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INVESTMENT FUNDS – RETURNS, RISK AND FEES DEPENDENCIES IN POLAND AND UK IN 2015

FUNDUSZE INWESTYCYJNE – STOPY ZWROTU, RYZYKO I OPŁATY W POLSCE I WIELKIEJ BRYTANII W 2015 ROKU

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Abstract: Common phenomenon is the positive relation between risk level and return. Investor would also expect that the higher the mutual fund fee, the more active is the management, so risk is increased. Then, as a payoff for higher charges and risk, he or she anticipates higher returns. It turns out that at least in Poland in 2015 rates of return did not go up as risk increased, and most risky funds lagged by 5 pp. in rates of return. Most expensive funds in Poland lost 8 pp. versus the cheapest, whereas in UK top-fees funds' returns were 2 pp. lower.

Keywords: correlation, investment funds, fees, rate of return.

Streszczenie: Powszechnie znanym i dobrze opisanym zjawiskiem jest zależność między poziomem ryzyka a stopą zwrotu. Inwestor może również oczekiwać, że im wyższa opłata, tym aktywniej zarządzany jest fundusz, a zatem wyższe ryzyko. W związku z tym może spodziewać się rekompensaty za dodatkowe koszty oraz podjęte ryzyko. Okazuje się jednak, że w Polsce w 2015 roku stopy zwrotu nie były wyższe dla funduszy o wysokim ryzyku, a najbardziej ryzykowne fundusze miały stopy zwrotu niższe o około 5 pp. niż te najtańsze. Najdroższe fundusze w Polsce traciły 8 pp. w porównaniu z najtańszymi, natomiast w Wielkiej Brytanii różnica ta wyniosła 2 pp.

Słowa kluczowe: korelacja, fundusze inwestycyjne, opłaty, stopa zwrotu.

1. Introduction

The attractiveness of the fund is usually measured in two dimensions – rate of return, being the desired feature, and risk, the unwanted good. The positive relation between the risk and rate of return is not only inherent in the financial markets and logically resulting from the nature of people's behaviour, but also widely

confirmed in economic theories and research [Jajuga, Jajuga 2015; Rutkowski 2007]. However, fee, being the ultimate price of the mutual fund and a crucial feature, seems to be – in the author`s opinion – underrated.

It depends mostly on the type of the fund, usually meaning higher risk associated with labour-intensity, increased remuneration and transaction costs. That is why risk can be perceived as a major driver of the fund's fees. If so, the investor paying higher management fee is aware of the potential higher risk imposed, thus he or she also expects some kind of payoff in the form of extra rate of return.

The considerations above lead us to three hypotheses verified in this paper. The author tried to investigate the relation between the rate of return and risk, risk and the fee imposed by the fund and between the rate of return and the fee. It is assumed (null hypothesis) that in each case the relation is expected to be statistically significantly positive. The tool here is Spearman correlation: the comparison of the top and bottom half of the sample and decile analysis. Polish market is analyzed in a split for legal forms of the funds (open-ended, specialist open-ended, closed-end), to examine the influence of different funds' structures and customers` profiles. To check whether there are any discrepancies between developed and emerging economies, the calculations are also conducted for the UK market for comparison. Furthermore, the analysis also distinguishes between the rate of return before fees and after fees, which is broader described in the "Research methodology" section.

2. Past research on mutual fund fees

The topic of funds and rationality of investors' choices has been explored for many years. Soon after index funds arose it turned out, that they not only offered lower fees, but also better returns on average. In 1996 Gruber asked, why people still put their money in the expensive active funds, having cheaper and more efficient alternative. He discovered that this may happen because of so called "disabled investors", who do not search for a higher alpha, but base their decision on advertisement or brokerage advice [Gruber 1996]. The fact that many investors are attracted by advertisement was also confirmed by Jain, Wu and Shuang [2000] – they proved that the newspaper advertisement increased the inflows by 20% compared to the control group.

There are also few papers on mutual fund fees as such. Sirri and Tufano [1998] published their research on the costs of searching for the best fund and conducted an analysis on fee changes and their impact on investors` behaviour. They showed that decreasing the fees attracts investors; however the increase in fees does not cause the money outflow. A very comprehensive analysis of fund fees was presented by Gil-Bazo and Ruiz-Verdu [2009]. It turned out that – contradictory to the common sense – higher fees implied worse performance. They propose the following explanation: mutual fund investors differ in terms of elasticity. Some

switch quickly, when they only see the increase in the fees or the first signs of the deterioration of performance. Some believe, it is better to wait and are not that vulnerable to short term, minor downturns and are more likely to continue losing money. That is why weak funds remain with low vulnerability investors, while elastic investors move towards good funds. Such investors are also less likely to move when fees are being increased. That is why poor funds impose higher fees – because they can, as their demand is inelastic. Good funds on the other hand, having very elastic demand and knowledgeable clients, they need to push their performance up and fees down in order to attract their segment of investors [Gil--Bazo, Ruiz-Verdú 2009]. This phenomenon is called strategic pricing and was first introduced by Christoffersen and Musto [2002].

Many studies discredit paying extra fees for active fund management and undermine the existence of intrinsic skill among fund managers. Duan, Hu and McLean [2009] show that the managers` skills have deteriorated during the last decades. It may be due to the increased competition among mangers – more and more funds with relatively stable amount of opportunities imply fewer deals per manager. The other explanation provided by the authors is that with the growing number of managers their quality has declined. Berk and van Binsbergen [2015] analyzed American market and disclosed that although some funds demonstrate skill, they do not share the profits with the investors. At this point it is worth to mention the Petajisto [2013] research, who introduced the active share measure, reflecting how strongly the fund portfolio differs from the benchmark. He indicated, that some funds declaring active management and imposing top fees, are in fact just tracking their benchmark. These so-called closet indexers are in fact destroying value.

In the research area of mutual fund fees one cannot miss John Bogle [2014], the owner of Vanguard fund, the biggest index fund company and a promoter of passive investment. He criticized active management, showing in 2012 that high turnover is correlated with poorer performance. In his publication he not only enlists extra costs not included in Total Expense Ratio (commonly used as a comprehensive measure of fund expenses) and strongly underlines the significance of the fees over the years. Bogle is not the only one, as Sharpe [2013] also published a study pointing out, how big are the savings for a person investing for retirement in a low-cost fund.

The topic of fund fees in Poland is rather poorly explored. There is a recent publication comparing passive and active funds in Poland [Fraś, Rogowski 2016] and some more general studies on mutual funds in Poland [Perez 2011, 2012]. However, in this paper the author tries to look closer at the specific area of fund fees in Poland.

3. Fees charged by the investment funds

Investment funds impose many kinds of fees on their clients on the consecutive stages of the investment process. Some of them are fixed and do not reflect the performance of the fund, but some are counted in only when for instance the rate of return exceeds the benchmark or other referential value (like for the absolute return

funds). There are fees charged annually, but some are charged in less regular schemes, e.g. at the beginning or at the end of the investment.

Usually first the fee, that is charged, is the distribution fee. It occurs at the purchase and is passed to the distributor as the remuneration for the client acquisition. In Poland it can be as low as 0%, but can also go up to 4% of the assets value. This fee is especially significant for the short-term investments. It can be decreased by using online tools rather than visiting investment advisors, however such an approach will not encompass non-standard, custom client's requirements.

Another charge is the management fee. It depends mostly on the type of the fund – the more aggressive and active, the higher the fee. The management fee consists of a fixed component (usually 0.8% up to 4% of assets value for the Polish market) and a floating success fee, charged when the fund result exceeds predetermined benchmark (e.g. WIG20) or an absolute value. It is levied daily, therefore it does not affect the short-term outcome, the way the manipulation fee does. The management fee may seem invisible for the investor, as it is immediately reflected in the price of the unit.

Redemption fee is usually applied in the long-term saving programs or the programs with predefined duration of the investment. It is charged at the end of the investment and – like the distribution fee – is passed to the distributor. Often it is stated in the agreement, that this fee can be imposed only in case of withdrawing money earlier than expected, for instance during the first years of the investment [Jawdosiuk, Rożko 2010, p. 27-28].

Moreover, funds levy also additional payment for transfers within one "family" of funds, if the shift is from a cheaper fund in terms of the distribution fee, to a more expensive one. Then the client needs to pay the difference between the fees. For the pension funds, the charges are restricted by the law and cannot exceed certain levels [Wieteska 2011, p. 38-39].

The most common ratio to compare the funds commission levels is the Total Expense Ratio, being the total funds costs divided by its total assets. The research indicates that TER is on average higher in Poland than in other European countries with more developed economies [Oleksy 2015]. However, consistent and homogenous data on TER for hundreds of funds is poorly available. Furthermore, for the purpose of the present research, the most applicable would be the part of the fee that fluctuates the most reflecting the funds' risk profile. It is recognized, that the most adequate element of the charges structure is the management fee, which in Thomson Reuters database is defined as the "Annual Charge".

4. Legal structure split of the investment funds in Poland

There are three main types of legal forms of the investment funds in Poland: open ended funds, specialist open ended funds and closed-end funds. Each of these forms enforces different investment approach and thus, also different clients' profile, management policy and charging standards.

The most common are open ended investment funds. These funds issue investment units at the purchase, and redeem them when the investment is being closed. It is important that the fund is obliged to repurchase the units on client's demand. Virtually everyone can participate in an open ended fund. The units are evaluated on a daily basis, which improves clarity and assures better control.

Another type of investment are the specialist open ended funds. In this case the fund statue can, not only limit the group of potential purchasers (e.g. only financial institutions), but can also regulate the terms and conditions of the issued units' buy--back. This causes specific open ended funds' clients to be in general more conscious and professional than those investing in the regular open ended funds.

The last and the most sophisticated form of investment funds in Poland are the closed-end funds. They issue a strictly limited amount of investment certificates; hence the invested capital is constant during the whole investment period. Closed--end funds can be engaged in a wider spectrum of products than the open ended funds (e.g. currencies, derivatives). Investment certificates are valuated at least once every 3 months. The investment cannot be closed at any moment, but only at the terms determined by the fund, for example once a month or once a quarter. Narrow group of investor and the limitations in the buy-back terms cause that investment certificates are less liquid than the units offered by open ended funds.

As described above, the legal form of the investment funds in Poland affects strongly its client profile. That implies different investment policies for different funds. For the purpose of this research, the correlations between the rate of return, risk and fees are also investigated in the legal form split, as some part of the relations may be explained this way. For example, given the fact, that closed-ended funds' clients are mostly experienced professionals, we may expect higher risk--return trade-off. We may also anticipate a better payoff for the imposed fees, as knowledgeable clients may be less likely to overpay for relatively low returns.

5. Research description

Regarding the popularity of the investment funds in Poland and relatively high charges they impose on their clients, it is justified to investigate, whether the fees reflect the funds` results. In this research the author verified, whether there is a positive relation between the fee and the rate of return, the fee and the risk level and the rate of return and the risk level. We would expect a positive correlation in each of these cases and a higher performance in top deciles of the fees. As the fund strategy becomes more aggressive and active, and the investment profile gets riskier, the client expects higher earnings for the exposure taken, and the manager demands higher remuneration for a more complex service.

The research was based on the calculations performed in R language, in R Studio programming environment. The database for the study was Thomson

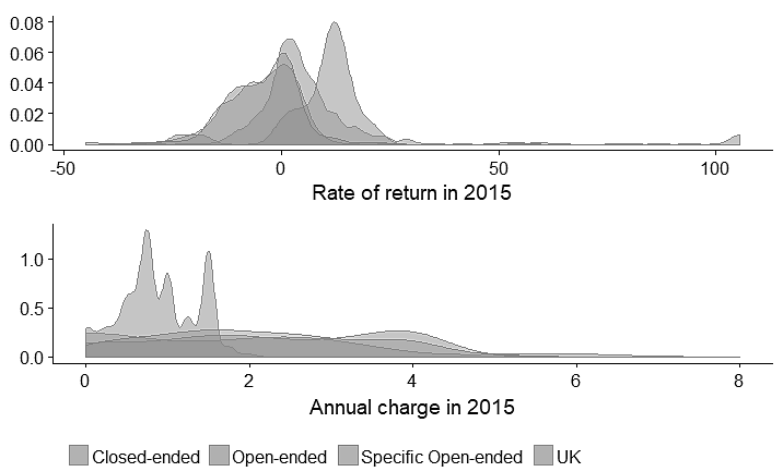
Reuters Eikon and its Fund Screener tool. The list of funds with their rates of return, standard deviations and fees values was downloaded from the Thomson Reuters database and uploaded to the R programming environment. The analysis was conducted not only for the Polish, but also for the UK fund market to check, whether the outcomes are not country-specific and related to low maturity of the financial market in Poland. The Polish investment funds' database covered 279 funds, including 142 open ended investment funds, 107 specialist open ended funds and 30 closed-ended funds. Regarding the UK market, 8,806 funds were analyzed without the legal structure split due to the differences in UK and Polish legislation. All the collected data is from the year 2015. The Shapiro normality test for all the variables indicated, that the population is not normally distributed. This implies the need of non-parametric testing. Some descriptive statistics of the sample are presented in Table 1.

Table 1. Descriptive statistics of the research sample

	Mean rate of return	Mean annual charge	Mean standard deviation
Polish market	–2.19	2.20	16.74
Open ended	–4.01	2.28	15.79
Specialist open ended	–3.77	2.10	17.71
Closed-ended	12.11	2.14	17.81
UK market	4.46	0.89	10.32

Note: calculations in R.

Source: own study.



Note: calculations in R (*ggplot2* and *cowplot* package).

Fig. 1. Density charts of rates of return

Source: own study.

For each of the following pairs, the Spearman correlation was calculated:

- the rate of return and standard deviation, to check, whether the typically expected positive relation between the risk and return is existent. If we approximate the effort that was put in management with the standard deviation, we are able to assess whether there is a reasonable repayment for the managerial work;
- the rate of return and the fee, to verify the soundness of paying higher charges for the fund management;
- the fee and the standard deviation, to scrutinize the association of the effort that the manager needs to put in the portfolio selection and the remuneration the fund receives for his or her work.

There is a note regarding the fees data. The most dependent on the level of fund activeness (and thus also the labour intensity) is the annual charge which slightly differs from the management fee. It is the real cost of the current fund management, eventually imposed on the fund assets. The other components of the obligatory fees are less related to the management style of the fund. That is why for the research purposes the "Current Annual Charge" was chosen as a best possible measure of the fund fees.

There was also a contradistinction made between the rate of return before and after charges. When we merely compare the performance of the portfolios selected, we should not take into consideration the charges, so the fee should not be subtracted from the final result of the given fund. However, the reported rates of return are already after the management fee (the fee that is considered in this analysis). Therefore, the fees had to be added to the reported rates of return. These rates of return are of course higher and this approach does not discriminate the funds imposing higher charges on the investor. On the level of the portfolio performance, we should see definitely better results of the funds that charge more.

Nevertheless, the investor measures the efficiency of the investment with the rate of return after fees, as he or she is much focused on the eventual outcome and the money that come back to his or her own account. And this is reduced by the amount of the fee that is put on the result of the portfolio. From this point of view, the expected outcome would be the correlation of the returns after charges with the fees close to zero or positive. If it was equal to zero, that would mean that the charge is neutral for the investor. When the fee goes up, the results are also better, but with zero correlation, the whole surplus in the results is consumed by the fund via charges.

Yet predictably there should be some purpose in paying more for the fund management. And if it is not about decreasing the risk, as higher fees are more likely associated with increasing the risk exposure (which is also examined in the present study, but we assume this for the time being), then some kind of a payoff reflected in higher rates of return after charges shall be observed. Naturally enough, the correlation of rates of return before fees, even if positive, is anticipated to be lower, than the correlation of the rates of return after fees. Doubtlessly significant

share of the gains is taken away by the fund to bear its costs and work out its own profit.

Another aspect of the rates of return before and after fees issue is the impact of the charges inclusion on the risk-return relation. As described above, the stated hypothesis is that higher charges are inherently connected with higher costs for the fund. As far as the costs are concerned, funds differ between each other mainly in terms of managerial expenses. Thus, the growth in the annual fee is predictably associated with increased risk. The conclusion is that we expect more positive risk-return correlation for the "before fees" returns, as the returns "after fees" in the riskier funds (i.e. these that are charging more, as we derived above) will undergo a stronger reduction. As the result, very high returns of the most risk exposed funds will be brought down by reasonably risen fees. Subsequently the hypothesis is, that the correlation in both cases is positive, however the correlation before charges is predicted to be higher.

After preparing the data for the analysis, the correlations were calculated using *cor.test* function in R with the *spearman* method. This function calculates estimated correlation values with (default) significance level of 95% and respective p-values. The null hypothesis assumes that there is a positive (greater than zero) statistically significant correlation between the rate of return and the fee, the rate of return and the standard deviation and between the standard deviation and the fee. The alternative hypothesis is that the true correlation in the population is less than zero. The hypothesis verification was conducted basing on p-values, assuming that if the p-value is higher than 0.05, then we fail to reject the null hypothesis about the positive correlation.

Then the quantiles' comparison was conducted. In the first case we compared the average rate of return within the top 20% most risky funds and the bottom 20% least risky. Then, a similar analysis was conducted for the fees: comparing the risk of 20% most expensive and the cheapest funds, as well as the rates of return of the 20% most expensive and the cheapest ones. Mann-Whitney non-parametric tests were performed to compare the population of the top and the bottom quantiles. Additionally, the decile charts are presented for the wider review of the dataset.

The methodology of the correlations comparisons has important statistical shortcomings. First of all, it does not take into consideration a variety of factors, but only examines the linear relation between the two of them. The case may be, that the relation is distorted by other factors, like fund type, but while this is not taken into account, we may observe unreliable results. Another problem is that correlation only implies associative link, not casual.

Also, even strong and statistically significant correlations cannot answer the question, whether high returns cause high fees or not. On the other hand, the goal of this study is not to answer the question about what causes what. There may be the case that high fees enhance returns, and that well performing funds can impose

high fees, but we do not settle this issue here. What we examine is only the existence of the relation, thus correlation for the time being is a sufficient tool. However, we believe, that the relation between the return and the fees shall be so significant and more important than the others, that we will observe that using solely correlation coefficient. Correlation also has an important advantage of simplicity and clarity, which more sophisticated methods exclude. Nonetheless it is important to mention here, that the results of the correlation coefficients shall be interpreted with caution.

6. Results

The results are presented in Tables 1-4. Whenever p-values were lower than 0.05 and estimated value was negative, the value is in bold to mark these results which are not in line with the expectations and remain statistically significant (the ones that let us reject the null hypothesis in favour of the alternative hypothesis).

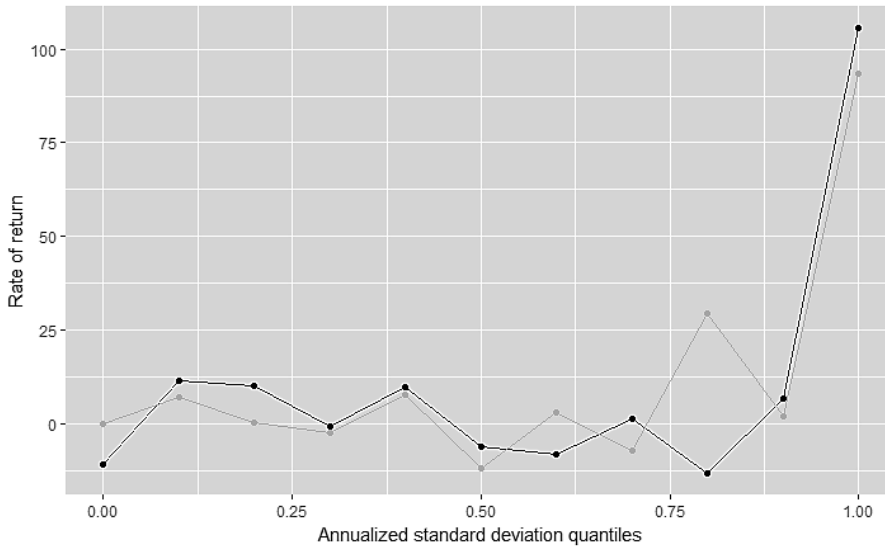
Interestingly, in the Polish market we cannot confirm the hypothesis that the relation between the risk and return is positive (see Table 1). It was negative, especially in the case of the open ended funds, and only slightly positive for the closed ended (however the outcome was not statistically significant). Even more striking is the fact that, on average, most risky funds lose money, both before and after fees, whereas the most stable ones were in general growing. In particular the riskiest Polish open ended funds tend to have almost 10 percentage points lower returns than the least risky. In the United Kingdom the relations are as expected – more risky funds bring better returns by about 4 percentage points and the outcomes are significant.

Table 2. Calculations for the annualized standard deviation and the rate of return in 2015

	Corr. with rate of return before fees	Rate of return for top 20% st. dev	Rate of return for bottom 20% st. dev	p-value	Corr. with rate of return after fees	Rate of return for top 20% st. dev	Rate of return for bottom 20% st. dev	p-value
Polish market	**–0.45**	–1.64	3.27	0.00	**–0.49**	–4.45	2.00	0.00
Open ended	**–0.63**	–7.12	2.27	0.00	**–0.66**	–10.02	0.59	0.00
Specialist open ended	**–0.31**	–0.54	0.87	0.28	**–0.39**	–3.29	–0.31	0.04
Closed-ended	0.07	20.66	13.18	0.70	0.01	18.11	12.88	0.70
UK market	0.13	8.37	4.39	0.00	0.12	7.38	3.63	0.00

Source: own study.

Taking a look at the decile chart (Figure 1), we can observe that the rate of return is more or less stable, both in Poland and in UK, across the risk deciles, and strongly increases for the 10% most risky funds.



Note: calculations in R (*ggplot2* package).

Fig. 2. Standard deviation deciles and the rates of return

Source: own study.

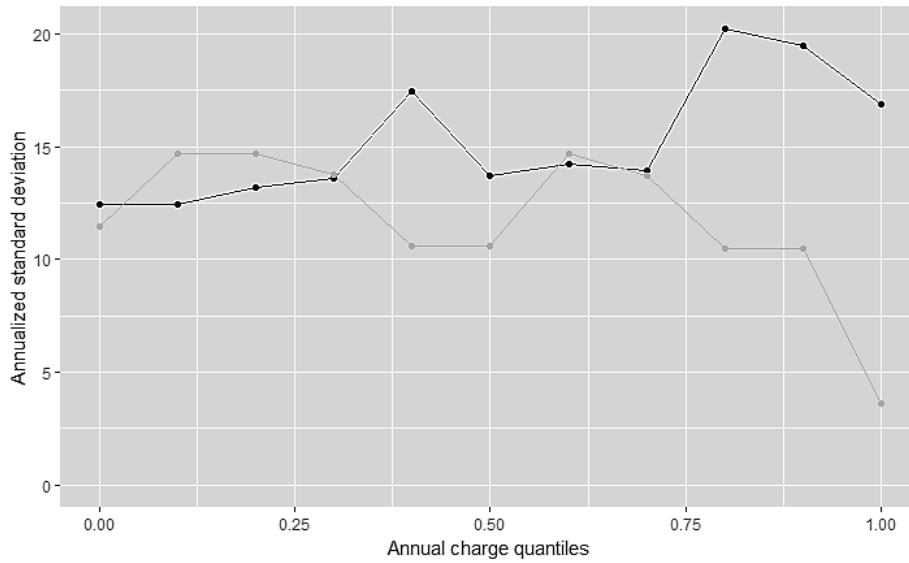
Another examined relation is between the risk and fund fees (see Table 2). In each case, the anticipated result was confirmed and the correlation was statistically significantly greater than zero. In Poland it is especially strong for the closed ended funds. Most expensive funds also turned out to be riskier in all the examined cases, and based on Mann-Whitney test the results are statistically significant, in case of Polish specialist open ended and closed-end funds, the difference is about 6 percentage points.

Table 3. Calculations for the annual charge and standard deviation in 2015

	Correlation with annual charge	St. dev. for top 20% annual charge	St. dev. for bottom 20% annual charge	p-value
Polish market	0.37	19.83	16.26	0.00
Open ended	0.32	18.04	15.17	0.01
Specialist open ended	0.45	21.97	15.34	0.00
Closed-ended	0.51	18.57	13.73	0.01
UK market	0.16	12.24	8.74	0.00

Note: calculations in R.

Source: own study.



Note: calculations in R (*ggplot2* package).

Fig. 3. Annual charge deciles and standard deviation

Source: own study.

The last and the most interesting observations concern the annual charge and the rate of return (Table 3). As far as the rates of return after fees are concerned, in almost all the cases (apart from the Polish closed-ended funds) the author could not confirm the null hypothesis that the rate of return goes up, as the investor pays more. In the case of the rates of return before fees, the outcomes were ambiguous. The Spearman correlations were close to zero, and the differences between the most and the least expenses had p-values over 0.05, so we cannot reject the null hypothesis, that the populations are similar. However, in case of the UK market we can, probably due to the fact, that the sample is very large (over 8000 funds) – and we see that more expensive funds bring one percent before fees less, than the cheapest. Then the outcome in the case of "after fees" returns is more explicit: expensive funds do worse both in Poland and in the UK, however the difference in Poland is much higher (*circa* 8 percentage points) than in the United Kingdom (2 percentage points disparity).

This outcome remains in contradiction to the expectations. The data shows, that paying more for fund management does not bring expected payoff and much more convenient strategy would be to invest in the cheapest funds, no matter whether we operate in Poland or in the UK or invest in open ended or closed ended funds. In all cases the cheap funds brought more for the investor (after fees) than the most expensive ones.

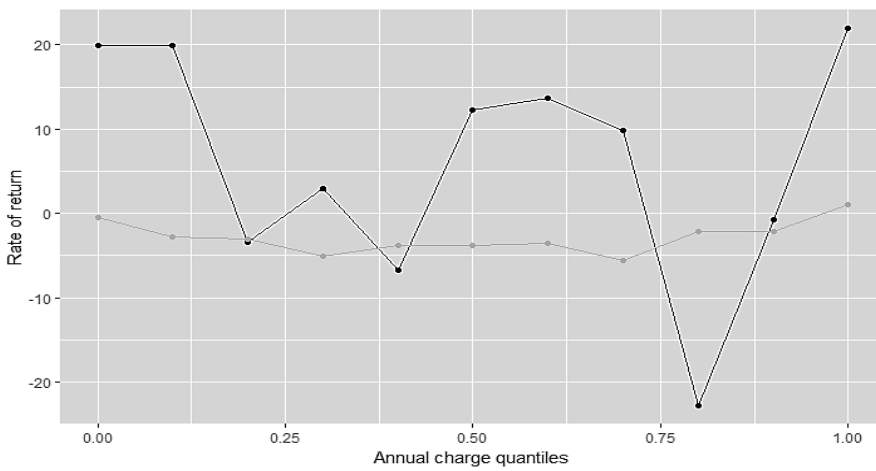
Table 4. Calculations for the annual charge and rate of return in 2015

	Correlation with rate of return before fees	Rate of return for top 20% charge	Rate of return for bottom 20% charge	p-value	Correlation with rate of return after fees	Rate of return for top 20% charge	Rate of return for bottom 20% charge	p-value
Polish market	–0.01	–1.46	2.25	0.12	**–0.15**	–5.80	2.07	0.00
Open ended	–0.01	–2.04	–3.23	0.58	**–0.16**	–6.07	–3.58	0.02
Specialist open ended	**–0.20**	–4.54	1.47	0.08	**–0.32**	–8.51	1.07	0.01
Closed-ended	0.12	13.18	9.90	0.26	–0.06	7.14	9.90	0.90
UK market	–0.06	5.23	6.22	0.00	–0.13	3.68	5.93	0.00

Note: calculations in R.

Source: own study.

Interesting thing that can be observed at the chart is that in the UK charges are much more stable across different return levels than in Poland. This may be due to smaller sample or lower market maturity in the latter country. Another insight is that for both countries the rates increase for the lowest and the highest fees decile.



Note: calculations in R (*ggplot2* package).

Fig. 4. Annual charge deciles and the rate of return

Source: own study.

7. Conclusions

The research failed to confirm the positive relation between the rate of return (both before and after fees) and the risk for the Polish market. Riskier funds had lower returns, at least in 2015. UK funds represented slightly positive relation, which

may be explained by the fact, that the market is more developed and therefore more efficient. The outcome is strongly counterintuitive and remains in contradiction to the finance theory. One explanation may be a very high level of market inefficiency. This is supported by the fact, that the most negative correlation was observed among the open ended funds, which are associated with the least educated and professional customers.

On the other hand, the relation between the risk and the fees was positive, which is in line with the initial hypothesis. Riskier investments may be more labour-intensive and bring higher transaction costs. The data confirms that; however, in the United Kingdom the relation is weaker.

The third of the analyzed relations was the one between the rate of return and the charge. It was already suggested in this study, that the more expensive funds may bear higher risk, thus we may expect some kind of a payoff for the extra risk undertaken by the investor. In the case of the rates of return before fees, we expected at least a zero correlation or slightly positive. Zero correlation would denote the neutrality of the fee for the investor. Unfortunately, that was not the case, the correlations of the returns before fees were close to zero, and for the returns after fees were even negatively correlated with the rates of return.

The author claims that what one should look at are the correlations after fees. When including the charges, the investment in expensive fund shall be at least not worse than in the cheap one. It turns out that the investor of the top 20% most expensive funds on average in Poland lost over 5%, whereas investing in the cheapest funds he or she could gain 2%. In the UK, the cheap funds outperformed expensive ones by over 2 percentage points. However, the result must be considered with caution, as sole correlation and quantile analysis does not allow drawing far reaching conclusions. Other factors, like the fund type might play a role here and distort the outcomes.

The cause of the difference between Poland and UK (smaller gap in the latter) may be due to the market maturity and financial education of the society. Possible explanation of the contradictory outcome may be a short time window of the research. The data was only available for one year and poorer results of aggressive funds could be random. Another possible explanation, why the aggregated outcome of the funds charging higher fees was poorer, than for the safer ones is the effect of the fund managers reputation – managers performing well in the past can charge more for their services and are more likely to be chosen by the clients. However, the goodwill is not a perfect indicator of the extraordinary managers' skills, which could have distorted the outcomes. Another explanation may be strategic pricing – funds may be divided into those targeting the alpha-seeking investors, and these funds decrease the fees as their investors demand that. On the other hand, there are bad funds, whose clients follow brokerage advice or advertisement. These investors are insensitive to performance and these funds can impose higher charges while not performing well.

To resolve all the doubts and guesses presented above, further research is required. The research is well understandable due to clarity of methods used, however applying econometric modelling to investigate the determinants of the fund fees would be highly recommended. This would allow isolating other factors affecting the relation and draw more justified conclusions. It would be worthwhile to perform the analysis including wider time period, verify non-linear dependencies and also try to include some behavioural aspects like advertisement or fund manager past track. Additional insight may be brought by broadening the analysis for more countries, possibly comparable to Poland, to find country-specific features of the market.

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