
White Paper

**Fundamental Growth
and Core Equity**

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Investing in Sustainable Growth Q3 2023

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Growth Outperforms as the Risk of Recession Takes Shape



Michael Solecki, CFA
Chief Investment Officer,
Fundamental Equity Team

The latest quarter witnessed another shift in market expectations as hopes for lower interest rates diminished as the period progressed, dampening earlier optimism. But even as a ‘higher for longer’ narrative took hold, there are still reasons to be positive about equities.

The third quarter of 2023 began on an optimistic note. Even as the initial AI mania that had previously driven markets faded, market sentiment continued to be positive, based on a dominant view that the battle against inflation was being won in the US and elsewhere. Stagflation and hyperinflation concerns were seemingly off the table and we were on track for an economic soft landing, thus allowing yields and the US dollar to fall. Against this backdrop, Wall Street strategists were rushing to revise up their year-end equity forecasts as markets remained remarkably buoyant. And market breadth improved — it was no longer just a “magnificent seven” story. In July, China was the top performing major market.

It didn’t last. As US economic growth continued to defy expectations of imminent slowing, a new narrative took over: higher for longer. The US 10-year Treasury yield suddenly began to march higher, and the US dollar along with it. China’s politburo meeting didn’t deliver the economy-boosting “bazooka” that many hoped for. Equities began to slide. Stagflation reentered the conversation as energy once again took a lead among sectors.

If there is a lesson in this, it is that macro forecasting is hard, and even more so in the short term. Narratives change quickly, leaving many a prognosticator looking foolish. It is far better, in our view, to keep a long-term perspective and focus on fundamentals. Here, the news is not all bad. While there are pockets of elevated valuations, for example in some US mega-caps, we continue to find compelling investment ideas. Earnings expectations were high coming into the third quarter, but the results largely did not disappoint. In the MSCI All Country World Index, 53% of companies beat expectations versus only 31% that missed. Earnings growth in aggregate were negative on a year-over-year basis, but expectations remained intact for roughly 8% growth in 2024.

Among our portfolio holdings, a solid majority beat consensus market expectations. Our companies are generally doing a good job navigating a slowing economy. But with the recent market downturn, there is a sense that the soft landing narrative was always a bit too rosy. There is a lot of financial tightening slowly working its way through the economy, and businesses need to be ready. Our view is that companies with experienced management teams, strong market positions, and solid financial conditions, are best positioned to weather this (and every) market environment.

In this quarter's newsletter, we go deep into Artificial Intelligence as seen from the view of five of our research analysts. In addition, we profile a Japanese factory automation company — Keyence — that we have followed for years and continues to impress.

Artificial Intelligence: Investment Opportunities and Risks in AI

Diego Cardenas, CFA
Research Analyst

Jeff Looby
Research Analyst

Sandra O’Keefe, CFA
Research Analyst

Frederick Grieb
Research Analyst

William Pitkin
Research Analyst

Few technological advances in recent years have captured the attention of the investment world quite as much as AI. The potential of generative AI in delivering productivity gains and driving innovative change across a range of industries will have significant lasting implications for how we live, work, and play. But there have also been some wild claims about what AI can achieve. We ask key members of our Fundamental Equity research team to separate fantasy from reality and assess where the investment opportunities will likely reside.

Let’s start with the key question. What exactly is “Artificial Intelligence”?

Artificial Intelligence, or AI, is the ability of computers to perform enhanced analysis and decision making based on inferences from previously-collected data with the intention of replicating human intelligence. This is not a new concept — think of intelligent robots in science fiction like Isaac Asimov’s iRobot in the 1950s and the Hal 9000 supercomputer in 2001 A Space Odyssey in the 1960s. In the 1970s, the goal of the ‘Turing Test’ was to determine if a computer response was sufficiently ‘intelligent’ to be thought human.

With the advent of advanced computers and sophisticated algorithms, established techniques such as machine and deep learning can enable features like autocorrect, automated movie recommendations, virtual assistants, and even automated driving vision recognition systems. Over the past year, innovations have created generative AI (GenAI) models capable of creating new content and ideas including conversations, stories, images, videos, and music. GenAI is powered by very large machine learning models pre-trained on vast amounts of data, commonly referred to as foundation models (FM). A subset of FMs called large language models (LLM) are trained on trillions of words across many natural-language tasks.¹

In terms of how AI actually works, on a conceptual level it can be split into either discriminative models or generative models that ‘learn’ from past data and predict or make decisions from future, unseen, data. The concept comes from the human mind in how we use past experiences to make informed decisions now and in the future; however, computers use mathematics, algorithms, and data pipelines to draw inferences from raw data since they cannot perceive data and information like humans.

Why is AI getting so much attention now?

The tipping point for GenAI happened by combining massive amounts of increasingly machine-generated data, readily accessible scalable compute capacity and, most importantly, major advances in machine learning (ML) algorithms and compute power.

But the real spark that lit the GenAI fuse was ChatGPT’s release in 2022, triggering a rush to build and test AI capabilities in an effort to uncover ways to achieve productivity gains and possibly create substantial value. Nvidia’s CEO Jensen Huang described ChatGPT’s launch as AI’s ‘iPhone moment’ because it is so easy to use with endless application possibilities; two months after its launch, ChatGPT had 100 million active users, making it the fastest growing consumer application in history (at the time).

After the breakthrough launch of ChatGPT, Microsoft made a large multi-billion dollar investment in the parent company, OpenAI, in January 2023.² Since then, focus on the potential opportunity (and risks) of GenAI has grown significantly, with investors looking to invest in companies considered beneficiaries of the technology’s expected growth. Microsoft has announced plans to charge businesses \$30 a month per person for access to an AI-powered assistant called Copilot for Microsoft 365, which it claims should increase productivity by automatically summarizing emails in Outlook, transforming Word documents into PowerPoint presentations, or analyzing sales data in an Excel spreadsheet.³

So now we know why AI is creating so much buzz. What are some of the applications of AI?

We anticipate broad-based applications for AI across a wide array of industries. In the initial stages of growth, GenAI models focused on writing human-like text for content or image generation in marketing and social media, creating emails in sales, chat functions in customer support, and even generating software code.⁴

In the future, we may see models that allow financial institutions to better assess default risks, real estate companies to better gauge property values,⁵ capital goods companies to improve the design and construction of products and machinery, and consumer companies to better analyze consumer preferences and personalize products — these are just a few examples.⁶ But we are in the very early stages of the diffusion of AI technology. In fact, Accenture recently stated that only about 5-10% of their clients currently have the capability to adopt AI.⁷

Importantly, we expect multiple waves of AI investment for several decades. Currently, we are seeing a rush of cloud investment to build foundational LLMs and applications, but this will eventually bring about a wave of vertical industry investment with smaller LLMs using more specific proprietary data for each industry and sector. Finally, we would expect to see a large amount of investment into locally run Edge AI models for the purposes of local context, low latency, privacy, and security.

What are some of the economic benefits we could see from its adoption?

The continued development of AI technology in terms of infrastructure, research and development (R&D), and IT services is estimated to become a \$900 billion market by 2026. Consulting firms like McKinsey and PwC estimate the global economic impact from added productivity and innovation could range from \$4 trillion to as much as \$15 trillion over time.⁸

The economic impact of AI will vary across sectors. Within the services sector, IDC estimates the biggest impact will be in areas like healthcare and hospitality, while the consumer goods sector should benefit from product personalization. The transport and financial services sectors are likely to be least impacted.

The net economic impact of AI must account for not only increased productivity, innovation, and consumption, but also the offsets of possible unethical use of the technology and structural job losses.⁹ While PwC estimates over 300 million jobs could be at risk from AI by 2030, there are several examples of disruptive technologies driving eventual net job creation, such as the ATM machine in the 1970s and computer spreadsheets in the 1980s.¹⁰

Those are big numbers; clearly, AI will create wealth. But what are the risks?

From a technical perspective, GenAI is still in the early stages of development and is not entirely reliable. In some cases, it even creates 'hallucination' errors — very believable answers that are completely inaccurate. Additionally, AI has environmental implications given the massive amount of compute power required, while social risks have been evident as errors sometimes include unintentional biases, including around race and gender. Risks to intellectual property rights are high, as models often use IP without authorization, particularly in the areas of music and artistic copyrights.¹¹ Finally, there are security and cybersecurity risks as AI can make phishing or malware more difficult to detect.

Can you expand a little on what is needed to build AI capabilities?

ChatGPT was built by OpenAI on top of its GPT-3 large language model. Initially, most companies are likely to experiment with GenAI by accessing existing LLMs through 'hyperscale' cloud providers like Amazon Web Services (AWS), Microsoft Azure, and Google Cloud. They will build their own apps utilizing existing GenAI LLMs.

We do not see most companies developing their own LLMs as the upfront computational hardware, networking, and data requirements are simply too high. LLMs require massive amounts of computational power and huge datasets to train.¹² Different models are also better suited for different applications, so companies will want to experiment with LLMs from various providers depending on the use case.

Most companies are likely to get value from GenAI by integrating generalized models with proprietary datasets to create new, proprietary applications, such as AI-assisted customer service or internal productivity tools. Refocusing the models on internal proprietary data has the added benefit of significantly reducing the aforementioned hallucinations and biases.¹³

So, it is still early but we see most companies building AI capabilities with existing cloud storage and compute players. Microsoft, through OpenAI, will allow access to its LLMs through Azure's platform. Likewise, Google Cloud has its Bard language model. And AWS announced a service called Bedrock that allows customers to access LLMs from AWS, Anthropic, and AI21.

Many stocks are benefitting from the AI excitement; who are some of the AI technology winners?

Being an AI technology “winner” comes down to two things: how quickly and by how much can companies generate incremental revenue and/or reduce costs. GenAI represents a major new technology paradigm shift. Historically, technology stocks have significantly outperformed during such shifts and different technology sub-sectors have outperformed most when rapid adoption translates into accelerated revenue growth. Typically, we have seen these sub-sectors realize revenues in sequential order — semiconductors and hardware, then infrastructure and devices, and finally, software and services.

Semiconductor and hardware companies monetize technology shifts first by enabling the technology, which acts as a catalyst for wider investment. Large infrastructure and device companies then build out platforms and ecosystems to commercially scale the technology and reduce unit costs to accelerate broader adoption. Lastly, software and services companies capitalize by enhancing and developing new applications on top of the platforms.

What are the AI technology winners’ sustainable competitive advantages and barriers to entry?

Four key factors led to the current AI paradigm “breakthrough”: very large transformer models, vast compute power, massive amounts of data, and huge cloud and mobile installed bases.¹⁴

The sustainable competitive advantages are large moats around the first three factors, and ready access to the fourth. AI winners’ biggest barrier to entry by potential competitors are their large complex AI ecosystems that have been years in the making — these include cloud platforms, new foundational LLMs, hubs, tools, and apps, all running on top of huge end-user installed bases. Other barriers to entry include patented technology, size, scale, and resources including large R&D budgets, as well as substantial cash flows to fund the capex needed to build these AI ecosystems. Importantly, these AI ecosystems are built by a broad mix of companies, including numerous AI start-ups that provide unique capabilities.

Who are the critical AI suppliers?

As long-term growth-oriented investors, we like to own critical suppliers providing key technologies or inputs to a product or service in high demand from accelerating secular growth trends. We get broad exposure to the trends without having to pick individual winners, we just have to have conviction in the secular growth.

The critical suppliers right now are semiconductor and semiconductor capital equipment makers that are benefitting from accelerated AI investment across industries, regardless of the economic backdrop, and usually at the expense of traditional IT investments.

From an investment perspective, where would you expect to see the most negative impacts of AI to materialize?

GenAI will be disruptive to many markets — one example is the education service company Chegg whose stock price plunged nearly 50% when it issued a profit warning specifically citing the impact from ChatGPT.¹⁵ We expect GenAI to disrupt industries such as content creation, customer service, and manual process business models, such as data entry. But these are just a few examples — we expect many more business models will be disrupted in ways we cannot yet foresee.

Stock Study: Keyence's Fusion of Innovation and Business Strategy

Ramsai Neelam, CFA
Research Analyst

Over the years, remarkable advances in factory automation have driven significant improvement in manufacturing productivity, efficiently addressing labor shortages and supply chain constraints. Japan, where the demographic challenges of an aging population hit earlier than in most countries, was one of the first countries to adopt factory automation. Japanese factory automation companies have been playing a crucial role in the global factory automation market ever since. Keyence Corporation is a great example of this.

Although Keyence may not be a household name, the Japanese company founded in 1974 is an integral player in the world of factory automation (FA). Its range of sensors, machine vision systems, measurement devices and lasers are used in everything from airplane manufacturing to pharmaceutical quality control. These cutting-edge solutions enable businesses to enhance productivity, improve quality, and optimize operations efficiency.

Key Drivers for Factory Automation

The market for industrial robotics will roughly triple to US\$142.8 billion¹⁶ over the next ten years according to Market.us, a market research company. Driving this increase are several structural tailwinds such as reshoring, strong capital expenditure (capex) in the semiconductor and automotive industries, energy efficiency and productivity requirements for manufacturers, and broad labor shortage issues. Keyence is one of the key beneficiaries from the rising automation demand.

Driver	1. Reshoring	2. Capex Cycle	3. Cost Saving	4. Labor shortages
Cause	Geopolitical tensions and the desire for supply chain resilience	Underinvestment, semiconductor and automotive capex rebound	Environmental regulations and inflation	Falling birth rates, rising old-age dependency rates, and skills gap
Example	The United States has taken significant legislative steps to support reshoring efforts, allocating \$40 billion for chip manufacturing under the CHIPS Act and committing \$60 billion for the production of solar, wind, batteries and electric vehicles through the Inflation Reduction Act.	The automotive and electronics industries account for more than 50% of FA demand. Both industries are witnessing strong capex cycles, underpinned by structural tailwinds such as electrification and electric vehicles penetration.	According to Siemens, new age technologies such as the Industrial Internet of Things (IIOT), AI, and edge computing can deliver 15% improvement in productivity, 10–20% reduction in labor and material costs and 10–15% improvement in factory throughput.	According to a Deloitte Insights study from 2021, an estimated 2.1 million manufacturing jobs in the US could remain vacant by 2030. ¹⁷

Figure 1a

Automotive and Semiconductor Production Equipment Capex (2014–2025)

Automotive Capex (\$bn)

■ Automotive capex (\$bn) (LHS)
 ▲ % yoy (RHS)

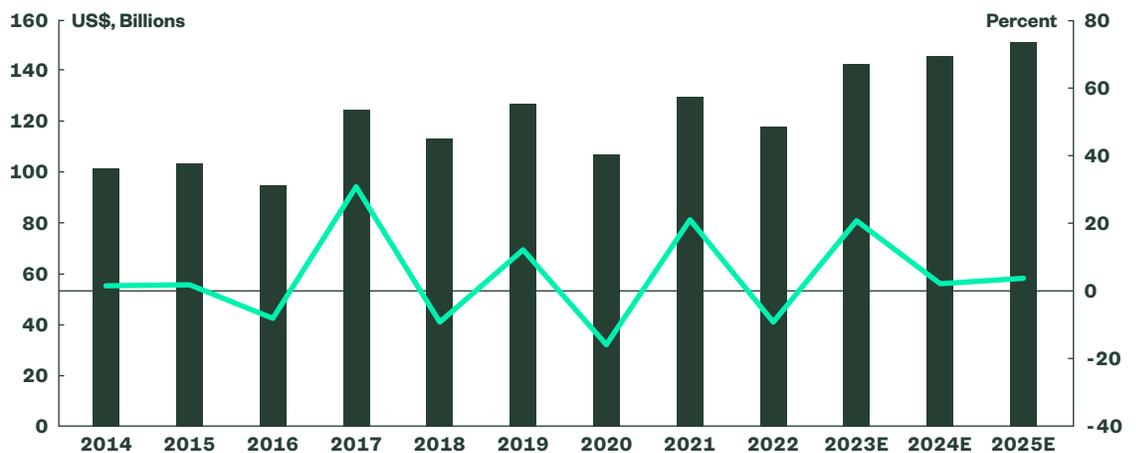
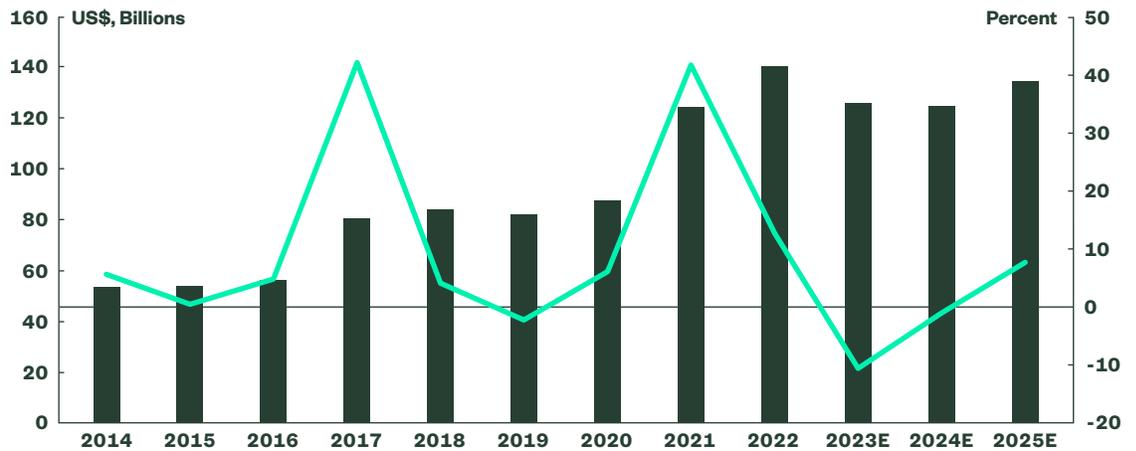


Figure 1b

SPE Capex (\$bn)

■ SPE capex (\$bn) (LHS)
 ▲ % yoy (RHS)



Source: Bloomberg Finance LP as of August 31, 2023.

Unique Business Model

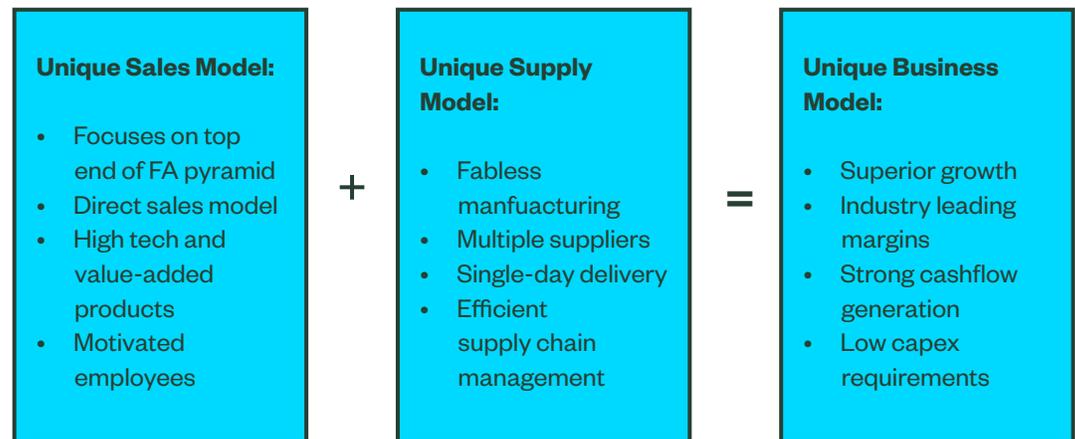
Keyence's business model is unique, setting it apart from other global FA companies. Keyence targets the upper tier of the factory automation hierarchy, where customers realize substantial cost savings far exceeding the initial product investment, thus delivering a high return on investment for its customers. Keyence sells its products directly to its customers and eliminates third-party distributors, which enables Keyence's sales team to clearly understand customer requirements and provide optimal solutions. The sales team frequently visits customer locations to provide post-sale product assistance and maintenance; the regular interactions offer an opportunity to cross-sell new products and provide valuable input to the Keyence innovation team for new product development. Keyence compensates its employees substantially above industry standards, with a significant portion of their salaries tied to sales performance.

This combination of high value-add products, direct sales channel, and growth-focused employees are the main drivers of Keyence growth.

Another important aspect of Keyence's business model is its fables (outsourcing of fabrication, while retaining design ownership) operations. Instead of owning its manufacturing facilities, Keyence relies on partners — about 70% of its products are made in Japan and 30% in China. Keyence keeps supplier identities confidential, and the suppliers are unaware of each other or the final products their components are used in. Keyence holds the key technology product design, ensuring control over manufacturing processes.

This fables approach offers flexibility to discontinue outdated or unprofitable products swiftly, which reduces the capital requirements compared to in-house manufacturing. During the post-pandemic reopening period, this setup enabled Keyence to navigate supply constraints efficiently, resulting in remarkable year-over-year revenue growth of over 20%, while many competitors struggled with supply issues.

Figure 2
Keyence's Unique Business Model



Source: Keyence company data as of September 30, 2023.

Innovation at the Core

Keyence's relentless focus on research and development keeps its automation technology offerings at the forefront. These innovations encompass artificial intelligence, robotics, and data analytics. Keyence's direct sales approach fosters close customer relationships, providing timely insights into customer needs that fuel its innovation process. Keyence has stated that over 70% of its new products are "world's first or "industry first". Moreover, the company has consistently ranked among Forbes top 100 most innovative companies since 2011. Keyence holds a total of 3,077 patents and has averaged over 150 patent filings annually from 2011 to 2020.¹⁸ Recent innovations have included vision sensors that use artificial intelligence to detect objects and defects in images, and ultra-high resolution cameras that can be used for precision inspection and measurement.

Figure 3
A Customer Case Study

Keyence Customer	Nutrition & Sante
What do they do?	A leading maker of organic and health foods
Their challenge	The company produces biscuits in stacks of four or five units that are wrapped in packs and inserted in their cardboard packaging at high speed. This allows only 150 milliseconds to inspect each stack. The company explored various vision system players in the market, but none could address the speed requirement of the production line.
Keyence Solution	Keyence's CV-5000 vision system, which comes with 19 inspection tools, can process 1 million pixels in 20.5 milliseconds. This was able to detect broken biscuits and defects in the edges in the production line. All CV-5000 series employ specialized processing, achieving a process speed that is approximately double that of the top-performing models in the market.
Value-Add	<ul style="list-style-type: none">• High quality control which is key for brand reputation• Improved efficiency and reduced wastage

Source: Keyence.

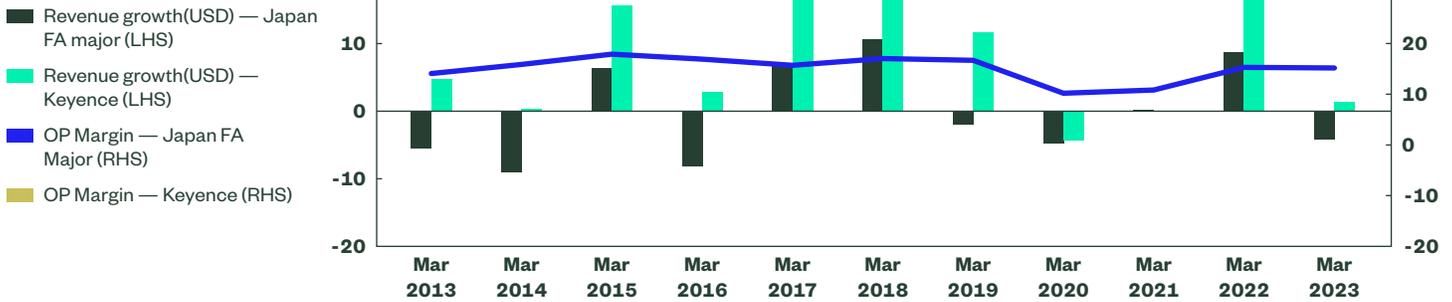
Stands Out Among Japan FA Companies

Keyence distinguishes itself from its automation industry peers through its unique business model and robust innovation capabilities. Keyence consistently achieves the highest margins and superior growth compared to the industry average.

Keyence grew revenue at a compound average growth rate (CAGR) of 10.3% between 2012 and 2023, with even faster growth of 12.1% CAGR over the last six years (in USD terms), while other major Japan FA companies averaged only 0.2% and 2.5% CAGR growth in the same periods. Furthermore, Keyence maintained an average operating profit margin of 54% between 2012 and 2023, which has been consistently significantly higher than the average of 15% achieved by other Japanese FA majors.

Figure 3

Keyence Revenue Growth and Operating Profit Margin (2013–2023)



Source: Bloomberg, Keyence as of March 31, 2023.

Investment Assessment

In our fundamental investment process, we look for three things: Quality, Sustainable Growth, and Reasonable Valuation.

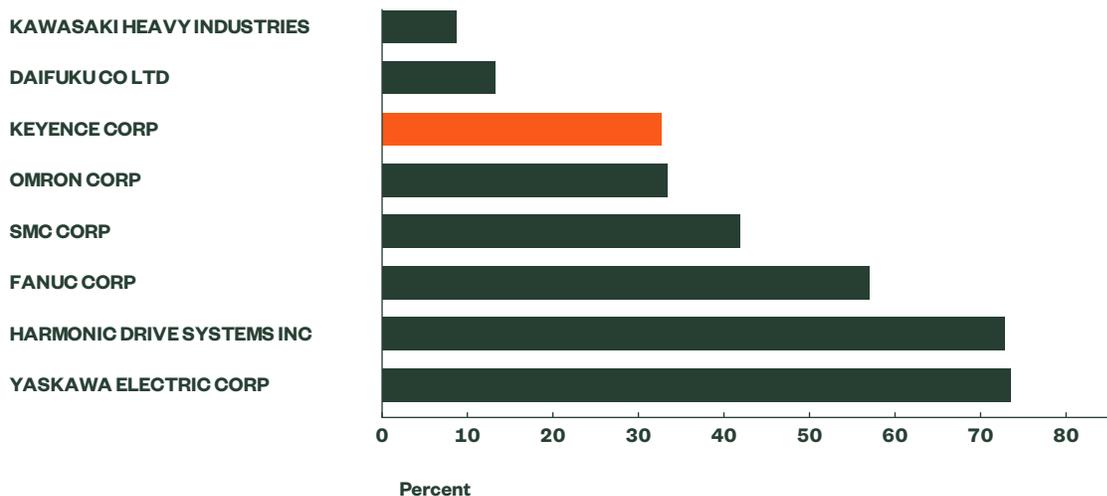
Quality

Keyence scores well in our proprietary Confidence Quotient (CQ) framework for assessing Quality. Its unique business model and industry-leading innovation gives it a durable competitive advantage, which is reflected in the high score for Market Position CQ. The Management CQ also receives a high score, as the management team has consistently delivered superior growth and maintains high operating margins even in challenging environments. However, there is scope for Keyence to improve its Transparency CQ score by offering more data on its segment reporting.

Sustainable Growth

In addition to its strong competitive positioning, Keyence is what we would call a “compounder,” — a company that has a proven track record of delivering industry-leading growth. From 2013 to 2023, Keyence only experienced one year of negative growth, which was attributed to the COVID-19 pandemic. In comparison, the aggregate of other Japanese FA names recorded negative growth in six years. We also observed that Keyence has a lower correlation with cyclical Japan machine tool orders compared to other factory automation companies. This indicates that Keyence possesses a robust business model that thrives even in challenging economic conditions.

Figure 4
**Sales Correlation
 Between Japan
 Machine Tools and FA
 Firms (2015–2022)**



Source: Bloomberg Finance L.P., Company Data, as of December 31, 2022.

Reasonable Valuation

Keyence trades at a premium compared to other Japan FA majors. However, we believe this is justified as Keyence's Economic Value Add Spread (EVAS)¹⁹ of 22% is significantly higher than other Japan FA majors, which have an EVAS ranging between 5% and 10%.

Conclusion

We believe that Keyence's strong business fundamentals, combined with favorable structural trends in the automation industry will likely contribute to Keyence maintaining its sustainable growth trajectory.

Contributor

Tom Kronzer
Portfolio Strategist

Endnotes

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- 15 [Chegg plunges after warning that AI is threatening its business](#), Bloomberg May 2, 2023.
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- 17 [Creating pathways for tomorrow's workforce today](#), Deloitte, May 2021.
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- 19 Economic Value Add Spread (EVAS) = Return on Invested Capital (ROIC) less Weighted Average Cost of Capital (WACC).

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* Pensions & Investments Research Center, as of December 31, 2022.

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