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POLISH ABSOLUTE RETURN FUNDS AND STOCK FUNDS. SHORT AND LONG TERM PERFORMANCE COMPARISON

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Abstract

In this paper I focus on analyzing whether Polish absolute return funds, which I call quasi-hedge funds, add value to a portfolio of an individual investor by reaching higher returns than Polish stock funds. I use a sample of 25 Polish absolute return investment funds to contrast their short and long term performance, measured by Sharpe, Sortino and Jensen ratios, to the short and long term performance of 20 biggest Polish stock funds and build rankings based on that performance. Later I build funds of funds (with a different number of stock funds and/or quasi-hedge funds) and check which of them is the most efficient. I find out that in both short and long term Polish quasi-hedge funds have better returns than stock funds and they add much value to the investors' portfolios. It can be explained by the fact that they are much smaller and younger than traditional funds, so they have much higher potential to grow and reach abnormal returns.

Keywords: absolute return funds, quasi-hedge funds, fund performance, portfolio efficiency, Poland.

JEL classification: G11, G23.

Introduction

Absolute return funds (commonly known as hedge funds) are supposed to be an alternative to traditional investment funds (also called mutual funds). The main difference between both types of funds is that the latter are passively and the former actively managed. Hedge fund managers use more advanced investment tools and build more sophisticated strategies which should lead them to reaching the goal of absolute return instead of relative return reached by mutual fund managers.

There is a strong evidence in literature that hedge funds reach abnormal returns¹ which are higher than relative returns of traditional funds, especially stock funds, including those which are hedged². Hedge fund returns are lowly correlated with the stock fund returns and stock indices, mainly due to their attributes such as fee structure, flow of capital, fund leverage or uniqueness of their strategies³. That makes them a perfect element for a well-diversified portfolio⁴, though not necessarily during financial crises⁵.

The evidence showing advantages of hedge funds concerns funds managed from the most developed fund market which is United States. To my knowledge there are not many (if any) studies on comparison of performance of both types of funds managed from other fund markets, including such emerging markets like Poland. That was my first motivation for the following study.

Another motivation for conducting this study were changes on the hedge fund market in Europe after the financial crisis of 2007/2008. There were two determinants of those changes: 1. high demand for alternative investments on retail capital markets; 2. new law which forced hedge funds operating in European Union to be authorized by the financial supervisory authorities⁶. The first determinant made hedge fund managers realize that there is some retail capital available for them. The second one that they must start being more transparent. So far they have not had to be because unlike mutual funds their operations were excluded from many law regulations⁷. Therefore they offered their funds only to professionals (like it is still today in America or Asia) and not to retail investors who had neither access to information nor tools to assess the potential risk of hedge funds.

The introduction of the new directive combined with high demand for alternative investments on European retail capital markets made authorized hedge fund managers include to their offer UCITS-hedge funds. Those are funds of hedge funds which aim at reaching the absolute return. In theory they are available for all European retail investors because they are quoted on public stock exchanges, e.g. in Luxembourg. However, in practice only some retail

investors (those internationally oriented) add them to their portfolios. Most of European retail investors are still home biased⁸ and Poland is no exception.

As a response some of the Polish investment companies created open-end “absolute return funds” which I call **quasi-hedge funds**. They are different to UCITS-hedge funds because their managers do not create a portfolio of hedge funds but they use some of the tools of hedge funds in their strategies. Quasi-hedge funds are regulated which forbids their managers to use all the tools used by hedge fund managers (e.g. advanced derivatives or high leverage). However that should not stop them from achieving the goal of abnormal return.

My last (and main) motivation for the following study is a desire to check whether Polish quasi-hedge fund managers reach absolute returns and whether they are higher than returns reached by Polish stock fund managers. In other words, I want to assess whether quasi-hedge funds add value to the portfolios of Polish investors by reaching positive returns which make their managers winners of fund rankings. I use Poland as a sample for two reasons: 1. because this is the biggest mutual fund emerging market in European Union; 2. it offers funds similar to hedge funds that additionally may be considered as an alternative for UCITS-hedge funds.

The rest of the paper is divided into three sections. In the next one I characterize the sample and describe the methodology. In the third section I present the results of the study. In the fourth and the last one I make conclusion and add a comment about possible solutions for the quasi-hedge fund market in Poland in the future.

1. Methodology

There are three steps of the analysis.

In step one I build the sample of funds, compare their characteristics and calculate short-term (1 year) and long term (5 years) fund performance, i.e. risk weighted returns from Sharpe and Sortino as well as one-factor Jensen models. In step two I rank funds according to those measures. There are two reasons why I decide to choose them. First, Sharpe and Sortino ratios are simple in their construction which makes them understandable for investors. Therefore they are commonly used for ranking mutual funds and hedge funds in practice. After I rank funds according to both measures I will be able to find out not only whether quasi-hedge funds are better managed than stock funds (which allows to conclude whether they should replace stock funds in an investor portfolio) but also whether there is a sense of using those measures interchangeably. Some academic evidence concerning US hedge funds shows that yes⁹. Second, Jensen alpha shows whether the fund managers have potential and skills to earn absolute returns.

If Jensen alpha of a fund is greater than zero ($\alpha > 0$), a fund manager earns positive returns. We say that she over-performs the market and has skills to add value to an investor portfolio. If Jensen alpha of a fund is lower than zero ($\alpha < 0$), its manager underperforms the market, which means that she has no (or does not use her) skills to manage a fund. Generally in order to assess the fund manager's skills the researchers calculate Jensen alphas from three-factor model of Fama and French (1993) or four-factor model of Carhart (1997) for mutual funds and seven-factor model of Fung and Hsieh (2004) for hedge funds. I use much simpler one-factor model of Jensen (1968, 1969), which concentrates on a relation between a fund return and a benchmark return. I do it after Perez (2012) who shows that more advanced models of calculating Jensen alphas do not work for Polish funds – the only statistically significant factor is the market factor.

I expect that (at least some) absolute return funds will have positive Jensen alphas which will be higher than alphas of stock funds.

Finally, in step three I make a simple exercise in which I build portfolios of stock funds and/or quasi-hedge funds and compare their returns and risk. By doing so I want to find out which portfolios are the most efficient: those which consist of only quasi-hedge funds or stock funds or those which combine both types of funds.

All calculations are made in Matlab. The details of the analysis are as follows.

Step one. Characteristics of a sample and fund performance

There are two parts of the step one of the study. First, I choose and characterize funds which are the elements of my sample as well as make initial calculations. Second, I calculate the performance of all funds.

The sample consists of two types of funds: **absolute return funds** of open-end and nondedicated type (herein named AR funds or quasi-hedge funds) and **stock funds** of open-end type as they are categorized by Polish Fund and Asset Management Association (Izba Zarządzających Funduszami i Aktywami, www.izfa.pl). I choose funds operating in Poland between **1.01.2010** and **31.12.2014** with at least half a year of history and frequency of pricing at least once a week. There are 25 open-end nondedicated absolute return funds which fulfill my requirements. They represent 95% of such funds and 40% of all nondedicated AR funds (of open-end and closed-end type). As a counterbalance I chose 20 stock funds with the highest net asset value as of the end of December 2014. They represent 50% of all open-end stock funds as far as NAV is concerned.

Table 1 presents the characteristics of analyzed funds. In table 1 and all other tables the absolute return funds are written with Italic letters so they may be distinguished from the stock funds.

Table 1. Characteristics of analyzed funds

Funds	Size (nav)	Age (months)	Management fee (%)	Performance fee (%)	Max distribution fee (%)
1	2	3	4	5	6
Absolute return funds					
<i>Agio Agresywny</i>	28,338,697.98	25.00	4.00	10	4.00
<i>Agio Aktywnej Alokacji</i>	7,595,883.53	66.00	2.50	20	5.00
<i>Agio Multistrategia</i>	30,883,863.96	65.00	4.00	20	4.00
<i>ALIOR SFIO Zmiennej Alokacji (dawny Selektyny)</i>	8,568,560.00	68.00	3.50	nd	4.00
<i>Altus FIO Parasolowy s ASZ Rynku PL</i>	218,844,645.62	27.00	4.00	nd	4.00
<i>Altus FIO Parasolowy Subfundusz ASZ Dłużny</i>	283,554,815.26	27.00	2.00	nd	2.00
<i>Aviva Investors Optymalnego Wzrostu</i>	76,495,892.02	55.00	2.50	10*	3.00
<i>BPH Subfundusz Selektyny</i>	105,411,632.00	76.00	3.00	nd	2.00
<i>ING P FIO sub Selektyny</i>	214,284,272.00	88.00	4.00	nd	5.00
<i>Millennium FIO S Absolute Return</i>	57,604,315.52	28.00	3.50	nd	2.50
<i>Noble Funds FIO Fund Tim.</i>	46,274,488.00	77.00	4.00	nd	4.00
<i>Noble Funds FIO GI Return</i>	62,711,004.00	69.00	4.00	nd	4.00
<i>Opera SFIO s O Alfa-plus.pl</i>	41,704,576.00	67.00	0.00	nd	1.50
<i>Pioneer Elastycznego Inwestowania</i>	15,375,859.96	41.00	2.50	nd	2.80
<i>Quercus P SFIO – Selektyny</i>	682,221,890.00	65.00	2.80	nd	2.80
<i>Skarbier FIO Market neutral</i>	7,655,196.00	28.00	4.00	nd	5.50
<i>subfundusz Allianz Total Return</i>	255,782.43	13.00	4.00	nd	4.00
<i>Subfundusz Skarbier – Market Opportunities</i>	14,246,630.00	11.00	3.00	nd	2.50
<i>Subfundusz Superfund Red (FoHF)</i>	2,667,356.07	108.00	1.20	n/a	4.50
<i>Superfund Alternatywny</i>	2,200,344.00	12.00	1.50	n/a	4.50
<i>Superfund GoldFuture (FoHF)</i>	1,870,440.21	86.00	3.50	n/a	4.50
<i>Superfund Subfundusz B</i>	10,612,644.46	108.00	1.20	n/a	4.50
<i>Superfund Subfundusz C</i>	5,686,998.55	108.00	1.20	n/a	4.50
<i>Superfund Trend powiązany Bis FIO</i>	19,152,708.52	98.00	1.50	n/a	4.50
<i>Superfund Trend Powiązany Plus FIO</i>	18,905,273.32	98.00	1.50	n/a	4.50
Total	1,963,123,769.41				
Average	78,524,950.78	60.56	2.80		3.80
Stock funds					
<i>Arka BZ WBK Akcji Subfundusz</i>	1,154,128,810.53	197.00	4.00	n/a	3.00
<i>Aviva Investors Polskich Akcji</i>	838,813,393.96	152.00	4.00	n/a	4.50
<i>ING (L) Globalny Spółek Dywidendowych</i>	627,343,604.71	61.00	2.50	n/a	5.00
<i>ING (PL) Akcji</i>	767,973,352.19	154.00	2.00	n/a	5.00
<i>ING SFIO Akcji 2</i>	1,850,518,757.35	198.00	3.50	n/a	5.00
<i>LM Parasol FIO Subfundusz Akcji</i>	1,299,935,717.83	192.00	3.50	n/a	4.00
<i>Millennium FIO S Akcji</i>	320,730,902.28	152.00	4.00	n/a	4.00
<i>Noble Fund Akcji</i>	484,904,159.06	93.00	4.00	n/a	4.00
<i>Noble Fund Akcji Małych i Średnich Spółek</i>	295,600,145.22	84.00	4.00	n/a	4.00
<i>Pioneer Akcji Amerykańskich</i>	337,478,319.44	174.00	3.50	n/a	5.00
<i>Pioneer Akcji Europejskich</i>	405,318,427.86	127.00	3.50	n/a	5.00
<i>Pioneer Akcji Polskich</i>	866,221,726.23	225.00	4.00	n/a	5.00

1	2	3	4	5	6
Pioneer Akcji Rynków Wschodzących	275,743,131.25	94.00	3.50	n/a	5.00
Pioneer Dynamicznych Spółek	298,657,244.92	31.00	4.00	n/a	5.00
PKO Akcji – fio	503,305,522.18	199.00	4.00	n/a	4.50
PZU Akcji KRAKOWIAK	502,448,086.88	178.00	4.00	n/a	4.00
PZU Energia Medycyna Ekologia	970,279,377.11	52.00	2.50	n/a	4.00
Quercus Agresywny	625,592,670.47	77.00	3.30	n/a	3.30
Subfundusz Akcji SKARBIEC-AKCJA	328,959,014.95	203.00	4.00	n/a	5.50
UniKorona Akcje	827,780,964.58	211.00	4.00	n/a	5.00
Total	13,581,733,329.00				
Average	679,086,666.45	142.70	3.59		4.49

* earned by all subfunds; n/a – not applicable; nd – no data available.

Source: IZFA, websites of investment companies managing the funds.

As we can see in Table 1 the net asset value (NAV) of absolute return funds varies significantly among funds. It ranges from 0.255 Mio PLN (*subfundusz Allianz Total return*) to 283.5 Mio PLN (*Altus FIO Parasolowy Absolutnej Stopy Zwrotu Dłużny*) and 682 Mio PLN (*Quercus Parasol Selektynny*), on average it is around 78.5 Mio PLN (without *Quercus Parasol Selektynny* it is 53.4 Mio PLN). In the case of stock funds it is from 275 Mio PLN (Pioneer Akcji Rynków Wschodzących) to 1.85 billion PLN (ING Akcji 2) and on average almost 680 Mio PLN. When we exclude *Quercus Parasol Selektynny* from the sample of quasi-hedge funds we see that the size of the biggest absolute return fund is similar to the size of the smallest stock fund used in the analysis. Besides quasi-hegde funds are much younger than the stock funds. On average they operate on the market for 60 months (5 years) whereas the stock funds for more than 142 months (almost 12 years). The average age of quasi-hedge funds was a motivation for choosing the last five years (meaning 2010–2014) as the time scope of the study.

Dealing with smaller and younger funds is motivating for the quasi-hedge fund managers – they are strongly concentrated on active management leading to superior returns which eventually brings them higher bonuses. It is interesting to see that only few absolute return funds charge their clients the performance fee. Most of them charge only the management fee, which – as for Polish standards – is quite low. On average it is 2.8% whereas the fee charged by stock funds is 3.6%. In my opinion it should be the opposite, especially since quasi-hedge funds are assumed to be managed much more actively than the stock funds. Presumably lower fees in Polish absolute return funds are supposed to attract new clients.

I use daily prices (net asset value per unit of participation, $NAVUP = P$) of those 25 absolute return funds and 20 stock funds from 01.01.2010 to 31.12.2014 to calculate their daily log returns (R). The formula is as follows:

$$R_{i,t} = \ln\left(\frac{NAVUP_{i,t}}{NAVUP_{i,t-1}}\right) = \ln\left(\frac{P_{i,t}}{P_{i,t-1}}\right), \quad t = 1, 2, \dots, T \quad (1)$$

where:

$R_{i,t}$ is a return of a fund i in day t ,

$NAVUP_{i,t} = P_{i,t}$ is the price of a fund i in day t ,

$NAVUP_{i,t-1} = P_{i,t-1}$ is the price of a fund i in day $t - 1$.

I also use this formula to calculate daily log returns of the benchmarks. The majority of Polish stock funds use the WIG index as the benchmark. However Perez (2012) shows that returns of WIG have no significant influence on the returns of Polish stock funds. Additionally those funds concentrate in their strategies on investing not only on Warsaw Stock Exchange but also on foreign capital markets (e.g. Istanbul or Vienna Stock Exchanges). That is the reason why – like Perez (2012) – I decide to choose MSCI World index as the benchmark for the stock funds. As far as Polish absolute return funds are concerned generally they do not define a benchmark. However for the purpose of the study I decide to choose Hedge Fund Research Equity Hedge (Total) Index.

The second part of the step one of the study is to measure the short and long term fund performance. I use **Sharpe and Sortino ratios as well as Jensen alpha** from one-factor model to do that. As mentioned above as a benchmark (RM) for funds I use HFR Equity Hedge (Total) Index or MSCI World index, as a minimum acceptable rate (MAR) which replaces a risk free rate I use WIBID 1Y. The models are as follows:

$$S_{i,y} = \frac{R_{i,y} - MAR_y}{\sigma_{i,y}} \quad (2)$$

$$Sor_{i,y} = \frac{R_{i,y} - MAR_y}{s\sigma_{i,y}} \quad (3)$$

$$\alpha_{i,y} = (R_{i,y} - MAR_y) - \beta_i(R_{M,y} - MAR_y) - u_{i,y} \quad (4)$$

where:

$S_{i,y}$ is a yearly value of a Sharpe ratio for a fund i ,

$Sor_{i,y}$ is a yearly value of a Sortino ratio for a fund i ,

$\alpha_{i,y}$ is a yearly value of a Jensen alpha for a fund i ,

$R_{i,y}$ is a yearly log return of a fund i ,

$R_{M,y}$ is a yearly log return of a benchmark,

MAR_y is a yearly value of a minimum acceptable rate,
 $\sigma_{i,y}$ is a yearly value of a standard deviation of a fund i ,
 $s\sigma_{i,y}$ is a yearly value of a semi-standard deviation of a fund i .

The highest the values of the measures the better the performance of the funds.

Step two. Fund rankings

I rank the funds from the best ones (having the highest values of Sharpe, Sortino and Jensen ratios) to the worst ones (having the lowest values of the ratios) according to each ratio in short term (in each year from 2010 through 2011, 2012 and 2013 till 2014) and in long term (five years, i.e. 2010–2014). I get three rankings of short term fund performance based on three performance measures for each year and three rankings of long term fund performance. In that I am able to see two things: 1. whether the quasi-hedge fund managers over-performed stock fund managers in short or long term, 2. whether there are any (and if yes – how big) differences in places of funds in those rankings among years and among measures.

Step three. Performance of funds of stock funds and/or quasi-hedge funds

Additionally to the above in step three of the analysis I build different funds of funds consisting of stock and/or absolute return funds and check whether they are efficient in Markowitz sense of portfolio efficiency. Since Jensen alpha is the performance measure showing the skills of the fund managers I decide to use the long term ranking based on that measure in order to create three groups of three funds of funds (FoF):

- only funds of stock funds consisting of 5 best or 10 best or all 20 analyzed stock funds (3 cases),
- only funds of absolute return funds consisting of 5 best or 10 best or all 25 analyzed quasi-hedge funds (3 cases),
- mixed funds of funds: a fund of 10 best funds (5 best stock funds and 5 best quasi-hedge funds), a fund of 20 best funds (10 best stock funds and 10 best quasi-hedge funds) and a fund of all 45 analyzed funds (3 cases).

I assume that the weight of each fund in each FoF is in the range of (0; 1) and may change every one tenth (0,1). So the weight of a fund in the FoF may be equal $w_i = 0,1$ or $0,2$ etc. up to 0,9.

I then calculate Sharpe ratio and standard deviation of those portfolios and compare the results. By doing so I hope to find out whether the portfolios with/of absolute return funds are in

long term more efficient than those without them. In other words, I hope to see whether absolute return funds add value to a portfolio of funds of any investor.

2. Results

Step one and step two

Tables 2, 3 and 4 show the short and long term performance of absolute return funds and stock funds which are ranked according to their values of Sharpe, Sortino and Jensen ratios.

There are few interesting things we may conclude from the fund performance. First of all, the performance of both types of funds measured by Sharpe and Sortino ratios was in short and long term positive and in many cases higher than the benchmarks. The only exceptions were 2011 and 2014, when majority of the funds had negative returns and underperformed the benchmarks. Such results were however not surprising since at that time the world capital markets were suffering losses. Second of all, many of the funds ranked according to the Sharpe and Sortino ratios had the same or comparable places in the rankings. From the statistical point of view it means that the values of standard deviation of stock fund returns were close to the values of semi-standard deviation of quasi-hedge fund returns. I analyzed only five years of the Polish fund industry history so it might not be a general rule, however, I believe for emerging markets like Poland it is worth considering building fund rankings according to those measures interchangeably.

The fund rankings according to Sharpe and Sortino ratios reflected the fund ranking built according to Jensen alphas of the funds only partially. In this case in both short and long terms we could observe more negative results, which – as wanted – were more common for stock funds. In different years different stock fund managers were not able to use their skills and beat the market. Presumably their poor performance may be explained by the long nature of their operations which depends on the turbulence on the world and Polish capital markets. As far as Polish quasi-hedge funds are concerned, even though they are open-end type, they are supposed to use different tools and opportunities on both long and short sides of the market to reach the goal of the abnormal return. It seems many of them succeeded, especially in long term – all the absolute return funds were ranked higher than stock funds, though we must see that not all of them overperformed the market. Those which did, were not necessarily persistent. However, we may notice that most of the winners belonged to the group of *Altus*, *Superfund* or *Quercus*. In the group of stock funds the best were some Pioneer or ING funds or PZU Energia Medycyna Ekologia, which is one of the biggest in that group.

Table 2. Ranking of fund performance measured by Sharpe ratio in short and long term

	2010	2011	2012	2013	2014	2010-2014
	1	2	3	4	5	6
Aviva Investors Optymalnego Miesz.	0.2394	Pioneer Elastycznego Inwestowania	0.1215	Altus FIO Parasolowy s ASZ Dilexit	0.5618	Superfund Alternatywy
Quercus P SFO – Selektywny	0.2125	PZU Energia Medyczna Ekologia	0.1044	Igrio Agresywny	0.4211	Altus FIO Parasolowy s ASZ Rynek PL
PZU Energia Medyczna Ekologia	0.1608	HFR	0.0476	Altus FIO Parasolowy s ASZ Rynek PL	0.3664	Quercus P SFO - Selektywny
BPI Subfundusz Selektywny	0.1426	Pioneer Akcji Amerykańskich	0.0668	Quercus P SFO - Selektywny	0.1667	Subfundusz Altius Total Return
Quercus Agresywny	0.1409	Agio Aktywnej Atakacji	0.0333	Opera SFO s O Alpha-plus pl	0.1409	MSCI World
Noble Funds FIO GI Return	0.1048	Pioneer Akcji Europejskich	-0.0167	Pioneer Dynamicznych Spółek	0.1368	Starblicz FIO Market neutral
Noble Fund Akcji MFS	0.1026	ING (L) Globalnych Spółek Dywidendowych	-0.0172	Noble Funds FIO Fund Tim.	0.1355	Noble Fund Akcji MFS
Allior SFO Zmiennej Atakacji	0.0789	Superfund GoldFuture (FoHF)	-0.0362	Quercus Agresywny	0.1205	Agio Multiestrategia
Aviva Investors Polskich Akcji	0.0739	MSCI World	-0.0364	Millennium FIO S Absolute Return	0.1102	Pioneer Dynamicznych Spółek
LM Parasol FIO s Akcji	0.0568	Opera SFO s O Alpha-plus pl	-0.0379	Aviva Investors Polskich Akcji	0.0961	Agio Agresywny
ING (L) Globalnych Spółek Dywidendowych	0.0554	Aviva Investors Optymalnego Wzrostu	-0.0551	Noble Fund Akcji	0.0941	Opera SFO s O Alpha-plus pl
Noble Fund Akcji	0.0530	UmParasol Akcje	-0.0699	ING (PL) Akcje	0.0865	Quercus Agresywny
PKO Akcji – flo	0.0518	LM Parasol FIO s Akcji	-0.0735	Noble Fund Akcji MFS	0.0844	Millennium FIO S Absolute Return
ING SFO Akcji 2	0.0508	Superfund Trend Bis FIO	-0.0751	ING SFO Akcji 2	0.0840	Subfundusz Superfund Red (FoHF)
HFR	0.0484	Agio Multiestrategia	-0.0773	Arka BZ WBK Akcji Subfundusz	0.0826	Aviva Investors Polskie Akcji
Pioneer Akcji Amerykańskich	0.0443	Superfund Trend Plus FIO	-0.0775	UniKorona Akcje	0.0786	ING P FIO sub Selektywny
PZU Akcji KRAKOWIAK	0.0438	Superfund Subfundusz C	-0.0852	Millennium FIO S Akcji	0.0765	Pioneer Akcji Europejskich
ING (PL) Akcji	0.0362	ING SFO Akcji 2	-0.0853	Subfundusz Akcji SKARBIEC- AKCIA	0.0760	LM Parasol FIO s Akcji
Millennium FIO S Akcji	0.0350	Superfund Subfundusz B	-0.0873	PKO Akcji – fio	0.0729	Agio Agresywny Alokacji
UniKorona Akcje	0.0349	Noble Fund Akcji	-0.0876	PKO Akcji KRAKOWIAK	0.0676	Superfund Subfundusz C
ING P FIO sub Selektywny (FoHF)	0.0336	Subfundusz Superfund Red	-0.0881	Aviva Investors Optymalnego Wzrostu	0.0670	Superfund Subfundusz B
Superfund GoldFuture (FoHF)	0.0306	Pioneer Akcji Rynkow Wsch	-0.0936	LM Parasol FIO s Akcji	0.0657	WZU Energia Medyczna Ekologia
Arka BZ WBK Akcji Subfundusz	0.0277	Noble Fund Akcji MFS	-0.0955	ING (L) Globalnych Spółek Dywidendowych	0.0604	Superfund Trend Plus FIO
MSCI World	0.0177	Quercus s SFIO - Selektywny	-0.0968	Pioneer Akcji Polskiej	0.0481	Superfund Trend Bis FIO
Subfundusz Akcji SKARBIEC- AKCIA	0.0152	Noble Funds FIO Fund Tim.	-0.0978	Pioneer Akcji Rynków Wsch	0.0454	Altus FIO Parasolowy Subfundusz ASZ Dilexit
Pioneer Akcji Rynkow Wsch	0.0151	Quercus Agresywny	-0.0990	MSCI World	0.0401	ING SFO Akcji 2
Pioneer Akcji Polskich	0.0137	PKO Akcji fo	-0.0991	Noble Funds FIO GI Return	0.0385	Aviva Investors Optymalnego Wzrostu

Source: own calculation.

Table 3. Ranking of fund performance measured by Sortino ratio in short and long terms

	2010	2011	2012	2013	2014	2010-2014
1		2	3	4	5	6
PZU Energia Medycyna Ekoologia	0.639	Pioneer Elastycznego Inwestowania	0.2901	Agio Agresywny	56.7039	Sortfund Alternatywny
Aviva Investors Optymalnego Inwestowania	0.5156	PZU Energia Medycyna Ekoologia	0.1870	Altus FIO Parafinowy Subfundusz ASZ Dzień	34.2234	Altus FIO Parafinowy Subfundusz ASZ Dzień
Quercus P-SFO - Selektowy	0.3295	HFER	0.0812	Altus FIO Parafinowy Subfundusz ASZ Dzień	12.9653	Subfundusz Allianz Total Return
BPH Subfundusz-Selektowy	0.2435	Pioneer Akcji Amerykańskich	0.0095	Opéra SFIO O Alfa-plus.pl	0.5303	Pioneer Akcji Amerykańskich
Quercus Agresywny	0.2063	Agio aktywnej akcje/ci	0.0055	Quercus P-SFO - Selektowy	0.4521	PZU Energia Medycyna Ekoologia
Noble Funds FIO GI Return	0.1614	Pioneer Akcji Europejskich	-0.0230	Millennium FIO S Absolute Return	0.13253	Rynku PL
Noble Fund Akcji MIS	0.1474	ING (L) Globalnych Spółek Dywidendowych	-0.0231	Pioneer Dynamicznych Spółek	0.12313	Quercus P-SFO - Selektowy
Allor SFIO Zmiennej Ilotacji	0.1175	Opéra SFIO s O Alfa-plus.pl	-0.0422	Nobile Funds FIO Fund Tim.	0.2769	MSCI World
Aviva Investors Polskich Akcji	0.1062	Sortfund GoldFuture (FoHF)	-0.0457	Quercus Agresywny	0.1677	Sortfund Subfundusz-B
LM Parasol FIO s Akcji	0.0806	MSCI World	-0.0469	Aviva Investors Polskich Akcji	0.2202	Nobile Fund Akcji MIS
HER	0.0793	Ariva Investors Optymalnego Wzrostu	-0.0672	Noble Fund Akcji	0.1398	Opéra SFIO s O Alfa-plus.pl
ING (L) Globalnych Spółek Dywidendowych	0.0786	Sortfund Trend Bis FIO	-0.0872	ING (PL) Akcji	0.1261	Quercus Agresywny
Pob. Fund Akcji	0.0772	UniKrona Akcje	-0.0882	Nobile Fund Akcji MIS	0.1213	Sortfundz Sortfund Red/FoHF
PKO Akcji – fo	0.0739	LM Parasol FIO s Akcji	-0.0925	ING SFIO Akcji 2	0.1205	Millennium FIO S Absolute Return
ING SFIO Akcji 2	0.0730	Sortfund Trend Plus FIO	-0.0931	Arka BWK Akcji Subfundusz AKCJA	0.1203	Aviva Investors Polskich Akcji
Pioneer Akcji Amerykańskich	0.0652	Agio Multistrategia	-0.1002	UniKrona Akcje	0.1172	Pioneer Akcji Europejskich
PZU Akcji KRAKOWIAK	0.0591	Subfundusz Sortfund Red (FoHF)	-0.1014	Millennium FIO S Akcji	0.1118	ING P-FIO sub Selektowy
ING (PL) Akcji	0.0567	Sortfund Subfundusz B	-0.1021	Subfundusz Akcji SKARBIEC- AKCJA	0.1101	Agio Aktynowej Akcje/ci
Millennium FIO S Akcji	0.0488	Sortfund Subfundusz C	-0.1034	PKO Akcji – fo	0.1059	LM Parasol FIO s Akcji
UniKrona Akcje	0.0468	ING SFIO Akcji 2	-0.1052	LM Parasol FIO s Akcji	0.0966	Sortfund Subfundusz-C
ING P-FIO sub Selektowy	0.0466	Noble Fund Akcji	-0.1088	PZU Akcji KRAKOWIAK	0.0963	Sortfund Subfundusz B
Sortfund GoldFuture (FoHF)	0.0395	Noble Fund Akcji MIS	-0.1138	Ariva Investors Optymalnego Herzosa	0.0955	Sortfund Trend Plus FIO
Arka BWK Akcji Subfundusz	0.0379	Quercus P-SFO - Selektowy	-0.1170	Dywidendowych	0.0885	Sortfund Trend Bis FIO
MSCI World	0.0249	Pioneer Akcji Rynków Wsch	-0.1180	Pioneer Akcji Polskich	0.0686	PZU Energia Medycyna Ekoologia
Subfundusz Akcji SKARBIEC- AKCJA	0.0208	Quercus Agresywny	-0.1192	Pioneer Akcji Rynków Wsch	0.0655	Altus FIO Parafinowy Subfundusz ASZ Dzień
Pioneer Akcji Rynków Wsch.	0.0206	PKO Akcji – fo	-0.1219	MSCI World	0.0588	ING SFIO Akcji 2

1	2	3	4	5	6
Pioneer Akcji Polskich <i>Noble Funds FIO Fund Tim.</i>	0.0191	<i>Noble Funds FIO Fund Tim.</i>	-0.1226	<i>Noble Funds FIO Market neutral</i>	-0.0423
<i>Agro Aktywnej Akcacji</i>	0.0183	ING (PL) Akcji	-0.1230	<i>Agro Aktywnej Akcacji</i>	-0.0055
<i>Subfundusz Akcji SKARBIEC- AKCJA</i>	0.0174	ING (PL) Akcji	-0.1263	<i>Pioneer Akcji Europejskich</i>	-0.0116
Pioneer Akcji Europejskich	0.0168	Millennium FIO S. Akcji	-0.1298	<i>Pioneer Akcji Europejskich</i>	-0.0165
<i>Superfund Plus FIO</i>	0.0032	Ariya Investors Polskich Akcji	-0.1303	<i>Pioneer Ekonomiczno-Inwestowana</i>	-0.0188
<i>Superfund Trend Bis FIO</i>	0.0027	PZU Akcji KRAKOWIAK	-0.1332	<i>Agro Multistrategia</i>	-0.0190
<i>Superfund Subfundusz B</i>	-0.0001	Arka BZ WBK Akcji Subfundusz	-0.1386	<i>Pioneer Akcji Europejskich</i>	-0.0197
<i>Superfund Subfundusz C</i>	-0.0028	BPH Subfundusz Selektywny	-0.1649	<i>Agro Aktywnej Akcacji</i>	-0.0212
<i>Subfundusz Superfund Red (FoHF)</i>	-0.0121	ING P FIO sub Selektywny	-0.1709	<i>ALIOR SFIO Zmiennej Akcacji (FoHF)</i>	-0.0233
<i>Opera SFIO s O Agencja plus.pl</i>	-0.0145	<i>Noble Funds FIO Gt Return</i>	-0.1739	<i>HFR</i>	-0.0240
<i>Agro Multistrategia</i>	-0.0157	Pioneer Akcji Polskich	-0.1823	<i>Superfund GoldFuture (FoHF)</i>	-0.0244
<i>ALIOR SFIO Zmiennej Akcacji (FoHF)</i>	-0.3122	<i>Superfund Trend Bis FIO</i>	-0.3122	<i>Superfund GoldFuture (FoHF)</i>	-0.0253
<i>Superfund Subfundusz C</i>		<i>Agro Aktywnej Akcacji</i>	-0.0595	<i>UniKrona Akcje</i>	-0.0259
<i>Superfund Trend Pow. zany Plus FIO</i>		<i>PZU Akcji KRAKOWIAK</i>	-0.0613	<i>PZU Akcji KRAKOWIAK</i>	-0.0266
<i>Superfund Subfundusz B</i>		<i>Subfundusz Akcji SKARBIEC- AKCJA</i>	-0.0616	<i>Noble Fund Akcji</i>	-0.0276
<i>BPH Subfundusz Selektywny</i>		<i>Arka BZ WBK Akcji</i>	-0.0699	<i>Arka BZ WBK Akcji</i>	-0.0278
<i>Subfundusz Superfund Red (FoHF)</i>		<i>Arka BZ WBK Akcji Subfundusz</i>	-0.0700	<i>Arka BZ WBK Akcji Subfundusz</i>	-0.0282
<i>Skarbiec FIO Market neutral</i>		<i>HFR</i>	-0.0709	<i>HFR</i>	-0.0336
		<i>BPFI Subfundusz Selektywny</i>	-0.0769	<i>ALIOR SFIO Zmiennej Akcacji</i>	-0.0363
		<i>Subfundusz Superfund Red (FoHF)</i>	-0.0875	<i>Pioneer Akcji Rynkow Wsch</i>	-0.0405
		<i>Noble Funds FIO Gt Return</i>	-0.1308	<i>Subfundusz Superfund Red (FoHF)</i>	-0.0454
		<i>BPFI Subfundusz Selektywny</i>	-0.0948	<i>ALIOR SFIO Zmiennej Akcacji</i>	-0.0457
		<i>Superfund GoldFuture (FoHF)</i>	-0.1172	<i>Agro Multistrategia</i>	-0.0562
		<i>BPH Subfundusz Selektywny</i>	-0.1441	<i>ALIOR SFIO Zmiennej Akcacji</i>	-0.0904

Source: own calculation.

Table 4. Ranking of fund performance measured by Jensen ratio in short and long terms

	2010	2011	2012	2013	2014	2010-2014	
	1	2	3	4	5	6	
Ariva Investors Optymalnego Wzrostu	8.4E-04	Pioneer Elastycznego Inwestowania	0.0004	Agio Agresywny	0.0039	Superfund Subfundusz B	0.0005
Noble Funds FIO GI Return	5.9E-04	Agio Aktywnej Alokacji	0.0000	Altis FIO Parasolowy s ASZ	0.0006	Altis FIO Parasolowy s ASZ	0.0004
Quercus P SFIO – Selektywny	5.3E-04	PZU Energia Medyczna Ekologia	-0.0001	Nobile Funds FIO Fund Tim.	0.0008	Altis FIO Parasolowy	0.0004
Superfund GoldFuture (FoHF)	5.1E-04	Quercus P SFIO – Selektywny	-0.0004	Opera SFIO s Afip-plus.pl	0.0004	Quercus P SFIO – Selektywny	0.0002
Altior SFIO Zmiennej Alokacji	5.1E-04	Opera SFIO s Afip-plus.pl	-0.0005	Quercus P SFIO – Selektywny (FoHF)	0.0004	Altis FIO Parasolowy	0.0001
BPH Subfundusz Selektywny	5.0E-04	BPH Subfundusz Selektywny	-0.0005	Millennium FIO S Absolute Return	0.0004	Subfundusz ASZ Dlity	0.0001
PZU Energia Medyczna Ekologia	2.7E-04	Ariva Investors Optymalnego Wzrostu	-0.0005	ISZ Dlity	0.0003	Opera SFIO s Afip-plus pl	0.0001
ING P FIO sub Selektywny	2.4E-04	Superfund GoldFuture (FoHF)	-0.0006	Ariva Investors Optymalnego Wzrostu	0.0003	Subfundusz Starbicc – Market	0.0001
Noble Funds FIO Fund Tim.	9.7E-05	Agio Multistrategia	-0.0007	Nobile Funds FIO GI Return	0.0002	ING P FIO sub Selektywny	0.0000
Superfund Trend Plus FIO	6.0E-05	Pioneer Akcji Amerykańskich Ago Aktywnej Alokacji	-0.0009	ING P FIO sub Selektywny	0.0001	Opportunities	0.0000
5.5E-05	Nobile Funds FIO GI Return	-0.0010	Pioneer Dynamicznych Spółek	0.0001	Subfundusz Allianz Total	0.0000	
5.4E-05	Nobile Funds FIO Fund Tim.	-0.0011	Pioneer Elastycznego Inwestowania	0.0000	Return	0.0000	
Superfund Trend Plus FIO	-1.8E-06	Starfundusz Superfund Red (FoHF)	-0.0011	BPH Subfundusz Selektywny	-0.0001	Subfundusz Allianz Total	0.0000
Superfund Subfundusz C	-6.4E-05	ING (L) Globalnych Spółek Dywidendowych	-0.0012	Agio Aktywnej Alokacji	-0.0001	Opera SFIO s Afip-plus.pl	0.0000
Ago Multistrategia	-7.4E-05	Superfund Trend powiązany Bis FIO	-0.0012	Agio Multistrategia	-0.0002	Altis FIO Parasolowy s ASZ	0.0000
Quercus Agresywny	-1.0E-04	Pioneer Akcji Europejskich	-0.0013	Quercus Agresywny	-0.0002	Millennium FIO S Absolute	0.0000
Opera SFIO s Afip-plus.pl	-1.2E-04	Superfund Trend Poniązany Plus FIO	-0.0013	Starbicc FIO Market neutral	-0.0003	Ariva Investors Optymalnego Wzrostu	0.0000
Subfundusz Superfund Red (FoHF)	-1.4E-04	Superfund Subfundusz B	-0.0015	Altior SFIO Zmiennej Alokacji	-0.0003	Nobile Fund Akej MIS	0.0000
Noble Fund Akej MIS	-3.3E-04	Altior SFIO Zmiennej Alokacji	-0.0017	ING (PL) Akej	-0.0003	Nobile Funds FIO Fund Tim.	0.0000
Pioneer Akcji Amerykańskich	-3.3E-04	Superfund Subfundusz C	-0.0017	Nobile Fund Akej	-0.0003	Altis FIO Parasolowy	0.0000
Noble Fund Akej	-5.0E-04	ING P FIO sub Selektywny	-0.0020	Subfundusz Akej SKARBII-C- ARKCIA	-0.0003	Pioneer Elastycznego Inwestowania	0.0000
LM Parasol FIO s Akej	-5.6E-04	LM Parasol FIO s Akej	-0.0020	ING SFIO Akej 2	-0.0004	Altior SFIO Zmiennej Alokacji	-0.0001
Przez Akcji Amerykańskich	-5.8E-04	ING SFIO Akej 2	-0.0020	Arta BZ WBK Akej Subfundusz	-0.0004	BPH Subfundusz Selektywny	-0.0002
ING SFIO Akej 2	-6.0E-04	UniKronma Akej	-0.0020	Ariva Investors Polskich Akej	-0.0004	Altior SFIO Zmiennej Alokacji	-0.0002
PKO Akej – fo	-6.1E-04	Quercus Agresywny	-0.0021	UniKronma Akej	-0.0004	Pioneer Dynamicznych Spółek	-0.0003
ING (PL) Akej	-6.7E-04	PKO Akej – fo	-0.0022	Nobile Fund Akej MIS	-0.0005	Pioneer Akcji Europejskich	-0.0005
						PZU Energia i Ekoenergia	-0.0006
						Ekoenergia	-0.0005

1	ING (L) Globalnych Spółek Dydwidendowych	Noble Fund Akcji	-0.0022	PZU Akcji KRAKOWIAK	-0.0005	Quercus Agresywny	-0.0005	Igo Multistrategia	-0.0007
2	Subfundusz Akcji SKARBIEC-ARCCA	PKO Akcji – fio	-0.0023	PKO Energia Medyczna	-0.0005	ING (L) Globalnych Spółek Dydwidendowych	-0.0005	Pioneer Akcji Europejskich	-0.0010
3	Pioneer Akcji Rynków Wschodnich	Aviva Investors Polish Akcji	-0.0024	Superfund GildFuture (F+HF)	-0.0006	ING (L) Globalnych Spółek Dydwidendowych	-0.0008	ING (PL) Akcji	-0.0011
4	Subfundusz Akcji SKARBIEC-ARCCA	Pioneer Akcji Polskich	-0.0025	Pioneer Akcji Amerykańskich	-0.0006	Pioneer Akcji Europejskich	-0.0008	UniKrona Akcje	-0.0012
5	Pioneer Akcji Polskich	ING (L) Globalnych Spółek Dydwidendowych	-0.0025	ING SHIO Akcji 2	-0.0007	PKO Akcji – fio	-0.0009	ING SHIO Akcji 2	-0.0012
6	Pioneer Akcji Europejskich	Arka BZ WBK Akcji Subfundusz	-0.0027	Subfundusz Superfund Red (FoHF)	-0.0007	PKO Akcji – fio	-0.0009	Arka BZ WBK Akcji	-0.0012
		Superfund Trend Bis FIO				Nobles Fund Akcji	-0.0007	Nobles Fund Akcji	-0.0012
		Superfund Subfundusz B				ING (PL) Akcji	-0.0008	Aviva Investors Polskich Akcji	-0.0013
		Superfund Trend Poni_ zony Plus FIO				UniKrona Akcje	-0.0008	UniKrona Akcje	-0.0013
		Superfund Subfundusz C				Millennium FIO S Akcji	-0.0001	Millennium FIO S Akcji	-0.0014
		Pioneer Akcji Europejskich				Pioneer Akcji Polskich	-0.0010	Pioneer Akcji FIO Akcji	-0.0015
		PIU Energia Medyczna EkoLogia				GildFuture (FoHF)	-0.0010	Quercus Agresywny	-0.0015
		Pioneer Akcji Amerykańskich				Subfundusz Akcji	-0.0010	Subfundusz Akcji	-0.0015
						SKARBIEC-ARCCA	-0.0011	SKARBIEC-ARCCA	-0.0015
						Pioneer Akcji Polskich	-0.0014	Nobles Fund Akcji	-0.0016
						Pioneer Akcji Rynków Wschodnich	-0.0012	Pioneer Akcji Rynków Wschodnich	-0.0017
						Arka BZ WBK Akcji Subfundusz	-0.0012	Arka BZ WBK Akcji Subfundusz	-0.0017
						IPU Akcji KRAKOWIAK	-0.0018	Pioneer Akcji Rynków Wschodnich	-0.0018
								Pioneer Akcji Polskich	-0.0015

Source: own calculation.

Step three

The above results suggest that adding Polish quasi-hedge funds to a fund of funds owned by an individual investor may be justified. In order to make sure that those funds have some power to increase the return of such portfolio or decrease its risk I decide to build 9 funds of funds (FoF) and diversify them with a different number of stock and/or absolute return funds. The values of Sharpe ratio and standard deviation of those FoF are shown in Table 5.

Table 5. Funds of funds performance

Funds of stock funds (FoSF)	top 5	top 10	all funds (20)
Sharpe ratio	0.6276	1.0094	1.0792
Standard deviation	0.0078	0.0071	0.0069
Funds of absolute return funds (FoQHF)	top 5	top 10	all funds (25)
Sharpe ratio	1.0500	2.5644	2.0300
Standard deviation	0.0028	0.0026	0.0016
Funds of mixed funds (stock funds + absolute return funds) (FoMF)	top 10	top 20	all funds (45)
Sharpe ratio	0.8934	2.4217	1.4282
Standard deviation	0.0027	0.0028	0.0033

Source: own calculations.

The outcome is somehow not surprising but still interesting. As expected, as far as the returns are concerned, the best funds of funds were those consisting of only quasi hedge funds (FoQHF) and no stock funds (FoSF). The values of Sharpe ratio of FoQHF were from 1.0500 (top 5 funds) to 2.5644 (top 10 funds) whereas in case of the other funds of funds (FoSF and FoMF) it was not more than 2.4217 (top 20 mixed funds). What grabs attention is that the winner portfolio consists of 10 top quasi-hedge funds. This suggests that the best diversified funds of funds operating on Polish fund market should have around ten (and not e.g. five) elements. Especially since FoFs consisting of top 5 funds or all funds are more risky than the winner fund of funds.

Conclusions

The results of the study conducted in the paper are very interesting and quite optimistic. They show that between January 2010 and December 2014 most Polish absolute return fund managers had and used their management skills. Alphas of majority of those funds were not only positive but also higher than the alphas of most of the traditional stock funds. We may only guess that it was caused by activity as well as intuition and experience to open and close long and short positions at the accurate time. As a consequence quasi-hedge funds added value to the

funds of funds of an individual investor. If this is the case they deserved to charge their clients the management and/or performance fee.

The results of the study are similar to those on other markets like the one in USA. Obviously they consider much smaller sample and different time scope. Therefore they are not final. Building a sample of a larger number of funds which could be analyzed in a longer period and assessed according to more advanced performance measures will surely give more accurate results. I think, however, that they would also show that Polish absolute return funds of open-end type are worth considering by every Polish individual investor. So far they proved it. If they continue to do so and use their potential to grow further, Polish individual investors will consider them as a serious alternative for traditional funds allowing them to build well diversified portfolios.

Notes

- ¹ See e.g. Agarwal, Naik (2000); Agarwal et. al. (2013); Boyson (2002); Brown et. al. (2001); Eling (2009); Harri, Brorsen (2004).
- ² See e.g. Ackermann et. al. (1999); Agarwal, Naik (2004); Agarwal et. al. (2009); Capocci, Hübner (2004); Fung, Hsieh (1997); Liang (1999).
- ³ See e.g. Ahoniemi, Jylha (2014); Ammann et. al. (2010); Aspadarec (2013); Brandon, Wang (2013); Mozes, Cooks (2012); Soydemir et. al. (2014).
- ⁴ See e.g. Amenc, Martellini (2002); Capocci, Hübner (2004); Fung, Hsieh (1999a, 1999b); Henker, Martin (1998); Kooli (2007); Liang (1999); Schneeweis, Kazemi (2001); Schneeweis, Spurgin (1998).
- ⁵ For evidence see Kanuri, McLeod (2014).
- ⁶ See Directive 2011/61/EU...
- ⁷ See Lhabitant (2006) and Athanassiou (2009).
- ⁸ For evidence see Baele et al. (2007).
- ⁹ See e.g. Eling, Schuhmacher (2007) and Eling et. al. (2011).

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