#FOMO

This is the #FOMO edition. For those not up on the social media lingo, FOMO is shorthand for "**F**ear **O**f **M**issing **O**ut." The most recent versions of this commentary objectively demonstrated the case for exercising restraint in the face of a rip-your-face-off rally in the stock market. This edition continues that sentiment. More importantly, it seeks to quash the FOMO trade. More directly, the following pages convey a simple message: Not only are stocks overvalued today, they have been quite overvalued for the last three years. We start with an overview of year-to-date performance, including a detailed analysis of the extreme concentration in the stock market (and why that is not good). We then turn our sights to the extreme excesses in the stock market and what they mean for stock returns moving forward. Finally, we touch on some insightful economic data to drive home the message that caution is very much warranted in this environment. If you have FOMO over missing the stock rally, this paper is the panacea.

Review

The first half of 2024 left off where the last quarter of 2023 started: a rally in risk markets. Below we summarize the performance of the major asset benchmarks.

	Year-to-Date Return	3-Yr Avg Return[8]	5-Yr Avg Return[8]	10-Yr Avg Return[8]
US Large Companies (Broad) [1]	15.29%	10.00%	15.03%	12.85%
US Large Companies (Tech) [2]	17.47%	11.49%	21.74%	18.90%
US Mid-Size Companies [3]	6.17%	4.47%	10.26%	9.13%
US Small Companies [4]	1.73%	-2.58%	6.93%	7.00%
International Companies [5]	5.74%	3.43%	6.97%	4.83%
Bonds [6]	-0.71%	-3.02%	-0.23%	1.34%
Commodities [7]	5.14%	5.65%	7.24%	-1.29%

[1] Return based on S&P 500 total return index per Morningstar.
[2] Return based on Nasdaq 100 total return index per Morningstar.
[3] Return based on S&P 400 total return index per Morningstar.
[4] Return based on Russell 2000 total return index per Morningstar.
[5] Return based on MSCI EAFE gross return index per Morningstar.
[6] Return based on Bloomberg Barclays US Aggregate Bond total return index per Morningstar.
[7] Return based on Bloomberg Commodity total return index per Morningstar.
[8] Returns are given in annualized percentages.

Overwhelmingly, the story of stocks this year is concentration. In our December 31, 2023 commentary, we noted how only seven stocks – Apple, Microsoft, Google, Amazon, Nvidia, Facebook, and Tesla – have dominated the entire stock market while the remaining 493 stocks in the S&P 500 have essentially been treading water. These seven companies are collectively known as the Magnificent 7.

Let's quickly recap how the Mag7 dominated last year before we jump into this year. The graphic on the next page appeared in the December 31, 2023 commentary. Simply stated, a substantial majority of the S&P 500 return in 2023 came solely from these seven companies.

Figure 1: S&P 500 Attribution for 2023

	Company	S&P Weight	2023 Return	Weighted Return	P/S Ratio	
Magnificant 7	Apple	6.8%	48.2%	3.3%	7.85	
	Microsoft	6.3%	56.8%	3.6%	13.16	
	Google	4.0%	58.8%	2.3%	6.25	
	Amazon	3.6%	80.9%	2.9%	3.08	
	Nvidia	2.8%	238.9%	6.6%	45.35	
	Facebook	2.1%	194.1%	4.0%	7.90	
	Tesla	1.8%	101.7%	1.8%	9.88	
		27.2%		24.5%		A
	Other 493	72.8%		1.8%		B
	S&P 500	100.0%		26.3%		C=A+B

The S&P 500 has 500 stocks. Seven – SEVEN! – accounted for a majority of the gains in 2023. And guess what: That pattern is repeating again in 2024. Here is the year-to-date attribution chart for the S&P 500 in 2024.

Figure 2: S&P 500 Attribution for 2024

	Company	S&P Weight	YTD Return	Weighted Return	P/S Ratio	
Magnificant 7	Apple	6.4%	9.4%	0.6%	7.85	
	Microsoft	6.5%	18.9%	1.2%	13.16	
	Google	8.8%	30.2%	2.4%	6.25	
	Amazon	4.0%	27.2%	1.0%	3.08	
	Nvidia	6.0%	149.5%	4.1%	45.35	
	Facebook	2.5%	42.5%	0.9%	7.90	
	Tesla	1.2%	-20.4%	-0.4%	9.88	
		35.4%		9.8%		A
	Other 493	64.7%		5.5%		B
	S&P 500	100.0%		15.3%		C=A+B

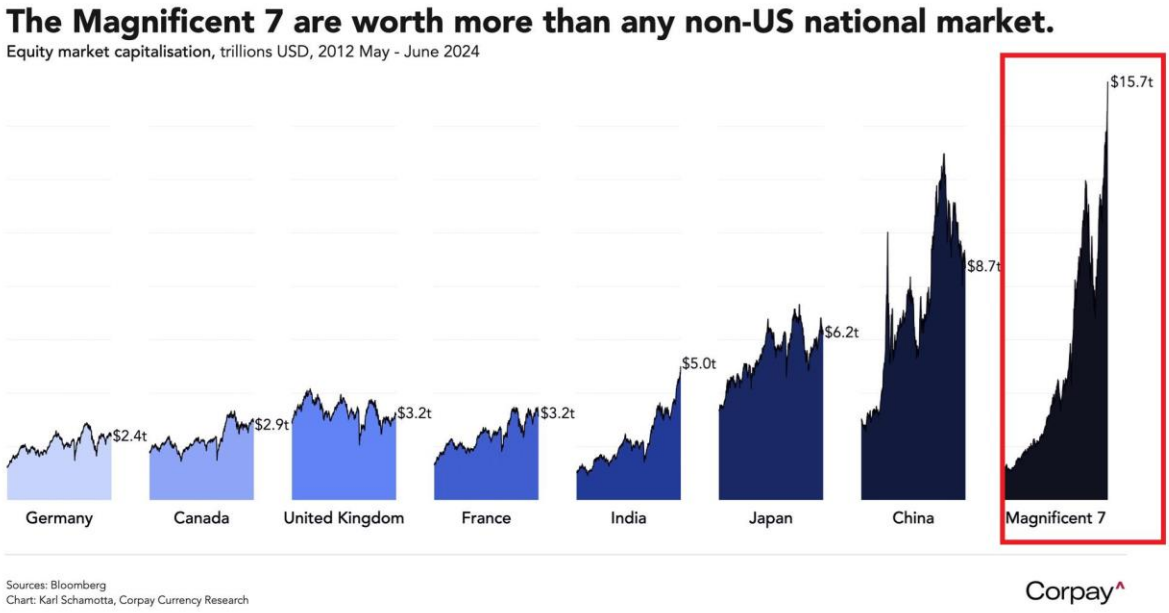
Once again, the Mag7 is the only game in town.

If we are making a fuss about this, then surely such concentration must mean something, right? In the following pages, we tease out why this concentration may be a canary in the coal mine for the stock market.

Stock Market Concentration

We kick off the concentration discussion with a truly astonishing chart[1]. As of June 2024, the Mag7 was collectively larger than the entire Chinese stock market. That is ludicrous. The Chinese stock market is the second largest stock market in the world. And the Mag7 – again, just SEVEN stocks – is worth more than all Chinese stocks put together. This is remarkable. It defies logic. And it is concerning.

Figure 3: Mag7 Market Cap vs. Rest of World



We are out of superlatives to describe just how lopsided the stock market has become. Let us use an analogy to tee off the conversation. Pick your favorite baseball team. Or football team. Or any team for that matter. Suppose the superstars on your team are healthy and playing well. However, a bunch of your regular non-superstar starters are out with long-term injuries. The superstars can carry the team for a little while, and maybe the team wins consistently at first. However, over time, the superstars start to get worn down. With the other starters out, there's no one to pick up the slack when the superstars start to inevitably cool off. Your team, which was playing decently to start, cannot put together a whole good regular season on just the backs of one or two or three superstars. Other starters are needed to consistently win over a full season.

The stock market works the same way. Right now, only the superstars – the Magnificent 7 – are performing well. Everyone else is struggling. If this wasn't evident with the year-to-date return attribution above of the S&P 500, then perhaps the next couple of charts will help illustrate just how historically unique this current period of stock concentration is, including the yeoman's work being put in by the superstars.

[1] Source: https://x.com/GlobalMktObserv/status/1805941580865618315

Every stock index is comprised of many individual stocks. On any given day, the index can be up while many of the individual stocks are down. This is possible if the biggest stocks in the index (and thus the stocks with the most weight) are up while most others are down. In our sports analogy, this would be akin to the team going on a winning streak while simultaneously having more and more starters get hurt. You can only keep winning for so long before all your talent is depleted. Figure 4[2] shows this analogy is real-time with the NASDAQ. The vertical blue bars denote more and more starters getting injured despite the team's winning streak. In most cases, those injuries soon resulted in either a (1) temporary losing streak (a stock correction) or (2) an outright tanking (a stock market recession).

Figure 4: New Lows Relative to NASDAQ Performance

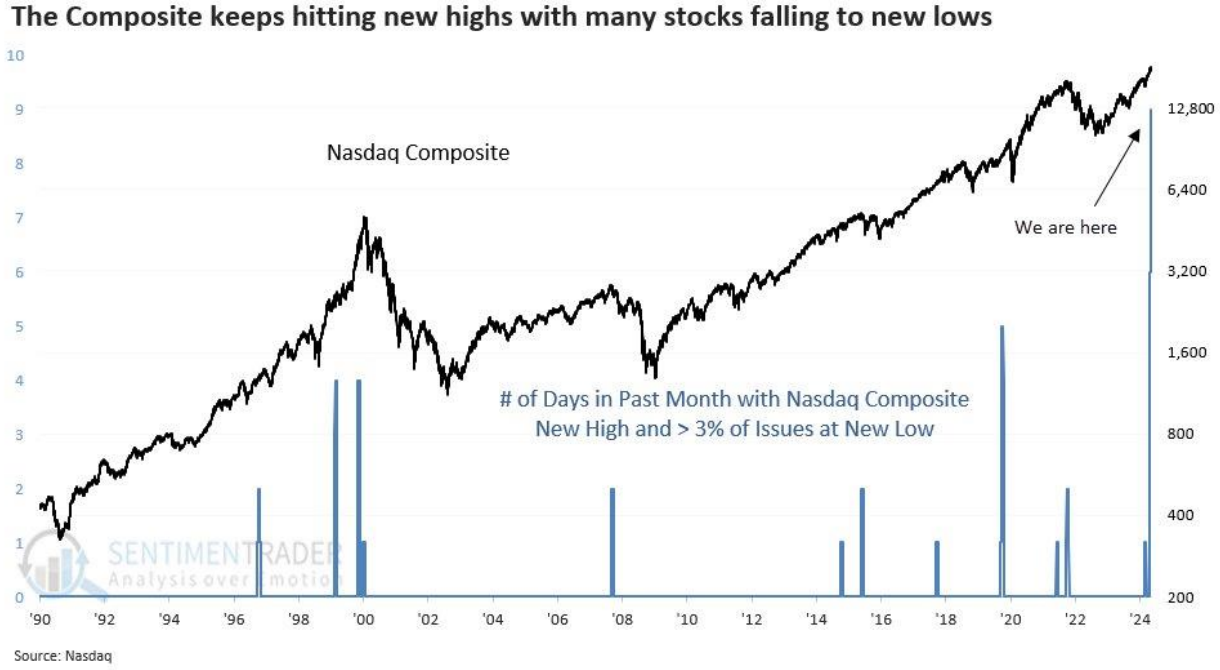


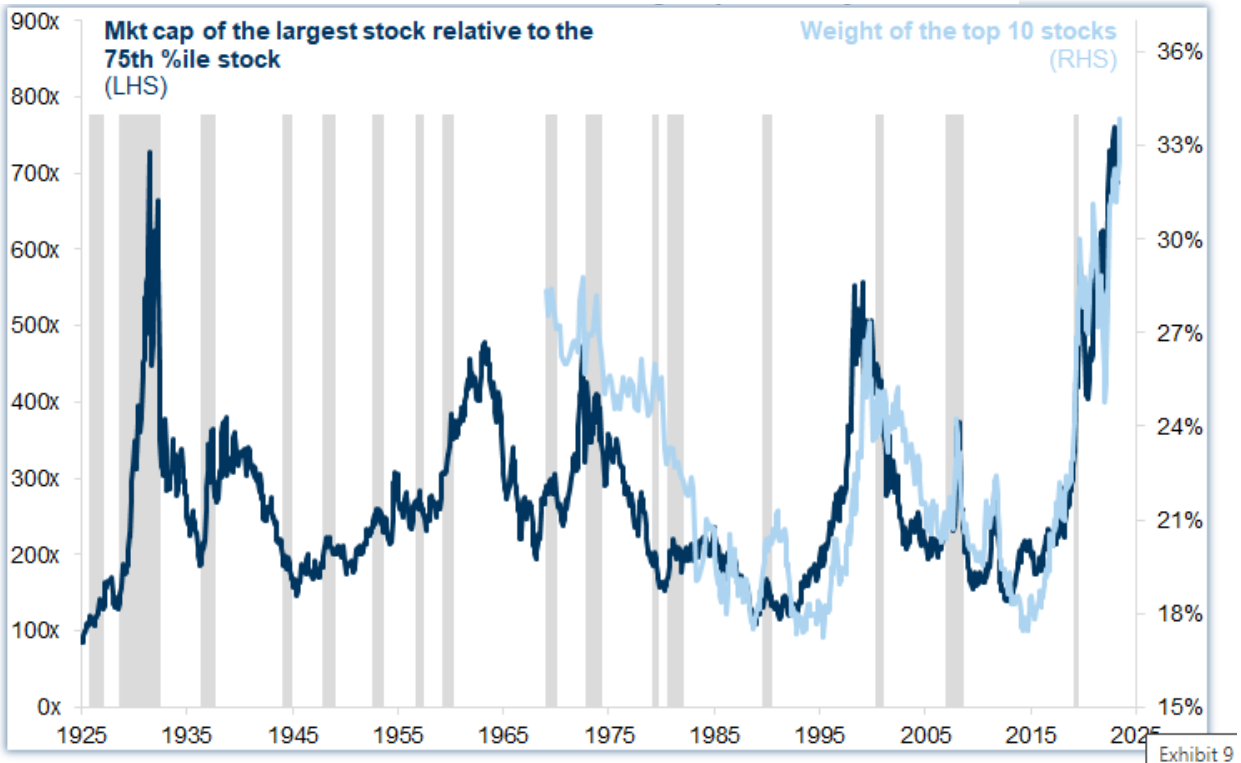
Figure 4 showed an example of a sports team going on a winning streak while simultaneously having more and more starters get hurt. Let's build on this analogy. Suppose this sports team is a baseball team. Suppose those superstars are batting .600 (For comparison, the league average is .242. An average of 0.400 is considered an all-time great average; the last .400 batter was Ted Williams in 1941.) with a slugging percentage of 1.200 (For comparison, the league average is .395. An average of 0.750 is considered an all-time great. Only 21 players in the history of baseball had a slugging percentage of .750 or greater.). You get the point. Not only are our superstars pulling the weight of all the injured starters, but they also happen to be batting at historically incredible rates.

Maybe they can keep this up for a while, but eventually, they will cool off. The combination of them cooling off and the other starters being injured would be very detrimental to the team's prospects. The same scenario applies to the stock markets now. Figure 5[3] illustrates this concept. The big peaks you see in 1929 and 2024 and the smaller peaks in the early 1960s, mid 1970s, and late 1990s are like the superstar batters hitting at incredible numbers. When they cool off, they cool off

[2] Source: https://x.com/jasongoepfert/status/1809291187875971465
[3] Source: https://x.com/MikeZaccardi/status/1808084747031101595

quickly. And that typically causes the team to start losing. Or in this case, for the stock market to go down significantly.

Figure 5: Market Cap of Largest Stock Relative to Stock in 75th Percentile



Universe consists of US stocks with price, shares, and revenue data listed on the NYSE, AMEX, or NASDAQ exchanges. Series prior to 1985 estimated based on data from the Kenneth French data library, sourced from CRSP, reflecting the market cap distribution of NYSE stocks

Source: Compustat, CRSP, Kenneth R. French, Bloomberg, Goldman Sachs Global Investment Research

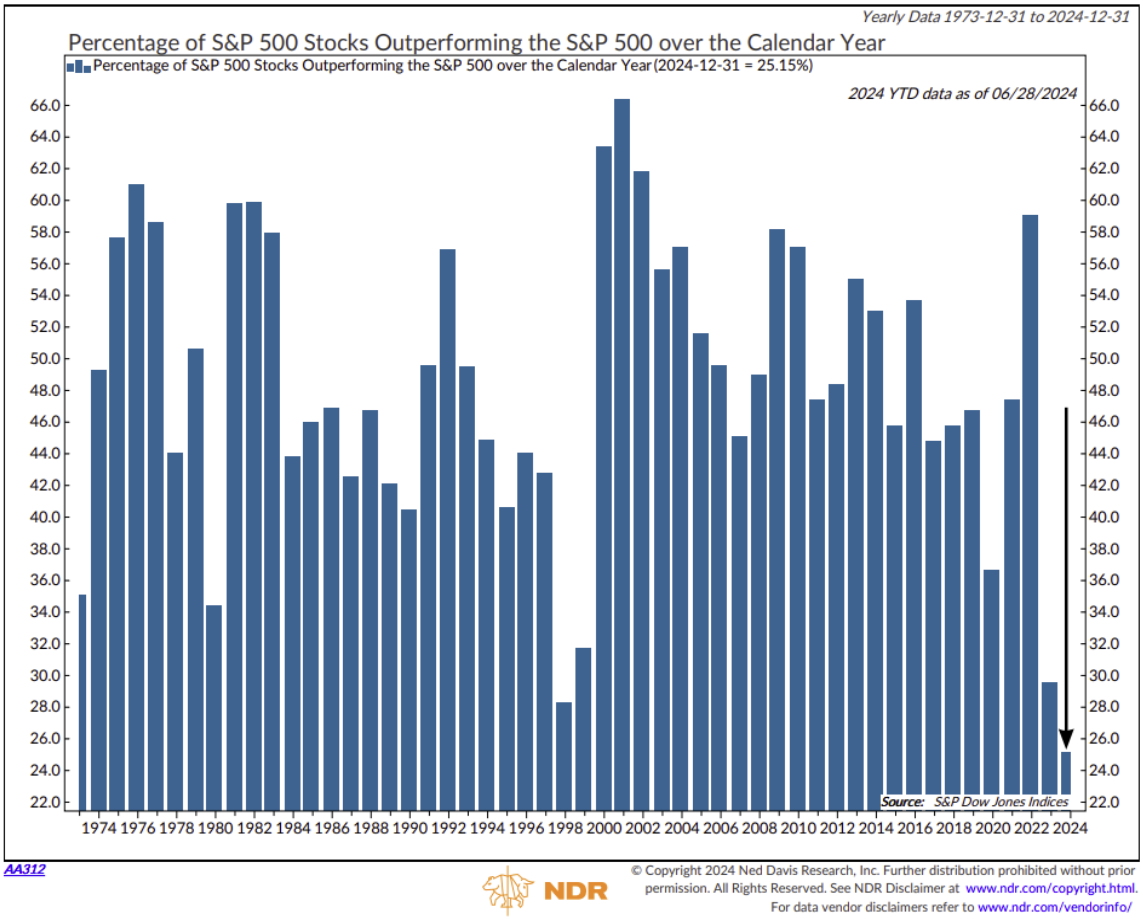
We are going to belabor the analogy! We've already seen what happens when our superstars are playing well and all the other starters are injured. We have seen what happens in the scenario when the superstars are batting at historically insane levels. Let's look at this through a different lens.

Our superstars are batting .600. The league average is .242. There are two ways we can get to an average of .242:

- Way #1 = Most batters are hitting right around .242. For example, maybe most batters are between .230 and .250. It's a tight range. In this case, the average of .242 is very representative of the average batter in the league.
- Way #2 = Some batters – our superstars – are batting .600. The rest of the batters are batting below .200. The average is .242, but the average is not at all representative of the average batter in the league. A few really good superstars are making the league average appear higher than it otherwise would be. In reality, most batters are struggling.

The stock market is experiencing Way #2 right now, as evidenced in Figure 6[4]. The last time the stock market found itself here was in 1998 and 1999, right before the Dotcom bubble popped and the S&P 500 dropped -55% and the NASDAQ dropped -80%.

Figure 6: Percentage of S&P 500 Stocks Outperforming the S&P 500 Index

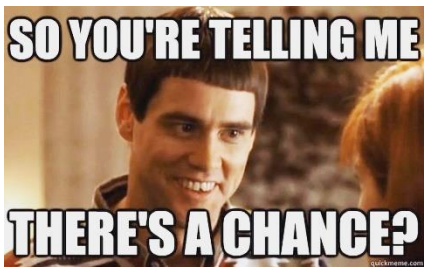


Onto our last baseball analogy. We promise. First, some context is warranted. The best historical analogy to today's stock market is the market of the late 1999s. Back in that Dotcom era, the largest 10 companies represented 30% of the entire economy. That is a staggeringly massive percentage. Then you have today: the 10 largest companies, which include the Mag7, represent 60% of the economy (see Figure 7[5]). Remember how we said we ran out of superlatives? This is what we meant. There is no – zip, zero, nada – historical context for this. The Dotcom market eventually imploded, with tech stocks falling 80%. And that when the top 10 stocks were at 30% of GDP. Again, the top 10 stocks are at 60% of GDP today!

[4] Source: https://x.com/WillieDelwiche/status/1807941090076774612
[5] Source: https://x.com/crescatkevin/status/1808530793804808363

So here is our baseball analogy: owning stocks now, especially the Mag7 stocks, is like placing a parlay[6] bet with the following wagers:

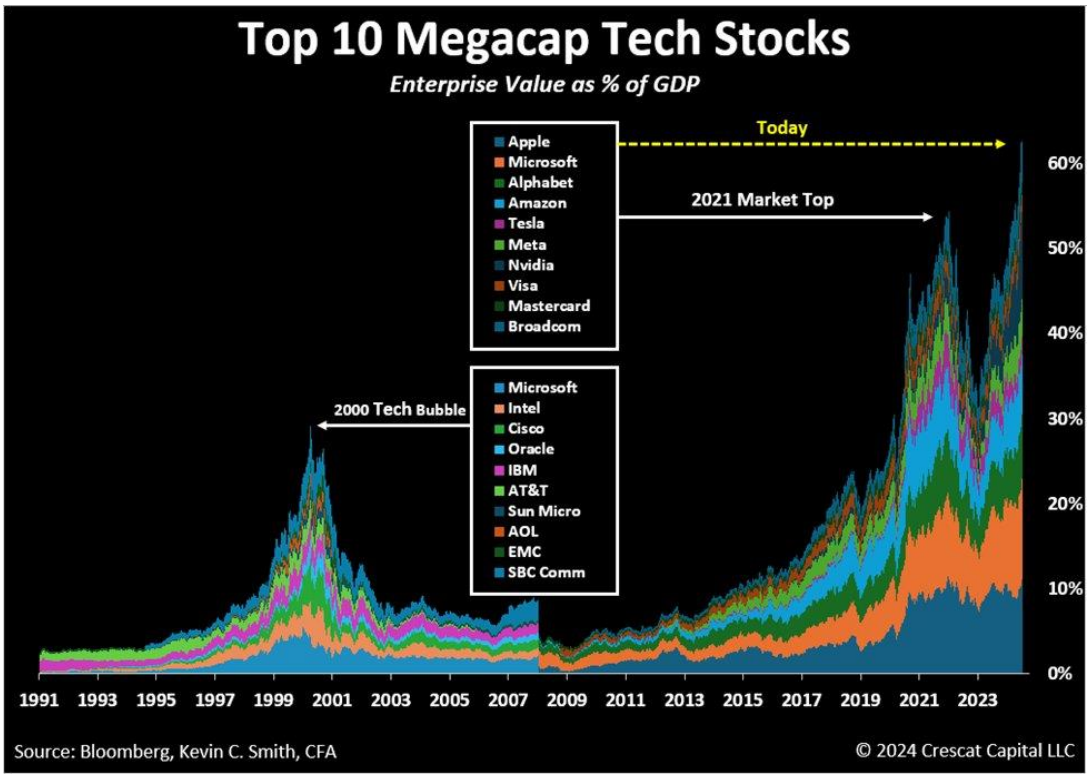
- Your baseball team will win the World Series,
- Your superstar will finish the season with a .600 batting average, and
- Your other superstar will finish the season with a slugging percentage of 1.200.



Theoretically, this is possible. Statistically, it is virtually impossible. It is like watching Lloyd in Dumb and Dumber get excited over his chances with Mary: "So you're telling me there's a chance?"

We know with most starters being injured that the chance of winning the World Series, yet along making the playoffs, is slim. We know batting .600 is possible but unprecedented. And securing a slugging percentage of 1.200 would require a Herculean effort for a full season. So if you need all of them to happen to win the bet, is that a smart bet?

Figure 7: Top 10 Stocks as Percentage of GDP



The Cliffs Notes version of the story called "Stock Concentration": Concentration looks amazing, but it has a tendency to sting in a very painful way.

[6] A parlay is a series of smaller wagers, each of which must be won, to win the parlay. For example, if you bet (1) the Phillies will beat the Mets and (2) the Phillies will score more than five runs, you only win the parlay if both the Philles win and the Phillies score more than five runs.

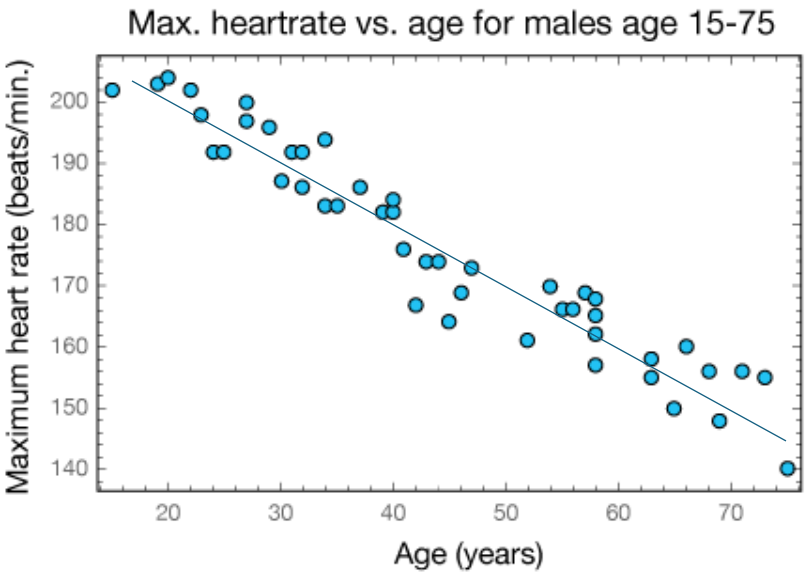
Market Valuations

Let's turn our attention to the stock market at large.

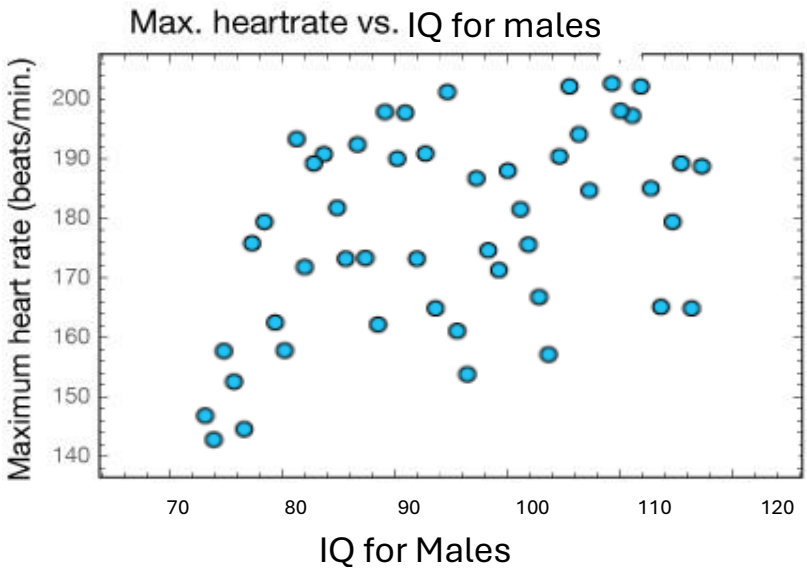
Before we dive in, we need a short tutorial on correlations.

A correlation is simply a relationship between two things.

Let's start with a simple example. The chart[7] to the right shows the relationship between age and maximum heart rate. The max heart rate for males is strongly correlated with age. How do we know it is strongly correlated? All the data points cluster tightly along a line. A tight cluster of data points like this suggests a strong correlation between the data points. Thus, if we approached a random man who is age 40, we could confidently say his max heart rate would be around 170 beats per minute.



Contrast the above correlation to relationship between heart rate and IQ for males in the chart at right. There is no discernable relationship between an individual's IQ and his max heart rate. You could not, with any confidence, say that a man with an IQ of 100 should have a certain max heart rate. In this case, there is no correlation between the data points.



[7] Source: Xaktyl.com. URL: https://xaktly.com/ProbStat_Correlation.html

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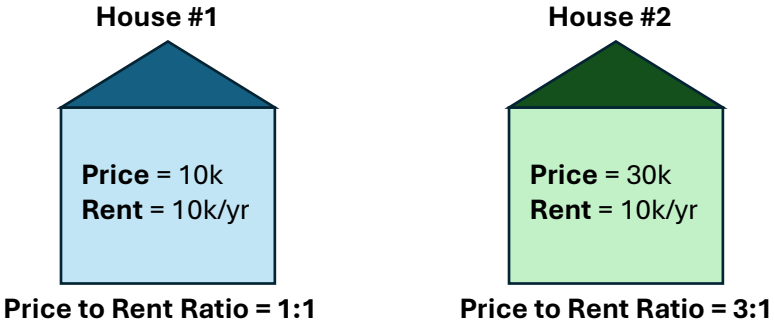
A Few Great Valuation Models

Model #1: Price to Sales Ratio

Let's start with a simple analogy.

Suppose you want to buy an investment property. Suppose there are two houses to choose from. Suppose both houses have similar floorplans and amenities and acreage and ages. Both houses are in the same neighborhood. And on average, houses in that neighborhood command rent of 10k/yr and sell for 10k. What house would you choose?



Don't overthink this one. Of course, you'd choose House #1. It commands the same rent as House #2, but it is 1/3 of the price. And recall, the neighborhood average is 10k price and 10k rent, for an average price to rent of 1:1.

Why would you ever buy House #2? You would buy it if you could raise the rent.

But how could you increase the rent to $30k in a neighborhood where rents average $10k? You'd have to differentiate that house somehow, perhaps with an updated kitchen and bathrooms. But that would only increase your investment in the house. You would, for example, need to spend $20k to fix the kitchen and bathroom, making your total investment 50k [$30k purchase price + $20k renovations]. You can now charge rent of $30k on a $50k investment. Your ratio is now 1.67:1 [$50k:$S30k]. It is still above the neighborhood average.

It is hard to get the ratio back to 1:1 when you overpaid in the first place. Unfortunately, the reality is that the ratio typically only gets back to 1:1 if the price of House #2 falls.

If the landlord of House #2:

- Made no improvements and earned $10k rent, then the price would need to fall from $30k to $10k to get the price to rent ratio back to 1:1. The landlord takes a loss of (67%) [($20k reduction / $30k investment]
- Made improvements and earned $30k rent, then the price would need to fall from $50k to $30k to get the ratio back to 1:1. The landlord takes a loss of (40%) [($20k reduction) / $50k investment].

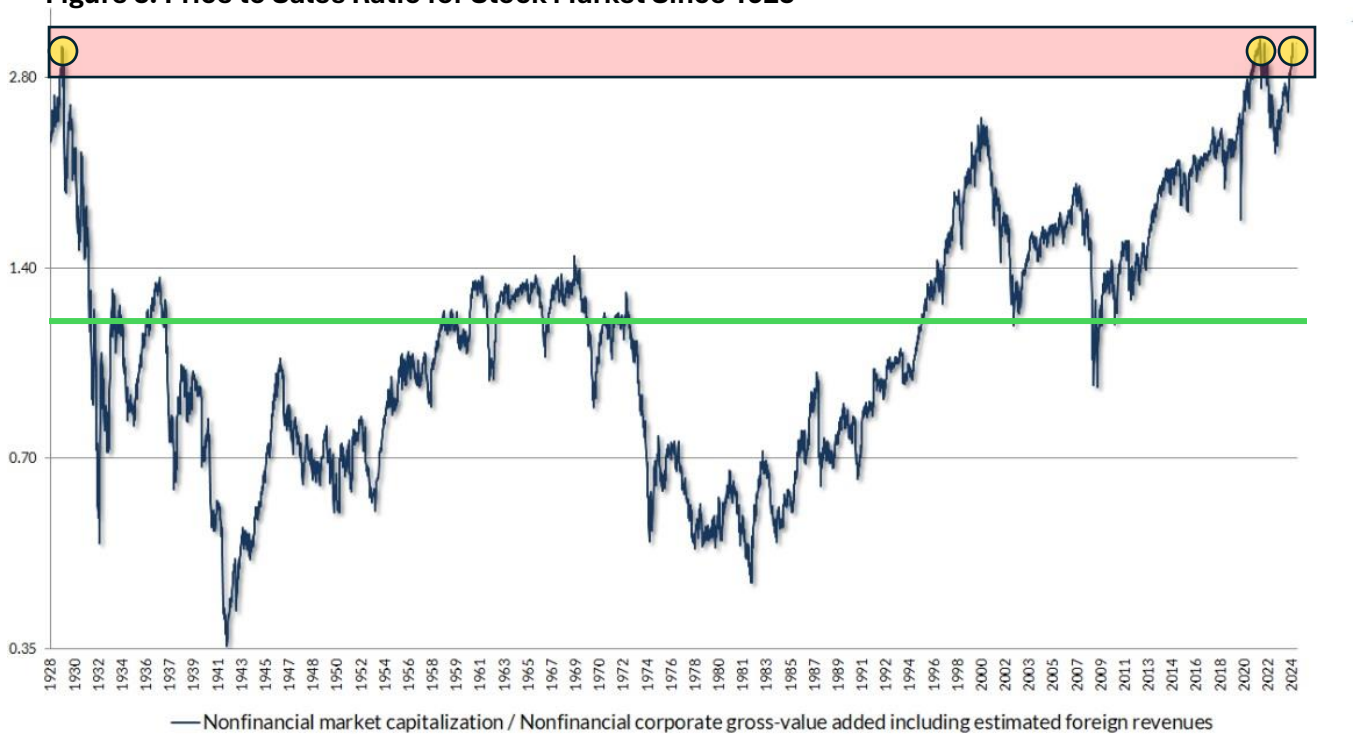
Again, no rational person would buy House #2.

The stock market is no different than our hypothetical housing market. The same way a landlord buys a house and expects to receive revenue via rent, a stock investor buys a stock and expects the company to earn revenue to support the stock price.

Over 100 years of stock market history, we know the ratio of stock price to stock revenue is 1:1, much the same way the fictional houses in our neighborhood had a price to rent ratio of 1:1.

Figure 8[8] below is a proxy for the price to revenue ratio[9] of the stock market over the last 100 years. Recall that the average ratio is 1:1 (the line in green below). We will come back to this chart in a minute. However, first, we must move tangentially to the topic of correlations.

Figure 8: Price to Sales Ratio for Stock Market Since 1928



We can make a couple observations about this chart:

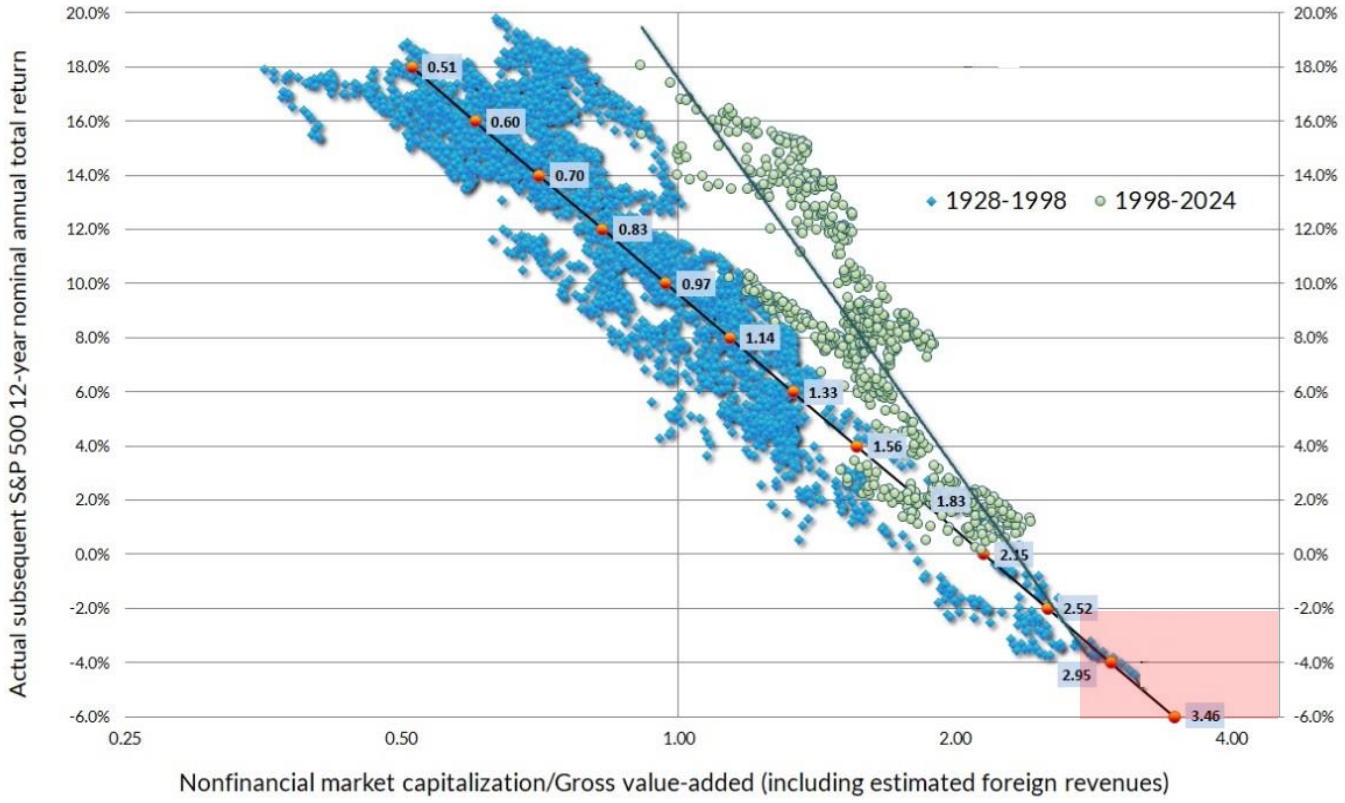
- Observation #1 – The first yellow circle sits at 1929. That is the year the Great Depression started. The stock market subsequently lost (85%) of its value. For the next century, the price to revenue ratio did not approach the 1929 high. Even during the Dotcom Bubble in 2000 and the Global Financial Crisis in 2008, the ratio did not reach 1929 levels. But, in 2022 and again in 2024, the ratio is back to 1929 levels.
- Observation #2 – The correlation between price to revenue ratio vs. future stock returns is very strong. Figure 9 shows this correlation. Notice how tight the correlation is. Price to revenue is along the horizontal axis. Future stock returns are along the vertical access.

[8] Source: Hussman Strategic Advisors. URL: https://www.hussmanfunds.com/comment/mc240321/
[9] Figure 8 shows the ratio of Nonfinancial market capitalization vs. Nonfinancial corporate gross-value added including estimated foreign revenues. This is a proxy for price to revenue.

Every time the price to revenue ratio gets above 2.8 (the light red box), stocks never averaged more than -2% per year for the next twelve months. In 2024, we are currently sitting at 3.0. We have been sitting at 3.0 since 2022. Of course, starting with 2022, we will not know the twelve-year stock return until 2034. Ditto for starting at 2024 and waiting until 2036. But, just like we know the 40-year-old man should have a max heart rate around 170 because of the strong correlation, we know the stock market should have a pretty lousy long-term return starting from 2022 (and 2024) because of the strong correlation between price to revenue and future returns.

- Observation #3 – The price to revenue ratio is mean-reverting. Simply stated, when the ratio is above 1.0, it tends to fall back to 1.0, and when the ratio is below 1.0, it tends to rise back to 1.0. In other words, the stock market does not stay overvalued (ratio > 1.0) forever. Nor does it stay cheap (ratio < 1.0) forever. This is the exact analogy with the landlord and homes above. Just the same way home prices eventually align with the neighborhood average, so do stock prices have to align with historical averages. And like the landlord who bought the overvalued House #2 and lost money, so too will investors who buy overvalued stocks today (or in 2022) at a ratio of 3:1.

Figure 9: Price to Sales Ratio (X-axis) vs. Actual Future S&P 500 Returns (Y-axis)



In summary, the current price to revenue ratio of 3:1 strongly suggests the stock market will be negative over the next decade.

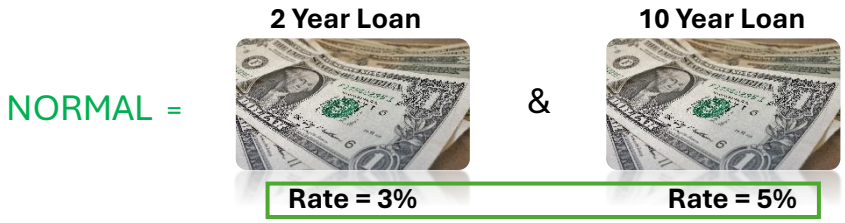
Model #2: Yield Curve Inversions

While on the topic of correlations, let's look at another interesting correlation, this one in the bond markets. This correlation deals with interest rate inversions, also known as yield inversions. Our past few commentaries have extensively covered yields and inversions. Here is a quick refresher.

Suppose we want to borrow money from you. We need two loans from you: one for 2 years and one for 10 years. From your perspective as the lender, which one is riskier: lending us money for 2 years or lending us money for 10 years?

The 10-year loan is riskier because more can go wrong in 10 years than can go wrong in 2 years. This jives with our intuition.

In the world of lending, risk is synonymous with interest rates. A riskier loan carries a higher interest rate. So when you agree to lend us money for the loans, maybe you charge us 3% for the 2-year loan and 5% for the 10-year loan. This is considered normal.



But sometimes abnormal things happen. Sometimes, the shorter-dated loan is riskier than the longer-dated loan. This is called yield inversion, or inversion for short.

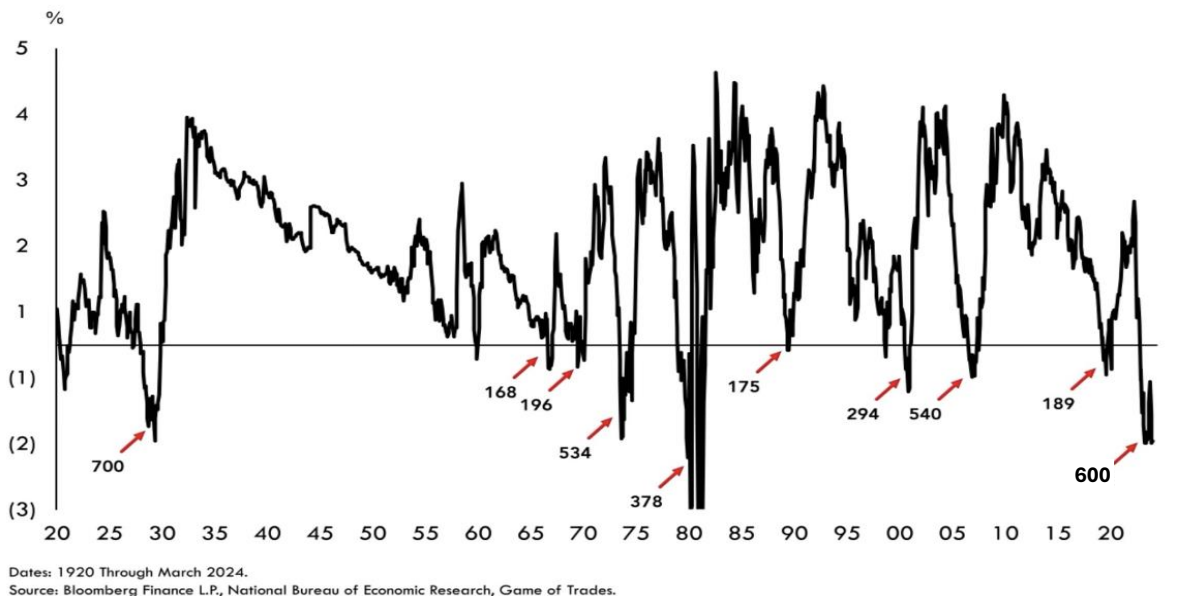
Why might this be the case? If the "market" – the collective intelligence of all actors, both individuals and institutions, in the economy – perceives there to be more uncertainty in the next few years then over the long run, than short-dated loans may be riskier than longer-dated loans. Imagine the "market" is concerned about a recession. A recession would have a quite drastic impact on the short-run economic outlook. But in 10 years down the road, the recession wil llikely be over and better times will likely be realized. One reason for inversions – the primary reason for inversions – is a high level of anxiety over the short-run economic environment (i.e. potential recession) than the long-run economic environment.

If you agree to lend us money now, you would reconsider yout interest rates. The new 2-year loan may have the 5% rate, and the new 10-year loan may only have a rate of 3%. This is a classic inversion.

For most of the last two years, interest rates have been inverted. As you can intuit, this is not a good sign. Over the last 100 years, every time we have a sustained inversion, we get a recession.

Figure 10[10] shows the major inversions over the past 100 years. Anything below the horizontal black line is an inversion. The current inversion started on November 8, 2022. As of June 30, 2024, the inversion is exactly 600 days old.

Figure 10: Length of Yield Inversions Since 1920

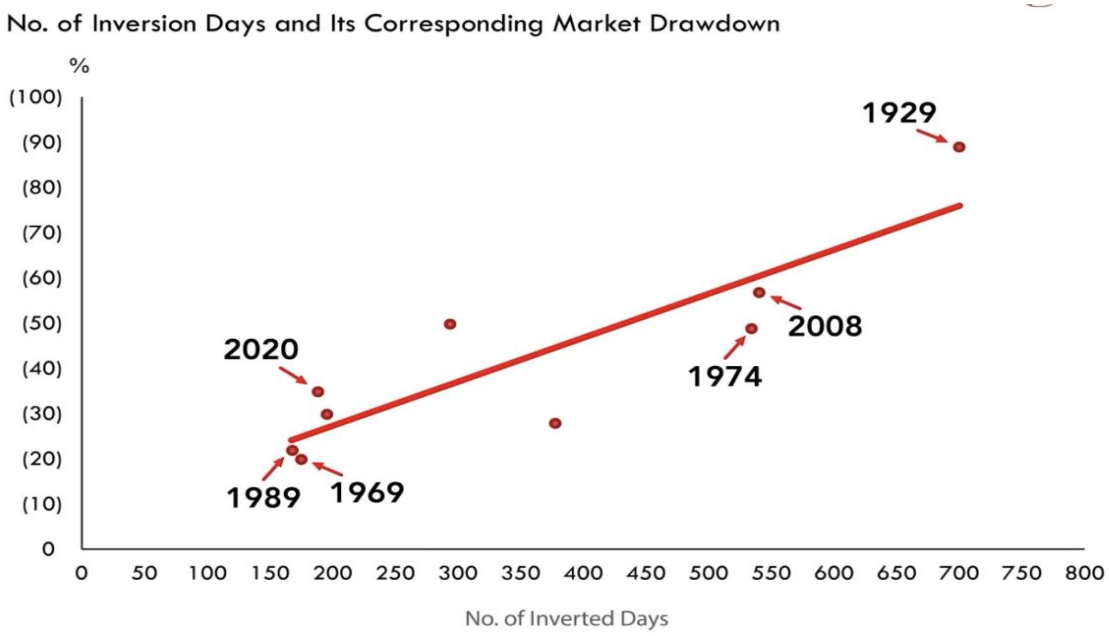


At 600 days old, the current inversion is the second-longest on record. Queue the correlation.

[10] Source: Game of Trades. NOTE: In this chart, the shorter-term loan rate is represented by the 3-month US Treasury Bill rate. The longer-dated loan rate is represented by the 10-year US Treasury note rate. URL: https://x.com/GameofTrades_/status/1782440592951431247

There is a significant correlation between the length of the inversion and the subsequent loss in the stock market. Figure 11[10] shows this correlation.

Figure 11: Length of Yield Inversions vs. Future Stock Market Loss



Dates: Through March 2024.
Source: Tradingview, Game of Trades.

With a 600-day inversion, the correlation suggests a 55-65% loss in the stock market.

But guess what? Interest rates are still very inverted. The inversion will continue to age until short-term rates are once again below long-term rates. Practically, it will take another few months, at a minimum, until rates un-invert. This will push the length of the inversion to the Great Depression-era length of 700 days, maybe even beyond. And that implies a stock market loss greater than 55-65%.

Last critical point about inversions: Every recession in the past has been preceded by an inversion.

Model #3: Discount Cash Flow

In the December 31, 2023 edition of this commentary, we introduced the discounted cash flow method of stock valuation. The discussion on this topic can be found here. This method is so ubiquitous and accepted that every business school in the country teaches this method in its Finance 101 course.

Here's a quick summary: Much like our rental income vs. home price analysis, an asset is only as valuable as the income (i.e. revenue) it produces. Stocks produce dividends. Thus, we can use estimated dividends to project a value for the S&P 500. If we know three inputs – current dividend amount[11], dividend growth rate[5], and the historical average return[12] of the S&P 500, we can calculate the estimated fair value of the S&P 500.

	@ December 31, 2021	@ June 30, 2024
Dividend Amount	$60.40	$70.82
Dividend Growth Rate	4.9%	4.9%
S&P 500 Average Return	10.3%	10.3%
Estimated S&P 500 Fair Value	1,114	1,340
Actual S&P 500 Value	4,766	5,460
Implied Drawdown	-77%	-75%

Thus, when assessing whether the stock market was over- or undervalued at the end of 2021 or now, it was equally and substantially overvalued at both times. It was so overvalued that the implied future loss was roughly (75)% in both instances. Like the price to sales ratio and the yield inversion analysis, this is a medium- to long-term forecast.

Model #4: The Buffet Indictor: Stock Market Capitalization to GDP

Warren Buffet, the famed Oracle of Omaha, needs no introduction. One of his favorite stock market indicators is the ratio of stock market capitalization to gross domestic product. In fact, Buffet likes this indicator so much and has referenced it is his comments so frequently that analysts now refer to this ratio as the "Buffet Indicator".

The Buffet Indicator has two inputs:

1. The total size of US stock market, known as market capitalization, and
2. The total size of the US economy, known as gross domestic product (GDP).

The Buffet Indicator is market capitalization divided by GDP.

[Editor's Note: The Buffet Indicator is the macroeconomic equivalent of the price to sales ratio in Model #1. As we showed in Model #3, the current value of the stock market (e.g. market capitalization) is the present value of future cash flows. Think of the stock market as a reflection of future economic activity. GDP is the current value of actual economic activity. So the Buffet Indicator is, at its essence, a ratio of future projected activity to actual current activity. This is the same principal as the price to sales ratio, where price reflects the present value of future dividends (e.g. future cash flow) from the S&P 500 and sales reflects the current value of actual sales from the S&P 500.]

[11] Source: http://www.econ.yale.edu/~shiller/data.htm
[12] Source: https://www.slickcharts.com/sp500/returns

The current value of the Buffet Indicator is 188%, meaning the stock market is 88% larger than the economy. That is a whopping number. So whopping that it has little precedent to the past. Figure 12[13] below shows the history of the indicator.

Figure 12: The Buffet Indicator

Among the observations we can make, there are two that stand out:

- First, past instances of the indicator hitting the +2 standard deviation mark have been followed by recession. The high levels in the 1960s were followed by a series of rolling recessions starting in the late 1960s and continuing into the 1970s. The peak in 2000 was followed by the implosion of the Dotcom bubble and major stock market loss. And then there is now, the period starting in 2022 and continuing through today. History will be written about this period of time, and based on past precedent, that history may not be flattering.
- Second, the average value of the Buffet Indicator is 118%[14]. The indicator is mean-reverting, meaning that when the current value is above the average value, the current value will tend to decrease back to the average. With the current value at 188% and the average at 118%, we would expect the current value to decrease towards 118%. This implies the following:
    - If stocks grow @ 0% moving forward, the economy must grow 59% to move the indicator from 188% to 118%.
    - If GDP grows @ 0% moving forward, market cap must fall 37% to move the indicator from 188% to 118%.

[13] Source: https://currentmarketvaluation.com/models/buffett-indicator.php
[14] Source: https://www.gurufocus.com/stock-market-valuations.php

- Since we are making the case for a recession, it stands to reason that GDP may actually shrink. Per research from The Capital Group[15], the average recession in the US sees GDP drop by (2.5)%. During the housing bubble in 2008, GDP fell by (7.0)%.
  - If we get a standard (2.5)% GDP contraction, market cap must fall by 39%.
  - If we get a severe (7.0)% GDP contraction, market cap must fall by 42%.

  We would argue that a recession is more likely than not given the current economic backdrop. Therefore, it is not unreasonable to expect the stock market (using market cap as a proxy) to drop by about 40%.

Again, like the previous three models, the Buffet Indicator is a long-term indicator, suggesting that a 40% drop would be the expectation over the next 8-10 years.

In the end, it does not matter which particular model you point to. They all converge on the same message: Over the next decade, it could be a rough ride for the stock market.

Here's a brief recap:

- Over the next decade, the price to sales ratio (Model 1) and the Buffet Indicator (Model 4) imply the stock market will lose 40-50% of its value. More importantly, the two models corroborate each other. Finally, both models have been consistent in their forecast for stock returns since the end of 2021.

	Implied Loss over Next 10 Years	
	@ December 31, 2021	@ June 30, 2024
Price to Sales (Model 1)	-55%	-50%
Buffet Indicator (Model 4)	-41%	-39%

- Again, over the next decade, the yield inversion (Model 2) and the DCF (Model 3) suggest the maximum drawdown (e.g. max loss) for the stock market may be between 60-75%. Again, the two models provide similar, corroborating findings, and both models have been suggesting these drawdowns since late 2021.

	Implied Max Drawdown over Next 10 Years	
	@ December 31, 2021	@ June 30, 2024
Yield Curve Inversion (Model 2)	n/a	-60%
Discount Cash Flow (Model 3)	-77%	-75%

Two parting thoughts about the valuation models:

1. **These models are strategic in nature. They are not designed to time the exact moment the stock market hits its top. Instead, they are purposed to project the trajectory of stocks over the next decade.**

[15] Source: https://www.capitalgroup.com/advisor/insights/articles/guide-to-recessions.html#:~:text=Over%20the%20last%2070%20years,recession%20reduced%20GDP%20by%202.5%25.

2. **If you suffer from #FOMO, fear not. A 60% loss from the current level puts the S&P 500 to 2,184, a level last seen at the very bottom of the COVID crash in March 2020. A 75% loss puts the S&P 500 to 1,395, a level not seen since November 2012!**

Technicals

In the December 31, 2023 commentary, we introduced the concept of technical analysis, or "technicals" as it's known colloquially. Technical analysis is the concept of identifying patterns in assets and investing based on those patterns.

To start off, let's introduce one of the charts we used in the December 31 commentary: the "gaps up" in the S&P 500. First, a quick summary: When the stock market opens at 930am EST each day, the opening price is different than the closing price from 4pm the previous day. For example, the closing price might be 5,400 and the next opening price might be 5,425. If the opening price is higher than the closing price, the stock market has "gapped up."

"All gaps get filled" is a popular notion in technical analysis. If the stock market gaps up, it must back-fill that gap at some point in the future. Back to our example: Suppose the market closed at 5,400 and opened the next day at 5,425. It gapped up by 25 points. At some point in the future, the market must fall back to 5,400 to back-fill the gap.

Statistics suggest that 90% of all gaps get back-filled[16].

Figure 13 shows all the gaps since the Covid lows in March 2020. There have been 11 unfilled gaps since March 2020[17]; each gap is marked with a horizontal **blue** line. If 90% of gaps get filled, we would expect 10 of the 11 gaps to get filled. More bluntly, we would expect, at a minimum, the S&P 500 will fall to the horizontal line second from the bottom; this line is colored in **purple**. That purple line is at 2,550 for the S&P 500. The represents a 55% loss from current levels. Incidentally, this is in line with the max drawdown suggest by the price to sales valuation model and the Buffet Indicator valuation model we just covered.

[16] Source: https://bioequity.org/statistics-do-stock-price-gaps-always-get-filled/
[17] The dates of the gaps are 3/21/2020, 4/4/2020, 5/16/2020, 11/4/2020, 3/29/2023, 5/5/2023, 11/2/2023, 11/3/2023, 11/14/2023, 5/03/2024, and 06/12/2024.

Figure 13: Gaps in the S&P 500 Since COVID

The second technical analysis technique examines corroborating moves among various stock indices to confirm a new breakout.

The two charts below show the same stock benchmarks over two timeframes:

- Since January 1, 2022, and
- Since January 1, 2024

The indices included in these charts are the following:

- S&P 500 (SPX) in blue
- NASDAQ (NAS) in orange
- Dow Jones (DJC) in green
- Dow Jones Transportation (DJT) in purple
- Russell 2000 (RUS) in pink

Let's start with the chart since January 1, 2022. We chose that start date because we have argued throughout this paper that the stock market has been overvalued since late 2021. The valuation models we presented attest to this.

Figure 14: Performance of Selected Stock Indices since January 1, 2022

In this performance chart, there are a couple of interesting takeaways:

- First, from an economic standpoint, small companies are more sensitive to economic pressures than large companies. For example, small companies have a harder time finding adequate employees relative to large companies; they have less leverage negotiating financing terms (e.g. they are more sensitive to interest rates) than their larger peers; and they have fewer financial resources to weather difficult times compared to larger companies. As such, small companies tend to stall first in a weakening economy and recover first out of a recession. Notice that the Russell 2000, the index that tracks small

companies, remains negative two and a half years after peaking in January 2022. This suggests that the economy is not as strong as meets the eye. The economy is only worked for the larger companies, while the economically-sensitive companies struggle. (Incidentally, this dovetails into the discussion on stock concentration earlier, where the Mag7 are doing well while most other companies are treading water.)

- Second, with the exception of a brief period in July 2023, all five indices were negative from January 2022 through December 2023. Essentially, no one made money for two straight years. In fact, depending on your investment allocation, you may have even remained negative over this time. Equally as important, all the major averages were correlated over this time. For instance, if SPX went down, so did the other four. And vice versa.
- Third, starting in January 2024, the correlation between the indices started breaking down. Since January 2024, SPX and NAS are flying high while the DJC, DJT, and RUS are all being left behind. The DJT is even negative for the year. The year-to-date chart is shown below. Taken in isolation, this divergence between the SPX (and NAS) and the other indices may look innocuous. However, what if we told you that before both the Dotcom bubble imploded and the Housing bubble imploded, the Dow Jones Transportation (DJT) index diverged from the SPX. This divergence is so important that it even has a name: Dow Theory[18]. The Dow Theory states that a move higher in one index should be confirmed by a move higher in another index. Not all indices are created equal for this purpose; many veteran Wall Street analysts use the DJT as one of the two comparative indices. For example, if the SPX is going up, is the DJT also going up? The DJT is used since it is a collection of companies that are responsible for moving all the "stuff" we consumer around the country. Remember, roughly 66% of our GDP comes from buying "stuff." If demand for "stuff" goes down, transportation companies will feel that softening demand first. Less demand would not be a good omen for the economy. Thus, a divergence between SPX and DJT, as we have seen this year, may portend a weakening economy.

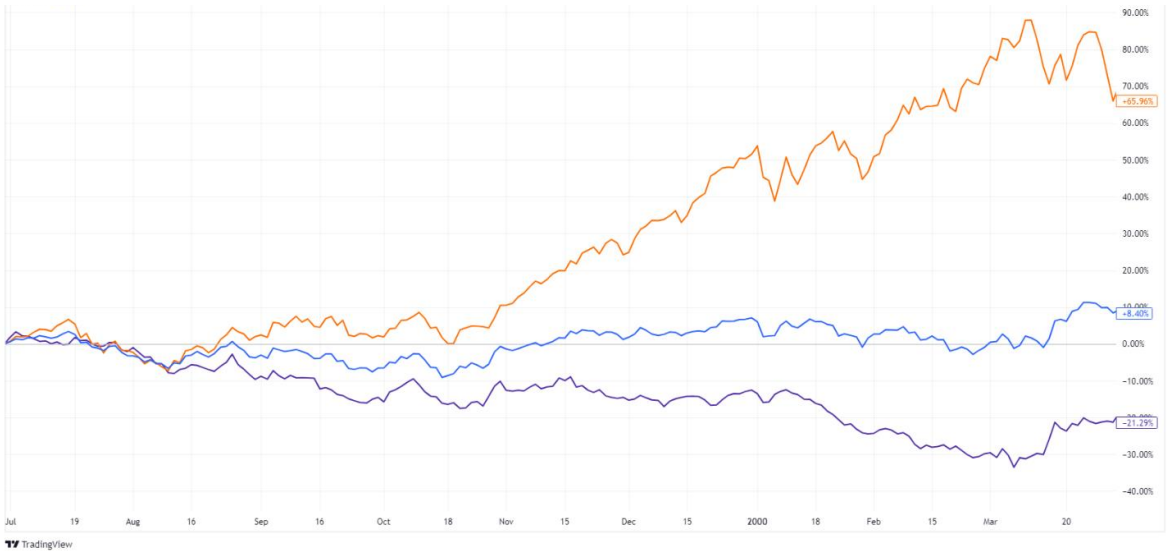
Figure 15: Performance of Selected Stock Indices since January 1, 2024

[18] For more information on the Dow Theory, see https://www.investopedia.com/terms/d/dowtheory.asp

We noted above how the Dow Theory, or lack thereof, was triggered before the Dotcom and Housing bubbles implosions. Here's a look at the SPX and DJT in both cases.

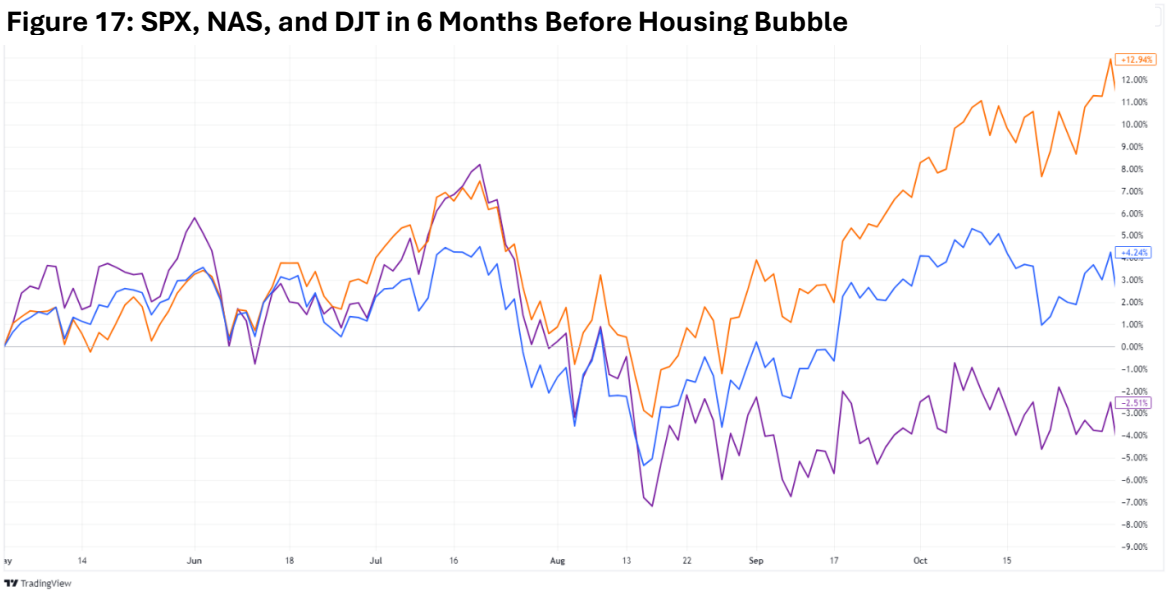
The first chart shows the S&P 500 (SPX), NASDAQ (NAS), and Dow Jones Transportation (DJT) in the six months leading up to the popping of the Dotcom bubble in Spring 2000. At the end of March 2000, the SPX and NAS hit all-time highs while the DJT lagged significantly. The rest is history. The SPX went on to lose 55% over the next two years while the NAS was down a whopping 82%!

Figure 16: SPX, NAS, and DJT in 6 Months Before Dotcom Bubble



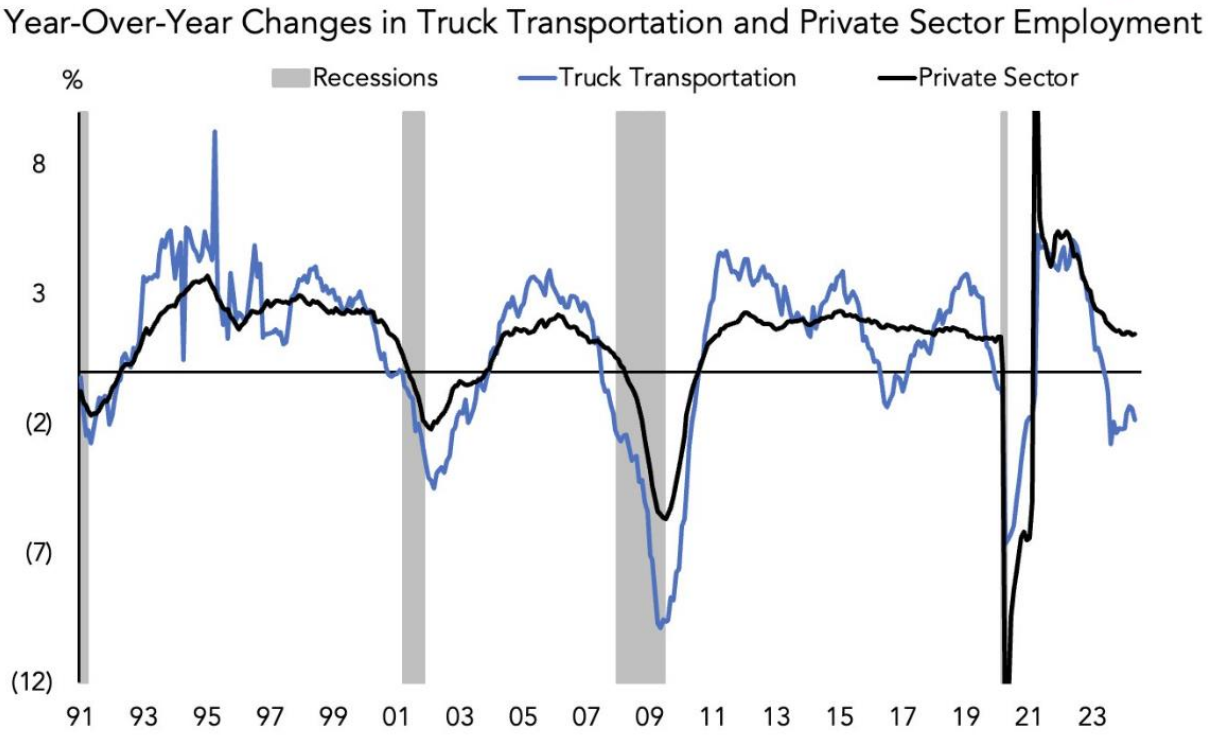
The next chart below shows the same three indices – SPX, NAS, and DJT – in the six months leading up to the popping of the housing bubble in 2008. The pattern in 2008 was eerily similar to that of Dotcom, with both the SPX and NAS hitting all time-highs while the DJT lagged behind. Once the housing bubble imploded, stocks lost 50% of their value.

Figure 17: SPX, NAS, and DJT in 6 Months Before Housing Bubble



One last point about the divergences between the SPX and DJT. Below, we have included a chart[19] of the year-over-year ("YoY") change in trucking employment. Anything below the horizontal black line indicates that employment is down (e.g. people have been laid off) over the last year. YoY decreases in trucking employment have traditionally coincided with economic weakness. Recessions are shaded in gray. Given divergences between the SPX and DJT, it is interesting that trucking employment is down. Decreases in trucking employment have also preceded recessions.

Figure 18: YoY Change in Trucking Employment



Dates: 1991 Through May 2024.
Source: Bureau of Labor Statistics, National Bureau of Economic Research, Game of Trades.

Wrapping up the discussion of DJT divergences and softening demand for "stuff", we present two charts:

- Remember, demand for "stuff" drives the economy. If demand is down, presumably less people are needed to transport goods. Figure 19[20] is a chart of retail sales. Sales are flat since 2021. Flat sales help explain why trucking employment is falling; people simply aren't buying as much "stuff" as they used to. Flatlining retail sales also precede recessions.
- To top it off, Figure 20[21] overlays the truck tonnage index vs. the S&P 500. The truck tonnage index is a way to measure the aggregate trucking activity in the U.S. It jives beautifully with trucking employment and retail sales. All three data points – employment, sales, and trucking tonnage – have been flat or down since 2021. Yet another series of data points that suggest economic weakness has been present for the last three years.

[19] Source: https://x.com/GameofTrades_/status/1809609789728817260/photo/1

Figure 19: Real Retail Sales

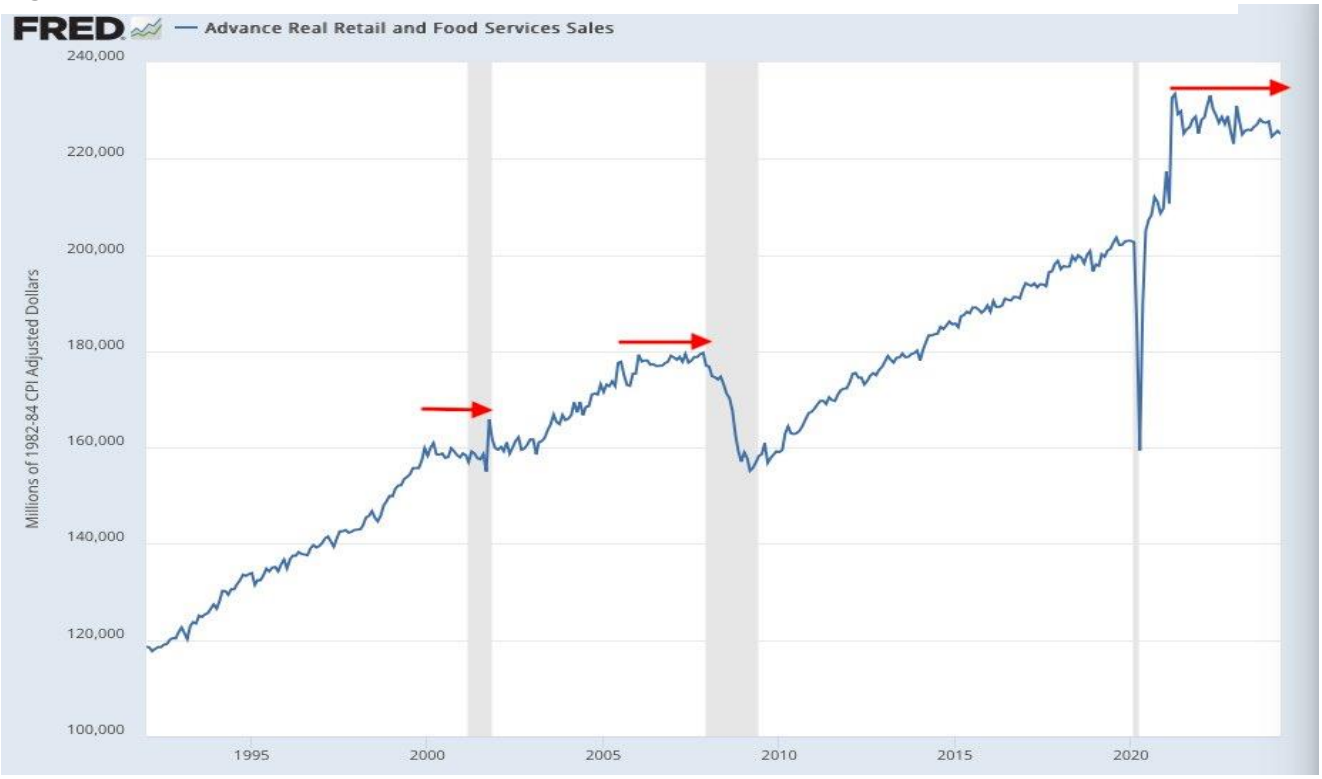
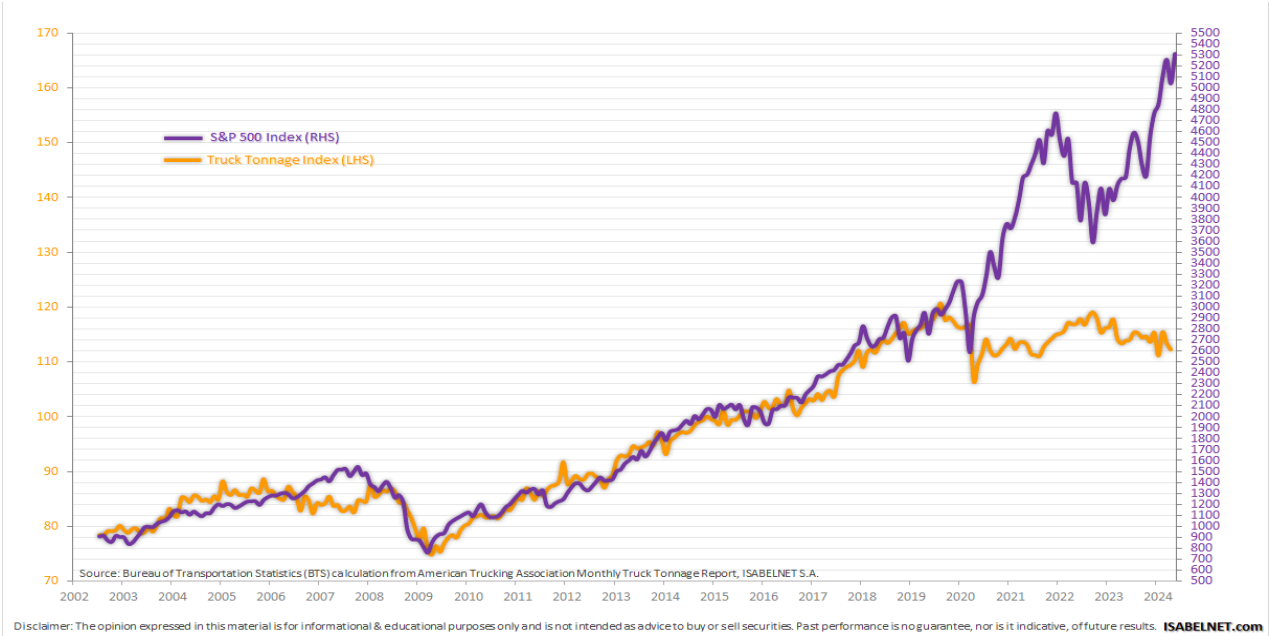


Figure 20: Truck Tonnage Index vs. S&P 500



[20] Source: https://x.com/joosteninvestor/status/1800213928431194115

[21] Source: https://x.com/ISABELNET_SA/status/1794305926297714721

Our last bit on technicals surround gold and silver. We'll keep this simple, succinct, and focused on the coffee and tea drinkers.

Below is a chart of gold (the jagged green & red line is the price of gold). Here's the context:

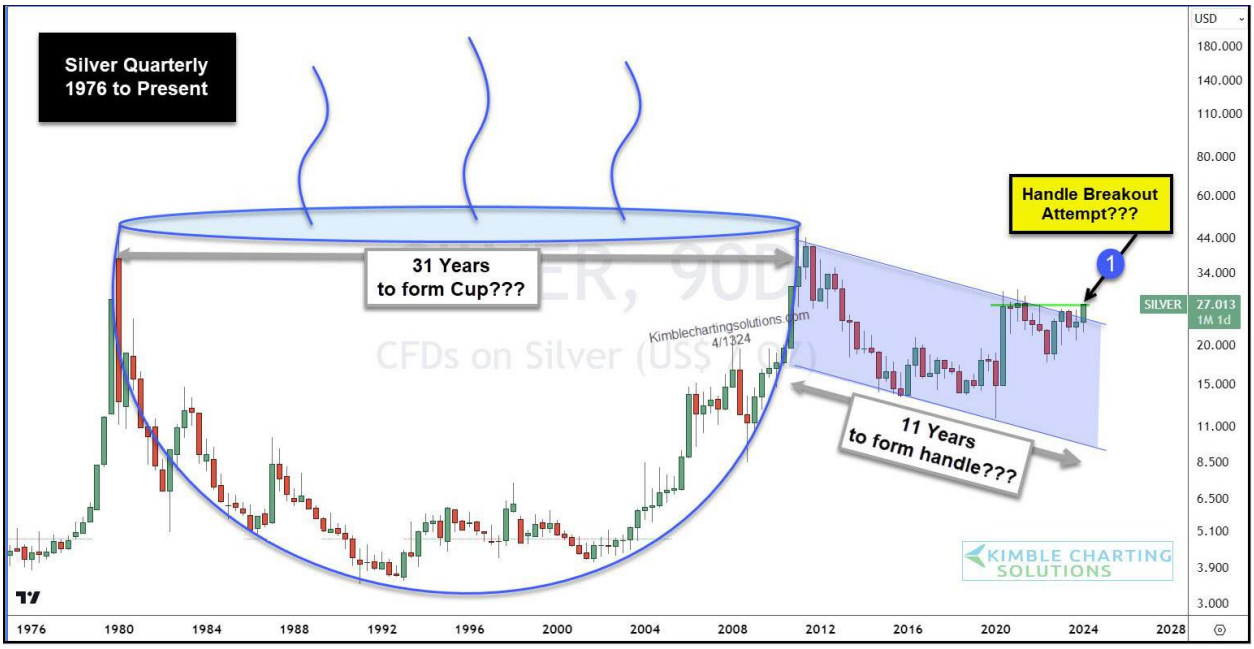
1. In 2011, gold hit roughly $2,000/oz. That's the first peak about 1/3 of the way into the chart from the left.
2. Gold bounced right off $2,000/oz, heading in a long cup shape down to almost $1,000/oz and back up to $2,000/oz in 2021. That's the second peak about 2/3 of the way into the chart from the left.
3. Starting in 2021, gold meandered sideways for three years, forming a smaller cup shape while never breaking through $2,000/oz.
4. Early in 2024, gold finally broke through the $2,000/oz mark, and it has been higher ever since.

The coffee and tea drinkers already recognize this pattern. This large cup and small cup formation is known as a "cup and handle." This pattern usually indicates positive momentum, but only if the price breaks above the resistance level. In this case, the resistance level was $2,000/oz, and gold definitely broke above this level. Now that resistance is broken, the expectation is for gold to head quite a bit higher. (NOTE: The longer it takes for the cup and handle to form, the stronger the signal. Gold took 13 years to form this cup and handle. That is a long time and a strong signal).

Figure 21: Gold Since 2006

Silver is almost in the midst of forming a cup and handle. The chart below shows silver going back 45 years. Unlike gold, the handle is still forming on silver. Silver's resistance level has been around $45, so we expect the price of silver to test this mark. If silver can break about $45, it could climb quite a bit higher.

Figure 22: Silver Since 1976

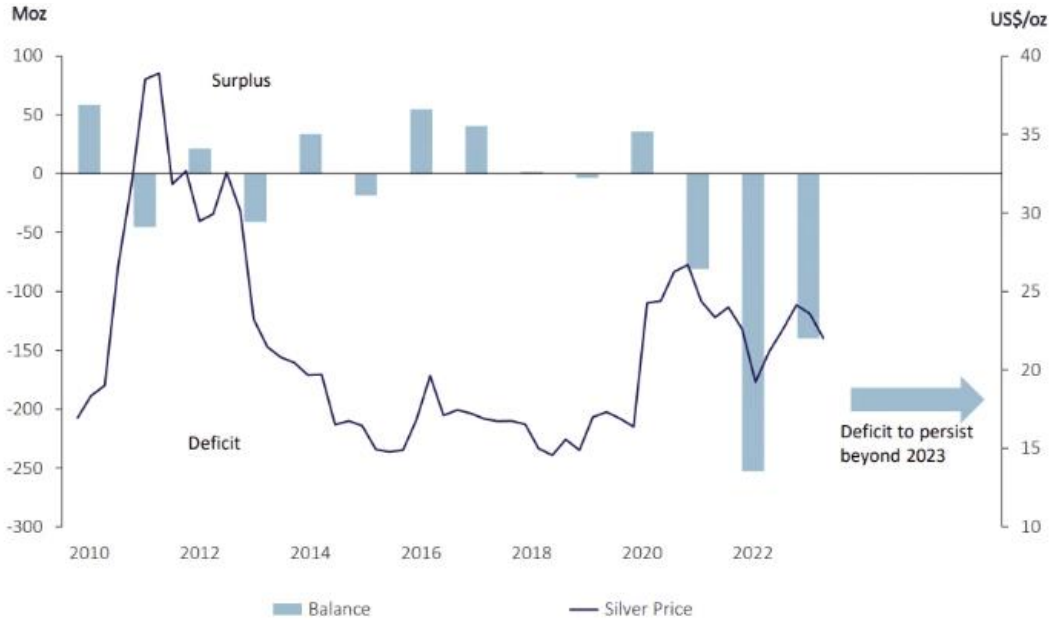


Silver has three things going for it:

- Gold and silver tend to move in tandem. They are correlated. When the price of gold rises, silver also tends to rise. And vice versa. Thus, a breakout is gold may only help silver.
- Throughout the 20th century, the ratio of gold to silver was roughly 45:1[22]. Think of it this way: If gold was priced at $450/oz, silver should be priced at $10/oz. That is a 45:1 ratio. However, the current gold to silver ratio is 76:1. This implies that either (1) the price of gold must come down or (2) the price of silver must climb faster than the price of silver. We established that gold looks to be heading higher, so it stands to reason that silver should not only head higher as well, but that silver should outperform gold moving forward.
- Silver demand far exceeds silver supply. In classical economics, when demand exceeds supply, the price must move higher to create equilibrium. Recall, a higher price encourages more supply while weakening demand. The price will rise until demand and supply are back in balance. Silver has experienced huge structural supply shortages, so it is logical to presume that the price must move higher to put the market back into balance. Figure 23[23] below shows silver deficits (and surpluses) over the past 15 years.

[22] Source: https://www.investopedia.com/articles/investing/080316/historical-guide-goldsilver-ratio.asp
[23] Source: https://carboncredits.com/silver-to-see-growing-deficit-in-2024-as-supply-struggles/

Figure 23: Silver Surplus & Deficits Since 2010



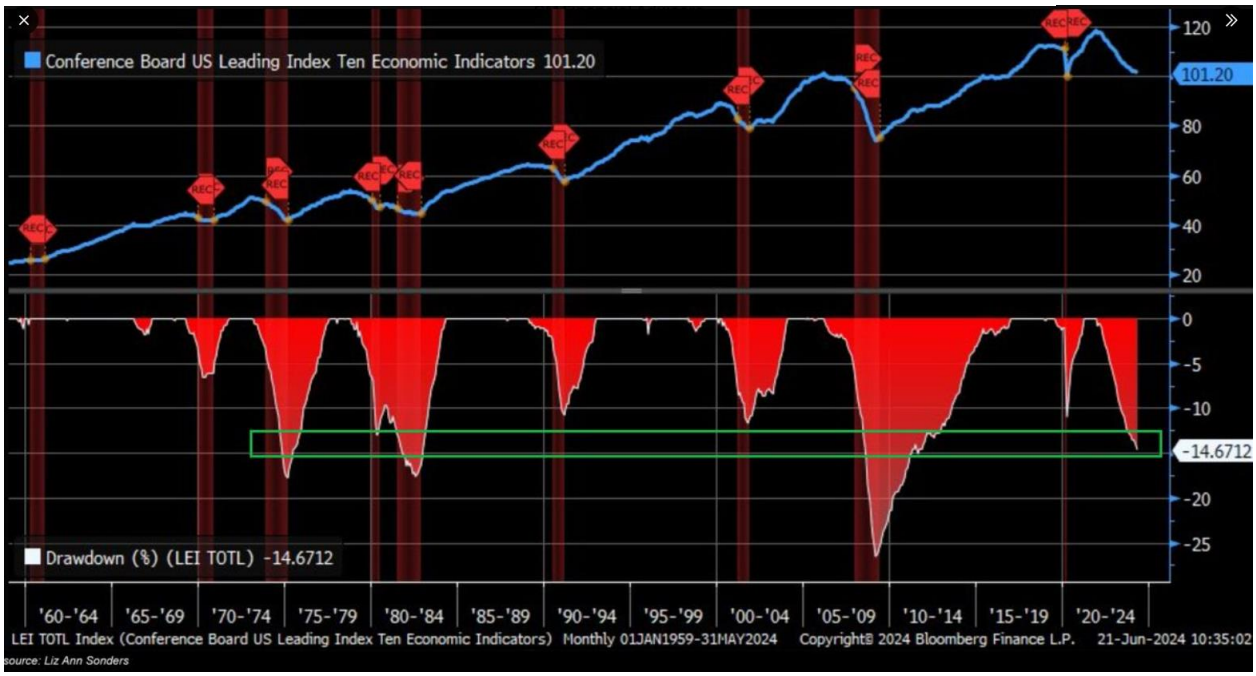
Source: Metals Focus

Parting Thoughts

The data does not look good. And yet, the stock markets appear to have no kryptonite. It is tempting to wonder: "Just when will everything fall apart?" Of course, we do not have that crystal ball, but we do have a few insights.

In past commentaries, we talked about the Leading Economic Indicator ("LEI") index published by the Conference Board. It is an index with 10 subcomponents, all of which lead the economy (e.g. the subcomponents go up before the economy goes up and they go down before the economy goes down). Below is a chart[24] of the LEI index through June. The LEI index is the red inverse peaks on the bottom half. The lightly-shaded red vertical columns are recessions. We have always had a recession when the LEI index has been this deep for this long. The clock is ticking.

Figure 24: Drawdowns in Leading Economic Indicator Index



Much fuss has been made about the labor market holding up. We would argue that the labor numbers published monthly by the government are hiding a bad truth: The only jobs being created are part-time jobs. In contrast, full-time employment jobs have declined -1.2% over the past year, as evidenced by the Figure 25 on the next page[25]. We have always had a recession when the YoY drop in full-time employment is more than -1.0%, The clock is ticking.

[24] Source: https://x.com/GlobalMktObserv/status/1805307403665293639
[25] Source: https://x.com/EconguyRosie/status/1809264053908373830

Figure 25: YoY Percentage Change in Full-Time Employment

For 100 years, the S&P 500 has traded against a clean line of resistance. It has only touched this resistance line four times, that fourth time being June 2024[26]. Each time it has hit resistance, it has bounced off. It is possible the index goes higher from here. But to do so, it would need to set a precedent over 100 years in the making. The path of least resistance is down. The clock is ticking.

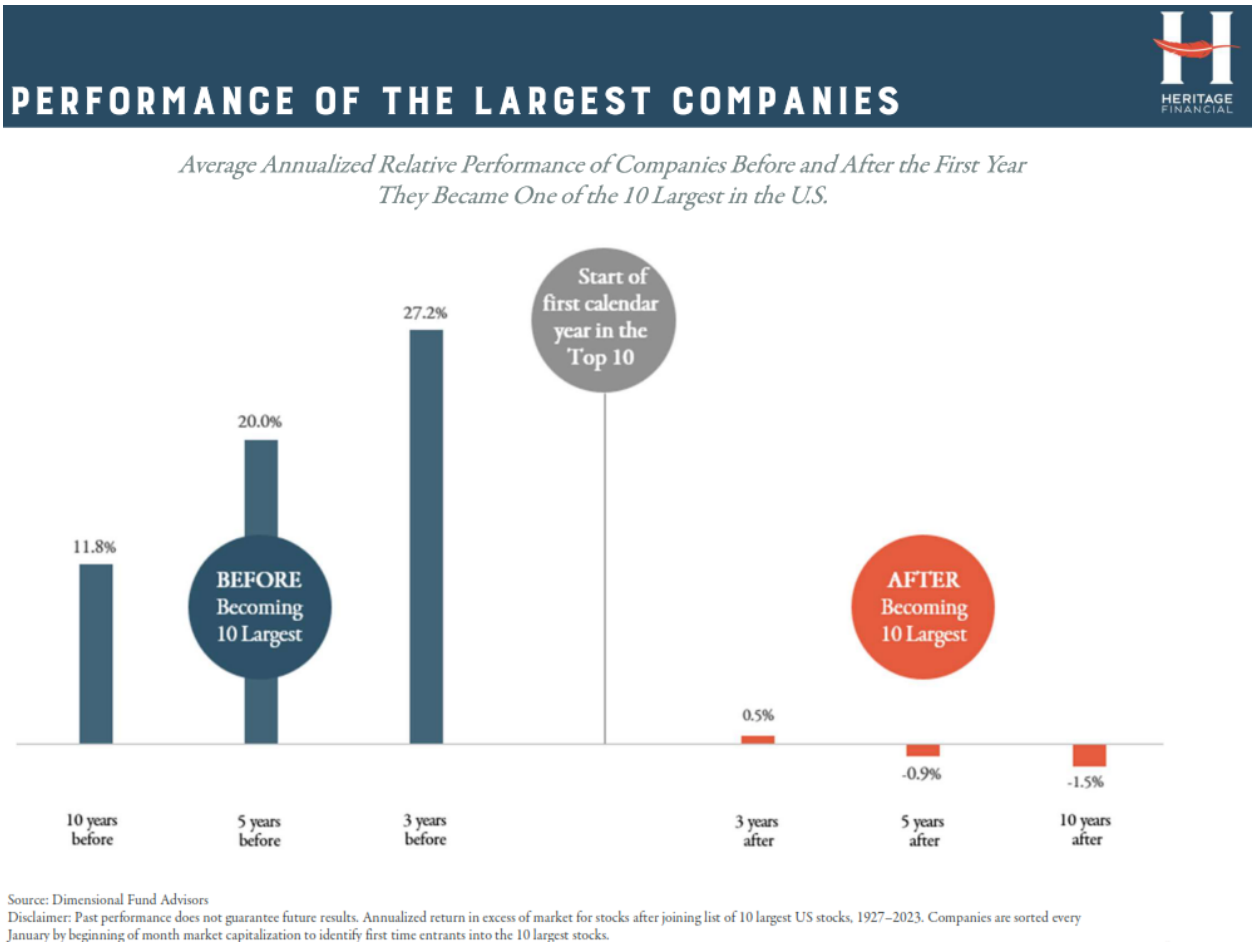
Figure 26: Chart of S&P 500 over Last 100 Years (Log scale)

[26] Source: https://x.com/yuriymatso/status/1804309187499037157

And finally, we end where we started: perspective on the S&P 500 concentration. We have extensively argued that concentration does not end well. Here is one more nugget to drive home that point. The biggest stocks stink after they become the biggest stocks. But, they are rockstars in their ascent to becoming the biggest stocks. The ten biggest stocks – the same 10 we noted on page 7 – do very well before becoming the biggest stocks, and then they do very poorly afterwards.

What does this mean? If this trend persists, these 10 stocks, which make up 60% of our economy and virtually all the stock market returns, are due to have negative returns over the next decade. That will not be good for the economy nor the stock market.

Figure 27: Performance of 10 Biggest Stocks Before and After Becoming the Biggest Stocks



Source: Dimensional Fund Advisors
Disclaimer: Past performance does not guarantee future results. Annualized return in excess of market for stocks after joining list of 10 largest US stocks, 1927–2023. Companies are sorted every January by beginning of month market capitalization to identify first time entrants into the 10 largest stocks.

In summary, we would simply like to restate the potential endgame for the stock market as suggested by the valuation models discussed on pages 9-18.

Over the next 8-10 years, we can expect the stock market to generate negative annual returns, on average. The implied return is -4% to -5% per year for the next 10 years.

	Implied Loss over Next 10 Years	
	@ December 31, 2021	@ June 30, 2024
Price to Sales (Model 1)	-55%	-50%
Buffet Indicator (Model 4)	-41%	-39%

Stocks do not go down (or up) in a straight line, though. While the average return may be -4% to -5% per year, the stock market tends to cascade down in a recession. During this crash, the stock market may hit its low point. We don't know when this point will be, but we can speculate that the stock market may go down as much as -60% to -75% before it finds the bottom.

	Implied Max Drawdown over Next 10 Years	
	@ December 31, 2021	@ June 30, 2024
Yield Curve Inversion (Model 2)	n/a	-60%
Discount Cash Flow (Model 3)	-77%	-75%

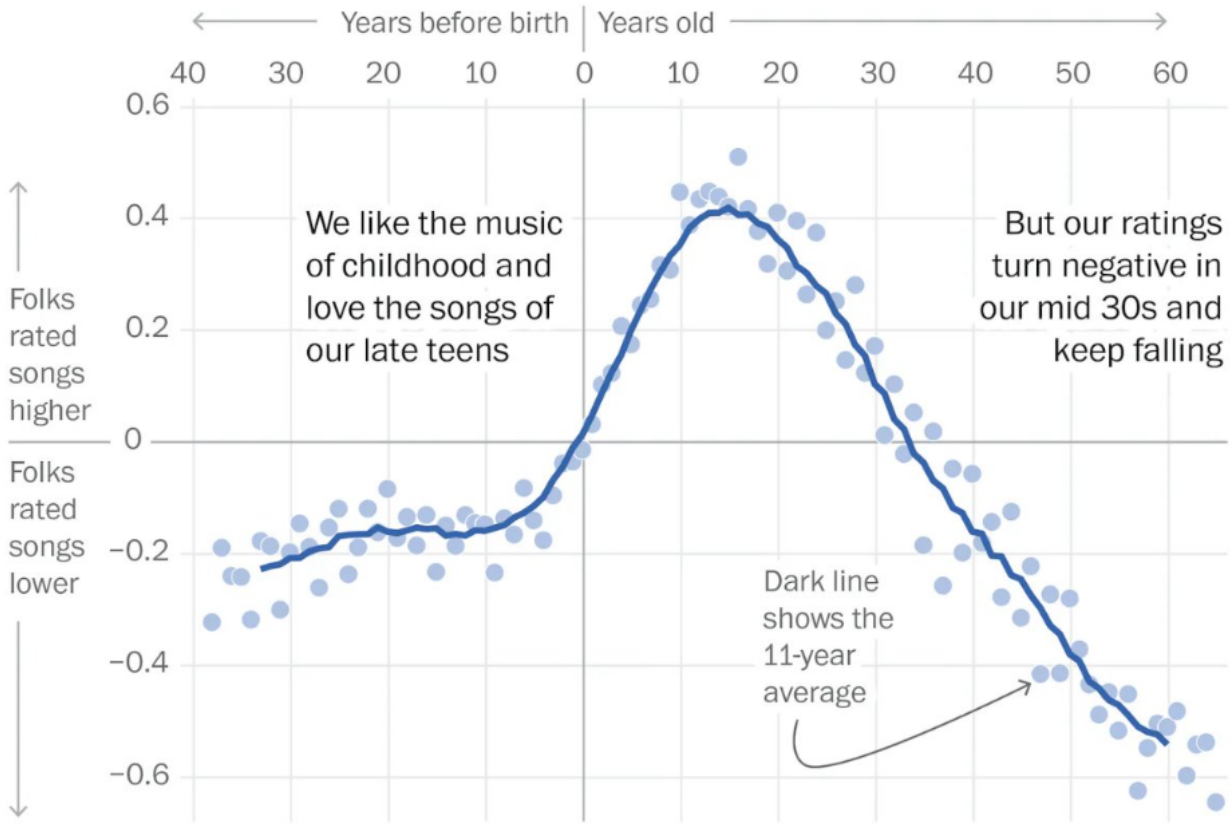
For those of with #FOMO, fear not. A 60% loss from the current level puts the S&P 500 to 2,184, a level last seen at the very bottom of the COVID crash in March 2020. A 75% loss puts the S&P 500 to 1,395, a level not seen since November 2012!

We always like to end with something light-hearted. Perhaps we can all relate to these two.

When I'm driving and the Backstreet Boys come on the radio, I crank the volume way up! If the Bee Gees or Three Dog Night or Journey is on, I'll listen at normal volume. But when the modern stuff comes on, I usually change the station. Now we know why...

All good music came after I was born, and before I hit 35

How Americans rate songs, based on their age when the song came out



Source: "The power of nostalgia: Age and preference for popular music" by Callum Davies, Bill Page, Carl Driesener, Zac Anesbury, Song Yang and Johan Bruwer DEPARTMENT OF DATA / THE WASHINGTON POST

And finally, a completely unscientific observation with completely accurate (or mostly accurate) results.