Gavin Bowen

Introduction

This project aimed to dive deeper into the United States' last four bear markets. I was tasked with dissecting each of these bear markets, analyzing their respective data, sharing critical macroeconomic data, pointing out key trends, understanding and explaining the Federal Reserve functionality, and coming up with a prediction regarding the current state of our economy. The most significant resource I relied on was Ycharts, which provided me with all the charts below. The grey area indicates a time of recession. The only one of the last four bear markets that was not considered a recession was the 2022 bear market. The dates listed next to the title of each bear market include the dates analyzed in the Excel portion of this project.

Federal Reserve

I need to understand the Federal Reserve and its purpose when discussing these bear markets. The Fed controls the United States' monetary policy, while the US government controls fiscal policy. The Fed wants to achieve two main goals: 1. controlling inflation and 2. controlling unemployment. The Fed achieves these goals by controlling the US economy's overall money supply and dictating interest rates. They typically aim to maintain 2% inflation annually and maximum employment (this does not mean 100% employment, but rather the maximum amount that can be maintained while keeping the desired 2% inflation rate). There are a couple of different outcomes to consider.

There is a strong connection between the Fed's strategy toward interest rates and unemployment. When the Fed feels that unemployment is getting too high, it usually decides to cut interest rates, and vice versa.

For example, if the Fed believes the US economy will overheat, it will attempt to raise interest rates to discourage consumer spending and business investment. Economic overheating refers to the idea that too much money is being invested and the economy will reach total capacity, eventually leading to companies being unable to meet extreme demand. Raising interest rates combats inflation because when demand falls due to those higher rates (money becomes pricier to obtain through bank loans), the price will also lower to maintain a desired demand for the business's product.

Another option the Fed can exercise to stop the economy's overheating is decreasing the economy's overall money supply. One example of this is raising the federal funds rate. The Fed establishes a minimum requirement of the amount of funds banks must keep on hand, called the reserve requirement ratio. This establishes a correlation between a bank's total amount of money and the amount they need to keep vaulted. If a bank is near the reserve requirement ratio and has limited excess reserves, it might need to borrow money from another bank to meet this requirement for the night. This occurs because more people take out loans during the day than expected. The bank might face penalties if it fails to meet this required reserve ratio. So, the Reserve can increase the federal funds rate, increasing the rate at which banks lend to each other, making it more expensive. For banks to still afford to loan to each other and have more money to meet the required reserve ratio, they must pass higher interest rates on to consumers. This effectively raises the interest rates on loans to consumers and businesses. Banks will also increase the return on savings

rates, encouraging people to save and put more money in the bank's vaults. To compete with this, new items like Treasury bonds become cheaper because they have an inverse relationship with interest rates. If Treasury bonds are still an attractive investment, their price must decrease, meaning their yield increases, making them competitive again amongst investors. Investors choose these new and improved yields, and their money is taken out of circulation in the economy, effectively lowering the money supply.

Both examples can be performed in the inverse way to obtain similar results.

***the federal funds rates mentioned in this paper was the effective federal funds rate, as it was the data easiest to obtain for free**

Dotcom Bubble Pop (January 1, 1995, to October 3, 2002)

Backstory

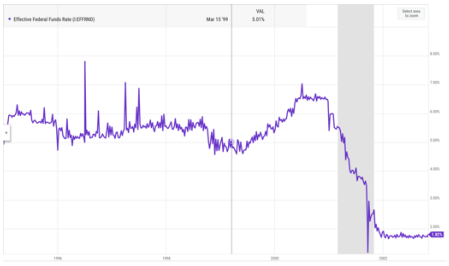
The Dotcom Bubble started in 1995, sparked by the commercialization of the internet, and ended in the later months of 2002, marking devastating losses for investors. Investors became highly enthusiastic about the prospects of Internet companies and looked to them to revolutionize the business world. IPOs went rampant as over 1,400 companies went public in the US during the height of the bubble, including names like Amazon and eBay. In 1999 alone, 486 companies went public. The average first-day return on IPOs in 1999 was 73% - insane. It was estimated that 80% of the companies that went public between 1999 and 2000 had never made a profit. By 2004, 48% of the dotcom companies that had gone public no longer existed.

Catalyst

There are various arguments as to the catalyst of the Dotcom Bubble. Investopedia claimed it was a combination of "speculative or fad-based investing, the abundance of venture capital funding for startups, and the failure of dotcoms to turn a profit." This is most definitely true as the amount of money that poured into the stock market into IPOs in 1999 was a whopping $69 billion ($107.2 billion in 2020); meanwhile, in 2020 (the dollar has been highly inflated since 1999 at this point), only $78 billion was piled into IPOs. This argument is furthered by the fact that 80% of the companies between 1999 and 2000 had never even turned a dollar profit. There is also a second argument, which follows that the Federal Reserve spiking interest rates several times caused the bubble to burst.

Federal Reserve Behavior

Alan Greenspan, who led the Federal Reserve then, initially decided to lower interest rates in response to global financial instability caused by events such as the Asian financial crisis and the Russian debt default. The idea of lowering interest rates was interesting, considering his past "Irrational Exuberance" speech, where Greenspan warned of the US economy being too enthusiastic. Later, this idea of lowering interest rates changed in 1999-2000 as the US economy was snowballing. The Fed started raising interest rates to keep the economy from overheating. Raising the rates was meant to slow down investing, an apparent goal supported by the abovementioned extreme numbers. The rise in rates led to a reassessment of the valuations of these tech companies that were being too heavily invested in. This is when the bubble burst. As seen in the overlay of the federal funds rate and the NASDAQ-100, the constant spikes in interest rates eventually led to the seemingly endless sharp decline of the NASDAQ-100 starting in the early months of early 2000 and to late 2002. The Fed sharply cut rates to try to combat this burst and increase demand, but the extreme damage had already been done.

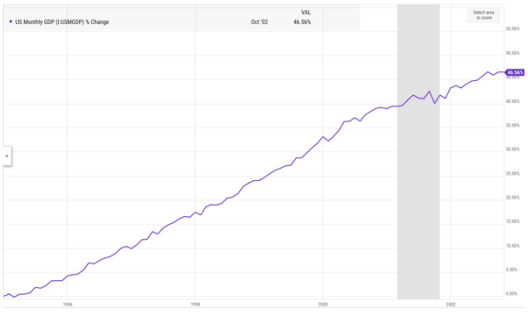


Macro-economic Data Points to Look At

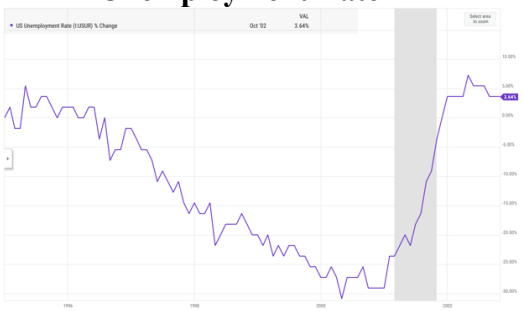
Inflation

10-year Treasury Rates

GDP



Unemployment Rate



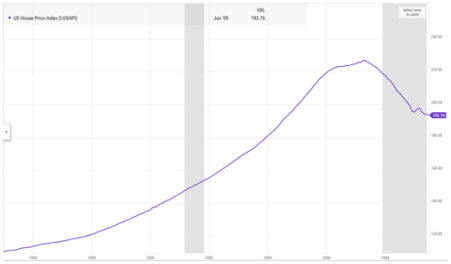
Global Financial Crisis (December 1, 2007, to July 1, 2009)

Backstory

The Global Financial Crisis began on December 1, 2007, and ended on July 1, 2009. Many economists consider this financial crisis the most serious since the Great Depression of the 1930s. This crisis highlighted massive bank failures, high unemployment rates, and a downturn in economic activity. Low interest rates, government policies encouraging home ownership, and increased lending increased home prices.

Catalyst

The housing bubble in the early 2000s resulted in financial institutions and investors being overly enthusiastic about the housing market. The housing market experienced momentum heading into the early 2000s because of deregulation, such as repealing the Glass-Steagall Act in 1999, which allowed financial institutions to embrace more risk. As displayed in the chart below, the US housing market was experiencing a rapid rise. As a result, banks and mortgage institutions were willing to take the risk of providing riskier loans to make more profit on higher interest rates and began to relax lending qualifications. The loans to these individuals had higher interest rates, meaning investors had a higher opportunity for return. Financial institutions like Lehman Brothers attempted to capture this phenomenon and borrowed heavily to invest in these mortgages. Lehman was leveraged as high as 30:1, meaning they had $30 of debt for every $1 of equity, and even the slightest loss would cause extreme financial pain. However, the perks of using these leveraged positions were the relatively high returns investors found exciting. To create an investing platform, complex financial products called mortgage-backed securities (MBS) and collateralized debt obligations (CDOs) were created. A mortgage-backed security was an asset-backed security created by a pool of mortgages, usually residential properties. Investors in mortgage-backed securities would make money by receiving periodic payments when homeowners paid their mortgages. These investments were attractive due to their relatively high returns and were also marketed as “safe investments” due to their nature in real estate. Mortgage-backed securities ended as a disaster because more and more subprime mortgages began to enter the offered pools. The higher yield provided by these sub-prime mortgages came from these borrowers having lower credit scores, meaning they paid a higher interest rate, which meant that the investor would receive more money on the mortgage-backed security payments. Collateralized debt obligations were slightly broader than mortgage-backed securities as they combined mortgage-backed securities with bonds and loans. Investors never actually understood the functionality of these securities, and as one would expect, credit scores matter. Soon, people with low credit scores could not repay these loans. In 2007 and 2008, home prices began to fall, and homeowners were “underwater.” They were now owing more on their mortgages than their homes were worth. This resulted in a spike in mortgage defaults and foreclosures and the eventual bankruptcy of Lehman Brothers, as there was a global panic. This panic led to a credit freeze, and banks were no longer willing to lend to each other, consumers, or businesses.

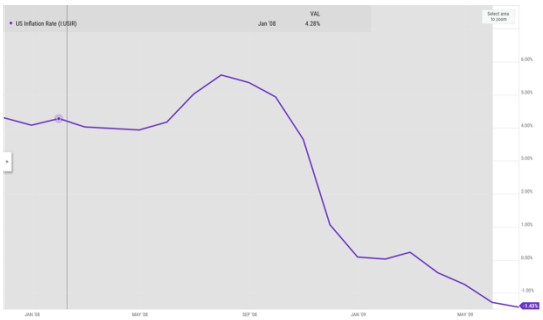


Federal Reserve Behavior

The Federal Reserve took extreme measures to combat this crisis. As shown below, the Fed cut the effective federal funds rate and interest rates to nearly 0 by December 2008, contrasting the 5.25% in September 2007. This was intended to reduce the costs of loans for businesses and consumers and stimulate economic demand. The Fed also expanded access to its discount window, allowing banks to borrow funds directly from the Fed, which is usually utilized in times of need. This effectively lowered the rate of these loans and made acquiring them more accessible to give banks liquidity. The Fed also bought mortgage-backed securities and collagenized debt obligations in exchange for Treasury securities. This helped stabilize the markets. The Fed took one last extreme measure, which was bailouts. The Fed oversaw the rescue of both Bear Stearns (to JP Morgan) and American International Group (to US Treasury). These operations were so important because if these financial instructions had collapsed, it was feared it would cause a possible collapse and chain reaction.

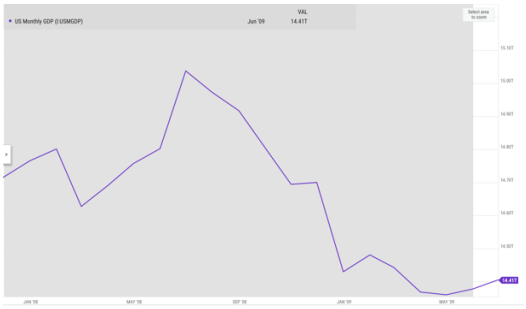
Macro-economic Data Points to Look At

Inflation

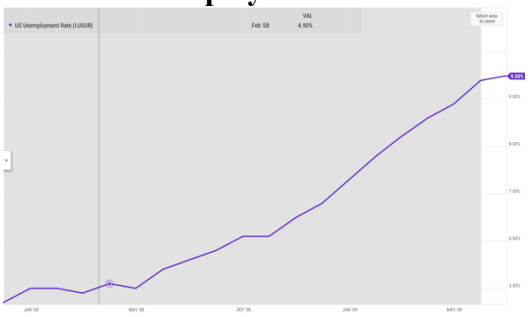


10-year Treasury Rates

GDP



Unemployment Rate



COVID-19 (January 1, 2020, to December 31, 2020)

Backstory

The COVID-19 pandemic was worldwide and had its most significant effects on the United States from the beginning and end of 2020. The virus originated in Wuhan, China, and rapidly spread globally. By March 2020, the World Health Organization declared the virus a pandemic. In response, states in the US imposed strict lockdowns meant to keep people inside their homes for most days, and any public appearance required a mask to be worn.

Catalyst

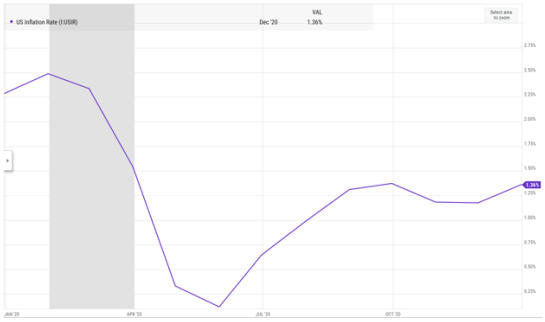
The catalyst of COVID-19 was fear. The fear of the virus and the lockdown in our economy sparked dramatic market declines - one of the sharpest drops ever seen. Between February 19 and March 23, the S&P 500 dropped 34%. The abrupt halt of normalcy in our lives led to an instant recession.

Federal Reserve Behavior

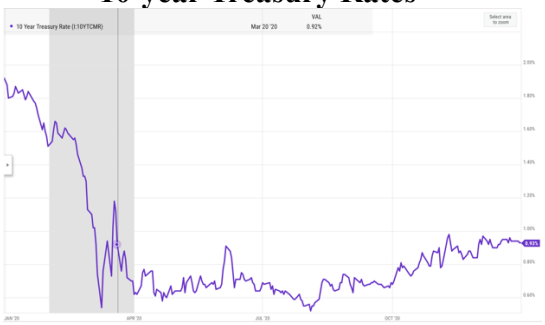
The Federal Reserve took an approach similar to the Global Financial Crisis in handling COVID-19. As seen below, the Fed slashed the federal funds rate and interest rates to nearly zero. These extreme measures were meant to ease the economy and provide emergency lending to support financial markets. The Fed also promoted a strategy called quantitative easing. This strategy aimed to buy back US Treasury Bonds and mortgage-backed securities. The point was to inject liquidity into the economy. As displayed in the macroeconomic data points, during this time, inflation sharply decreased, GDP took a massive hit, and unemployment spiked tremendously. It is also important to mention the monetary measures taken during this time, as the government began to enact several stimulus packages directed at individuals and businesses. This phenomenon was fascinating because the market reached its pre-pandemic levels by August. The market bounced back to normalcy at an unprecedented speed.

Macro-economic Data Points to Look At

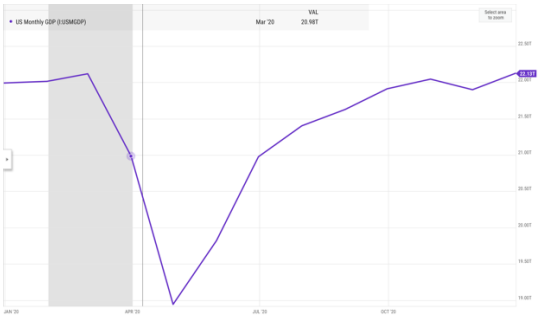
Inflation



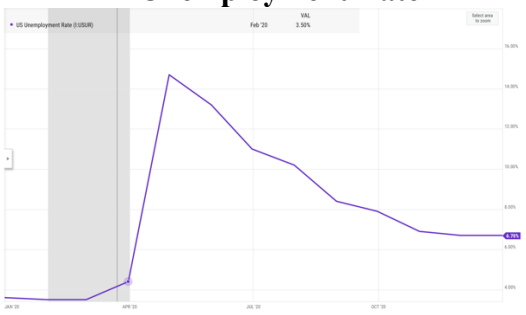
10-year Treasury Rates



GDP



Unemployment Rate



2022 (December 1, 2021, to November 30, 2022)

Backstory

The bear market of 2022 was not considered to be a recession. It began in early January 2022 and ended in October 2022. This bear market was believed to result from further complications that had resounding effects from the previously mentioned COVID-19 pandemic. This period was highlighted by an S&P 500 that closed in October down 20% from its January highs. The NASDAQ-100 peaked on November 19, 2021, but a downward trend began to accelerate in 2022, and it officially entered bear territory in March 2022.

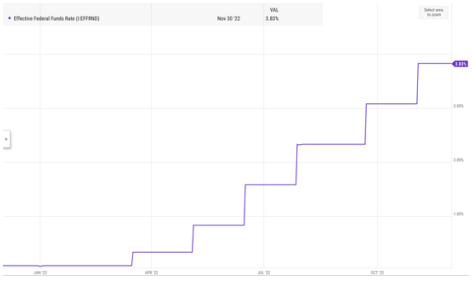
Catalyst

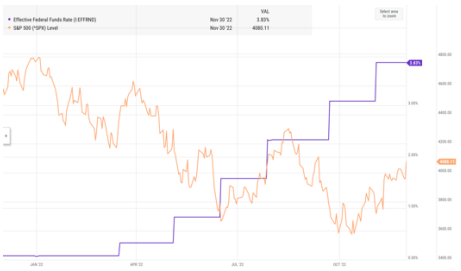
The catalyst of the 2022 bear market is a complex interplay of various factors, each with its unique impact.

- Inflation in the US reached an alarming peak, the highest in decades, at a staggering 9.06% in June of 2022
- Concerns over the Russian invasion of Ukraine resulted in increases in oil prices and natural gas
- The global supply chain was experiencing ongoing disruptions that were created by the COVID-19 pandemic which created shortages in supply
- The tech sector was not experiencing the returns that had driven the longest bull market in US history starting in 2009 after the Global Financial Crisis (the COVID-19 bear market is not necessarily considered to have stopped the bull market due to its sharp and short drop and return to pre-pandemic levels)
- One more interesting catalyst was the cryptocurrency crash, as cryptos that had seen explosive growth, like Bitcoin and Ethereum, in the past had crashed entirely

Federal Reserve Behavior

The Federal Reserve was tasked with a fascinating scenario due to the abovementioned catalysts. To combat this issue of high inflation, the Fed decided to spike interest rates after a period where rates were near zero because of the COVID-19 bear market. The federal funds rate graph below shows that the Fed constantly raises rates, creating almost stair steps of hikes. This increased borrowing costs and pressured the valuations of companies, especially those in tech. The Fed engaged in quantitative tightening, allowing their Treasuries and mortgage-backed securities holdings to mature without reinvesting the proceeds – effectively removing liquidity from the markets.



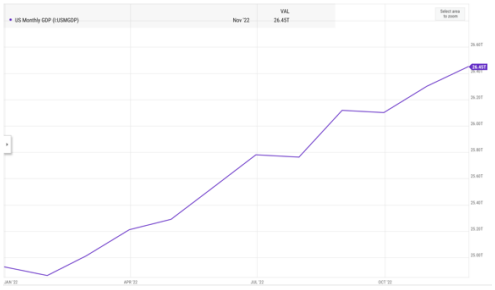


Macro-economic Data Points to Look At

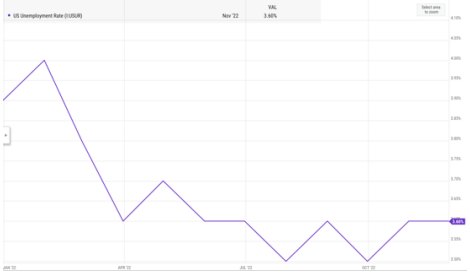
Inflation

10-year Treasury Rates

GDP



Unemployment Rate



Conclusions

Compare and Contrast

Describing, summarizing, and understanding all the associated "why" questions with these last four bear markets was essential. It is also vital to recognize similarities and differences – the trends. High interest rates have highlighted the last three recessions, and the Fed kept raising them in some cases, but to combat the recession, it rapidly lowered them. In all three scenarios, cutting the rates correlated to lower inflation. This is entirely different from the 2022 bear market, and instead, the Fed raised interest rates to combat it. I think the first three instances are closely related, and the Fed had to respond by cutting interest rates due to their nature. While I understand the three are not related in terms of their material cause – overvalued tech is different from overvalued homes/mortgage-backed securities, which is different from a pandemic - they all have one thing in common. Investors were overly excited. During the Dotcom Bubble, investors overvalued tech stocks; during the Global Financial Crisis, it was housing; and during COVID, it was the market in general. Before COVID, companies traded at ridiculous valuations, incredibly tech yet again. 2022 was different as the market evaluated questionable world events, creating a general sense of pessimism rather than optimism.

A question that may arise is: "What could the Fed have done differently?" This is entirely valid. Maybe the Fed could not have necessarily ended these problems because, as I mentioned, most of them were investors and financial institutions who were overly enthusiastic. However, maybe they could have softened the fall. In some cases, the Fed might have acted too late. Why did Greenspan not act on his own warning earlier? Why did the Fed not lower interest rates sooner to mitigate the speculative bubble in mortgage-backed securities (although I think this might have just prolonged the issue further down the road)? During COVID, could the Fed have done something different to soften the issues that have resulted in the pessimistic 2022 bear market? Answers are not known to be effective until put into practice, so to sit here and say they should have done this or that is very hard. It seems they have figured out how to combat the recessions themselves: cut interest rates instantly and sharply. It does not immediately fix their second goal, unemployment. However, you can assume that over time, it would make sense for unemployment to be fixed due to the dollar remaining more stable with the rapid decrease in inflation and obtaining money more efficiently with lower interest rates.

Future Prediction

Understanding and analyzing these markets is terrific, but predicting them is much more challenging. For this section, I will make a thesis regarding the probability of a recession over the next 12 months based on current economic data.

First, I would like to acknowledge interest rates. The current interest rate of 5.33% is an all-time high since the height of over 6% in 2001. The last time interest rates were 5%+ was before the Global Financial Crisis. The highest rate reached during this time was around 5.29% - we are currently above this. While interest rate cuts do not always mean recession, they have six out of the nine times the Fed has aggressively chosen to cut rates. With over 5% interest rates and people struggling to buy houses, it would make sense for the Fed to pursue some form of cutting policy. Housing prices are up 51.77% since 2020.

Using the interest rate hikes from February of 2022 to August of 2023 has been highly effective as since implementation, inflation has gone from 8.54% to 2.89%, and unemployment has remained relatively steady at around 4%. However, 2.89% is not the desired 2%, and since then, unemployment has gone from as low as 3.50% to recently rising to 4.30%. The upcoming jobs report will be critical, providing very important information regarding the current employment situation. This report will be instrumental in future predictions. Unemployment is perhaps the most important statistic. If this rises, we will most likely see interest rate cuts. However, it must also be reported that the initial jobless claims is not going up which might highlight that this unemployment data is weak due to real word events like hurricanes.

As shown by the chart below, chain reactions have happened the last couple of times interest rates have gotten this high. It goes something like this: some event happens – extreme overvaluation, wars, or pandemics - and the Fed needs to cut rates to keep the US from panic and stop inflation from going out of control. When interest rates are higher, markets seem more sensitive to things. So, I think the future rests widely upon the world and what is soon to happen, as well as how investors view the markets.

The future is very complex, and there are many things to consider: 1. We are in a much more active world than in previous decades 2. Companies are still overvalued, and the S&P 500 is growing exponentially. However, it is worth noting that the companies once victims of the Dotcom Bubble are now more developed and proven – they are quality companies – therefore, I do not put much value into the idea that current conditions are repeating the Dotcom Bubble but with AI 3. It is a US election year 4. Iran-Israel conflict 5. Ukraine-Russia conflict 6. A very high interest rate relative to the last 25-year period 7. Energy has been highly volatile since COVID-19 and has a strong relationship with inflation rates (due to it being a heavy part of the CPI) 8. Interest rates affect home prices, and people want lower home mortgage rates.

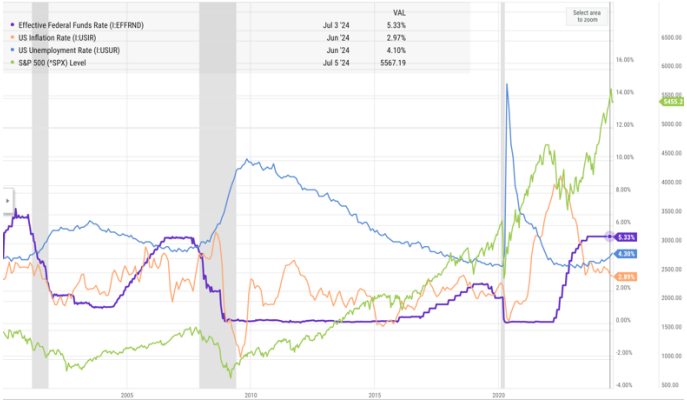
So now, onto my prediction. Our world has changed significantly; I believe the most relevant data is from the last 25 years. Every time the Fed has cut rates over the last 25 years, it eventually leads to a nearby recession. The previous three times, there have been rate hikes that have led to a subsequent recession. We are at very high rate levels relative to the last 25 years. Political and consumer pressure exists to lower rates because housing prices have increased by over 50% in the last five years. The S&P 500 is extremely high (But what else is new? This is probably the weakest piece of data). Unemployment looks as though it might be on an uptick,

depending on the following jobs report. Energy prices have been very volatile and nearly directly correlated with inflation, and one misstep could result in high amounts of inflation. There is a high chance of a recession over the next twelve months for these economic reasons. If I had to put a number to it, there is a 75% chance.

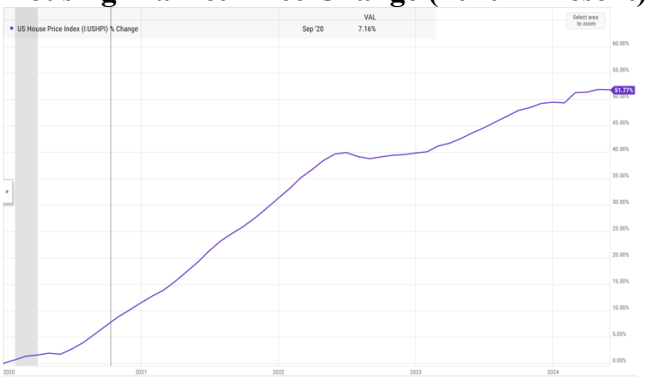
To further my argument, this is on top of all the social issues previously mentioned. Again, I believe the market becomes very sensitive when rates are high. If something happens in the world and things are overvalued, this creates a massive selloff (Dotcom, MBS, and COVID all show concrete examples). Further, an adverse event, even outside the US, can cause skepticism of a massive selloff, as shown by the Dotcom Bubble. For the last 25 years, if the market perceives something negative (housing markets, pandemics, or overvaluations) while rates are up, a selloff is triggered, and a recession follows. The previous market panics were justified, as things like COVID or housing market crashes are a big deal, but when rates are up, these issues are magnified in the markets, and there are very severe outcomes. There are many prospects for something like this to happen, whether it be outcomes in the Israel-Iran conflict or the Russian-Ukraine conflict, and it will be an election year.

The best possible scenario, in my opinion, is for the Fed to be able to lower the rates slowly but surely by 0.25% to 0.50% increments. This will slowly but surely inject more money into the economy, positively affecting unemployment while allowing inflation to be carefully tracked. This gradual rate reduction strategy could steer us away from a recession. I do not know if they will be given the chance to; they have not in the last 25 years. This will not change now.

Economic Indicators Used In Project Overlayed (2000 – Present)



Housing Market Price Change (2020 – Present)



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