Q1 2023 Update

March 31, 2023	NZS Growth (Inception date: 1/1/2020) Q1 2023	LTM	SINCE INCEPTION	NZS Select (Inception date: 1/1/2020) Q1 2023	LTM	SINCE INCEPTION	NZS Technology (Inception date: 4/1/2020) Q1 2023	LTM	SINCE INCEPTION
Strategy Return Gross	16.00%	-13.22%	14.64%	15.80%	-14.76%	16.26%	20.06%	-11.21%	24.22%
Strategy Return Net	*15.82%*	*-13.81%*	*13.88%*	*15.62%*	*-15.35%*	*15.49%*	*19.88%*	*-11.82%*	*23.40%*
Morningstar Global Target Market Exposure Index NR	7.11%	-7.41%	5.92%	7.11%	-7.41%	5.92%			
Morningstar Global Tech & Comm Services Index NR							19.76%	-10.07%	16.97%
Difference From Index (Net)	*8.71%*	*-6.40%*	*7.96%*	*8.51%*	*-7.94%*	*9.57%*	*0.12%*	*-1.75%*	*6.43%*

Performance greater than one year is annualized.

Performance data shown represents past performance and is no guarantee of future results. Please see important disclosures at the end of this document. Gross returns reflect the deduction of administrative expenses but do not reflect the deduction of investment management fees. Net returns are calculated using the maximum investment management fee of 0.65%. The benchmark for the NZS Growth and NZS Select Composite is the Morningstar Global Target Market Exposure Index NR USD. The benchmark for the NZS Tech Composite is the Morningstar Global Technology and Communications Services NR USD. Please see the disclosures for index and composite definitions. An investment cannot be made directly in an index. Returns reported reflect the net total return index, which reinvests dividends after the deduction of withholding taxes.

Firm Update

During the quarter, NZS Capital welcomed Brett Larson to the investment team. We are thrilled to have Brett join as our fifth investment team member. Prior to joining NZS Capital, Brett spent the previous six years at Janus Henderson and is a graduate of Colorado State University. Also in the quarter, NZS Capital crossed $2B in assets under management, and we would like to take this opportunity to thank all our clients for their continued trust and support.

Performance Overview

The NZS Capital Growth strategy rose 16% in the first quarter of 2023 while the Morningstar Global Target Market Exposure Index rose 7.11%. The information technology sector led performance, rising around 26% and representing around 42% of the portfolio. The largest contributors to performance in the technology sector were Salesforce, Cadence Design, and Workday. Consumer discretionary investments were also strong contributors to performance, led by Amazon, MercadoLibre, and AirbnB. The materials sector also contributed positively to performance, with gains in Ball Corp, Linde plc, and Constellium.

The portfolio's underweight in banks paid off given concerns over a potential liquidity crisis in the financial sector. During the quarter, several payment companies were reclassified as financial service firms, departing the technology sector. While the shift reflects our long-held belief that the digital economy is moving into all sectors, it also helped our stock picking in financials. Our exposure here remains with these agents of change rather than the more traditional elements of the banking system.

Utilities, which were relatively flat in the quarter, were a source of weakness as NextEra weighed on performance. Healthcare company Danaher also detracted from performance. NextEra declined because of scrutiny around campaign finance issues in its operating utility, Florida Power & Light. Danaher saw weakness as its customer base digested inventory in bioprocessing following the wind down of pandemic spending. Rounding out detractors were modest declines in CoStar Group, Nintendo, Moderna, and Ørsted AS.

Market Overview

Growth returned to favor in the first quarter with a market rally that overcame bank scares and interest rate uncertainty. Large cap outpaced smaller stocks. Technology stocks were particularly strong, with the semiconductor sector rebounding from 2022 and setting the pace for the overall market.

While we expect the market will remain focused on interest rate policies, recession fears, and the risk of financial contagion, we are encouraged that some parts of the market are beginning to anticipate the potential for growth. There has been a dramatic correction in valuations since late 2021, particularly for growth companies that are relatively early in their life cycles and would fit into our Optionality framework. While we build our portfolio without making explicit predictions for interest rates or other macro factors, we believe we are likely closer to the end of the interest-rate-driven valuation compression than the beginning. If that view holds true, the market will move away from the macro-focused transition year of 2022 and into a more company-centric environment. We remain focused on building a portfolio that balances Resilient and Optionality positions in companies that are leading the analog-to-digital transition of the global economy. Inflationary pressures are likely to add fuel to the digital shift, which tends to provide deflation. However, pockets of inflation will persist from factors like labor availability and supply chain resiliency. On the latter, reshoring and the massive investment in high-tech infrastructure in the U.S. and semiconductors, the building blocks of a digital economy, remain attractive investment opportunities.

The collapse of Silicon Valley Bank showed the vulnerabilities of many businesses – and the economy – created by the prior era of cheap money and reckless investment policies. Companies are vulnerable if their business models are based on raising capital or if they are over-extended in an environment of rising rates and slowing economic activity. On the more positive side, however, companies can thrive with established models, ample capital, and the ability to participate in the sweeping changes taking place within our economy. These companies remain attractive, many having been devalued in last year's bear market. Complex adaptive systems teach us to expect the unexpected, and we anticipate this approach to markets will be more valuable than ever going forward.

The Impact of AI on the World and Investing

The recent success of ChatGPT-3, the release of ChatGPT-4, and the introduction of various 'me too' large language models (LLMs) have captured the world's attention in a way that's reminiscent of the early days of the Internet. ChatGPT reached 100M users in two months, faster than any app in history; it took the previously reigning champion TikTok nine months to reach 100M users.

Generative AI is accelerating the pace of innovation and, therefore, disruption, altering the range of outcomes across nearly all sectors. Businesses can expect productivity improvements in areas ranging from sales to research & development to production. Meanwhile, formerly resilient, utility-like business models, such as Google Search, are being challenged for the first time in two decades. Enterprise SaaS companies need to adopt an AI strategy or be left in the dust by an increasing number of new entrants.

We adjusted the portfolio to reflect the wider range of outcomes for some businesses and to favor the firms we view as early beneficiaries of AI. We have long held that semiconductors are crucial to an AI-enabled future. When the range of outcomes widens for many businesses, one strategy is to shift focus to the infrastructure providers of the disruptive forces. As such, we expect the broader semiconductor supply chain to benefit from continued robust spending on AI models. TSMC will manufacture the key processors for training AI models, such as Nvidia's GPUs or Alphabet's internally developed Tensor Processing Units. Micron recently stated that AI servers have as much as eight times the DRAM content and three times the NAND content compared to servers running more traditional workloads. An AI future is going to require a lot of memory, which in turn should set up a healthy backdrop for semiconductor equipment companies, such as ASML and Lam Research, as their markets recover from the current downcycle.

Vanishing Edges

Only one-third of active mutual fund managers beat their market benchmarks in Q1 of 2023, according to the WSJ. Investor Bill Miller has often articulated three sources of advantage an investor can have over the broader market: informational, analytical, and behavioral. To paraphrase: an information edge is knowing something before others; an analytical edge is having similar information but coming to a different conclusion; and a behavioral edge is acting differently than others despite a similar analysis of similar information. The opportunity for an informational advantage likely began to decline, or became much more difficult, with the onset of the Information Age in the 1980s. Today, thanks to the Internet and ubiquitous access to real-time data (not to mention podcasts, YouTube videos, etc.), the pursuit of an information advantage is increasingly challenged. We can't think of a single informational input into our investment process today that would not be available to any person on earth with a smartphone.

The second source of investment edge, analytical strategies, rose to prominence in the mid part of the last century. The classic *Security Analysis* by Graham and Dodd (first published in 1934) is a hallmark for the use of analytical methods to gain an edge over the market. Analytical advantages rose over time (perhaps even fed by the rising use of technology and availability of information), but they too seemingly began losing value as the machines took over and algorithmic and quantitative strategies rose in both prominence and share of assets, arbitraging away many strategies. LLMs and AI could soon erode whatever analytical edge remains today.

What then of the last source of advantage, behavioral? Miller's framework has historically described a behavioral edge as taking advantage of the biases of other humans. That human-focused perspective becomes complicated as passive investing steers past 50% share, and daily market activity is increasingly a reflexive, hyper feedback loop between machines and machine-created information and algorithms. For example, the rapid collapse of the $200B Silicon Valley Bank, which took place in a matter of hours in part due to a social-media-fueled bank run, is a striking example of a bot-accelerated economic feedback loop.

It's one thing to have a theory of mind for other humans and then to try to take advantage of their biases, it's quite another thing to have a theory of mind for intersecting algorithms and AI, especially when we don't even fully know how emergent behavior works in LLMs. Even if we were to recognize that behavioral advantage has shifted from overcoming human bias to overcoming machine bias, soon AI and LLMs could be smart enough to eliminate Miller's final edge. Investing has been one of the earliest professions to be heavily impacted by evolving technology, probably because stock trading is digital and largely information based (the more digital an industry, the more it is susceptible to technological disruption). We believe our investment philosophy, rooted in Complexity Investing, remains the correct lens to analyze the increasingly complex world. The winners in any industry, including investing, will be the most adaptable organizations that offer the most non-zero-sum outcomes.

About NZS Capital

NZS Capital is a Denver, Colorado-based asset management firm serving institutional clients. The research process at NZS Capital is guided by complex adaptive systems and the unpredictability of the world around us. Our lens on the world, which does not rely on narrow predictions of the future, is ideally suited for long-term investors as the global economy transitions from analog to digital. We believe companies that maximize non-zero-sum outcomes for all of their constituents, including employees, customers, suppliers, society, and the environment, will also maximize long-term outcomes for investors. These adaptable businesses will take share as the economy continues its decades long transition from analog to digital, sector by sector. Our view of the world informs our portfolio construction process, which combines a relatively small number of Resilient companies (larger positions) with a long tail of Optionality companies (smaller positions). Resilient businesses have very few predictions underpinning their success and a narrow range of outcomes, while Optionality businesses have a wider range of outcomes and their success hinges upon a more specific view of the future playing out. We believe this combination of long-duration growth and asymmetric upside is well suited to navigating the increasing pace of change throughout the global economy. Our investment framework can be found in Complexity Investing.

NZS Capital, LLC

*The **NZS Select Composite** includes all institutional portfolios that invest primarily in equity and equity-related securities (including preference shares, warrants, participation notes and depositary receipts). The companies can be based anywhere in the world. The Portfolio Manager believes the companies and their shares will benefit significantly from innovation, particularly due to advances or improvements in technology, have attractive fundamentals, and offer good prospects for growth. The portfolios typically will hold 20-30 names.*

*The **NZS Technology Composite** includes all portfolios that invest primarily in equity and equity-related securities in the information technology and communication services sectors, (including preference shares, warrants, participation notes and depositary receipts). The companies can be based anywhere in the world. The Portfolio Manager believes the companies and their shares will benefit significantly from innovation, have attractive fundamentals; and offer good prospects for growth. It typically will hold 50-70 names. .GIPS® Composite Reports and a list of composite descriptions, pooled fund descriptions for limited distribution pooled funds are available upon request by emailing request to info@nzscapital.com.*

NZS Growth Equity, NZS Select and NZS Technology are reported in USD.

*The benchmark for the NZS Growth Equity Composite and NZS Select Composite is the **Morningstar® Global Target Market Exposure Index NR USD**. The index is designed to provide exposure to the top 85% market capitalization by free float in each of two economic segments, developed markets and emerging markets.*

*The benchmark for the NZS Technology Index is the **Morningstar Global Technology and Communications Services NR USD** The Index measures the performance of companies engaged in the design, development, and support of computer operating systems and applications and computer technology consulting services.*

*The **Morningstar Global Growth Target Market Exposure** measures the performance of large- and mid-cap growth stocks listed in developed and emerging countries around the world. These stocks represent the more growth-oriented half of the parent benchmark, the Morningstar Global TME Index, and are weighted by float-adjusted market capitalization.*

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