavioral analysis and human conditioning based on various inputs. These are concepts we think about regularly as we seek to minimize subjectivity in our process through numerous visualization tools and empirical analyses. This interplay of “human thinking” and known predictable behavior has striking parallels to the constant battle we see within the artificial intelligence space between humans and machines. The movement toward artificial intelligence has unlimited societal, ethical and, most importantly, investment implications. There may be a time not so far from today where our readers may even wonder if we, or AI, wrote this quarterly letter.

While the idea of artificial intelligence is not new, recent advancements in computing and the rapid uptake of AI-based consumer-facing technologies have collided to kick off a major inflection point and arms race in this area. This will be a topic that we'll be following and writing about for years to come, so we thought our investors would appreciate an overview of this area.

Beyond this, we are encouraged by the durability in earnings our portfolio has shown so far this year, its future differentiation and growth, and its compelling positioning with respect to major secular themes. In this letter, we will also outline our current high-level perspectives on the earnings revision and business cycles and address some important developments in larger positions in the portfolio.

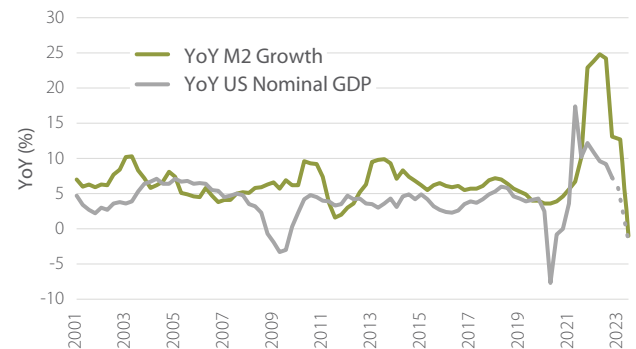
### Updated Perspectives on the Revision Cycle

Downward revisions continued in Q1 for the S&P 500® Index. From an earnings perspective, our portfolio fared better than the broader market, seeing essentially unchanged estimates for 2023 (-0.2%) and a slight increase for 2024 (+0.3%). This compares to the S&P 500® Index seeing 2023 and 2024 EPS estimates come down 4.5% and 2.0% respectively.

We do not think this move lower has de-risked future estimates to any significant degree. As we have pointed out in the last several letters, our view is unchanged—we still see the substantial risks to the broader earnings environment. We expect estimates to continue to move lower. This view, as always, is underpinned by bottom-up analysis across our broad coverage universe in addition to leading economic indicators that tend to be very good at predicting estimate revisions, such as the ISM Manufacturing Index.

A top-down view is seemingly telling the same story (i.e., we think money supply itself and its link to earnings is pointing in the same direction). In simplistic terms, liquidity is a major driver of earnings, and this link is tied together by a simple set of economic data points. M2 Money Supply, a Federal Reserve measure of the totality of liquid supply of money, went negative for the first time on record on a year-over-year basis after incredible pandemic-driven strength. We think this measure is likely to pressure overall GDP.

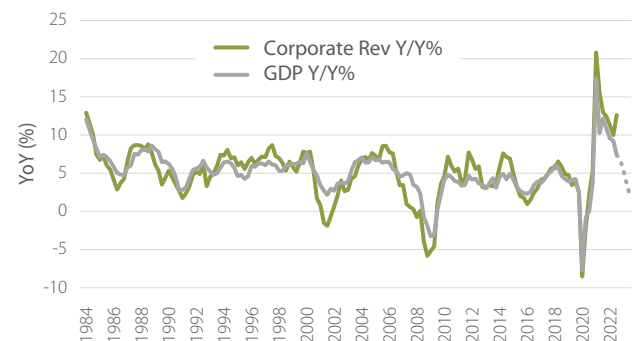
**Exhibit 1: M2 Has Gone Negative for the First Time on Record**



Source: Antero Peak Group/Bloomberg/US Federal Reserve. As of 31 Mar 2023.

Meanwhile GDP is highly tied to overall corporate revenues in a very tight relationship historically.

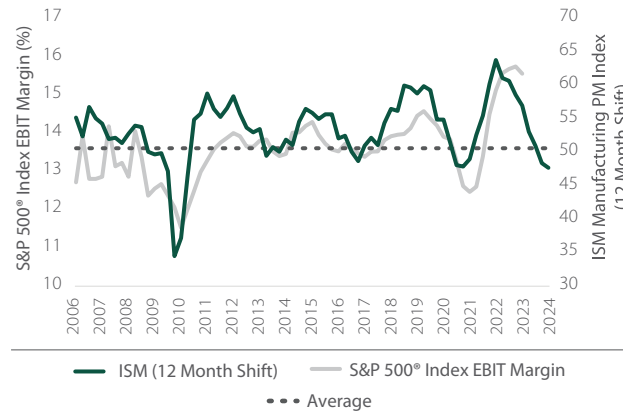
**Exhibit 2: GDP and Corporate Profits Are Tightly Linked**



Source: Antero Peak Group/Bloomberg/US Federal Reserve/Piper Sandler. As of 31 Mar 2023. Corporate profits based on S&P 500® Index constituents.

As corporate revenues likely face pressure, particularly on a real basis, we think risks today are magnified by very high current margin levels and still very aggressive earnings estimates. While leading indicators, as shown in Exhibit 3, point to compressing margins, the effect could be worse than normal as liquidity and lending conditions tighten.

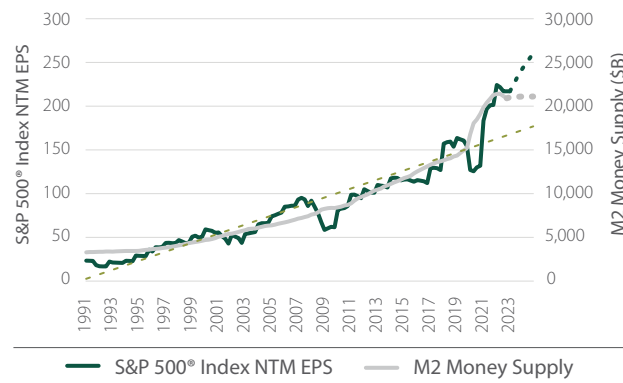
**Exhibit 3: S&P 500® Index Margins Are at All-Time Highs, With Leading Economic Indices Pointing to Pressure**



Source: ISM/S&P. As of 31 Mar 2023. Past performance is not indicative of future results.

This link between liquidity and earnings can be seen below in Exhibit 4 as pointing to further downside risk. Estimates appear still well above what is likely to us.

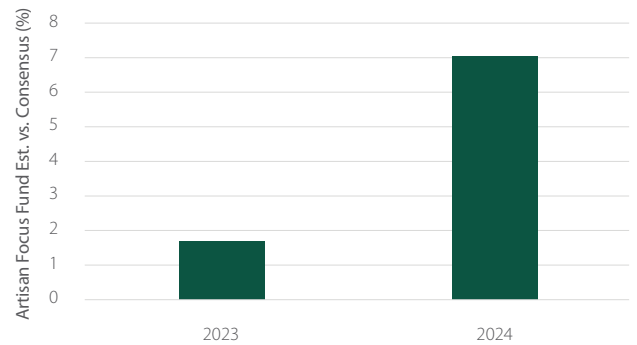
**Exhibit 4: Sharp Divergence in Earnings Estimates for the Next Two Years and Long-Term M2**



Source: S&P/US Federal Reserve. As of 31 Mar 2023.

We continue to build our portfolio on a bottom-up basis, across compelling themes and inflection points. Today, our process continues to lead us to a portfolio of high earnings durability and an overall low beta posture. If our top-down perspective proves incorrect, and S&P 500® Index earnings estimates are achieved, we still think our portfolio is positioned to do very well on a relative basis versus the overall S&P 500® Index over the next two years.

**Exhibit 5: Portfolio Weighted Average Earnings Differentiation**

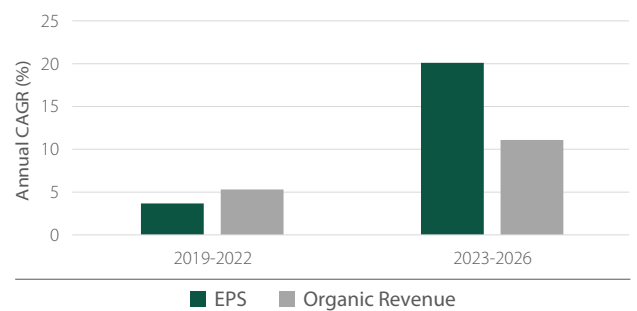


Source: Antero Peak Group. As of 31 Mar 2023. Estimates are based on the team's analysis and are subject to material revision.

### Canadian Pacific Update

We've held a large position in Canadian Pacific for more than a year. During the quarter, Canadian Pacific completed the acquisition of the Kansas City Southern Railroad. This outcome, to us, was a best case scenario. Despite considerable fears leading up to the close, the transaction resulted in no divestitures, concessions or track usage/interchange limitations in any key regions. This was exciting, and we see a very compelling setup for the next two years. Canadian Pacific has a best-in-class management team, now running the only truly end-to-end railroad network that can stretch across the high-growth west coast Canadian ports down into lower Mexico. We think both areas are key beneficiaries of our De-Globalization theme. While the merits of the deal are slowly becoming apparent, we still think the scope of the upside is underappreciated. We expect accelerating growth from here in the form of new customer acquisition and share gains by existing customers. The deal itself is particularly unique as our analysis points to essentially no cannibalization or overlapping of existing routes.

**Exhibit 6: Canadian Pacific Is Entering a Structural Acceleration Period Just as the Broader Earnings Environment Slows**



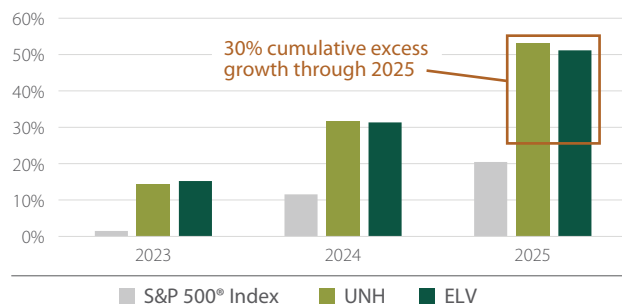
Source: Antero Peak Group. As of 31 Mar 2023. Estimates are based on the team's analysis and are subject to material revision.

## Managed Care Positions Update

UnitedHealth (UNH) and Elevance (ELV), two of our managed care positions that reside in our Data Monetization theme, faced particularly acute pressure in Q1. After being top contributors in 2022, the positions were a headwind in Q1 2023. We believe there were a few main drivers of the underperformance and remain optimistic about the path forward. Two regulatory items arose in Q1, both of which we feel are immaterial to our broader thesis. First, a federal audit test for billing accuracy initiated five years ago ultimately revealed very little billing inadequacies at larger insurers but created short-term sentiment headwinds. The “RADV” (Risk Adjustment Data Validation) was finalized on January 30 with very little impact or fallout. Second, Medicare Advantage rate determinations were softer than expected. That is, advanced notice rate growth came in lower than expected, which weighed on the stocks. However, our view has remained unchanged as we believe the program maintains excellent standing. We believe the rate update simply kept the industry near its long-term trendline after some strong years. This view was reinforced at the close on the last day of Q1, as rates were effectively revised higher and the Biden administration committed to “protecting and strengthening Medicare”—a good sign, in our view.

Nevertheless, our overarching view of structural winners being closely tied to their ability to reduce the overall cost of health care remains unchanged. We believe that we have differentiated earnings over the next three years and well above market growth that should position our portfolio to exceed the growth of the S&P 500® Index.

**Exhibit 7:** On a Cumulative Basis Underperformance Is Hard to Sustain Given the High Rate of Relative Earnings Growth



Source: Antero Peak Group/S&P. As of 31 Mar 2023. Estimates are based on the team’s analysis and are subject to material revision.

## Artificial Intelligence—How Did We Get Here and What's Next?

The history of computing dates to the invention of the first mechanical computer in the nineteenth century, the development of the first electronic computer in the 1940s and the creation of the first digital computer in the 1950s. Since then, there have been many important milestones, each pivoting around major shifts in the computing paradigm over the past 60 years. One of the most significant shifts was the move from mainframe computers to personal computers in the 1980s. This shift made computing more accessible and affordable, and it paved the way for the widespread adoption of computing in a variety of settings.

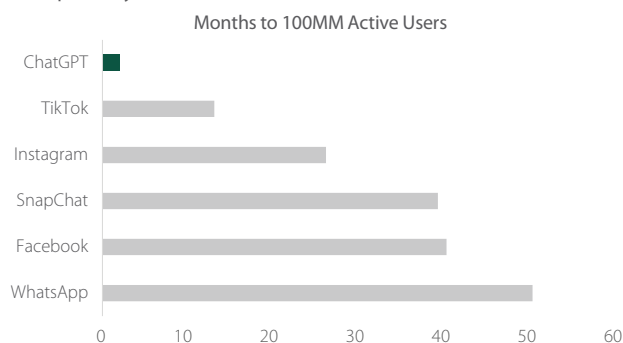
Another significant shift was the rise of the Internet in the 1990s, which enabled computers to connect and communicate with each other on a global scale. This led to the development of a wide range of new technologies, such as e-commerce, social media and cloud computing, which have fundamentally changed the way we live and work.

More recently, there has been a shift toward mobile computing, with the widespread adoption of smartphones and other mobile devices. This has enabled people to access information and services from anywhere, at any time, and it has led to the development of new business models and services. The introduction of the first iPhone in 2007 was a seminal moment, accelerating the adoption of smartphones, and making powerful computers ubiquitous. The Antero Peak Group has, and will continue to, seek to capitalize on many of these shifts over the last six years across multiple themes.

These shifts in the computing paradigm have had a profound impact on society. Much of this rapid progression has been enabled by cheap advancements in computing power. This was driven by Moore’s law, the observation that the number of transistors in an integrated circuit doubles about every two years. However, in recent years there has been a significant slowing of Moore’s Law, and it has become more difficult to obtain the necessary computing throughput without a corresponding increase in cost or power. This has led to the development of powerful new technologies such as parallel, or accelerated, computing. The sheer scope of capability of these technologies is leading to a realization of a theme that has long been brewing—enhanced artificial intelligence (AI) and machine learning capabilities.

We see the adoption of generative AI as the next major platform shift in this long line of pivotal moments. This will create a wide range of multi-year investment opportunities across semiconductors, software and hardware. We are now at a major inflection point for AI, with the rapid advancement of foundational models that support generative AI capabilities, as seen by the large language model (LLM) used by ChatGPT. We have heard the rate of adoption of ChatGPT commonly referred to as the “iPhone moment” for AI, and this substantial claim can be backed by the rapid speed of adoption. ChatGPT is the fastest growing consumer application, reaching 100M users within two months (~20X faster than Facebook).

**Exhibit 8: Rapid Uptake of ChatGPT Is Sparking an Arms Race for AI Superiority**



Source: Antero Peak Group/Nvidia GTC. As of 31 Mar 2023.

During Q1, Sam Altman, the co-founder of OpenAI, presented at a conference we attended and predicted that LLMs like ChatGPT would eventually be able to deliver the services of a great doctor, lawyer or tutor comparable to the best-in-class practitioners in their respective fields. With the power for such disruption, there has been an explosion in the interest level in AI across many companies in our coverage universe. Companies are scrambling to understand not only the threats but also the opportunities within each organization.

LLMs are transformer models that use deep learning neural networks in Natural Language Processing (NLP). Building these foundational models that can support generative AI and then pre-training the models require massive computational power. This is creating whole new markets for semiconductors and accelerating disruption of application and infrastructure software. Many of these applications will likely need to pay a generative AI “tax” to the scaled operators who invest substantial capital in building out the required expansive compute infrastructure, not dissimilar to the adoption of the public cloud.

We see this major platform shift as an exciting investment opportunity and think exposure to high-performance compute is going to be one of the primary end markets that sees an inflection in spend driven by the demand for generative AI applications and the sustainability requirements and commitments of large enterprises.

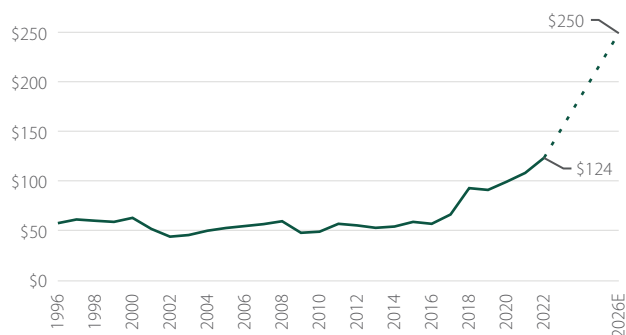
The growth of data center compute has always been massive. Demand growth for server compute has been exponential. Installed server compute capacity grew 50% CAGR from 1986–2006. Remarkably even with the massive compute demand growth, the industry was able to keep the spend on servers flat for over two decades with an inflection happening only in the last five years. Productivity gains were widespread over the last 30 years due to a variety of factors that can’t be relied on going forward. These include moving to less expensive off-the-shelf standard offerings (86X), a move to the cloud, clocks speeds increasing and virtualization.

These drivers have all run their course now; 86X today makes up the vast majority of server spend, Moore’s Law has hit physical limits and

is slowing and clock speeds hit thermal limits over a decade ago. Everything that could potentially be virtualized is now being virtualized, and the move to the cloud is well on its way and maturing.

We think the growth in data center spend will now accrue once again to the semiconductor industry, where efficiency gains are being driven by the shift to accelerated computing formats. The next three years will have more dollar value of spending than the last 10 years.

**Exhibit 9: Total Industry Spend on Servers (\$B)**



Source: Antero Peak Group/International Data Corporation. As of 31 Mar 2023. Estimates are based on the team’s analysis and are subject to material revision.

The growth of data center compute in the future is likely to be driven by several factors, but we see sustainability and accelerated compute to power generative AI as the two biggest driving forces. These technologies require significant amounts of computing power, which can only be provided by large, centralized data centers, and as more organizations move their applications and data to the cloud, the need for large, reliable data centers to host these services will continue to grow.

Sustainability is an underappreciated driver of new accelerated computing platforms. Data is intangible, so many people neglect to acknowledge its carbon footprint. Regardless, data transmission and storage require a significant amount of power, and the industry’s standards for those power sources are changing. With an increased focus on environmental accountability, many data center companies like Google and Microsoft are pouring their energies into adopting efficient, green power solutions. Microsoft has even committed to being carbon-free by the year 2030. At Nvidia’s GTC 2023 event, sustainability was one of three core drivers of accelerated compute requirements, as power output is such a critical bottleneck in data centers.

There are limitations to what the industry can spend on servers. Given the limitations of efficiency drivers reaching their thresholds, we are seeing a paradigm shift in computing architectures, namely the rise of accelerated computing.

We began to see this trend especially in the HPC (high-performance computing) space over a decade ago, with a sharp rise in

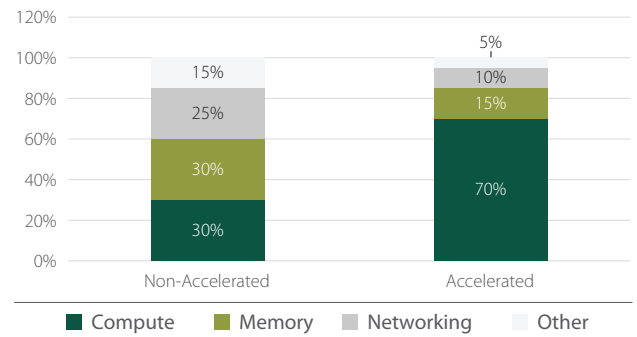
supercomputing acceleration. It is growing increasingly mainstream now as traditional compute begins to meet its limit, and overall, there has been a sharp rise in both developers and applications working in and benefiting from the acceleration. The mainstream adoption of generative AI foundational models like ChatGPT and DALL-E have accelerated both the consumer and enterprise interest levels in adopting AI features into their core product offerings. Each generational shift in computing platforms drives a ~10X multiplier in the number of attached devices, and we expect a steep ramp in the number of Internet of things devices that can leverage advanced AI technologies to put further stress on network capabilities and drive increased investment.

With the emergence of software-defined networking and the era of heterogenous compute in the data center, the old method of assigning an acceleration attach rate to server units will become less useful for building out the long-term model.

As AI and other high-performance compute applications proliferate and both cloud hyperscalers and enterprises continue to invest in acceleration, we believe CPU's share of data center is likely to decline in favor of GPU and networking. We have already seen this occur over the past three years and think this trend accelerates with the advent of foundation models for generative AI workloads. On top of an acceleration in the data center total addressable market (TAM), we see share shift opportunities to those that enable accelerated computing, which should deliver a high incremental ROIC for those that are in a position of incumbency.

Accelerated card sales are expected to grow from \$5.2B to ~\$50B in 2026. Just last year this \$50B was expected to be \$15B-\$17B, signifying the massive inflection at hand. We believe this step function in demand almost entirely accrues to Nvidia, one of our winners in Q1. Advanced Micro Devices (AMD) currently does not have an AI-specific accelerated card but should be in the market by the end of the year, making it also compelling. Regardless, Nvidia's software is the only game in town, and we believe it will ultimately be layered on top of AMD or any other cards that come up. We are early in this process and believe we have sized this market more accurately than other research providers, giving us an advantage in executing and generating alpha in this area over the coming years. Downstream, Taiwan Semiconductor is also an important holding for us and one of only three companies that is currently able to manufacture these accelerated cards at scale. Among the three, Taiwan Semiconductor is the most advanced. As seen below, the mix shift in compute spending in the accelerated format represents a massive TAM shift.

**Exhibit 10: Comparative Cost Stack of Non-Accelerated to Accelerated Serve**



Source: Antero Peak Group/Nvidia GTC. As of 31 Mar 2023.

### Summary

We are excited about the portfolio, and we believe the portfolio is well-positioned to outpace the S&P 500® Index on key fundamental metrics in what we think will be a difficult earnings revision year. We remain committed to our underlying process of finding inflection points that lead to accelerations in revenue and earnings, driving ROIC expansion and multiple re-ratings. This goal, as always, is supported by creating differentiated perspectives about the future, reinforced by rigorous bottom-up research and a thematic mindset.

*"When building a team, I always search first for people who love to win. If I can't find any of those, I look for people who hate to lose."*

—H. Ross Perot

Reflection is inevitable when writing these letters, and in doing so I often come back to what I think is the ultimate driver of repeatability and longevity—culture and team. The quote above by Ross Perot is something we think we've done well over time—creating a team that will work relentlessly to deliver the best results possible for our clients. As the business grows and evolves, we continue to keep this idea in focus.

In recent weeks, we've added two members to our talented team—a consumer analyst and data analyst—who will be working hand in hand with me in executing and improving our process.

Lastly, as we've shared before, the Antero Peak Group actively reads to further develop perspectives on financial markets and investing, leadership and life experiences.

This quarter the team read "Quit: The Power of Knowing When to Walk Away." However, if you found the portion on artificial intelligence interesting, we would suggest you revisit "Chip War: The Fight for the World's Most Critical Technology," a book the team enjoyed late last year.

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For the purpose of determining the Fund's holdings, exposures are delta-adjusted at the issuer level and may include multiple securities of the same issuer. The holdings mentioned above comprise the following percentages of the portfolio net assets as of 31 Mar 2023: Canadian Pacific Railway Ltd 6.9%, UnitedHealth Group Inc 6.6%, Elevance 4.6%, Nvidia 3.0%, Advanced Micro Devices 2.4%. Securities named in the commentary, but not listed here are not held in the Fund as of the date of this report. Portfolio holdings are subject to change without notice and are not intended as recommendations of individual securities.

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Attribution is used to evaluate the investment management decisions which affected the portfolio's performance when compared to a benchmark index. Attribution is not exact, but should be considered an approximation of the relative contribution of each of the factors considered.

Theme classifications are at the sole discretion of the team. Themes and constituents are as of the date indicated and are subject to change. Certain holdings have been reclassified subsequent to initial investment, which has impacted theme performance during the period. Portfolio sector classifications are defined by the investment team based on GICS.

**Return on Invested Capital (ROIC)** is a measure of how well a company generates cash flow relative to capital invested in the business. **Discounted cash flow (DCF)** is a valuation method used to estimate the value of an investment based on its expected future cash flows. **Compound Annual Growth Rate (CAGR)** is the year-over-year average growth rate of an investment over a period of time. It is calculated by taking the nth root of the total percentage growth rate, where n is the number of years in the period being considered. A **graphics processing unit (GPU)** is a chip or electronic circuit capable of rendering graphics for display on an electronic device. A **large language model (LLM)** is a type of machine learning model that can perform a variety of natural language processing (NLP) tasks, including generating and classifying text, answering questions in a conversational manner and translating text from one language to another. The **central processing unit (CPU)**, or processor, is the unit that performs most of the processing inside a computer.

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