MONTHLY NEWSLETTER

Market Report – Titan Investment Management LLC

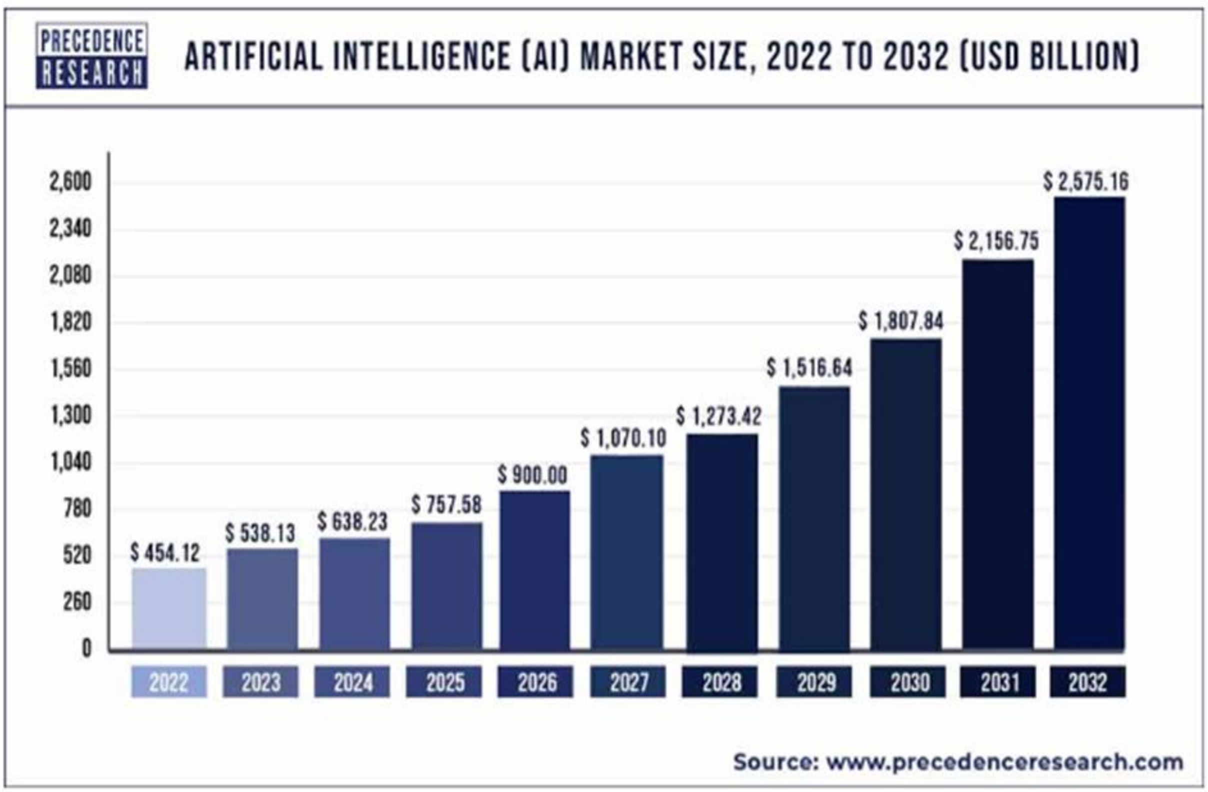
September 6, 2023

The Dawn of AI

Both Microsoft (MSFT) and Google (GOOGL) have published Large Language Models (LLMs) since 2018 and 2017. However, these LLMs, which are now referred to as Artificial Intelligence (AI) were trained on a little over 117M parameters. While 117M may seem like a lot, it is a small sample when you consider the number of words, phrases, and languages around the world.

Fast forward to June 2022 and OpenAI (along with MSFT) released GPT-3, which was trained on 175B parameters. In addition, this was enough parameters that the LLM was not only able to answer inquires but create original content. This was made public to users around the world on November 30, 2022, and reached 1M users in 5 days. To put that into perspective it took Twitter (now known as X) and FaceBook (now known as Meta) 750 and 300 days to reach 1M users. Currently users are nearing 2B and provide a clear indication that the consumer is ready to adopt AI.

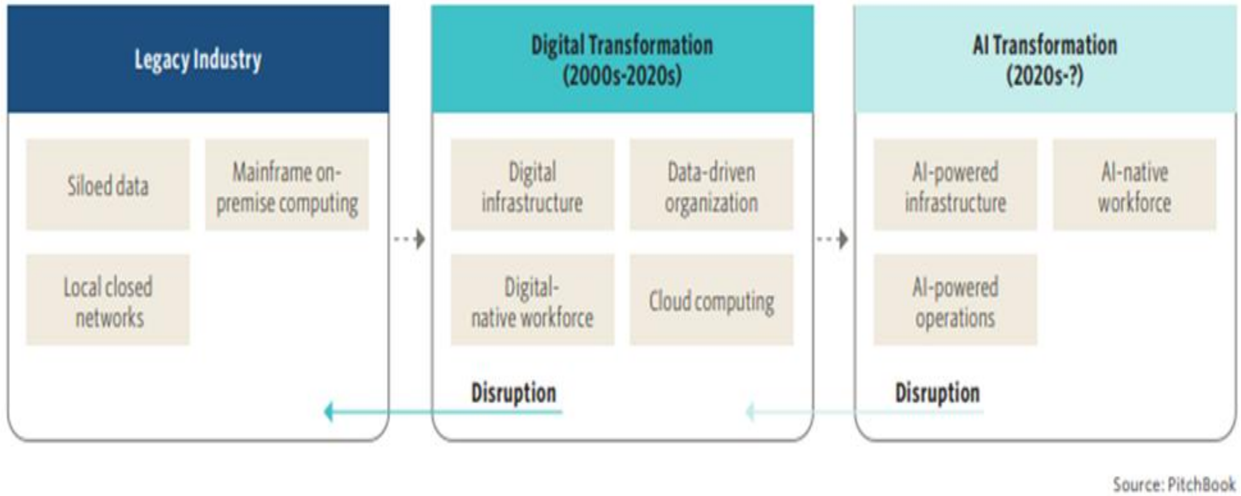
MSFT and OpenAI's splash have created ripples across the economy. While incredibly hard to determine, the market size of AI is expected to approach $2.6T over the coming decade.



This implies a CAGR of 19.0%, well ahead of the rest of the economy. In addition, even for a firm the size of MSFT ($212B revenue) the growth opportunity cannot be ignored.

First Movers

At its core, Chat-GPT represents the evolution of AI into a solution that consumer's can interact with, with no software background necessary. For enterprises, LLMs have broad operational functions that are incredibly hard to quantify as the technology itself creates whole new landscapes (an AI to manipulate other AIs). This functionality and unknown opportunity are creating the disruption that came with the Internet and Smartphones.



For Titan, the question becomes who will be the winners and losers from this disruption? In addition, who will be the early adopters and have the most upside to capture?

Two factors we believe will dictate AI adoption and functionality is the size of the end client and sensitivity of data being shared. We have constructed our own matrix that seeks to highlight which industries will have the easiest means of adopting and using AI to maximize revenue or minimize cost.

Industry	Competition	Data Sensitivity	Revenue Gains	Expense Reduction	Total
Mobility Technology	3	3	1	1	8
Supply Chain	1	1	2	3	7
E-Commerce	3	3	3	3	12
Fintech	3	1	1	3	8
Healthcare	1	1	1	3	6
Gaming	3	3	3	2	11
Agriculture	1	3	3	3	10
Foodtech	3	3	3	3	12
Enterprise SaaS	1	2	2	2	7
Cybersecurity	3	1	3	3	10
Insurance	3	1	1	3	8

A higher score is better as more competition, less data sensitivity, increased revenue, and less expenses from AI incentivizes adoption.

- AI Beneficiaries – Travel, Retailers, Restaurants, Grocers, and Gaming.
  - Data is not sensitive, competition is fierce, and strategized AI can reduce labor as well as increase consumer buying activity.
  - Potential Winners – MSFT, Amazon (AMZN), Shutterstock (SSTK), Wal-Mart (WMT), and Target (TGT).
- AI Trailers – Healthcare, Logistics, and Enterprise.
  - Data is incredibly sensitive, and competition is increasingly consolidated. This will limit AI adoption and the synergies that would come with increased revenue or lower expenses.
  - Potential Trailers – Healthcare REITs and 3rd party logistic brokerages.

Labor is the Target

Per Goldman Sachs, AI could replace 300M full time jobs, nearly 25% of the workforce between the US and Europe. As expected, the automated tasks in legal and accounting are some of the lowest hanging fruit while construction and maintenance will still require a human touch.

In addition, to the size of firm and sensitivity of information driving AI adoption, firms with higher labor expense around automated issues will see a significant benefit from AI adoption.

Sector	Med. Rev/Employee
Consumer Discretionary	$344,857
Industrials	$365,871
Healthcare	$398,367
Information Technology	$455,600
Consumer Staples	$576,448
Materials	$649,833
Financials	$675,204
Communication Services	$901,787
Utilities	$1,157,034
Real Estate	$1,458,583
Energy	$7,343,789

Labor costs are fairly difficult to discern when it comes to the Income Statement as they are often found in both operating expense as well as cost of goods sold. However, a more nuanced approach is to take the known total revenue of a firm and divide by the number of employees. The lower the sales/employee the higher the labor cost all else equal.

With that backdrop in mind, Consumer Discretionary, Industrials, and Healthcare offer the most return for adopting AI. Utilities, Real Estate, and Energy offer the least in terms of labor cost savings.

Peeling back a layer to each industry reveals specific sub-industries that make up the bulk of labor expense:

- Consumer Discretionary – Restaurants & Hotels.
- Industrials – Human Resources & Aerospace.
- Healthcare – Healthcare Supplies.

The adoption of AI into each of the industries above will have the potential to increase revenue and decrease expenses.

1) Restaurants & Hotels – The bulk of labor is the manual labor done to clean rooms, tables, and the overall facility. Thus, adoption of AI will most likely be geared towards advertising to push revenue rather than cut costs.
2) Human Resources & Aerospace – Payroll and HR services are incredibly automated and offer significant cost savings. Information is sensitive (given employee wages), but AI adoption by Paychex (PAYX) and Automatic Data Processing (ADP) will keep them well ahead of peers and boost margin overtime.
3) Healthcare Supplies – The fragmented nature of doctor offices and high price items demand a significant sales force. AI can be adopted to reduce inventory bottlenecks, but little in terms of reducing overall labor costs.

Conclusion

Competition and data sensitivity will be one driver of AI adoption with labor cost being the other. PAYX and ADP have the greatest incentive and upside to adopt AI. Not only is the realm of HR and Payroll incredibly automated and competitive, but both firms carry bloated labor costs. This sets the stage for PAYX and ADP to cut labor with AI adoption and significantly expand margins over time.

Selling Pickaxes or Translating

MSFT, GOOGL, META, AAPL, and a handful of others have taken a massive lead relative to all other peers when it comes to creating AI. There is little reason to think this lead will shrink overtime as these powerhouses combined are bigger than any country's economy except for the US and China.

It could easily be argued the expectation around AI adoption has been priced into these enterprise providers. Ancillary beneficiaries of this adoption curve will be the firms that wield the "pickaxes" that lead to AI computation as well as the "translators" for AI to the consumer and small business owner.

Pickaxes

There are two main components that go into AI: Central Processing Units (CPUs) and Graphic Processing Units (GPUs). The producers of these components are as follows:

- CPUs – Intel (INTC) and Advanced Micro Devices (AMD).
- GPUs – Nvidia (NVDA)

INTC and AMD also make GPUs, but NVDA has clearly been the vendor of choice as their most recent quarter saw revenue rise 102% compared to INTC and AMD falling 15.5% and 18.2%. The weakness from INTC and AMD is a buildup in inventory that stems from the economy reopening in 2022 and cloud demand coming off the highs witnessed from 2020 – 2022. Both INTC and AMD are ramping up new GPUs to compete with NVDA, but the market is clearly taking an action speaks louder than words approach.

Source: Bloomberg

In addition to cloud demand slowing from the previous year, more and more demand is coming for GPUs rather than CPUs as data increasingly takes the form of videos, images, etc. Another distinct difference in AMD and INTC is the idea of a "fabless" chipmaker.

AMD outsources the manufacturing process to firms such as Taiwan Semiconductors (TSMC). AMD provides a design layout to TSMC, but TSMC is the entity that manufactures the CPU or GPU. This lack of overhead for AMD has resulted in a lower cost CPU or GPU relative to INTC. INTC on the other hand is vertically integrated in terms of CPU and GPU construction. This process comes with significantly more overhead and has resulted in higher cost CPUs and GPUs than peers. This largely gets to the divergence in performance post COVID between INTC and AMD.

This lack of performance from INTC, yet growing demand for AI regardless of the enterprise was further sweetened by the CHIPs and Science Act. The Dept. of Commerce expects disbursements to be 5-15% of a chipmakers CAPEX for the foreseeable future. However, INTC is the only American based firm that has the scale to build these manufacturing facilities. This is creating a long-term tailwind for INTC whereby what cost $1 to build will now be reduced to at least $0.85. This will reset prices whereby INTC will be a lot more competitive than recent history. Lastly, this is all happening with the backdrop of growing demand for CPUs and GPUs coming from Taiwan, which stands in the shadow of China.

Translators

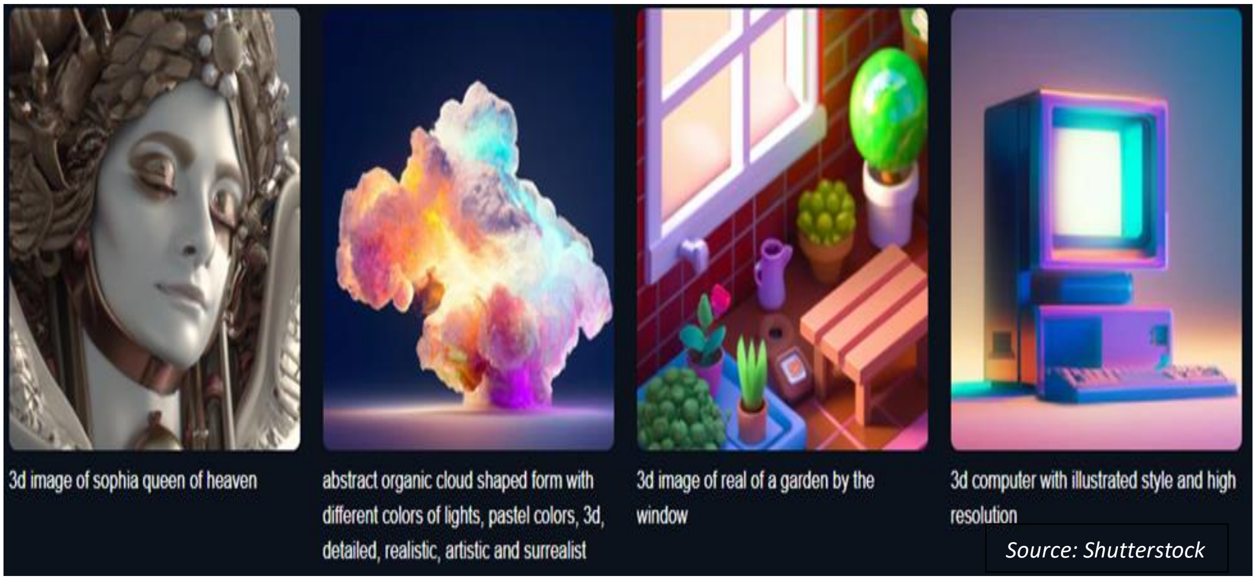
The growth in AI is here to stay, but the firms that will truly capture the value from AI are those that can make a digestible offering for firms who have mountains of data that needs to be protected. Enterprise player MSFT is clearly coming for this market share with CoPilot. CoPilot is real time AI assistance for anything being created in Office. While this is another growth driver for MSFT it also introduces the issue of client sensitivity.

Most Fortune 500 firms do not want to have all their data on one cloud and/or vendor for fear of data theft and cybersecurity breaches. This has created a world where large commercial firms house information on private servers and the cloud. MSFT not having access to private servers limits the AIs capability given it does not have all the information.

This is where Palantir Technologies (PLTR) comes into play. PLTR offers an Artificial Intelligence Platform (AIP) that provides any firm the ability to load certain data sets and run on PLTR's AI or their own in house LLM. PLTR has made a name for itself in defense AI, ala their largest client is the US DoD. PLTR has an incredibly clean resume and client base that indicates data security is of the upmost importance.

However, the case is not as cut and dry for PLTR as it is for MSFT. PLTR has been creating LLMs for over a decade, but they have little experience in AI graphic creation. PLTR's pivot from governmental to commercial work will require more graphic creation to be digestible for a consumer or business that lacks a software engineer.

The firm that is clearly the leader in AI generated graphics is Shutterstock (SSTK). SSTK has already built the AI that creates Photos, Art, Digital Images, and 3D Contest with a simple inquiry. To put this into perspective consider the following images:



Source: Shutterstock

These 3D images were created on SSTK's AI with the prompt below each picture. These can be further manipulated to whatever the user wants. In other words, think Chat GPT, but with images.

Furthermore, SSTK has recently signed agreements with MSFT and GOOGL whereby all SSTK's inventory of graphics will be licensed to these firms and SSTK users will have priority access to MSFT's and GOOGL's latest versions of AI. This partnership between SSTK and the large enterprise providers puts SSTK in an indiscriminate position in terms of who wins the enterprise battle. If anything, an easy argument could be made for one if not both firms to acquire SSTK for the sheer sake of content the firm has at its disposal.

Conclusion

MSFT and GOOGL have more room to grow given the early stages of AI. However, this will most likely come in ebbs and flows as new products are released and consumer adoption moves up in priority. This short-term volatility in consumer awareness does not sway either firm from developing and adopting. Thus, the firms that create the hardware AI runs on (INTC, AMD, and NVDA) as well as the firms that seek to translate the software into a useable format (PLTR and SSTK) stand to benefit regardless of awareness.

One final area that will most likely see a tailwind from AI adoption is IT consultants. Accenture (ACN) and VMWare (VMW) will not only assist in the translation process, but most likely will be a conduit to introduce this technology to smaller and smaller firms.

The Woes of September

Outside of the opportunities currently found in AI, the remainder of September is setting up to be rocky. There are two key events with the former most likely leveraged on the latter: The United Auto Workers (UAW) strike and a government shutdown.

UAW Strike

The UAW is set to strike against Ford (F), General Motors (GM), and Stellantis (STLA) on Friday assuming no deal has been reached. The fallout from nearly 144K workers going on strike is incredibly hard to determine, but estimates have it costing the US economy $561M a day.

Economic Losses From Possible UAW Strike

Assumes 10 days of lost production

	Detroit Three automakers total
Number of workers striking	**143,774**
Lost direct wages (millions)	$859
Company losses (millions)	$989
Direct economic loss (millions)	**$1,848**
Industry multiplier	1.9
Industry economic loss (millions)	**$3,511**
Other consumer, dealer losses (millions)	$2,106
Total economic loss (millions)	**$5,617**

Source: Anderson Economic Group
Note: Detroit Three automakers are Ford, GM and Stellantis

Bloomberg

The states most impacted by a strike would be Michigan, Ohio, and Wisconsin; all swing states in the coming election. The UAW is demanding a 40% raise and 6% in incremental benefits. The three OEMs have made it clear they may not even be financially viable under such an arrangement. It seems both sides are far apart on coming together, but the puts and takes of a strike largely come down to the following:

- Negative – At least 144M people unemployed. The lack of new car production grants the OEMs the ability to raise prices on existing vehicles in the face of falling supply.
- The lack of demand for steel, rubber, aluminum, etc. that goes into vehicles as well as unemployment going up is very deflationary.

Auto manufacturing makes up ~3% of US GDP and with a 1.9x multiplier it could be estimated at 6%, but a short-term strike will not be a needle mover for the economy at large. The longer this goes on will most likely lead to inflation falling and economic growth slowing.

Government Shutdown

The fiscal year end for the US government is Sept. 30 and in the event Congress has not approved spending bills for the coming year, the government will shutdown. The last time the government shutdown was on Dec. 22, 2018 until Jan. 25, 2019 as Republicans and Democrats argued over border security. It has been estimated that this shutdown cost the US economy $3B and saw 800,000 federal employees furloughed.

The main hiccup resides at the House as the Republican lead Freedom Caucus has made it clear they ill not sign off on any spending bills until the following is met:

- Ending any remaining COVID-19 stimulus
- Ending the "weaponization" of the justice department (this seems to be tied to the FBI).
- Ending affirmative action in the armed forces.
- Implementing immigration reform.

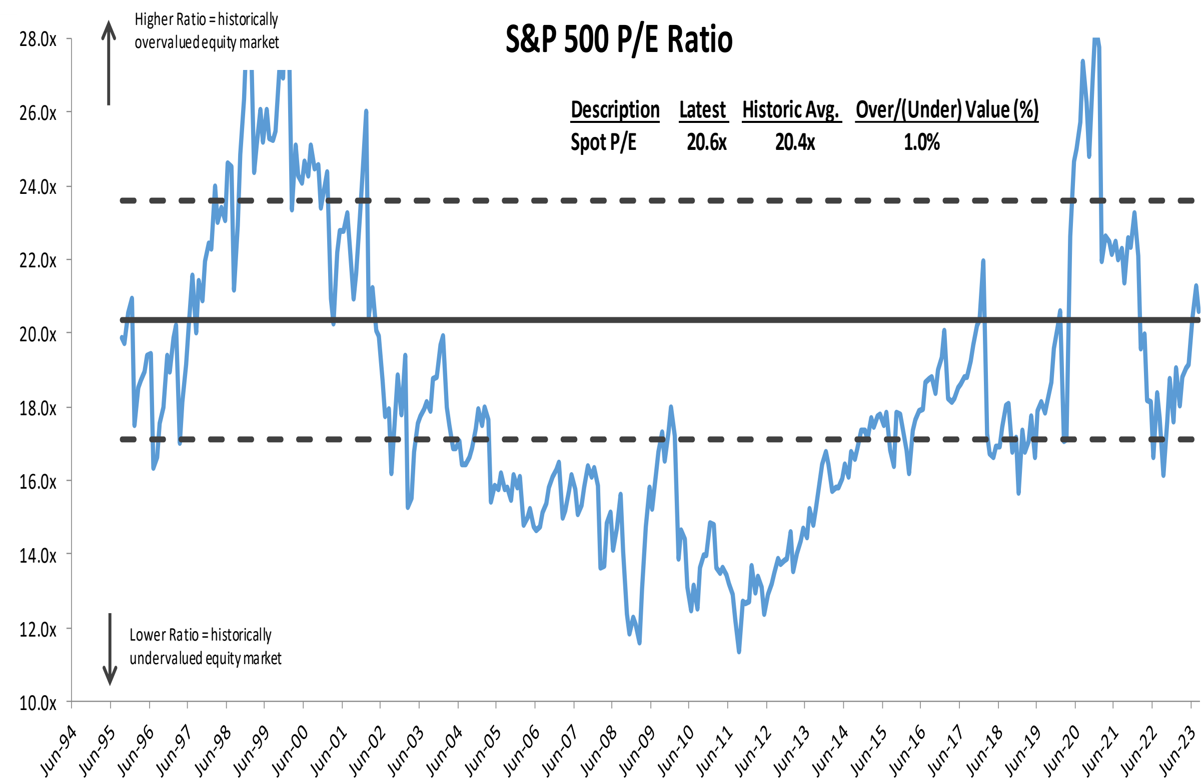
Naturally the Democrats are against all the above. This is creating a game of chicken on account of who will blink first. If history is any sort of precursor a continuing resolution (CR) will be passed whereby the spending from the previous year will remain in effect until a new spending policy is reached.

Given the timing of elections, the potential UAW strike, and President Biden being a Democrat, the Democrats seem to have more to lose in a shutdown scenario. Thus, it seems likely a CR will be passed as some of the Freedom Caucus's reforms are negotiated.

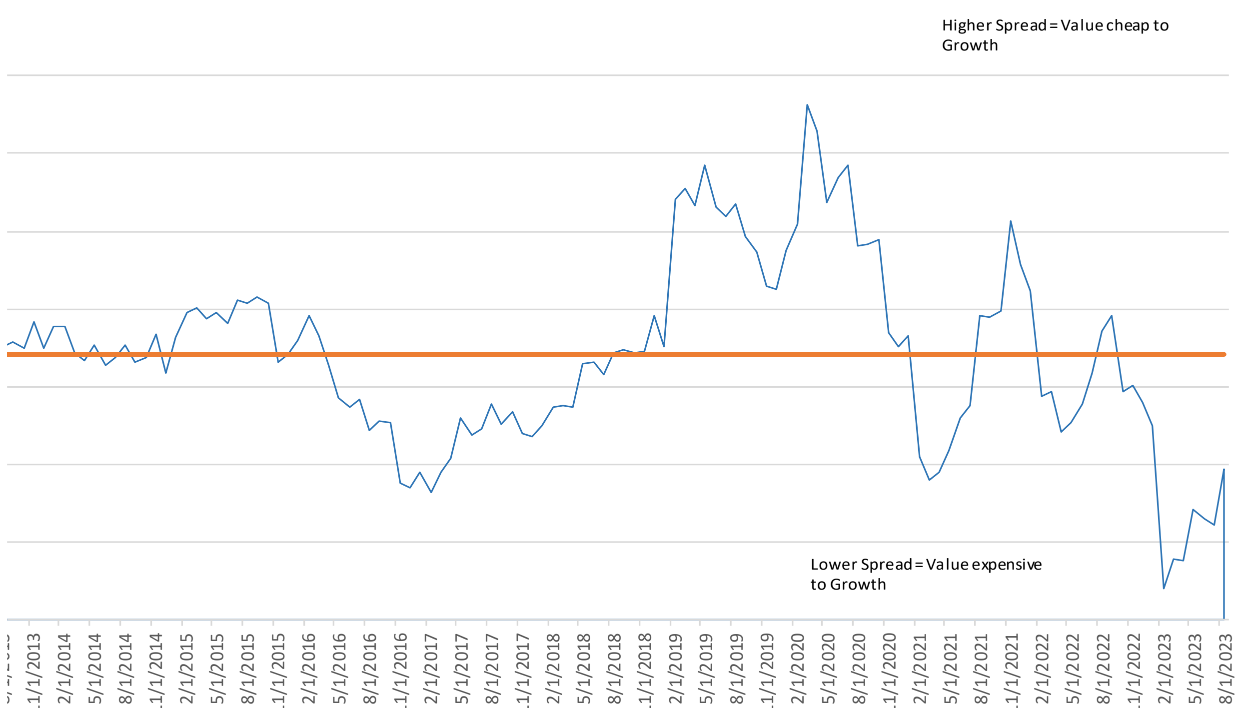
Conclusion

Whether a UAW strike and/or government shutdown take place, the month of September is set to be a bit volatile. Given the economic ramifications, it is next to impossible for a strike or shutdown to have any sort of meaningful length. At the end of the day, politicians and union heads are the same in the sense they will be up for reelection. For the sake of self-preservation, an end to a strike and CR massages this economic turmoil and keeps their constituents subdued.

Economic Update

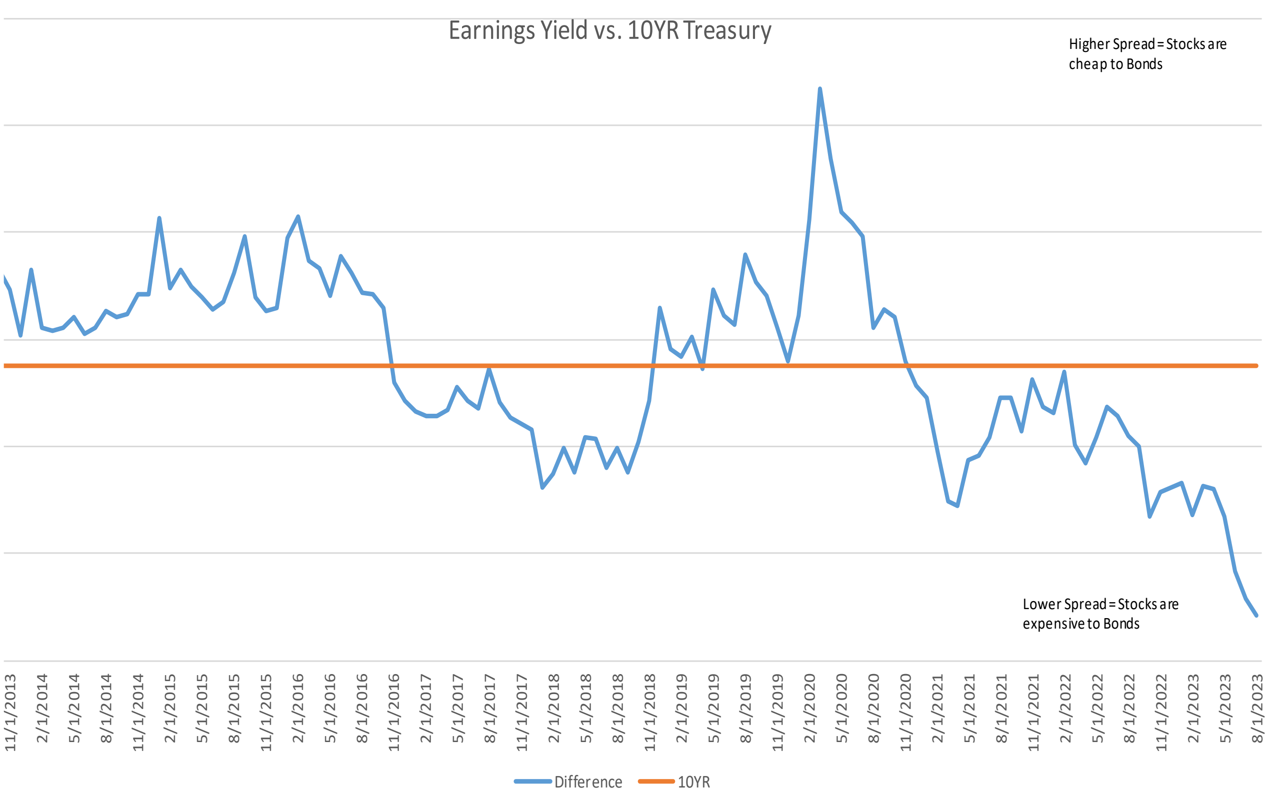


The equity market is up 14.2% YTD as it slowly claws back the sluggishness of 2022. Valuations remain in line with their historic estimates and do not indicate any sort of market discount and/or premium.



Growth (tends to be overweight Technology) is cheap relative to Value (tends to be overweight Healthcare and Banks). This would be another feather in the cap of AI that despite the uplift from outperformers such as NVDA, value remains to be captured.

Lastly, comparing bonds and stocks yields a greater and greater reason to overweight certain portions of the bond market.



The rise in interest rates over the past 20 months has now positioned bonds as a decent alternative to stocks. This is especially the case for overnight T-Bills (BIL) as they carry a 5.30% risk free interest rate. Not only risk free in the sense of not defaulting, but also no risk to rising interest rates. This yield remains a safe haven for cash not being used and a vehicle, Titan will continue to take advantage of given the lack of alternatives.

Conclusion

The market is clearly taking a wait and see approach in regard to the UAW strike, a government shutdown, and risk of inflation. Until the dust settles from the former two and/or the latter, expect the remainder of September to be a bit rocky as the day-to-day news wire dictates sentiment.

Bringing It All Together

Titan is very excited about the adoption and coming versions of AI. The enterprise players are set to grow in a universe that is expected to grow nearly 20% per annum for the next 10 years. While the MSFT's of the world will enjoy this macro tailwind, the suppliers of hardware and software creators of AI have even more room to run. Firms such as INTC, AMD, PLTR, SSTK, ACN, VMW, and a handful of others will benefit from AI demand and adoption.

Despite this excitement, the UAW, government shutdown, and inflation will dominate headlines for the remainder of September. This will result in day-to-day volatility and most likely present points (albeit brief) to enter the market (specifically in AI oriented firms) at favorable prices.

As always if you have any questions, do not hesitate to reach out.

Kenny Blickenstaff, CFA
Founder
Titan Investment Mgmt. LLC

TITAN INVESTMENTS

References

Bloomberg Anywhere

https://explodingtopics.com/blog/chatgpt-users

https://www.precedenceresearch.com/artificial-intelligence-market

https://files.pitchbook.com/website/files/pdf/Q2_2023_Emerging_Tech_Future_Report_Generative_AI.pdf#page=1

https://www.bbc.com/news/technology-65102150

https://www.ibisworld.com/united-states/industry-trends/industries-highest-labor-costs/

Disclosures:

Titan Investment Management LLC *is a registered investment adviser. Information presented is for educational purposes only and does not intend to make an offer or solicitation for the sale or purchase of any specific securities, investments, or investment strategies. Investments involve risk and unless otherwise stated, are not guaranteed. Be sure to first consult with a qualified financial adviser and/or tax professional before implementing any strategy discussed herein. Past performance is not indicative of future performance.*

Titan Investment Management LLC *may discuss and display, charts, graphs, formulas which are not intended to be used by themselves to determine which securities to buy or sell, or when to buy or sell them. Such charts and graphs offer limited information and should not be used on their own to make investment decisions.*

LINKED IN DISCLOSURE: State Registered Firms Only

TITAN INVESTMENT MANAGEMENT LLC is a registered investment adviser. This platform is solely for informational purposes. Advisory services are only offered to clients or prospective clients where TITAN INVESTMENT MANAGEMENT LLC and its representatives are properly licensed or exempt from licensure. In addition, follow-up conversations or meetings with individuals in a particular state that involve either the effecting or attempting to effect transactions in the rendering of personalized investment advice for compensation, will not be made absent compliance with state Investment Advisor representative registration requirements, or an applicable exemption or exclusion. Past performance is no guarantee of future returns. Investing involves risk and possible loss of principal capital.

As a registered investment advisory firm, we are restricted from posting, publishing or otherwise disclosing any form of testimonial which is related to our investment advisory services. LinkedIn recommendations and endorsements may be viewed as a testimonial. This policy requires that we block any recommendations or endorsements.

Links to websites and other resources operated by third parties are provided as information only, and there can be no assurance as to its accuracy, suitability or completeness. TITAN INVESTMENT MANAGEMENT LLC does not endorse, authorize or sponsor the content or its respective sponsors and is in no way responsible for third party content, services, products or information, or for the collection or use of information regarding the web site's users and/or members.