INNOVATION IN ALTERNATIVE FORMS OF INVESTMENTS

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Abstract: The area of hedge funds is one of alternative investment possibility of investing funds both private and institutional investors. The main objective of this work is to design a new fund of funds based on existing hedge funds called "Diploma Fund of Funds". Based on the analysis work brings possible variant of the basic criteria selection for selecting the underlying funds in the portfolio and then determine the values of each criterion based on the study of Eurekahedge hedge fund index. Using Eurekahedge, private data provider in hedge funds, is selected and characterized nine funds complying with the criteria which form the basis of Diploma Fund of Funds portfolio. The benefit is primarily an analysis of established fund of funds with an emphasis on the characterisation of a cost-benefit over the three years studied.

Key words: hedge funds, fund of hedge funds, annualized return, annual standard deviation, maximum drawdown, sharpe ratio, assets under management.

Introduction

The aim of this paper is to describe the issue of hedge funds with an emphasis on the creation of own fund of funds and characterize costs and achieved revenues. Fund of Funds ensures blending of different investment strategies and different asset classes. In comparison with the returns of individual funds, fund of funds contributes to achieving more consistent yields. The paper provides simulation investment of $9,000,000 into nine selected hedge funds for the period 2011 – 2013. We want to find the level of expected return by investing in a newly created Fund of Funds, using available information and data. Aim of this paper is to determine whether it is worth to invest in hedge funds, if they achieve long term gains and if there are any restriction in access to sufficient and adequate publicly available information.

The increase in wealth of middle and upper class and their interest in the effective investment of excess funds resulted in continually widening of investment area (Šoltés and Rusnáková, 2012, 2013; Gavurová, 2012; Bačík and Fedorko, 2013). In addition to traditional forms of investment, more and more new alternative forms of investments has had expanded (Man et al. 2011; Ślusarczyk and Kot, 2012; Šoltés and Gavurová, 2013). Hedge funds are just one of the alternative forms of investment that provide an alternative when deciding on the recovery of funds. The topic hedge funds are among the general public still little known and it would seem that this is a completely new way of investing. The first hedge fund already appeared in the interwar period (Jaeger, 2003; Rusnáková and Šoltés, 2012). Therefore hedge funds are nothing new for the professional and prudent investor.

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Since the establishment period to the present days, interest in hedge funds investing as well as the emergence of new funds develops gradually in waves. The last decade represents a kind of boom in this area. The issue of hedge funds became interesting for more and more investors. On this topic has been written plenty of papers, but its character and fogged information still create the impression of secrecy. Hedge funds are professionally and privately managed funds. The legislation of many countries in this area can be called at least austere. The hedge funds investor can become almost anyone without proper experience with investing. When investing in hedge funds there is always minimum required investment. This investment is rarely less than $100,000. Low regulation by legislative authorities and accessibility only to more solvent clients contributes to the overall low awareness of non-professional investors. On the other hand the figures say that hedge fund topic is still up to date. Currently there are about 10,000 actively operates funds.

Previous year, 2013, hit a new record high of total assets under management. Annual growth in 2013 was $228.8 billion, thus achieved the highest volume of assets ever. Globally, the hedge funds managed $2.1 trillion. We are talking about interesting numbers, but we assume that hedge funds have not reached the peak yet and there is still place to growth. It is a constantly evolving area, which has great scope for further growth both in nominal number of funds and total volume of assets under management. We can see the place of improvement in combination of investment strategy, expanding into new markets as well as expansion to the middle class. The issue of hedge funds is despite the ever growing popularity known only a little. The aim of this paper is to describe the issue of hedge funds with an emphasis on the creation of own fund of funds and characterize costs and achieved revenues. Fund of Funds ensures blending of different investment strategies and different asset classes. In comparison with the returns of individual funds, fund of funds contributes to achieving more consistent yields. The paper provides simulation investment of $9,000,000 into nine selected hedge funds for the period 2011-2013.

Methodology

The main advantage of investing in hedge funds, according to Ineichen (2000), are high achieved yields even after taking into account the risk and wide range of diversification opportunities that are not possible with traditional marketing asset. Historical returns of hedge funds are what attract number of investors, although if we cannot predict with full certainty the sustainability and future development. Considerable flexibility of fund managers is what contributes to achieve above-average profitability. It is often caused by inadequate regulation by legislative bodies. This opens the door to speculative and handy traders. Probably one of the most important advantages of trading with non-traditional types of investment is their low correlation with traditional assets. For the investor it is important to know how a components of its portfolio correlate with each other. Highly volatile hedge

fund with low correlation to the overall portfolio may actually be less risky investment than low risk but high correlated fund. Correlation of the fund does not need to be constant over time.

The main disadvantages of hedge funds include risk of not achieving the required yield. Inneichen (2001) argues that insufficient revenues are partly offset by non-correlation between hedge funds and traditional investment instruments. Ineichen (2001) further states that the problem of many investors is the lack of understanding of the strategy and ideology of the fund. A disadvantage is the low transparency and poor access to important and relevant information. Plenty of charges are something what deters many of the investors. This includes management, performance and other charges that may vary fund from fund.

Investing into hedge funds is also linked with low level of liquidity. Many of the investors consider it as negative.

Procedure of drawing up the funds in the portfolio consists of two main parts. The first important part is to determine the search criteria and the second part is to determine values for the selected criteria. In further parts of the text based on deep analysis of available information we will take into account following criteria:

– Annualized return,
– Annual Standard Deviation,
– Maximum Drawdown,
– Sharpe Ratio,
– Assets Under Management (AUM) – Firm's Total Assets.

Critical values of the criteria are based on data achieved by Eurekahedge Hedge Fund Index, the flagship of Eurekahedge. It is an equally weighted index, which consisted on 17th of March 2014 of 2,816 funds. The index was designed to give a general view of the underlying hedge Funds performance. It was founded in December 1999 and its basic weight was fixed at 100. It does not contain duplicate funds and is denominated in the domestic currency.

Based on the analysis of Eurekahedge Hedge Fund Index we established the value of search criteria so that each of the selected funds reached a value at least equal to or better than Eurekahedge Hedge Fund Index. Eurekahedge Hedge Fund Index is a kind of benchmark, below which the newly established fund of hedge funds is allowed to move. Limit values of selected criteria are as followed:

– Annualized return – min 9.79,
– Annual Standard Deviation (volatility) – max 5.17,
– Maximum Drawdown – min 0 max 12.42,
– Sharpe Ratio – min 1.51,
– AUM – Firm's Total Assets – min $100 mil.

Annualized return represents the average amount of money earned by investment in a given period of time per one year. The annual total return represents only the view on the performance of investments but it does not give any information about the volatility. The average annual rate of income provides only the geometric mean

rather than the arithmetic mean. Rate of return is generally stated as a percentage. Annualized return is the basic selection criterion for the newly established fund of fund (Wolfinger, 2005). Each selected fund must reach the plus rate of return Setting the minimum threshold of acceptability to the level of 9.79% ensure the selection of the finest and most profitable funds. The upper limit is not specified.

Annual Standard Deviation - Volatility represents the risk associated with investing in the financial instrument (in our case the hedge fund) or the actual risk of the securities portfolio. Risk is an important factor in determining how efficiently manage investments portfolio. Along with income represents a mathematical basis for investment decisions. In general, if the risk increases, expected yield will increase also. In other words, investors expect higher returns when investment carries a higher degree of risk. In our case, we choose a low level of risk. We wanted to find Funds which have a high level of return for longer period of time (Gladiš, 2005). We are looking for funds whose risk level is low, not higher than 5.71 percentage points.

Maximum drawdown is a risk indicator selected on the basis of a particular portfolio strategy. It is calculated as the largest decline from a peak to the lowest value before attaining a new peak (Lederman, Klein, 1995).

Criterion Maximum drawdown is defined as follows:

If S_0 is initial investments and $S_0 < LMAX\ S_1 < LMAX\ S_2 < \ldots < LMAX\ S_k$ i.e. $LMAX\ S_j$ are gradually increasing local maxima of the asset value thus:

$$MD_1 = \frac{LMAXS_2 - \min_i LMINS_{i,12}}{LMAXS_1} * 100\% \tag{1}$$

If LMIN $S_{i,12}$ are local minima between the value of LMAX S_1 and LMAX S_2 thus analogously:

$$MD_j = \frac{LMAXS_j - \min_i LMINS_{i,j,j+1}}{LMAXS_j} * 100\% \tag{2}$$

If LMIN $S_{i,j,j+1}$ are all of the local minima between LMAX S_j and LMAX S_{j+1} than:

$$MD = \max_{1 \le j \le k} MD_j \tag{3}$$

$$MD \le 12,42 \tag{4}$$

We consider values as acceptable until the value max MD_j (3). Based on the values of Eurekahedge Hedge Fund Index we choose only the hedge funds with level of maximum drawdown which does not exceed 12.42 (4). In the further text we are going to taking into account only the values of maximum drawdown at level O. This will narrow the final selection of the sample and will ensure the selection of only permanent growing and profitable funds. We are going to choose funds which have never recorded any loss. Their income grows

continuously since their introduction to the market till present. We are talking about stable funds, which are for several years in a row, holding in the red.

Sharpe ratio is a tool that measures the amount of revenue for each unit of volatility, which is generated by the portfolio. Higher yields and lower volatility (standard deviation) brings a higher return per unit of volatility. Sharpe Ratio measures the risk premium, the fund's performance over the risk-free rate per unit of risk (Boucher, 1999). It is calculated as a proportion of the fund's performance adjusted for risk-free rate and the volatility of the Fund. If the expected return of the fund is $\overline{r_p}$, risk-free interest rate is r_f and volatility of the fund is σ_p then:

$$SR = \frac{\overline{r_p} - r_f}{\sigma_p} \tag{5}$$

The higher the value, the better the relative performance of the Fund with respect to its risk is. We are only interested into Funds reaching the value of Sharpe Ratio at least 1.51. Like the average annual yield, even here; the higher the value, the better. The volume of assets under management represents the market value of all assets held by the investment. AUM is often regarded as an indicator of success when compared to competitors. The last requirement is the value of AUM at least $100 million.

Analysis and Discussion

The composition of the Fund of hedge funds consists of nine funds selected based on analysis of funds using Eurekahedge, private hedge fund database provider. To simplify we will use in the further text the working title "diploma Fund of Funds" to label assembled fund of hedge funds. Analysis was performed based on historical data and we assume that our established criteria and consistently achieved positive historical returns also bring positive result in the future. Because it is not possible to analyze future returns, just past, we decided to analyze performance of funds since the beginning of 2011 till the end of 2013. Analysis does not consider the period after year 2013.

We expect the equally distribution of investment into nine identical parts to all pre-selected funds, regardless of the selected Prosiris Global Fund became operational in July 2011.

The initial deposit into the Diploma Fund of Funds represents $9,000,000. We assume equal distribution of investment to nine identical parts. Amount invested in each pre-selected fund is therefore $1,000,000 regardless that Prosiris Global Fund became operational in July 2011. Prosiris Global Fund performance will be taken into account until July 2011. Investments are distributed regardless of performance, management structure, domicile etc.

In Table 1 we can see estimate total cost of establishing and choosing the right funds, based on an analysis of Inechen (2000) and Ineichen (2001). Estimated number of analyzed funds required for selection of 10 funds is 100. Our criteria are

met only by nine funds. For our purposes we consider that estimated cost for the selection of nine or ten funds is similar and the possible difference is negligible.

The process of selecting the sample of funds begins with collection of necessary documents and subsequent in-depth analysis of the collected documents (Mirabile, 2013). The result of the analysis is to reduce the number of funds documents needed for further investigation. More information about the narrow sample of 50 funds may receive via telephone conversations directly with the responsible fund managers. After telephone conversation followed personal meeting with managers. Face to face meeting is only possibility to discuss the detailed information that cannot be solved via telephone.

Table 1. Cost of picking 9 funds for Diploma Fund of Funds

Procedure	Hours per manager	Total hours	Total cost ($)
Collect and file documents	2	200	40,000
Analyze 100 documents	10	1,000	200,000
Talk to 50 managers on phone	1	50	10,000
Visit 25 managers	4	100	20,000
Total cost ($)		**1,350**	**270,000**

Because there is invested the same amount in each underlying fund, we will calculate the return of Diploma Fund of Funds using simple formula:

$$\text{total Diploma FoF return} = \frac{\sum individual \text{ underlying fund return}}{\text{number of funds}} \qquad (6)$$

Table 2 shows percentage (%) and absolute numbers ($) of yields in particular years.

Table 2. Diploma Fund of Funds yields in percentage and in dollars ($)

Fund's name	2011 (%)	2012 (%)	2013 (%)	2011 ($)	2012 ($)	2013 ($)
GAP Institutional	7.62	10.51	11.30	76,200	110,456	127,556
BNY Mellon ARX Cash	7.61	7.91	11.10	76,100	83,916	125,209
CSHG DI	7.50	7.42	10.47	75,000	79,023	118,664
Polo Crédito Privado FIM	14.10	14.65	18.77	141,000	161,560	229,185
BBM Instuticional FIM	8.97	8.60	11.97	89,700	91,397	134,820
RD Legal Funding Partners LP	13.50	13.50	13.50	135,000	153,225	173,910
Prosiris Global	16.33	22.50	13.15	163,300	249,894	169,417
Claritas Institucional FIM	6.43	11.43	11.71	64,300	119,037	131,884
Quest Quant FIC FIM	8.19	9.10	12.22	81,900	95,597	135,794
Diploma FoF	**10.03**	**11.74**	**12.69**	**902,500**	**1,144,105**	**1,346,440**

In order to diversify the investment we have in the portfolio the funds with different domicile. Each fund is subjected to different jurisdictions and different laws. Most funds in the portfolio has domicile in Brazil. Reason for this is that Brazil is a developing country with high potential of future growth. On the other hand the legal system is still incomplete. Controlling of hedge funds is insufficient and laws in this field are still inaccurate (Stefanini, 2010). Brazil still has a space for the development of finance and investment. Many times it constitutes the advantage. Based on historical data it is evident that Brazil achieves economic growth and brings revenues in investment area. Potential of Brazil is not yet filled, and we expect the future growth. Percentage of funds distribution by domicile is 67% in Brazil, 22% in Cayman Islands and 11% in the United States.

Total amount of investment in the Diploma Fund of Funds is $9,000,000. Amount invested in each fund is the same size $1,000,000. Management fees are calculated from the net value of assets under management. At the begging of every year we calculated net value by adding previous income and deducting all cost and charges from the last year. Table 3 shows management fees (MF) in percentage and for better informative value also in United States dollar ($). Performance fees (PF) are calculated as a percentage of revenues achieved in individual years and they are shown in Table 4.

Table 3. Management fees (MF)

Fund's name	MF (%)	MF 2011 ($)	MF 2012 ($)	MF 2013 ($)
GAP Institutional	1.0	10,000	10,510	11,288
BNY Mellon ARX Cash	0.0	0	0	0
CSHG DI	1.0	10,000	10,650	11,334
Polo Crédito Privado FIM	1.0	10,000	11,028	12,210
BBM Instuticional FIM	0.9	9,000	9,565	10,137
RD Legal Funding Partners LP	0.0	0	0	0
Prosiris Global	2.0	20,000	22,213	25,767
Claritas Institucional FIM	1.0	10,000	10,414	11,263
Quest Quant FIC FIM	1.5	15,000	15,758	16,669
Σ MF ($)		**84,000**	**90,137**	**98,667**

RD Legal Funding Partners LP has not implemented the traditional performance fees but the fee, which is calculated as the difference between gross revenues and 13.5% of net revenues. Based on the provided data we cannot see the gross revenues. We have the guaranty that we get the yield of 13.5% without paying any management or performance fee.

Table 4. Performance fees (PF)

Fund's name	PF (%)	PF 2011 ($)	PF 2012 ($)	PF 2013 ($)
GAP Institutional	20	15,240	22,091	25,511
BNY Mellon ARX Cash	20	15,220	16,783	25,042
CSHG DI	0	0	0	0
Polo Crédito Privado FIM	20	28,200	32,312	45,837
BBM Instuticional FIM	20	17,940	18,279	26,964
RD Legal Funding Partners LP	0	0	0	0
Prosiris Global	20	32,660	49,979	33,883
Claritas Institucional FIM	20	12,860	23,807	26,377
Quest Quant FIC FIM	20	16,380	19,119	27,159
Σ PF ($)		138,500	182,371	210,773

Based on the analysis of the underlying funds of the Diploma FoF and calculation of yields of simulated investment for the period 2011-2013, as well as the exact calculation of fees and charges connected with investing, following results were obtained in Table 5.

Table 5. Diploma Fund of Funds profit

Item	2011	2012	2013	TOTAL
Initial deposit	9,000,000	0	0	9,000,000
Fees				804,449
Management fees	84,000	90,137	98,667	
Performance fees	138,500	182,371	210,773	
Yield	902,500	1,144,105	1,346,440	3,393,045
Profit	**680,000**	**871,596**	**1,037,000**	**2,588,596**
Opening balance	9,000,000	9,680,000	10,551,596	
Closing balance	9,680,000	10,551,596	11,588,596	

We can see that the fund of fund would reach for the period 2011 - 2013 profit in the total amount of $2,588,596. Assumes no withdrawals from the investment account, balance has rose over the period of three years from $9,000,000 to $11,588,596. Total expenditure on fees reached $804,449. If we decided after three years to withdraw an amount exceeding $9,000,000 we will have amount of $2,588,596. For the purpose of calculating the net profit has to be from this amount necessarily deducted the amount of initial cost of picking the funds into portfolio with a total value of $270,000. Total net profit of the Diploma Funds of Funds after all deduction of costs associated with the establishment as well as with the operation of a fund will be $2,318,596.

Conclusions

The paper presents an overview of the expected costs associated with the selection of funds as well as the expected return on investment. Selected criteria, Annualized return, Annual Standard Deviation, Maximum Drawdown, Sharpe Ratio, Assets Under Management - Firm's Total Assets, were chosen based on analysis of available literature, logic judgment and application of theoretical knowledge. Proper criteria selection and analysis of the available options of various funds is the hardest and very costly part of picking the right hedge fund. In the real situation this activity consists of large number of hours worked by extensive team of experts both with theoretical as well as practical knowledge in the field of hedge funds. In compiling this paper the time to analyze funds was much shorter and hence the choice of specific funds can be affected. We have set limiting values based on the figures achieved by Eurekahedge hedge fund index. It is an index compiled by Eurekahedge Company, in order to submit a comprehensive view of the underlying 2,896 funds. Diploma FoF underlying funds had to reach a value at least equal to Eurekahedge Hedge Fund Index.

The results can be interpreted as follows. Diploma Fund of Funds, consisting of nine underlying funds, for the three years observation period, with initial investment of $9,000,000 would reach after deducting the costs associated with the establishment of the fund as well as operation costs in the form of management and performance fees, total net profit $2,318,596. Amount and quality of information available is generally very poor. The limiting factor is also online database of Eurekahedge, which has only portfolio of 2,896 funds, which is only third of the world total.

The future challenge is to analyze more input data and compare the results. Alternatively, obtain data from multiple sources and data providers. However, restricting factor is paid access to data with limited duration. Eurekahedge provides us access to their databases only to a single week. Long-term access to data and continuous analysis of data over a longer period of time is the path to more thorough analysis. Results achieved in this way may vary. We can see the potential of Hedge Funds profit rising in the future. There is still place for future studies, deeper analysis, alternative approaches and comparison of date from different sources.

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INNOWACJE W ALTERNATYWNYCH FORMACH INWESTYCJI

Streszczenie: Obszar funduszy hedgingowych jest jedną z alternatywnych możliwości inwestowania funduszy inwestycyjnych zarówno dla inwestorów prywatnych jak i instytucjonalnych. Głównym celem niniejszej pracy jest zaprojektowanie nowego funduszu funduszy na bazie istniejących funduszy zabezpieczających zwanych „Dyplom Funduszu Funduszy". Na podstawie analizy praca prezentuje możliwy wariant wyboru podstawowych kryteriów wyboru funduszy podstawowych w portfelu, a następnie wyznacza wartości poszczególnych kryteriów, na podstawie badania indeksu Eurekahedge funduszy hedgingowych. Przy użyciu Eurekahedge, wybrany zostaje prywatny dostawca danych w funduszach hedgingowych i scharakteryzowanych zostaje dziewięć funduszy spełniających kryteria, które tworzą podstawę portfela Dyplomu Funduszu Funduszy. Korzyścią jest przede wszystkim analiza ustanowionego funduszu funduszy z naciskiem na scharakteryzowanie kosztów i korzyści, w ciągu trzech badanych lat.

Słowa kluczowe: fundusze hedgingowe, fundusz funduszy hedgingowych, zwrot w skali rocznej, roczne odchylenie standardowe, maksymalny spadek wartości, wskaźnik Sharpe'a, aktywa w zarządzaniu.

創新的投資替代形式

摘要：對沖基金的地區是投資資金的私人和機構投資者的另類投資可能性之一。這項工作的主要目標是設計基於現有的對沖基金被稱為"基金的基金文憑"資金的新基金。根據分析工作帶來了可能的基本選擇標準選擇的投資組合的相關基金，然後確定每個標準的基礎上，公司Eurekahedge對沖基金指數的研究價值的變種。使用Eurekahedge的，在對沖基金的私人數據提供者，選擇和表徵九只基金與形成基金投資組合的文憑基金的基礎標準規定。這樣做的好處是主要的資金建立基金，強調的成本效益超過三年研究定性分析

關鍵詞：對沖基金，對沖基金的基金，年化收益，每年的標準偏差，最大虧損，夏普比率，資產管理等