Through analyzing differences between four risk hedge methods to help companies choose a suitable strategy in different financial situation

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Abstract. Hedging risk is an essential section of finance for all investors, especially in the times where uncertainty occurs every time. covid-19 has hit the global market heavily since 2020, promoting the importance of hedging risk significantly. This essay generally introduces 4 fundamental methods of hedging risk, including the Arbitrage strategy, alpha strategy, neutral strategy and event-driven strategy. It mainly focusses on their origins, the economics and finance theory of each format and the reality problems occurred in application. At the same time, the advantages and drawback of each methods have been discussed with full detail. General speaking , in different scenarios there might be different methods that are suitable. Alpha strategy is desirable in stable market and neutral strategy is the most secure one but requires lots of calculation. Event-driven strategy and arbitrary strategy hugely depends on the executive of managers.This essay is fairly helpful for the learner who just started to learn about hedging risks to generally study the fundamental risk hedging.

Keywords: hedging risk; arbitrage; market risk.

1. Introduction

Risk is an important factor that the investors take account. In 1970, due to the ending of Bretton Woods system, floating interest rate has exposed the companies to risk of uncertain interest rate, hugely promoting the focus on the interest rate and interest rate derivatives. A hedge is an

investment made with the goal of lowering the risk of unfavorable price changes in an asset, which might be indicated by negative covariance, which could boost liquidity and make it easier for investors to invest in different asset classes. For instance, in brief Similar to purchasing insurance, when a car accident occurs, manager’s insurance will be used to pay for manager medical bills and vehicle repairs. It won't stop manager from getting into a car accident, but it can help manager minimize manager’s losses and plan ahead to lessen the risks in the event that one did happen [1]. As in this example, Hedge plays a similar role.

Generally speaking, the hedging risks could well manage the interest risk, currency risk, stock risk and commodity risk. Hedging risk management could be adjusted according to the different risk preference of different investor, reaching the expected level of the risk. The risk could be divided into two categories: the specific risk and systematic risk. The risk management could be classified according to different sort of risks. For example, as for commercial bank, the risk management could be divided into self-hedging and market hedging, which are the hedging that manage specific risk and systematic risk respectively through adjusting the balance sheet and investment portfolio.

The downside risk of the underlying security that the investor wants to hedge will, however, likely influence the specific hedging approach and the cost of hedging instruments. In general, the cost of hedging increases as the downside risk increases. An option with a longer expiration term and one tied to a more volatile investment will therefore cost more to hedge because downside risk tends to rise with higher volatility levels and with time.

2. Main body

2.1 Arbitrage strategy

In 1953, a person supported the monetarist school who is called Milton Friedman introduced the law of one price. When openness to trade, the transaction cost is zero. Therefore, the same goods in the same currency, said no matter where in the sales, the price should be the same. This law is the core idea of arbitrage strategy [2].

Arbitrage strategy is that a strategy to gain income in the financial market when the price of some financial products is temporarily inconsistent with the yield rate. Risk-free profits are referred to as risk-free arbitrage strategy. This arbitrage opportunities are rare and once appear will disappear. For goods about finance, the inconsistency between the price and the rate of return is not temporary. The risk of taking this opportunity to obtain returns is that the price or rate of return might no change in the direction managers expected. As for people who want to hedge, this return earning strategy will not be a trading strategy to lower risk easily and significantly. Nevertheless, risk arbitrage strategy might lead to the deviation of price or yield or convergence to equilibrium level in history.

Arbitrage strategy is the most traditional method, which has various benefits to risk hedge. To begin with, the main advantage is that volatility of arbitrage strategy is much lower than other strategies. Furthermore, the carry trade is to gain the difference between the price of different contracts which has a significant advantage of spreads is that they usually have lower volatility. By the way, arbitrage is also called Spread Trading. Meanwhile, risk of arbitrage strategy is usually less. Managers usually carry less risk than one-sided trades because of the hedging nature of carry trades. Portfolio theory states that a portfolio consisting of two absolutely negatively correlated assets decreases portfolio risk to the largest extent. Also, the arbitrage strategy is for the sale of two highly relevant futures contract at the same time. This suggests that build an almost completely negative correlation of two kinds of portfolio of assets, will significantly reduce the risk of a portfolio [3].

As for the products in the real life, silver is the most perfect arbitrage product. Silver not only has the volatility of commodity futures but also concludes the mean-reverting property of financial futures which means that the volatility guarantees the profit space of arbitrage and the low-risk characteristics of mean-reverting margin arbitrage. So, among a great number of arbitrage products, silver has been the popular asset around the world.

2.2 Alpha strategy

Alpha is used in the investment market to describe the ability of a strategy to beat the market, so it is also known as "excess return" or "abnormal return" [4].

Investors often face two kinds of risks, one is called alpha risk, the other is called beta risk, beta risk is called systematic risk, and alpha risk is also called non-systematic risk. The alpha return represents the portion of the return that is not affected by the market [5], and the alpha strategy is to cancel out the beta return pair and leave only the alpha return pair, which means that we cancel out the portion of the return pair that is affected by the market, and the rest of the return pair is not related to the market risk, but depends entirely on the ability of the investor.

Alpha strategy is don't have to worry about the advantages of market volatility [6], even if also profitable when markets fall, because on theory, the correlation of alpha and market is 0, so even in a bear market can also through the hedge to avoid risk, and alpha strategy is usually invested in the stock market and stock index futures market at the same time, the short in the stock index futures market, long in the stock market. So, when the stock index futures market losses, can use earnings to compensate for the losses of the stock market, when the stock market losses, can use the stock index futures market to compensate for the loss of revenue. In this way, no matter in the bear market or the decline of the market, the risks can be washed away and the absolute returns can be earned. At the same time, because the alpha is not affected by the market, so we don't have to consider when buying at this time the market up or down, as only unilateral do more stock is dependent on the accuracy of the timing, but using the alpha strategy will not have to worry about the time even decided on to, only need to select the really good stock is ok, so more test vision and the ability of investors.

However, alpha strategy also has its corresponding limitations. Beta in the spot portfolio is always changing, but if investors want to completely eliminate the systemic risk, they usually set the term capital ratio as beta hedge, so investors need to pay attention to it all the time and have a relatively accurate estimate of the beta of the spot position. In addition, in Alpha strategy, futures and stock market tend to move in opposite directions. However, if either side falls too much, the term position may deviate too much. Therefore, investors need to monitor and adjust the term position to prevent the deviation from being too large.

2.3 Neutral strategy

Market neutral strategies is a common and desirable option. The manager of a long or short fund can hold any number of long and short positions for the purpose of hedging or speculating; In some special case, he can hold 50% of long positions and 50% of short positions, so that the net position is exactly 0. At this point, he became a market-neutral fund manager. when the market grows, the value of the long position asset and short position will all increase, the value of the portfolio will roughly stay the same, vice versa. In other word, if the fund manager could make sure the return of long position exceeds the short position return, the manager could obtain the positive return no matter the market return. Generally, the profit of such strategies only depends on the difference between the long and short position revenue but is irrelevant to the overall performance of the market. That is why it is called market neutral strategy. In the most of the cases, this strategy requires the matching amount and beta of the long and short position. (The beta, β,is the risk index relative to the market) . The whole analysis process generally includes two main stages: impartial analysis and scoring.

Market neutral strategy has two significant advantages. One is that the correlation between their return and other financial asset are low. So subtle change in single company will not has great influence on the overall revenue. And it will not create great effects on the market as well. By the way, their standard deviation is smaller than other financial assets. In this case, market neutral strategy could effectively hedge the risk. However, the application of market neutral strategy requires massive amount of quantitative work and calculation, which might be more complex than other strategy. Strictly speaking, there are almost no market-neutral strategies have reached the neutrality requirements [7].

The earliest application of this strategy is in Hedge Fund Research, USA. In China, 2012, there are amount of Private started the usage of neutral strategy. Gold Technetium Assets had launched technetium Gold One, which was based on the market neutral strategy. Also, Pegasus Investment launched Pegasus Neutral Strategy Phase I in the same year. considering the difficulty of generating the stock short position in China, these projects held short position of stock while holding the long position of stock.

2.4 Event-driven strategy

The event-driven strategy (EDS) is oriented around investments that seek to exploit and profit from corporate event that can create pricing inefficiencies. And the corporate as the market digests the newly-announced news over time [8]. EDS can be divided into four categories.

The first is merger arbitrage, which is typically regarded as a hedge fund tactic. In order to generate "riskless" gains, it requires simultaneously buying and selling the corresponding stocks of two merging corporations. Instead of focusing on the overall performance of the stock market, merger arbitrage focuses on the likelihood that the deal will be approved and how long it will take to conclude the deal [9].

Second one is convertible arbitrage. It refers to profiting from pricing inefficiencies between an issuer’s convertible securities and its common stock. If the stock rises, the stock short loss will be limited, because the benefit of convertible securities will be enough to compensate for the loss. If shares trade at par and does not rise or fall, convertible securities or bonds will continue to pay the same coupon rate, it will balance shorting shares holding cost. The advantage of this kind is that the decision's risk is substantially smaller [10].

The third is active investment, which is the purchase of a significant portion of the company's stock in order to exert influence and pressure on the management group to implement a specific set of business reforms. Activist investor advocates make may boost the company's share price or directly to let them benefit from change. Typically, activist investors are high-net-worth individuals who own hedge funds or private equity companies. Activist investors frequently possess strong commercial knowledge as well as skilled analytical abilities. These qualities enable them to pinpoint businesses with unrealized value, generate particular strategy suggestions for those businesses, and convey those recommendations to the businesses themselves [11].

The last one is special situations. In addition to these three opportunities, strategies that profit from other special corporate events are known as special situations strategies, such as asset sales or the sale of some companies or subsidiaries, divestitures, large scale share buybacks, directed issues, shareholder and management actions, etc. In the implementation of the strategy, the hedge fund manager determines the impact of the event on the company's securities by studying the company's own operating conditions and looking for opportunities where the securities are undervalued or overvalued.

3. Conclusion

Through above these descriptions, we already know four strategies about risk hedging. Although all methods are to hedge risk, there are some differences between them, which is mainly with different sources of returns and exposures. Firstly, Alpha strategy and market neutral strategy have the least difference in essence. To be specific, the Alpha strategy can be regarded as one of the neutral strategies. Nevertheless, the Alpha strategy is less restrictive because its source of Alpha may be from industry, style, etc. By contrast, the market neutral strategy neutralizes more of the risk which cannot be grasped. Event-driven strategy and arbitrage strategy depend on managers' grasp of events and arbitrage opportunities respectively. The operation of these strategies requires managers with high skills in specific areas, which makes hedge funds an asset class favored by long-term investors. Each strategy still can be divided into more detailed and more useful methods which has more diverse natures.

Of course, different situations also correspond to different strategies. Arbitrage strategy refers to the financial markets using the price of some financial products do not agree with income temporarily. The event-driven trading strategy requires us to lurk ahead of the hot market events, such as events clear or will be clear to sell high. Alpha strategy is suitable for the market with stable emotions. Generally, in this kind of market, investors can obtain positive returns regardless of whether the market is up or down. If investors have good stock selection methods and abilities, it is recommended to consider Alpha strategy. Neutral strategies are less risky and less volatile, and can perform well even in volatile bear markets if investors are able to time their investments accurately.

In this study, we have explained the four main methods of risk hedging, mainly introducing their origins, methods, how to use, what are the relative advantages and disadvantages of each method, and what qualifications or preparation manager need if manager want to try risk hedging. Our main purpose is to help those who are learning about risk hedging for the first time, want to know what risk hedging is, how to use it, and whether it will cause any risks. We also hope to explain clearly to those who are learning about risk hedging for the first time in concise, clear and understandable language, so as to answer their doubts.

Our research just introduces every method with difference among them and particular products in the real life. However, we do not find some real data of some firms. So, this research cannot show companies how to use risk hedging to earn more profit. In the future, we prefer to find a firm in order to select data and cases about the practical application of risk hedging.

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