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Research on Different Hedge Fund Strategies

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Abstract: People are always pursuing the minimum risk while seeking for maximum profit when investing, so they often use a variety of different strategies or portfolios to reduce investment risk. Among these, hedge funds are the most common type of portfolio used by fund managers. By using different strategies to buy different stock portfolios, hedge funds can effectively hedge the risk of a single stock or fund, so as to minimize the risk. However, hedge funds contain many different strategies and not all the strategies can process effectively in the market. We must analyze the market and pick up the most suitable strategy. In this case, this article will discuss the effect of their actual operation in the market based on these strategies. The article will analyze five different hedge fund strategies, including three trades that are relatively successful and two trades which are relatively not so successful. Then the article will deeply analyze the reason why the strategy can fit the market or why did it fail the market. During the analysis, some strategies are suitable for the market while the other are not.

Keywords: hedge fund, strategy, investment portfolio

1. Introduction

In the stock market, people often use a variety of different strategies or portfolios to reduce investment risk. Among these, hedge funds are the most common type of portfolio used by fund managers. By using different strategies to buy different stock portfolios, hedge funds can effectively hedge the risk of a single stock or fund, so as to minimize the risk. Hedge funds contain many different strategies, and this article will discuss the effect of their actual operation in the market based on these strategies.

In 1949, the first hedge fund was founded in the United States. In the United States, there is no clear definition of hedge funds in law, nor is there a clear distinction between hedge funds and other institutional investors [1]. The reason why it is called "hedging" is that this kind of fund takes hedging as the main means in the early stage to protect the exposed position, so as to reduce or avoid market risk and improve investment return [2]. In the 1950s and 1960s, hedge funds did not receive widespread attention from the market [3]. The main reason is that the international monetary system at that time was still the post-war Bretton Woods system, and the currency exchange rate of major countries was fixed and the control of international capital flow was relatively strict. After floating exchange rates were introduced in the 1970s, hedge funds became increasingly active. The diversification and large fluctuations of the market have generated the requirement of risk management, which has stimulated the development of international financial innovation, and the increasingly diversified financial derivatives market has provided a broad operating space for hedge funds [4]. With the development of emerging markets, the internationalization of financial markets and the increasing relaxation of financial regulation, the financial transactions between countries are very convenient, which creates conditions for the rapid development of hedge funds. Hedge funds have evolved into institutional investors, often partnerships, that use speculative techniques and seek high returns. In the 1990s, some hedge funds took advantage of management, talent and technology to borrow a large amount of money to trade financial derivatives, and operated tens of times their own assets to obtain high returns on capital [5]. The four biggest hedge funds that have been in the press recently include: Quantum Fund, led by George Soros, with $21 billion in assets; Tiger Fund, led by Robertson, has assets of $18.4 billion; Omega Consulting, led by Kupperman, with $3.1 billion; Long Term Capital Management, led by Meriwether, is insolvent [6]. Since 1997, in the financial crisis in Asia and Russia, the performance of hedge funds has fluctuated greatly, and their fate and development prospects have become less optimistic [7]. Effective supervision of hedge funds has also been put on the agenda of financial regulatory authorities in various countries. The series of events triggered by hedge funds has challenged the rationality of the current international financial system.

Hedge funds base their investment strategies on the assumption that there is "Market Failure" in financial markets. Its theoretical basis is that, under certain market conditions, there is a certain "normal" relationship between the prices of any two relevant financial instruments, and between the prices of financial instruments and macro and micro economic indicators [8]. No matter what causes the deviation from this “normal” relationship, it will be a “market failure”. This market failure must somehow return to normal [9]. The pricing theory model of derivative instruments represented by the famous Black-Scholes option pricing model enables hedge fund managers to calculate and determine the trading price relationship of financial instruments under full and effective market conditions (including complete information, no transaction costs and complete rationality of investors, etc.) by using a large amount of historical transaction data [10]. Compare with the actual price relationship, look for market failure, and then act on this market failure. The market target of international hedge funds is global, and the analysis of the relationship between financial market trading instruments is often cross-border, so the operation space is very large [11].

Of all the trades that conducted in above, the most successful trade is the value trade while the worst trade is the merger arbitrage. In the first trade using value trade strategy, it turned out the most suitable strategy in the current market is the value trade. Moreover, it is one of the best trades because the methodology of the trade did not follow the general trend but conducted the research on the own, and the outcome proved the own decision is the right one. On the other hand, the worst the trades is the merger arbitrage. At first, the merger was very likely to realize according to the 2021 financial report, in which Merck & Co. has been highly open to external cooperation in the past four years, and had spent a total of $34 billion, including nearly $14 billion in the last two deals. There was no doubt that Merck will continue to ramp up its acquisition efforts. Moreover, the downside of NASDAQ Biotech offered good opportunities for acquisitions. Under this circumstance, once the merger finished, the target company’s stock price would increase. As a result, Seagen’s stock can be sold and have a profit. On the other hand, if the merger ends up with a failure, the stocks can be covered and hedge some risks.

2. Basic Information of the Selected Companies

In this paper, in order to evaluate the performance of different strategies, five trades have been investigated. In particular, the trades cover 6 companies, 2 commodities and 2 currencies

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2.1. BYD Co., LTD. (BYD)

BYD Co., LTD. was founded in February 1995 and is headquartered in Shenzhen, Guangdong Province. The company has more than 220,000 employees in total. It is well-acknowledged to the world in the automobile industry. It is listed in Hong Kong and Shenzhen, with revenues and market capitalization exceeding 100 billion yuan. The P/E ratio of this company is 269.14, P/B ratio is 10.13 while the dividend yield is 0.03%. Many people feel optimistic about the future of BDY. However, If BYD can grow by 50% each year for the next five years, its net profit will be 7.6 times higher in five years

2.2. Intco Medical Technology Co.,Ltd. (Intco)

Intco Medical Technology Co., LTD. was established in 2009 in Zibo City, Shandong Province. It operates in four major business sectors, including health therapy, medical protection, rehabilitation nursing and examination consumables. Disposable gloves, cold and hot compresses, wheelchair electrode sheet are its main products. Also, the company's products are widely used in medical institutions, elderly care institutions, household daily use industries. From 2014 to 2016, the company achieved operating revenue of 885 million yuan, 998 million yuan and 1.183 billion yuan respectively, and achieved net profit of 31.7494 million yuan, 64.220 million yuan and 86.2625 million yuan respectively. Intech Technology Co LTD is listed on the board of Shenzhen Stock Exchange, July 21, 2017.

2.3. Seagen Inc. (Seagen)

Seagen is a Seattle-based biotechnology company founded in 1997 and listed on Nasdaq in 2001. In October, Seattle Genetics officially changed its name to Seagen, kicking off its global expansion. In August 2011, Seagen's first ADC drug, Adcetris, was officially approved by the U.S. FDA. After the cooperation between Seagen and Takeda, the drug has been marketed in more than 40 countries, including the United States, Canada, Japan, and European Union member countries, and has become a star company favored by the industry and capital. According to relevant statistics, as of October 2020, among the 11 ADC drugs already on the market in the world, Seagen has participated in the development of 3 ADC drugs. Among them, Adcetris has ended the 40-year history of unchanged treatment regimen in the field of refractory Hodgkin's lymphoma, and has also become a new benchmark for first-line treatment of Hodgkin's lymphoma.

2.4. Merck & Co. (Merck)

Merck is based in Kennyworth, New Jersey, USA. It has over 70,000 employees all around the world. In 2014, Merck's global sales totaled $42.2 billion. Moreover, the R&D investment reached $6.5 billion. Except for its prescription drug business, Merck operates health business of animals in China as well, with nearly 50 veterinary products covering disease prevention, treatment and control of livestock, poultry and pets. Merck is devoted itself to pay attention to and caring for the health of animals and their shared human health.

2.5. Nanjing Mindray Bio-Medical Electronics Co., LTD. (Mindray)

Mindray Group is a leading manufacturer of high-tech medical equipment in China and one of the world's innovative leaders in medical diagnostic equipment. Since it was founded in 1991, the company has always committed to the manufacturing of clinical medical equipment, successively in life information guardianship, clinical testing and reagents, digital medical ultrasound imaging, the four major fields of clinical anesthesia system, introduced a number of products of high performance

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than 50, with full independent intellectual property rights and more than 400 patents and technology. Company has the international advanced level of product technology and superior to the similar product price performance ratio, in order to accurate market positioning is clear target, to build the integrated distribution network, to provide training and effective customer support service system, in the face of competition from home and abroad, has become the current China's medical equipment industry's largest manufacturing enterprises, Users in 140 countries and regions around the world. Mindray company headquarters is located in Shenzhen, China, has nearly 4 square meters of research and development and production base. It has set up branches in 13 countries and regions. In addition, Seattle in the United States, New Jersey, Miami, Stockholm, Sweden and other places set up nine research and development center. By the end of December 2011, the company has nearly 8,000 employees worldwide, and its R&D system has gathered more than 1,000 high-quality R&D talents, among which 60% of the R&D engineers have master's degrees or above. The annual R&D investment accounts for 10% of the annual sales revenue, and the company has the industry's leading R&D strength. In 2006, it successfully listed on the New York Stock Exchange, and was approved by the Ministry of Science and Technology to officially list the "National Engineering Technology Research Center for Medical Diagnostic Instruments". In May 2008, it completed the acquisition of data scope monitoring business in the United States, becoming the third largest brand in the global life information monitoring field.

2.6. Hangzhou Huadong Pharmaceutical Group Co., LTD (HD Medicine)

On December 16, 1992, Hangzhou Huadong Pharmaceutical Group Co., LTD was established on the basis of Hangzhou Huadong Pharmaceutical Factory. It gradually developed into a enterprise with joint-stock. The main enterprise is Huadong Pharmaceutical Co., LTD., and there are four Sino-foreign joint ventures, including, Hangzhou MSD Pharmaceutical Co., LTD., Hangzhou Sino-American Huadong Pharmaceutical Co., LTD., Zhejiang Huayi Pharmaceutical Co., LTD. and Hangzhou Jiuyuan Genetic Engineering Co., LTD. Recently, the development momentum of HD Medicine is very rapid, and it has made innovations in various medical fields. Therefore, the overall risk value of HD medicine is also relatively low.

3. Strategies

The analysis in the paper is based on different strategies. In this section, value trade, commodity trade, market neutral trade, merger arbitrage and international currency trade will be discussed.

3.1. Value Trade

The first trade is called value trade. The logic of value trade is focusing on the P/E ratio, P/B ratio as well as the dividend yield of stocks. Stocks with lower P/B and P/E ratio but higher dividend yield are considered to be underestimated and have great potential, thus we can long it. Conversely, stocks with high P/B and P/E ratio while having low dividend yield are considered to be overrated, so we can short it [12].

3.2. Commodity Trade

The second trade is a commodity trade. The methodology in this strategy is not hard to understand. We need to find out different commodities all around the world and analyze them. If we draw the conclusion that one commodity’s price will drop, then we can short it. On the contrary, we can long the commodity that will have increase in the price [13]. In this case, we can have returns from both the short and long. If we unfortunately predict one of the commodities wrongly, the other commodity can hedge some of the risk.

3.3. Market Neutral Trade

The third method is the neutral strategy. Market neutral strategy is an investment strategy that constructs both long and short positions to hedge market risks and can obtain stable returns regardless of whether the market rises or falls. The article chose two companies and analyze the betas. In this way, people can lower the volatility and get returns in any kinds of market by fundamental analysis.

3.4. Merger Arbitrage

The next method is a merger arbitrage. The methodology of a merger arbitrage is when a company is planning to buy the other company and the trade is very likely to realize, the price of the target company will come near the bid price, which means the stock price will increase. On the other hand, the bidder's price will also come near the buying price, which means the stock price will decrease during that period.

3.5. International Currency Trade

The last strategy is international currency trade. The basic rule of international currency trade is to first analyze all the factors including economic growth, interest rate and so on. After that, it is clear that which currency should be longed and which should be shorted. If one of the currencies go on the different track than predicted, the other one can hedge some of the risk

4. Strategies

4.1. Value Trade

The first trade is based on value trade strategy.

Table 1: Statistics of value trade.

Company	Position	Quantity	Price Paid	Last Price	P/L
INTCO	Long	20	¥23.45	¥23.69	¥0.71
BYD	Short	-20	$57.93	$58.95	$118.60

Table 1 shows the statistics of the value trade. This trade longs the shares of INTCO. The reason longs stock is that the P/E ratio of this company is 4.44, P/B ratio is 0.98 and the dividend yield is 3.15%. According to the knowledge from the class. This stock is very likely to be underestimated and have a great potential. Meanwhile, the trade shorts the shares of BYD. The P/E ratio of it is 269.14, P/B ratio is 10.13 while the dividend yield is 0.03%. Many people feel optimistic about the future of BDY. However, If BYD can grow by 50% each year for the next five years, its net profit will be 7.6 times higher in five years. Some people will say that BYD's growth will not be only 50%, so we can continue the analysis: BYD's vehicle sales this year is 1.4 million, net profit of 9 billion, and to achieve an annual growth of 50%, the vehicle sales in five years will reach 10 million. The world currently sells 80 million cars a year, which means that for every eight cars sold in the world, one is BYD. In the past, Toyota was able to achieve a global penetration rate of more than 10%. At that time, it was a giant in the auto industry. Under this circumstance, it is hard for BYD to achieve that. Above is the reason of shorting BYD. As a matter of fact, it turned out the trade actually made money by shorting shares of BYD. Moreover, it is one of the best trades because it did not follow the general trend but conducted the research on the own, and the outcome proved the own decision is the right one.

4.2. Commodity Trade

The second trade is a commodity trade.

Table 2: Statistics of commodity trade.

Commodity	Position	Quantity	Price Paid	Last Price	P/L
ZK/U2	Long	10	$1504.25	$1564.25	$30000
CL/Z2	Short	-10	$89.49	$92.49	$-30000

Table 2 shows the statistics of the commodity trade. The crude oil is shorted for two reasons. First, the prospect of a global recession leads to lower expectations for oil demand. On July 21, the European Central Bank raised interest rates by 50 basis points, this was the first increase in 11 years and marked the end of the era of negative interest rates in the eurozone. On August 4, the Bank of England announced 50 basis point rate hike, taking its base rate from 1.25% to 1.75%. It is the biggest increase since 1995 and the sixth time since December. However, higher interest rates would also significantly increase financing costs for companies, raising fears of a global recession that have led to expectations of further declines in demand for crude oil. Second, the continuous increase in Opec crude oil production also influenced the price of oil to decrease to some extent.

Meanwhile, the soybean is longed because soybeans will rise as the overall quality of U.S. soybean improved. Also, soybean prices would also boost because of the cut in the production.

It seemed that the price of the crude oil went against the prediction. And the total profit coincidently reached zero. Although this trade did not make any profit, this is one of the best trades because the most important point in the trade is the effective implementation of the strategy. As the above gram shows, the risk is perfectly hedged by the strategy.

4.3. Market Neutral Trade

The third trade is based on market neutral strategy.

Table 3: Statistics of market neutral trade.

Company	Position	Quantity	Price Paid	Last Price	P/L
MINDRAY	Long	20	￥293.50	￥295.07	$4.58
HD	Short	-20	￥46.64	￥41.36	$15.42

Table 3 shows the statistics of the market neutral trade. In this trade, Mindray Bio-medical Electronics is longed and HD medicine is shorted. The two companies had the same beta of 1.16. Under this circumstance, the trade longed 20 Mindray’s stocks and shorted 20 HD’s stocks, which made the beta of the portfolio reach zero.

After analyzing the portfolio’s volatility, the whole volatility remained lower than each of the single stock in the portfolio. As a result, it turned out that this trade is always one of the most stable trade because the strategy lowered the volatility.

4.4. Merger Arbitrage

The first worst trade is a merger arbitrage.

Table 4: Statistics of merger arbitrage.

Company	Position	Quantity	Price Paid	Last Price	P/L
SGEN	Long	100	$173.86	$164.37	$-949.00
MRK	Short	-80	$91.52	$90.27	$100.00

Table 4 shows the statistics of the merger arbitrage. In this trade, 100 shares of Seagen Inc. are longed and 80 shares of Merck & Co. are shorted. The reason of making these transactions is based on the news of Merck & Co was in negotiation to buy cancer biotechnology company Seagen for about $40 billion. Merck offered about $200 a share for Seagen, a 15 percent premium to the closing price of July 6th. The deal might realize before Merck & Co. reports second-quarter results on July 28.

The merger was very likely to realize according to the 2021 financial report, in which Merck & Co. has been highly open to external cooperation in the past four years, and had spent a total of $34 billion, including nearly $14 billion in the last two deals. There was no doubt that Merck will continue to ramp up its acquisition efforts. Moreover, the downside of NASDAQ Biotech offered good opportunities for acquisitions. Under this circumstance, once the merger finished, the target company's stock price would increase. As a result, Seagen's stock can be sold and have a profit. On the other hand, if the merger ends up with a failure, covering the stocks which are shorted before could hedge some risks. However, the trade was delayed because Merck is waiting for the latest information of Seagen's new treatment. And the price of Seagen continue to decrease. In this case, there is a great loss due to this unpredicted situation.

In this case, due to the uncertainty of the trade, the decision is to end it to minimize the loss and find other potential mergers

4.5. International Currency Trade

This trade is international currency trade.

Table 5: Statistics of currency trade.

Currency	Position	Quantity	Price Paid	Last Price	P/L
AUD	Long	100000	$0.70655	$0.69554	$-1101.50
EUR	Short	-100000	$1.02849	$0.99678	$3171.50

Table 5 shows the statistics of the currency trade. AUD is longed and the Euro is shorted using the relative economic growth. It was predicted that the Euro was going to decrease because of the potential economic recession, the consumers' confidence would decline. Meanwhile, the AUD was going on an increasing track due to the economic growth. However, it seemed that we cannot consider only one influential factor. Multiple bearish factors had weighed on the Australian dollar. First of all, although both the United States and Australia entered the interest rate hike cycle, the RBA was slower in raising interest rates than the Federal Reserve. It did not raise interest rates by 25 basis points for the first time until the day before the second-rate hike of the Federal Reserve. At present, the cash rate is 1.35% in Australia and 1.75% in the United States, which has nearly a 30% difference. That

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makes the AUD less attractive, sending more money back to the U.S. and shorting the currency. Secondly, inflation in the United States and Australia was misplaced. The CPI in the United States rose 9.1% in June, while the CPI in Australia was 5.1%. Therefore, the RBA did not have urgent pressure to raise interest rates, and the rate of increase in the United States will still be higher than that in Australia, which will make Australian dollar decrease continually. Finally, structural issues arising from the energy crisis and the pandemic have made it more difficult for the Australian economy to grow, making it much less likely for the economic growth to boost the Australian dollar.

5. The Effectiveness of the Strategies

Of all the trades above, the most successful trade is the value trade while the worst trade is the merger arbitrage. In the first trade using value trade strategy, it turned out the total return increased greatly by shorting shares of BYD. Moreover, it is one of the best trades because the trade did not follow the general trend but conducted the research on the own, and the outcome proved the own decision is the right one. The worst one of all the trades is the merger arbitrage. At first, the merger was very likely to realize according to the 2021 financial report, in which Merck & Co. has been highly open to external cooperation in the past four years, and had spent a total of $34 billion, including nearly $14 billion in the last two deals. There was no doubt that Merck will continue to ramp up its acquisition efforts. Moreover, the downside of NASDAQ Biotech offered good opportunities for acquisitions. Under this circumstance, once the merger finished, the target company's stock price would increase. As a result, people can sell Seagen's stock and have a profit. On the other hand, if the merger ends up with a failure, they can cover the stocks to hedge some risks.

However, the trade was delayed because Merck is waiting for the latest information of Seagen's new treatment. And the price of Seagen continue to decrease. In this case, the trade had a great loss due to this unpredicted situation. In this case, due to the uncertainty of the trade, the best solution is to end it to minimize the loss and find other potential mergers.

6. Conclusion

The article tends to analyze the effectiveness of different hedge fund strategies by using different strategies to buy different stock portfolios, hedge funds can effectively hedge the risk of a single stock or fund, so as to minimize the risk. Hedge funds contain many different strategies, and this article will discuss the effect of their actual operation in the market based on these strategies. In the end, of all the trades conducted in above, the most successful trade is the value trade while the worst trade is the merger arbitrage. As a result, in current stock market, though all the strategies have their own advantages, we also need to conduct thorough research to determine the most effective strategies.

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