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## SUMMARY

- Companies and Investors are very focused on Artificial Intelligence.
- We think it is a significant, durable theme.
- The big tech companies are likely to have a competitive advantage, in our view.

### Rod Smyth:

What has catapulted AI to the forefront in 2023?

### Taylor Bryan:

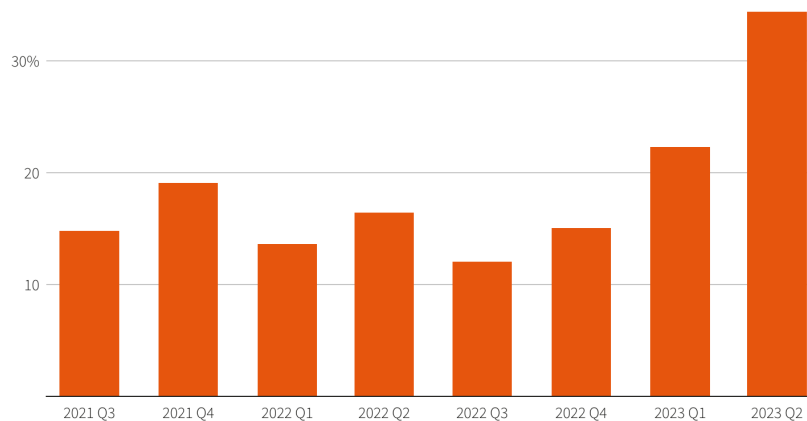
In our view, the catalyst has been ChatGPT, a language model which can generate human-like text responses to questions. It has shown the advances in Artificial Intelligence in a way that is very accessible to those who are not experts. ChatGPT's ability to respond to natural language questions and descriptions using information from across the internet has shown the public the advancements that have been made, and how AI could tangibly impact everyday life.

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## Artificial Intelligence: The Future is NOW

Artificial Intelligence ('AI') has been a dream of futurists, novelists, and film makers for a long time. We have seen its evolution in our lives, perhaps most visibly in self-driving cars, smart phones and smart speakers like Siri, Alexa, and Google assistant. However, in 2023 something seems to have changed. According to Reuters, the percentage of companies mentioning AI during analyst calls has greatly increased in the last year (see chart below). To help our non-tech-savvy readers understand what has changed, this week I interviewed RiverFront's Global Equity CIO Adam Grossman, and Associate Portfolio Manager Taylor Bryan, our resident expert on Technology.

### S&P 500 analyst calls that have mentioned 'AI' at least once



Bars compare conference calls held by companies so far in 2023 Q2 to calls held by the same companies in previous quarters

Source: Refinitiv call transcripts; Created by Thompson Reuters. Data quarterly as of June 30, 2023.

Chart shown for illustrative purposes.

### Rod Smyth:

First question for you, Taylor. Could you give us a quick explanation of Artificial Intelligence or AI?

### Taylor Bryan:

At its most basic, AI is when a machine utilizes human-like intelligence in approaching a problem and performing a task. The latest phase of AI development is called 'generative' AI, where the program generates new content such as text, music, images, and video.

**Rod Smyth:**

Let's turn to you, Adam. Please put AI in context of other major leaps in technology like the internet and cloud computing. Do you think it will be as transformative as the internet?

**Adam Grossman:**

In a word, yes. We view AI as being a fair analogy to the internet from a societal impact perspective. It is similar to the internet, in that the biggest impacts may take a decade or longer to emerge. The key difference between AI and other recent themes - Cryptocurrency and Blockchain being the biggest examples - is the clear efficiencies AI drives in data analysis and the processing of repetitive tasks.

First the internet connected the world, then massive data warehouses - known as 'the cloud' - aggregated information. Now AI has the very real potential to use those connections and data to transform work in a myriad of ways, which provides potential for firms to increase revenue, improve efficiency, or both, in our view.

**Rod Smyth:**

Can you give some examples of how AI will and won't change the way businesses operate?

**Taylor Bryan:**

Within technology, we think a big trend will be software companies integrating AI into their products, giving customers the ability to use AI within their own databases and processes. For example, an AI algorithm may recognize patterns, like sales trends, more quickly and efficiently than a human, and automatically recommend or implement a course of action. Another example would be workflow automation, which can generate and implement rules-based tasks without the need for human intervention.

We think AI is also likely to transform the tech industry itself by changing the nature of programming. AI-enhanced programming applications will allow quicker and less error-prone coding. This can include auto-fill and error detection as programmers work, as well as rapid-prototyping code. Similar to effects of the Internet 20 years ago, the lift from technology may prove to be a disinflationary force as well.

**Adam Grossman:**

More generally, I think that the difference between whether AI is used to support versus replace humans ultimately will come down to the repetitiveness of a task. Companies will continue to use AI to automate processes, enhance customer service, increase output, and analyze data. No matter how complex, if a process is truly repeatable, AI might be able to step in for humans, and likely will. Indeed, it is plausible to see mass manufacturing be machine-run with minimal human supervision on a large scale over the next 10-15 years.

In contrast, our belief is that AI systems will struggle in an environment where things are evolving and changing rapidly. This is where the human brain excels. For example, viruses and cancers are known to mutate in response to treatment, and the act of treating the disease causes a reaction in the behavior of the disease.

In our own industry, a limiting factor is the dependence of AI on historical data. At RiverFront, we believe success in long-term investing is about identifying future long-term earnings trends and purchasing ownership in those trends. By definition, that requires a level of prediction that cannot be fully replicated from a historic study alone. Therefore, for RiverFront, AI will likely be a powerful research resource, but not a decisionmaker.

**Rod Smyth:**

All technological advances create their own challenges, but this seems especially true when we are talking about enabling machines to make decisions on their own. How do you see this playing out?

**Adam Grossman:**

There are several issues that will almost certainly lead to uncertain and uneven adoption of AI. One issue that is complex is Privacy and Property Rights. Since AI relies on proprietary datasets, the ownership and proper attribution of data is going to be difficult to prove. As powerful new tools become understood, there will naturally be some backlash by owners of data that is considered proprietary.

Another issue is data security. AI applications rely on large amounts of input data. In our view, many companies are going to be cautious initially about exposing their sensitive data to AI models. Thus, the speed at which AI is implemented broadly will

depend on how quickly they can get comfortable with this. This risk will also provide an opportunity for cybersecurity companies to step in with specific AI-related products.

There is (and should be, in our view) a natural reticence to allow machines to completely remove humans from critical decisions in business, as well as society as a whole. Governments and regulators are going to have to make moral and ethical decisions about what AI can and can't do. In business, we believe that subject matter experts in the relevant application will be critical for evaluating the work of AI, and that successful users will adopt the mindset of AI as a tremendous new resource. Ultimately, we think human expertise will always be needed to ask, "What is different this time?"

**Rod Smyth:**

**So how should we approach AI as investors?**

**Taylor Bryan:**

We think it is helpful to divide AI-related stocks into 3 broad categories:

1. **Suppliers:** Companies whose products provide the equipment to build and enable AI technology. This will include Semiconductor and Hardware companies.
2. **Hyperscalers:** Major tech companies who can use their cloud computing infrastructure to commercialize AI on a large scale. This also includes software companies that will create new products using AI.
3. **Users:** Companies who can leverage AI to improve their businesses.

For **Suppliers**, we believe the adoption of AI will be a multi-year revenue and earnings boost since all three categories will require significant upfront investment. This has already begun to play out. For example, we have started seeing revenue and earnings impacts for AI-levered semiconductor companies.

Companies in the **Hyperscaler** category have driven demand for semiconductors. They have been investing at a high level to build out the infrastructure needed to satisfy the anticipated demand for AI workloads. The large scale of this investment is one of the reasons we believe that the largest technology companies, with the most cash flow and resources, will derive the greatest AI-related returns in revenues and earnings.

Companies in the **User** category have also begun to research and invest in how their companies would benefit from the use of AI. This is seen starkly in the increasing number of times AI has been mentioned on earnings calls, as shown earlier in our chart above. As AI matures, we think companies in the Users category that intelligently invest in and apply AI to their workflows and product sets are likely to see increased earnings and revenue from productivity advances and increased sales.

**The Bottom Line:** While we cannot know all the ways AI will play out, we are approaching AI as an important long-term secular trend that we need to understand, as its' likely impact will be wide- ranging and impact many companies in different ways. Given the significant opportunities in front of today's leading AI companies, we believe that the market's optimism surrounding them is warranted. We are focused in areas where we see evidence that firms will be able to monetize AI quickly, while being more cautious in areas where the hype of AI has not yet been translated into earnings. We recognize that when there is a theme this powerful, stock prices can get extended. This can result in significant pullbacks but we expect the primary trend to remain positive.

**Rod Smyth:**

**How are RiverFront portfolios positioned to benefit from AI?**

**Taylor Bryan:**

Our biggest exposure to AI comes from our significant holdings in large Technology companies. **These companies have three specific AI-related advantages: large, loyal customer bases, access to the vast amounts of data needed to leverage AI; and the large budgets needed to invest in R&D and infrastructure.**

In the 90's, smaller companies sprang up while the dominant companies of the day allowed them to grow. In contrast, the big tech companies of today aggressively seek to acquire smaller companies with new technologies, squelching potential competitors and securing the larger companies' market position.

## Summary: AI Adoption to Grow Rapidly, In Our View

We think Artificial Intelligence is entering a new phase where its adoption is likely to grow rapidly as new applications are rolled out. Right now, we see great opportunities for the major technology companies to maintain, and for some, accelerate their growth. As adoption becomes more widespread, we need to understand which industry business models will be threatened and look for opportunities in industries that will benefit.

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*In general, the bond market is volatile, and fixed income securities carry interest rate risk. (As interest rates rise, bond prices usually fall, and vice versa). This effect is usually more pronounced for longer-term securities). Fixed income securities also carry inflation risk, liquidity risk, call risk and credit and default risks for both issuers and counterparties. Lower-quality fixed income securities involve greater risk of default or price changes due to potential changes in the credit quality of the issuer. Foreign investments involve greater risks than U.S. investments, and can decline significantly in response to adverse issuer, political, regulatory, market, and economic risks. Any fixed-income security sold or redeemed prior to maturity may be subject to loss.*

*Technology and internet-related stocks, especially of smaller, less-seasoned companies, tend to be more volatile than the overall market.*

*Definitions:*

*Artificial intelligence (AI) refers to the simulation of human intelligence by software-coded heuristics. Nowadays this code is prevalent in everything from cloud-based, enterprise applications to consumer apps and even embedded firmware.*

*ChatGPT is an AI model that engages in conversational dialogue. It is an example of a chatbot, akin to the automated chat services found on some companies' customer service websites. It was developed by OpenAI, a tech research company dedicated to ensuring that artificial intelligence benefits all of humanity. The "GPT" in ChatGPT refers to "Generative Pre-training Transformer," referring to the way that ChatGPT processes language. Lance Eliot, via SSRN. "Generative Pre-Trained Transformers (GPT-3) Pertain to AI in the Law."*

*A cryptocurrency is a digital or virtual currency secured by cryptography, which makes it nearly impossible to counterfeit or double-spend. Most cryptocurrencies exist on decentralized networks using blockchain technology—a distributed ledger enforced by a disparate network of computers.*

*A blockchain is a distributed database or ledger shared among a computer network's nodes. They are best known for their crucial role in cryptocurrency systems for maintaining a secure and decentralized record of transactions, but they are not limited to cryptocurrency uses. Blockchains can be used to make data in any industry immutable—the term used to describe the inability to be altered.*

*The technology sector is the category of stocks relating to the research, development, or distribution of technologically based goods and services. This sector contains businesses revolving around the manufacturing of electronics, creation of software, computers, or products and services relating to information technology.*

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