The Main Investment Strategies of Hedge Funds and Their Efficiency

Gevorgyan Gayane V.
PhD student at the Chair of Finance at The Armenian State University of Economics (Yerevan, RA)
gevorgyangayane54@gmail.com

UDC: 336.7:330.322; **EDN:** MJPWRE
Keywords. Hedge funds, hedge fund strategies, long/short equity, multi-strategy, macro funds, relative value funds, Sharpe ratio, Treynor ratio.

Հեջ ֆոնդերի հիմնական ներդրումային ռազմավարությունները և դրանց արդյունավետությունը

Գևորգյան Գայանե Վ.
Հայաստանի պետական տնտեսագիտական համալսարան, Ֆինանսներ ամբիոնի ասպիրանտ (Երևան, ՀՀ)
gevorgyangayane54@gmail.com

Ամփոփագիր՝ Բոլոր ներդրողները ձգտում են ունենալ լավ դիվերսիֆիկացված պորտֆել ցածր ռիսկայնությամբ և բարձր եկամտաբերությամբ: Բայց ոչ բոլորն են, որ ունեն բավարար գիտելիքներ նման պորտֆել կառուցելու համար:Այս պարագայում նրանց օգնության են գալիս ներդրումային ֆոնդերը: Ներդրումային ֆոնդերում ներդրումը հնարավորություն է տալիս ունենալ լավ դիվերսիֆիկացված պորտֆել պրոֆեսիոնալ կառավարմամբ: Ներդրումային հիմնադրամների տարատեսակներից մեկը հեջ ֆոնդերն են: Սրանք համարվում են ակտիվ կառավարվող ֆոնդեր, որոնք օգտագործում են տարատեսակ ներդրումային ռազմավառություններ: Գոյություն ունեն ներդրումային ռազմավարությունների հարյուրավոր տեսակներ և ենթատեսակներ: Ներդրումային ռազմավարության ընտրությունը հանդիսանում է հեջ ֆոնդի կառավարման առանցքային կողմերից մեկը: Ներդրումային ռազմավարության ընտրության հիմքում ընկած է երկարատև վերլուծություն, որը ներառում է հնարավոր տարբերակների դիտարկումը, ռիսկի և եկամտաբերության ցանկալի հարաբերակցության սահմանումը և կառավարչի հմտությունները:
Այս հոդվածի շրջանակներում մենք կներկայացնենք հեջ ֆոնդերի ընդհանուր նկարագիրը, դրանց ակտիվների աճի դինամիկան, կբացահայտենք ամենատարածված ներդրումային ռազմավարությունները:
Վերլուծության հիմնական նպատակն է բացահայտել ամենաարդյունավետ ներդրումային ռազմավարությունները: Այս նպատակով մենք կուսումնասիրենք ներդրումային հիմնական ռազմավարությունները, դրանց ձևավորման սկզբունքները, առավելությունները և թերությունները: Բացի այդ մենք կվերլուծենք և կհամեմատենք վերջիններիս արդյունավետությունը, ռիսկի և եկամտաբերության մակարդակը, ծախսերը և այլն:
Հանգուցաբառեր. Հեջ ֆոնդեր, ներդրումային ռազմավարություններ, երկար/կարճ բաժնետոմսեր, մուլտիռազմավարություն, մակրոֆոնդեր, հարաբերական արժեքի ֆոնդեր, Շարպի գործակից, Թրեյնորի գործակից:

Основные инвестиционные стратегии и эффективность хедж-фондов

Геворгян Гаяне В.
Армянский государственный экономический университет, аспирант кафедры финансов (*Ереван, РА)*
gevorgyangayane54@gmail.com

Аннотация: Все инвесторы стремятся иметь хорошо диверсифицированные портфели с низким уровнем риска и с высокой доходностью. Но не все инвесторы имеют достаточно знаний для создания таких портфелей. В этом случае на помощь приходят инвестиционные фонды. Инвестирование в фонды позволяет иметь хорошо диверсифицированный портфель с профессиональной командой менеджеров. Одним из распространенных видов инвестиционных фондов являются хедж-фонды. Они считаются активно управляемыми инвестиционными пулами, менеджеры которых используют широкий спектр стратегий. Существуют сотни инвестиционных стратегий и подстратегий. Выбор инвестиционной стратегии является ключевым моментом успеха хедж-фонда. Чтобы сделать этот выбор, управляющие фондами рассматривают доступные варианты, их характеристики, приемлемые уровни риска и доходности и навыки команды менеджеров.
В этой статье мы представим хедж-фонды, также мы проанализируем динамику роста активов хедж-фондов и выясним наиболее распространенные инвестиционные стратегии.
Основная цель этой статьи – выяснить наиболее эффективные инвестиционные стратегии. Для достижения этой цели мы рассмотрим основные инвестиционные стратегии хедж-фондов, рассмотрим характеристики, методы, преимущества и недостатки каждой из них. Также мы проанализируем и сравним их производительность, уровни риска и доходности, затраты и т.д.

Ключевые слова: Хедж-фонды, стратегии хедж-фондов, длинные/короткие акции, мультистратегии, макрофонды, фонды относительной стоимости, коэффициент Шарпа, коэффициент Трейнора.

Article: This article is aimed to describe the most widespread investment strategies of hedge funds, and to compare them.

Originally, the word “to hedge” means to cover or reduce risks. However, the type of funds that are named “hedge funds” are not actually hedged, moreover, they are considered to be riskier type of funds that use non-traditional investment strategies.

Actually there is no general definition for hedge funds, and different authors described it differently. Some definitions of hedge funds are represented below.

According to the Glossary of the Alternative Investment Management Association (AIMA) there is no standard international/legal definition for hedge funds though they may have all or some of the following characteristics: May use some form of short asset exposure; may use derivatives and/or more diverse risks or complex underlying products are involved; and may use some form of leverage. Funds charge a fee based on the performance of the fund as well as a management fee; investors are typically permitted to redeem their interest only periodically, e.g. quarterly or semi-annually; typically, the manager is a significant investor alongside other (outside) fund investors [**8**].

Another definition of hedge funds is given by The Hedge Fund Association on its website, according which hedge funds refer to funds that can use one or more alternative investment strategies, including hedging against market downturns, investing in asset classes such as currencies or distressed securities, and utilizing return-enhancing tools such as leverage, derivatives, and arbitrage [**9**].

Investopedia describes hedge funds as actively managed investment pools whose managers use a wide range of strategies, often including buying with borrowed money and trading esoteric assets, in an effort to beat average investment returns for their clients. They are considered risky alternative investment choices [**10**].

Francois-Serge Lhabitant in his book gives the following definition: Hedge funds are privately organized, loosely regulated and professionally managed pools of capital not widely available to the public [**3**, p.4].

Nowadays the hedge funds are considered to be a widely used investment alternative, the assets under management of which are continuously growing. The value of assets managed by hedge funds in the world from 1997 to 2020 is represented in the Figure 1. As we can see hedge fund assets were growing until the Financial Crisis began in 2007. Because of their passion for risky investments in non-liquid assets for satisfying their investors’ demand of high return, hedge funds suffered a lot from depression, and assets under management of these funds dropped approximately 1.6 times in a year (Figure 1). The assets have been growing again since 2012 and reached to 3,826.3 billion dollars in 2020.

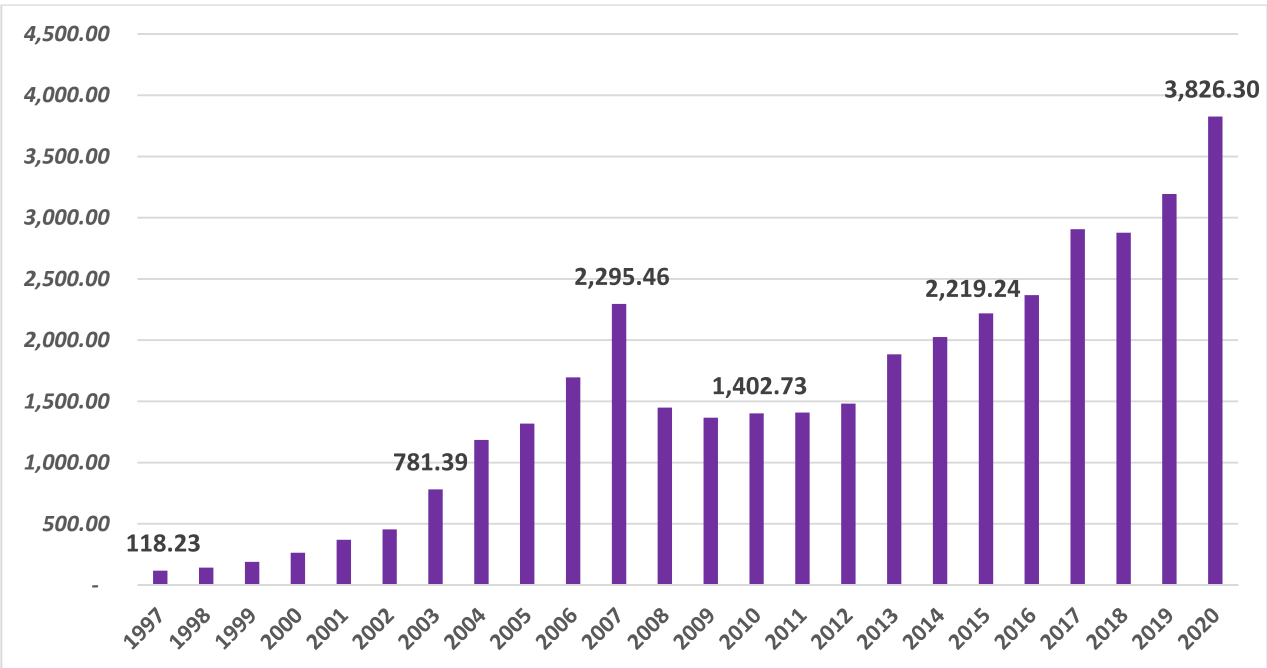

Figure 1: *Value of assets managed by hedge funds worldwide from 1997 to 2020 (in billion U.S. dollars)* [7]

As already said, hedge funds use different non-traditional investment strategies. The choice of investment strategy is the key part of managing a hedge fund, because actually the output of a hedge fund mostly depends on the strategy it follows. There are a lot of hedge fund investment strategies. Daniel Capocci in his "The Complete guide to hedge funds and hedge fund strategies" book groups the investment strategies of hedge funds into three main groups: non-directional, directional and fund of funds. Non-directional strategies do not aim to profit from the direction the markets take. This group includes strategies such as market neutral, event driven, multi-strategy arbitrage and others. Long/short equity, short selling, long only, macro are the types of directional strategies. All strategies also have their sub-strategies[, p.136-138].

According to The International Organization of Securities Commission in 2020 the 20% of global hedge funds assets are invested in Multi-strategy funds. The next top 3 strategies are Long/short equity (19%), Relative value (17%) and Macro (14%). The other strategies that have a significant share are Long bias equity, Market neutral, Long/short credit, Event Driven and Managed futures (Figure 2).

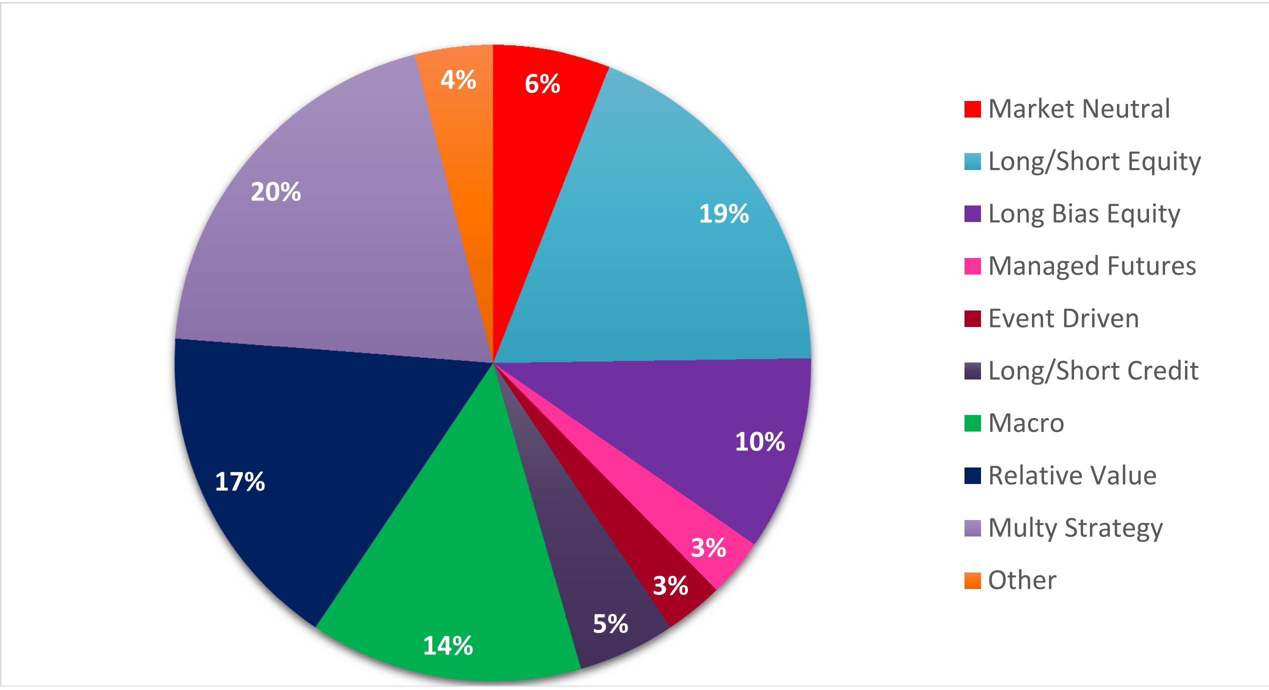

Figure 2: *Top Hedge fund investment strategies by Assets under Management 2020* [**5**, p.14]

In this article we will discuss the 4 most widespread strategies, their methods, advantages and disadvantages, performance and effectiveness comparison.

The first one is multi-strategy. Multi-strategy funds, just as their name implies, typically combine two to five investment strategies in order to offer a diversified product. There are two types of multi-strategy funds. In the first type a manager allocates assets between various funds managed by independent teams that will implement various investment strategies and each sub-portfolio will be managed using a single strategy. The other type has a single team that includes several specialists, each managing a specific part of the assets. The portfolio is then a global portfolio managed in house. The main attraction of multi-strategy funds is that they offer a diversified exposure to hedge funds, with a relatively low minimum. In their methodology multi-strategy funds are similar to fund of funds. The main difference is that multi-strategy funds are not invested in funds managed by outside managers. They are products offered by single manager offering a few individual funds to their clients and adding to their offering a diversified product that groups a few single strategies. So this lack of freedom in the choice of underlying manager considers to be the main inconvenience of multi-strategy funds. When a company offers five individual funds and a multi-strategy fund combining them, the multi-strategy fund will always be invested in these five strategies. The next drawback of multi-strategy is that these funds tend to stick to the same manager even if performance is disappointing. However, multi-strategy funds also have advantages comparing to fund of funds, for example their managers don't have to perform a due diligence on the underlying manager. This significantly reduces their costs of searching best managers in a specific strategy and let them offer a more attractive fees [**2**, p.251-254].

The next strategy is long/short equity, which is probably the most popular strategy used by hedge funds. As the name indicates, these type of hedge funds combine both long and short positions of listed stocks in their portfolios. The key point of success of this funds is the ability of fund managers and specialists to find undervalued stocks to buy and overvalued stocks to sell by focusing on a particular market cap, dividends, industry, sector and using tools of fundamental and technical analyses.

There are no established rules regarding on long and short position shares in the portfolio. Regarding market exposure is typically kept at 40 to 60 per cent net long. In bull market conditions, long/short managers will generally have over 75 per cent of their portfolio in long positions and 25 per cent of their portfolio in short, but in more difficult market conditions the trend is the opposite; longs tend to decrease, to 50 per cent, and shorts increase, to about the same percentage [**2**, p.273].

The long/short equity strategy is similar to the equity market neutral strategy in that they both combine long and short positions in equities. The main difference arises from the fact that long/short equity funds tend to have a long bias and to offer exposure to the equity market over time, while equity market neutral funds will always remain neutral. So managers of market neutral funds balance their portfolio between long and short positions to limit the exposure to the market, while long/short equity managers invest their assets in undervalued and overvalued companies while keeping some exposure to the market as a whole [**2**, p.275].

Hedging the long positions with short sales and easiness in construction can be considered as the advantages of this strategy. The main disadvantage of the long/short equity strategy is that it is used by a lot of managers which brings to a big competition.

The third most used strategy is relative value, which is not really a strategy but it is a combination several individual investment strategies. Managers of relative value funds take long and short positions in securities that have been historically or mathematically linked when the price relations move unexpectedly out of their historical range. The manager will then make profit if the price relation returns to historical levels, or at least when it gets closer to it. The main difference between this and arbitrage strategies is that relative value strategy is not focused on one particular kind of security. Instead, it usually combines a set of other strategies or techniques such as fixed income arbitrage, merger arbitrage, convertible arbitrage, pair trading, capital structure arbitrage or statistical arbitrage [**2**, p.156-157].

As already said, relative value arbitrage combines various investment strategies. In this case we can divide relative value funds' managers into two groups. Managers of first group use relatively similar strategies, investing in areas where they have strong experience. The second category managers' portfolios are much more diversified.

There are three main investment techniques that are used in relative value funds:

1. *Pair trading*, which combines long and short positions in a pair of securities from the same sector.
2. *Option trading and warrants*, where managers buy or sell options or warrants, and they take an equivalent but balanced position in the underlying securities.
3. *Capital structure arbitrage*, which implies a long position in a part of the capital structure of a company, combined with the short sale of another part of its capital. [**2**, p.158]

And the last strategy discussed in this article is macro strategy. Within this bucket funds are largely driven by macroeconomic conditions. Macro funds will typically hold both long and short positions in a variety of asset classes including equities, fixed income, currencies, and so on. Unlike the long/short funds the macro strategy isn't asset-class specific, instead, managers will look at various economic and political risk overlays to determine where they make investments on either side [**1**, p.5-6]. This can be considered as an advantage of this strategy, because it doesn't focus on one type of security or particular market, which gives investing freedom to its managers.

Macro managers develop a global view over the world markets and their interconnections in order to profit from any kind of opportunities whenever they appear. They analyze macroeconomic trends linked to government or monetary policies, economic cycles, new technologies and so on. They look for unusual price fluctuations that are far from their equilibrium. In such conditions, the perception of market participants deviates from actual levels, creating an opportunity. Macro managers are often described as speculators in a series of markets including equities, fixed income, currencies and commodities. While many hedge fund strategies need a particular economic environment to perform, the characteristics of their strategy enable macro managers to perform over time whenever the opportunity emerges [**2**, p.358].

After describing the main principles and methods of chosen 4 most used investment strategies, now we continue to analyze their performance and effectiveness. For this purpose, two main indicators have been chosen: risk and return of the fund.

For evaluating the risk of the fund's portfolio, three main risk ratios have been used:

1. *Alpha*-The alpha is a metric that compares an investment's performance to that of its benchmark. Alpha can be referred as the excess return over the benchmark. The value generated or removed by a fund's manager may be easily measured using alpha.

2. *Beta*-Beta measures the volatility of an investment in comparison to the overall market. Investors use beta to estimate how much a security will drop if the market falls, or how much it will climb if the market rises. Beta is an important tool of assessing risk. However, beta doesn't provide enough information about the company's fundamentals, so it can be used to indicate a short-term risk.

3. *R-Squared*- R-Squared is a statistical tool of a portfolio's relation with its benchmark, given as a percent from one to one hundred. The greater the rate, the tighter the fund's performance follows the benchmark. The R-squared has no impact on the performance of a fund.

To represent the performance of the funds, first of all we paid attention to their annual return rate, then we have used two main ratios of calculating portfolio's return.

The first one is Sharpe ratio. It was developed by Nobel laureate William F. Sharpe in 1965. The numerator of the Sharpe ratio is a risk-adjusted measure of return. It is not the raw return but the return in excess of what could have been earned by investing in a risk-free security. It equals to:

$$Sharpe\ ratio = \frac{\text{Portfolio return} - \text{Risk free rate}}{\text{Standard deviation of the portfolio return}}$$ [**4**, p. 7-8]

The denominator of our equation is standard deviation, which considers to be a measure of portfolio risk.

The next ratio is Treynor ratio which was developed a year earlier of Sharp ratio and is almost identical it and also measures portfolios return above the risk-free rate. But the main difference of this two measures is that Sharpe used standard deviation as a risk measure, while in Treynor ratio the denominator is portfolio's beta, which considers only the systematic risk:

$$Treynor\ ratio = \frac{\text{Portfolio return} - \text{Risk free rate}}{\beta}$$

Since it only takes the systematic risk of the portfolio into account, The Treynor ratio is particularly appropriate for appreciating the performance of a well-diversified portfolio [**6**, p.13].

Unlike the Sharpe ratio, Treynor ratio calculates the return of the portfolio against a benchmark. Rather than measuring a portfolio's return only against the rate of return for a risk-free investment, the Treynor ratio looks to examine how well a portfolio outperforms the equity market as a whole. It does this by substituting beta for standard deviation in the Sharpe ratio equation, with beta defined as the rate of return due to overall market performance [**10**].

Also for comparing investment strategies the net expense ratio and management fees of each strategy fund have been considered. To perform above mentioned measures of funds' risk and return, from each strategy we have chosen ten investment funds that have assets under management above 100 million US dollars.

For comparing the performance of chosen investment strategies first of all we will have a look at annual average return of each strategy's funds.

The above-mentioned indicators for each strategy were calculated as an average of corresponding indicators of investment funds from each strategy. All indicators' calculation is based on three years of funds' monthly returns. As a benchmark for Long/short equity funds has been considered S and P 500 index, for other strategies as a benchmark MSCI ACWI index was used. For risk-free rate the 90-day US Treasury bill's average rate has been used.

In Figure 3 arithmetic mean and weighted average annual returns of each strategy funds are represented. In calculating weighted average return of funds as a weighting factor has been used assets under management of particular fund. As the return of the fund is highly related to its assets under management, we will base on weighted average annual return while comparing our strategies performance.

As we can see from Figure 3, the best performing strategy is long/short equity strategy with approximately 12.5% annual return. The next come macro strategy with 8.9% and then multi-strategy funds with 6.7% return. It's important to mention, that even the weighted average return of macro funds is greater than that of multi-strategy funds, the arithmetic mean return of multi-strategy funds exceeds the macro funds by 2 percentage points. The worst performing funds are the funds using relative value strategy, having 4.7% annual average return.

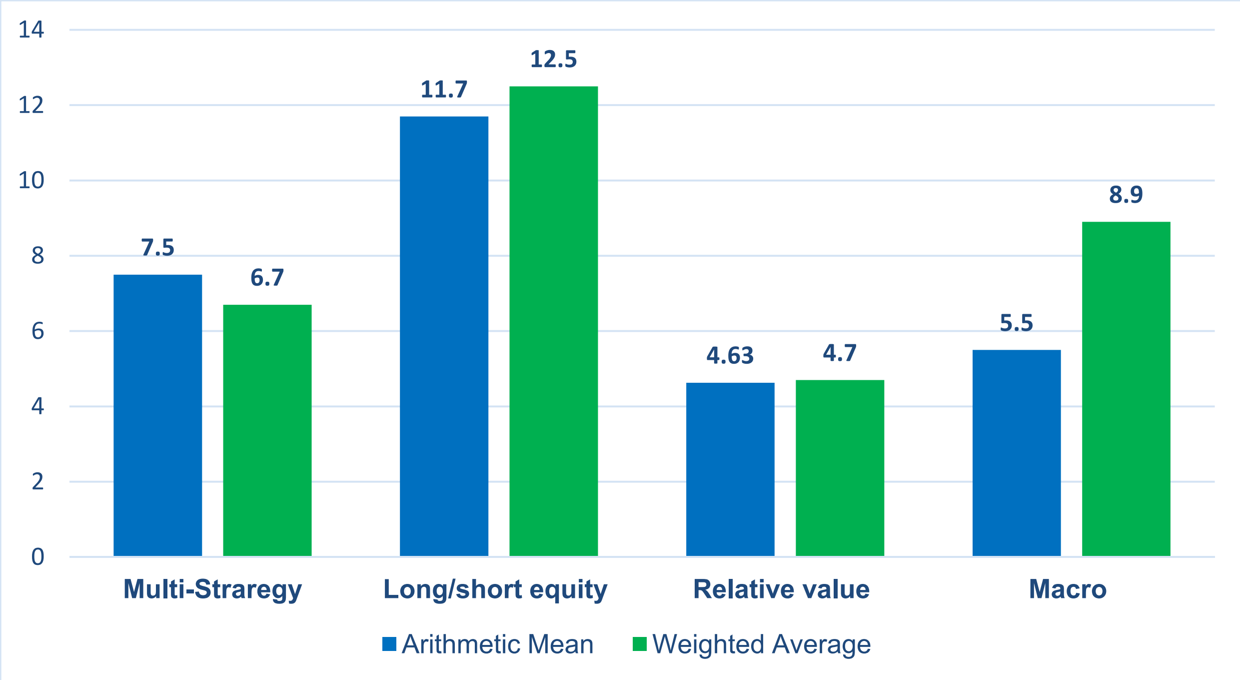

Figure 3: *Arithmetic and Weighted Average annual returns of Multi-strategy, Long/short Equity, Relative value and Macro funds as of December 2020(in %)* (The table is compiled by the author based on the dataset of [**11**]).

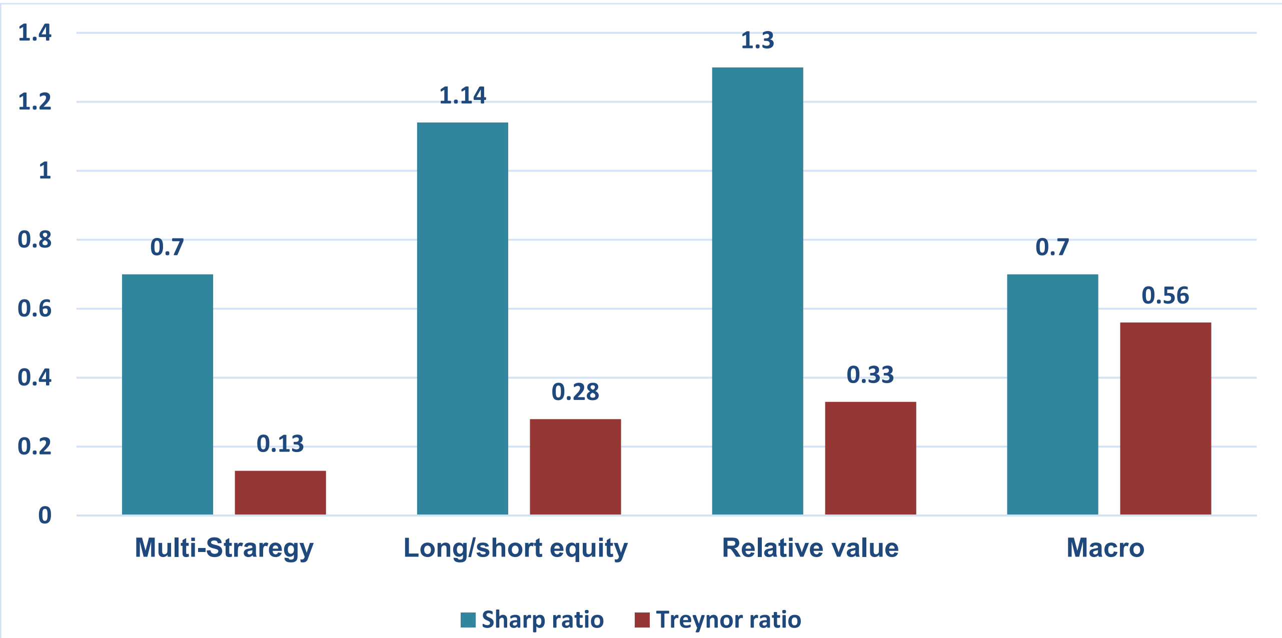

Figure 4: *Sharp ratio and Treynor ratio of Multi-strategy, Long/short Equity, Relative value and Macro funds as of December 2020* (The table is compiled by the author based on the dataset of [**11**]).

Further analyses of chosen investment strategies' efficiency will be based on Sharp and Treynor ratios of the funds tracking the particular strategy. Both Sharp and Treynor ratios measure the risk-adjusted return of the portfolio, and the greater the value of the ratios, the more attracted the portfolio. The greatest average Sharp ratio of studied strategies has a relative value strategy, approximately 1.3%. The next comes long/short equity with 1.14%: Average Sharp ratios of multi-strategy and macro funds are equal (0.7%) (Figure 4). The picture is completely different for the Treynor ratio. For example, multi-strategy and macro funds have the same value of Sharpe ratio, but the Treynor ratio of the first one is 0.13, and for the second is 0.56. The same situation is with the other two strategies. The main reason for this inconsistency is that the Treynor ratio takes into account only systematic risk and is more suitable for portfolios with good diversification. However, if we look at the alpha of our investment funds, we can conclude that they are not well diversified. The average alpha of multi-strategy and long/short equity funds is negative which means the fund fails to generate returns at the same rate as its benchmark. Macro funds also have a very small value of average alpha (0.056) (Table 1). This will allow us to conclude that studied funds except for relative value funds are not optimally diversified. The Relative value funds average alpha is 2.73 (Table 1).

Table 1: *Average Alpha, Beta and R-squared risk ratios of Multi-strategy, Long/short Equity, Relative value and Macro investment strategies* (The table is compiled by the author based on the dataset of [**11**]).

Investment Strategy	Alpha	Beta	R-squared
Multi-Strategy	-0.147	0.254	53.589
Long/short Equity	-0.3086	0.5545	57.149
Relative value	2.73333	0.205	50.225
Macro	0.056	0.277	42.242

For evaluating the funds or portfolios performance not only return should be studied. The other important factor is the risk. From our four strategies, the riskiest is long/short equity funds, with 0.55 value of beta, and 57.1% value of R-squared. Betas of the other three strategies do not exceed 0.3 and the value of R-squared varies from 42-54 percent. This means that funds tracking multi, relative value or macro strategies don't have high volatility and are not strongly connected to the overall market.

The other important factor of choosing this or that strategy is the costs of holding that funds, which include net expense ratio and management fee. The importance of fund costs is explained by its direct impact on fund's return. Table 2 shows that the strategy with highest costs is long/short equity and the lowest costs suggest macro funds managers.

Table 2: *Net Expense Ratios and Management Fees of Multi-strategy, Long/short Equity, Relative value and Macro investment strategies* (The table is compiled by the author based on the dataset of [**11**])

Investment Strategy	Net Expense Ratio	Management fee
Multi-Strategy	1.61%	1.1%
Long/short Equity	2.02%	1.2%
Relative value	1.67%	0.96%
Macro	1.57%	1.05%

Conclusion. Based on studies of The International Organization of Securities Commission in 2020 70% of global hedge funds assets are invested in funds tracking only 4 main investment strategies: Multi-strategy, long/short equity, relative value, and macro strategies.

After analyzing each of these strategies, we can conclude that even hedge funds are considered to be high-risk finds, these strategies do not take a high risk, they don't have high volatility, and have e slight connection to the overall market. Only the long/short equity takes a little higher risk than others. The reason is that these funds completely consist of stocks. And as a reward for the risk long/short equity funds provide the highest return. Examining the alpha of the funds we can say that studied funds' portfolios are not optimally diversified, and only relative value funds have a high value of alpha.

So, the choice of investment strategy is individual. If an investor wants to get a high return and is ready to take high risks, long/short equity funds are most suitable for him. If an investor is not prone to risk, relative value funds can work well for him.

References

1. Bailey McCann (2014) "Tactical Portfolios". John Wiley & Sons, Inc., Hoboken, New Jersey.
2. Daniel Capocci (2013) "The Complete Guide to Hedge Funds and Hedge Fund Strategies". Global Financial markets.
3. Francois-Serge Lhabitant (2004)-Hedge Funds: Quantitative Insights. John Wiley & Sons Ltd, The Atrium
4. Frank J. Fabozzi, Harry M. Markowitz(2011),The Theory and Practice of Investment Management Second Edition, John Wiley & Sons, Inc.
5. FR01/2022 IOSCO Investment Funds Statistics Report January 2022
6. Véronique Le Sourd (2007), Performance Measurement for Traditional Investment
7. https://www.statista.com/statistics/271771/assets-of-the-hedge-funds-worldwide/
8. https://www.aima.org/article/glossary.html
9. https://www.hedgefundassoc.org/about_hedge_funds/
10. https://www.investopedia.com
11. www.money.usnews.com

Сдана/Հանձնվել է՝ 10.05.2022
Рецензирована/Գրախոսվել է՝ 18.05.2022
Принята/Ընդունվել է՝ 25.05.2022