

Bears, Bulls and Artificial Intelligence:
Financial Education for Wealth Creation

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JOURNAL Volume 11

FUKUOKA JO GAKUIN UNIVERSITY

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Abstract

There are bear and bull markets in the financial world. Their interplay allows for having risk on and risk off when investing in the stock market. This paper will look at artificial intelligence (AI) responses to bear market conditions that can lead to recessions and the congruency of those responses to financial thought leaders.

Keywords: financial education, investing, self-interest, motivation

Introduction

In 2022, the ferocious bear revealed itself in the financial markets. All the popular indices were in negative territory with the tech-heavy Nasdaq in a true bear market. All told, the DJIA, S&P500 and the Nasdaq, were down -8.78%, -19.44%, and -29.34% respectively. Market participants moved out of equities mostly due to rising inflation and the influence of the war in Ukraine driving up oil prices. The duality of these factors drove down earnings of most companies causing share prices to buckle and yield to downward pressure. A lot of high-flying speculative companies with no true earnings were humbled and their share prices collapsed while stable companies with growing or real earnings fared better but weren't immune to it.

Artificial Intelligence (AI) has been around since 1956 and has had its periods of booms and busts. Recently, AI has been flourishing with the advent of ChatGPT (Chat Generative Pre-trained Transformer). Since November 2022, when OpenAI first launched ChatGPT, it has seen its popularity grow exponentially. According to OpenAI [ChatGPT, 2023], the function of ChatGPT is to mimic a human conversation. On their website they also state that, "The dialogue format makes it possible for ChatGPT to answer followup questions, admit its mistakes, challenge incorrect premises, and reject inappropriate requests." The company acknowledges

that it has limitations by providing plausible sounding incorrect answers. This limitation can be detrimental if taken for genuineness especially if dealing with financial inquiries. This leads to the question: Do responses about bear market investing from ChatGPT run in parallel to financial thought leaders?

Bull and bear markets

As ChatGPT functions to be human-like in conversations, some basic inquiries about bull and bear markets will be presented with progressively more detailed inquiries later.

The first inquiry was “What is a bull market?” As this is an essential knowledge when talking about financial markets and the purpose of this study, it was posed to see if ChatGPT could come up with an appropriate response.

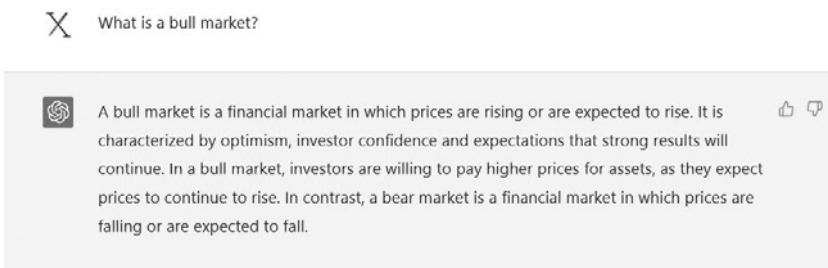


Figure 1 ChatGPT's response to “What is a bull market?” [ChatGPT, 2023]

It appears that ChatGPT nails this inquiry and provides correct details about a bull market. According to famed American financial analyst Howard Marks bull markets occur when “Regardless of what’s going on in terms of fundamentals, that means valuations are stretched, prices far exceed intrinsic value, and a high level of optimism is baked in.” [Marks, 2018] ChatGPT also provides a glimpse of the answer to the next inquiry about a bear market.

Next inquiry, “What is a bear market?” (See Figure 2 on the following page)

ChatGPT also fittingly provides details about a bear market. Montier [Montier, 2010], suggest that, “Fear causes people to ignore bargains when they are available in the market (bear markets), especially if they have previously suffered a loss. The longer they find themselves in this position,

X What is a bear market?



A bear market is a financial market in which prices are falling or are expected to fall. It is characterized by widespread pessimism, investor fear and expectations that strong results will not continue. In a bear market, investors are less willing to pay high prices for assets, as they expect prices to continue to decline. In contrast, a bull market is a financial market in which prices are rising or are expected to rise.

Figure 2 ChatGPT's response to "What is a bear market?" [ChatGPT, 2023]

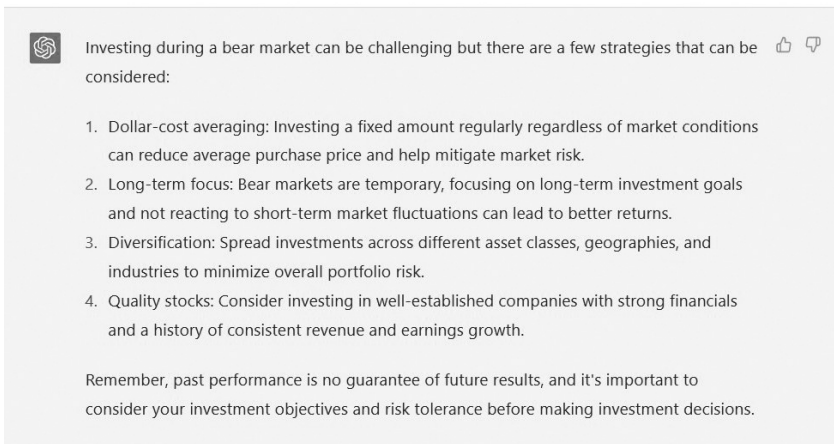
the worse their decision- making appears to become.”

So ChatGPT provides more than adequate responses to these basic inquiries about financial markets. Now let's move on to more substantial ones.

Investing during a bear market

The first inquiry takes a broader approach and ask about “investing during a bear market.”

X Investing during a bear market



Investing during a bear market can be challenging but there are a few strategies that can be considered:

1. Dollar-cost averaging: Investing a fixed amount regularly regardless of market conditions can reduce average purchase price and help mitigate market risk.
2. Long-term focus: Bear markets are temporary, focusing on long-term investment goals and not reacting to short-term market fluctuations can lead to better returns.
3. Diversification: Spread investments across different asset classes, geographies, and industries to minimize overall portfolio risk.
4. Quality stocks: Consider investing in well-established companies with strong financials and a history of consistent revenue and earnings growth.

Remember, past performance is no guarantee of future results, and it's important to consider your investment objectives and risk tolerance before making investment decisions.

Figure 3 ChatGPT's response to “investing during a bear market.” [ChatGPT, 2023]

Now let's explore ChatGPT's responses for some strategies to consider when investing during a bear market and see if they form a solid foundation.

1. The first strategy suggested is "dollar-cost averaging." This is a well-known method to gain more shares of a stock when the price is low and less shares when the price is high. Malkiel [Malkiel, 2003] states that "Periodic investments of equal dollar amounts in common stocks can reduce (but not avoid) the risks of equity investment by ensuring that the entire portfolio of stocks will not be purchased at temporarily inflated prices."
2. The second strategy is about "long term focus". Ellis has mentioned this is "The least costly and the most valuable decisions are made on Level One: getting it basically right on long-term goals and asset mix." The stock market on the whole from 1926-2017 has had 24 negative years and 68 positive years so adherence to long-term goals can reward investors with handsome returns.
3. The third strategy focuses on "diversification." Having a portfolio of stocks from different sectors of the market provides a resiliency through all market conditions. Swedroe [Swedroe, 2012], in his tribute to Warren Buffet, mentions that "Diversify asset class risk by building a globally diversified portfolio, allocating funds across various asset classes: domestic, international, and emerging markets; large-cap and small-cap; value and growth; and real estate and commodities."
4. The fourth and final strategy looks at finding "quality stocks." Having strong financials as well as consistent revenue and earnings growth are the key factors here. Malkiel points out that "Difficult as the job may be, picking stocks whose earnings grow is the name of the game. Consistent growth not only increases the earnings and dividends of the company but may also increase the stock's multiple. Thus, the purchaser of a stock whose earnings begin to grow rapidly may realize a potential double benefit-both the earnings and the multiple may increase." In most situations, companies that increase their earnings are also expanding their revenue and that harmonized with good management can provide the moniker of a "quality stock".

Once more ChatGPT's resemblance with financial leaders about strategies that could be used when investing in a bear market is in agreement.

The next inquiry asks for an opinion, “Should investors invest during a bear market?”



Figure 4 ChatGPT’s response to “Should investors invest during a bear market?” [ChatGPT, 2023]

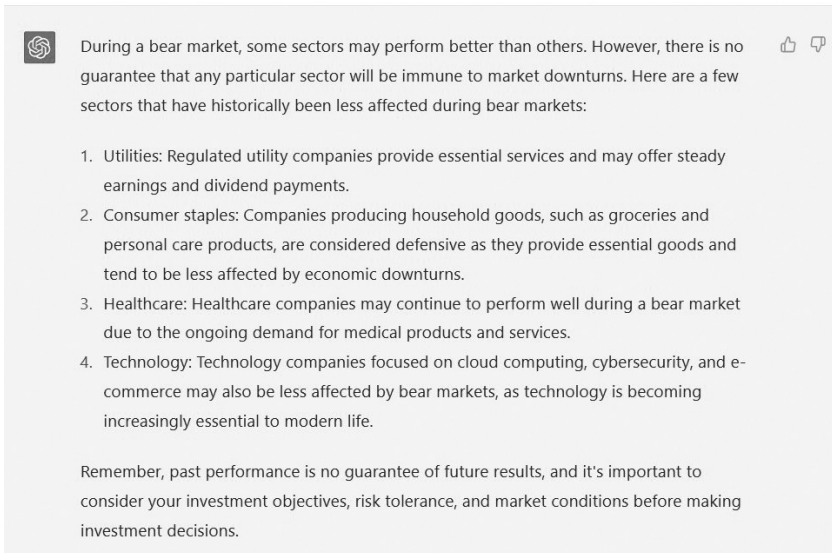
ChatGPT does provide some important ideas to this question including financial goals, risk tolerance, time horizon, buying opportunities and market volatility. Ellis’s [Ellis, 2013] insight to financial goals seems to concur what ChatGPT mentions here, “The best opportunity to achieve superior investment results lies not in scrambling to outperform the market but in establishing and adhering to appropriate investment policies that enable you to reach your objectives by riding with the main long-term forces in the market over time and through market cycles.” Marks [Marks, 2013] states that, “Risk control is invisible in good times but still essential, since good times can so easily turn into bad times.” In fact, Marks [Marks, 2018] also observes that, “(during cyclical downswings) valuation metrics are at historically low levels that suggest the presence of bargains, and thus asset prices are well below intrinsic value. Now the distribution regarding future returns is shifted well to the right, implying unusually high potential for profit.” This suggest that ChatGPT’s response that opportunities to buy equities at lower prices during a bear market are in fact parallel.

It again appears that ChatGPT’s investment notions for a bear market seem to be relevant especially since they are similar to that of financial experts.

Delving into bear market sectors

Up to this point the inquiries have been rather general, but now a more precise inquiry is worth examining. This inquiry looks for specific stock sectors that perform well in bear markets. Inquired as follows: “best stock sectors during a bear market.”

X best stock sectors during a bear market



The screenshot shows a chat interface with a question icon on the left and thumbs up/down icons on the right. The text of the response is as follows:

During a bear market, some sectors may perform better than others. However, there is no guarantee that any particular sector will be immune to market downturns. Here are a few sectors that have historically been less affected during bear markets:

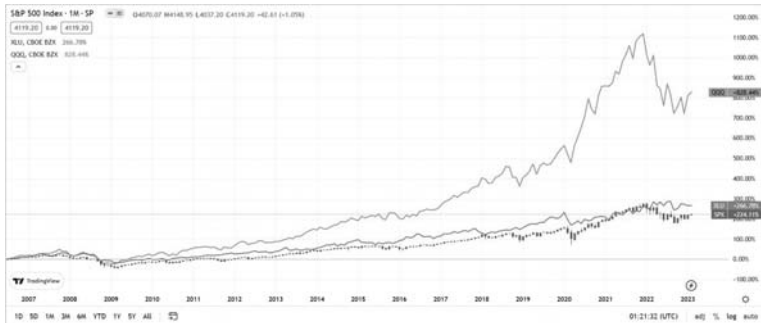
1. Utilities: Regulated utility companies provide essential services and may offer steady earnings and dividend payments.
2. Consumer staples: Companies producing household goods, such as groceries and personal care products, are considered defensive as they provide essential goods and tend to be less affected by economic downturns.
3. Healthcare: Healthcare companies may continue to perform well during a bear market due to the ongoing demand for medical products and services.
4. Technology: Technology companies focused on cloud computing, cybersecurity, and e-commerce may also be less affected by bear markets, as technology is becoming increasingly essential to modern life.

Remember, past performance is no guarantee of future results, and it's important to consider your investment objectives, risk tolerance, and market conditions before making investment decisions.

Figure 5 ChatGPT’s response to “best stock sectors during a bear market” [ChatGPT, 2023]

ChatGPT provides some sectors that may do better in a bear market environment, so let’s inspect each of these sectors.

1. Utilities have an unremarkable but steady growth and income stream due to their ability to provide basic services and are therefore considered to be more resistant to bear markets.
 - a. For a graphical and objective display let’s use the XLU (Utilities Select Sector SPDR Fund) exchange traded fund (ETF) to see how this sector’s historical return compares versus the SPY (S&P 500) ETF and the QQQ (Nasdaq) ETF.



b.

Figure 6 XLU, SPY and QQQ [Trading View, 2023]

- c. For clarity's sake, the timeline runs from 2007 to 2023 and the return percents have been adjusted to include the dividends. During the Global Financial Crisis and the resulting recession from 2007-2009, the disparity between the ETFs is minimal with the SPY doing slightly worst. Again, with the Covid-19 pandemic that befell the stock market in early 2020 triggering a short bear market, there wasn't a sector that didn't suffer a setback. Perhaps the most surprising outcome was that XLU in this 16-year time period marginally outperformed the SPY, which is considered the benchmark by most market participants, even with it being considered a defensive position.
 - d. Unsurprisingly, financial experts did not take a strong position in recommending the utilities sector during a bear market or recession. The chart strappingly confirms their biases.
2. The next ChatGPT recommendation is the consumer staples sector since it again provides essential items for consumers regardless of economic conditions.
 - a. Let's take a look at the XLP (Consumer Staples Select Sector SPDR Fund) ETF as the representative for this sector and again compare it to the SPY and QQQ.

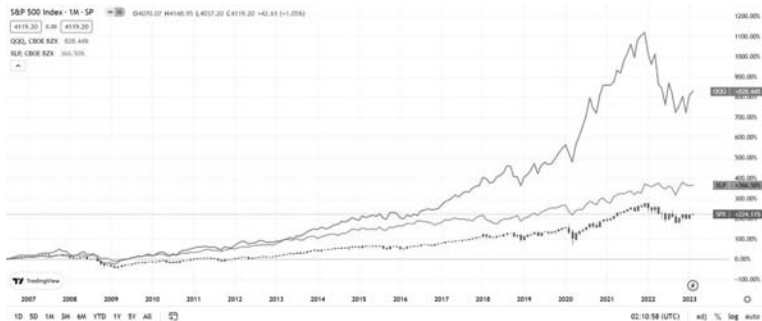
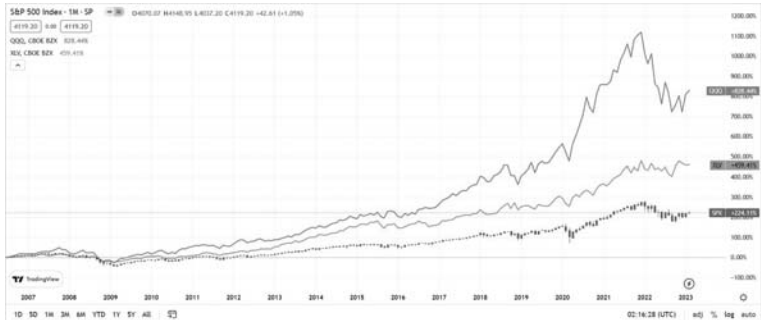


Figure 7 XLP, SPY, and QQQ

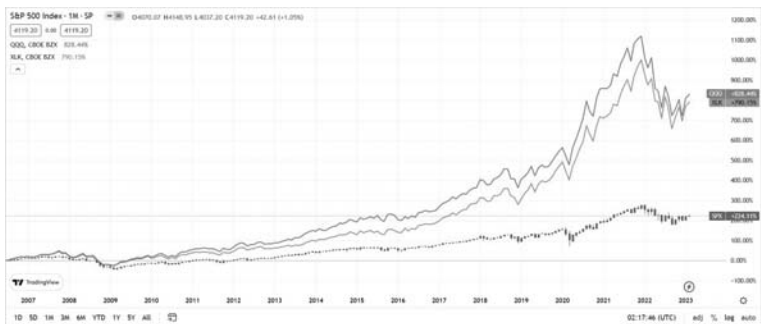
- b.
 - c. During the Global Financial Crisis, the chart shows that XLP's performance was less affected than the SPY and QQQ, but in the 2020 pandemic there weren't significant variances as all three ETFs suffered a similar setback.
 - d. Again, it should be noted that in this time span, XLP's performance of 366.50% overwhelmingly outpaced the SPY of 224.11%.
 - e. Recommending the consumer staples sector during a bear market was once more disregarded by financial experts who would rather focus on value.
3. ChatGPT's third sector endorsement is healthcare since it is in another indispensable field and therefore should be able to withstand a bear market.
 - a. For the health care sector, we will use the XLV (Health Care Select Sector SPDR Fund) to compare with the SPY and QQQ.



b.

Figure 8 XLV, SPY and QQQ [Trading View, 2023]

- c. The XLV's performance during the Global Financial Crisis and the 2020 pandemic was on par with the SPY and QQQ. This seems to be a middling performance in a bear market, but the long-term performance paints another picture.
 - d. The XLV's adjusted returns during the time period was 459.41% vs the SPY at 224.11% making it a clear victor as a long-term investment.
 - e. As might be already surmised, financial experts have no partialities toward the healthcare sector for reasons stated earlier.
4. The final sector recommended by ChatGPT was that of technology. The rationale behind this was it being another vital area which could be resistant to a bear market.
 - a. We will use the XLK (Technology Select Sector SPDR Fund) ETF and compare it to the SPY and QQQ.



b.

Figure 9 XLK, SPY and QQQ [Trading View, 2023]

- c. As this is a technology focused ETF, it trades almost identical to the QQQ and its performance during the bear markets of the Global Financial Crisis and the 2020 pandemic display no significant differences.
- d. The XLK's return was a whopping 790.15% vs the SPY at 224.11%. This almost matched it to the QQQ which had a total return of 828.44%.
- e. Even with this outperformance, financial experts had no recommendations about this sector doing better in a bear market and rightfully so since there weren't any meaningful deviations.

It is at this juncture that ChatGPT and financial leaders diverge. ChatGPT provides stock sectors that may do well in a bear market while financial leaders do not speculate in sector outperformance or risk.

Conclusion

Bear and bull market investing dilemmas are some of the most popular topics among investors. As such there are many articles and information available from a variety of sources including stock market analysts, financial planners and now artificial intelligence.

As has been shown here, ChatGPT can provide basic information about bear market investing with rudimentary explanations that are in congruence with financial leaders. In fact, for the long-term investor, backtesting ChatGPT's response about bear market sectors shows that it can lead to outperformance, even though the initial response may have been inaccurate. The stumbling block here seems to be that since ChatGPT has been programmed to respond to questions or inquiries, it must obligatorily give a reply to some of which are best to be left unanswered. This is what appears to separate it from the financial leaders who can avert these types of questions and take a different perspective about any inquiries that may not have a definitive answer. As Rumsfeld [Rumsfeld, 2002] famously mentioned, "There are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns-the ones we don't know we don't know."

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