

# MANAGEMENT STRUCTURE IN THE PERFORMANCE OF POLISH MUTUAL FUNDS: DOES TEAM SPIRIT MATTER?

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**Abstract:** *This paper focuses on finding answers to two questions. The first one asks if there are any significant differences in performance between solo-managed and team-managed funds. The second one is supposed to establish whether a management structure can be treated as a determinant of returns generated by mutual funds operating in Poland. The study was conducted on the basis of 835 annual observations, 388 of which concerned solo-managed funds and 447 – team-managed funds, in the period 2000-2017. The returns were calculated by means of a few popular measures of abnormal returns regarding the stock picking ability of fund managers. The methodological procedure consisted of four research tools which ensured a greater certainty of the statistical inference. The findings show that there are insignificant discrepancies in the performance of funds characterized by a different number of managers, yet they are noticeable in very few annual periods. The results obtained as an effect of determining the influence of a management structure on performance are statistically insignificant, which means that the examined variable is not a determinant of performance, at least as far as Polish circumstances are concerned.*

**Keywords:** *performance, managers, team-managed funds, solo-managed funds.*

**JEL Classification:** *G20, G23, G40.*

## Introduction

The mutual fund industry has experienced indisputable growth in developed markets over the past several decades. The same can be said about developing economies, including Poland, where it has become a significant segment of the domestic financial market. Collective investment markets have undergone noticeable changes in the context of organizational aspects. One of them is management structure, which has converted into multiple-manager entities handling asset portfolios, especially in recent years. This means a departure from individual management towards increasingly more popular team management. Funds themselves have begun to provide prospective investors with the information about the expected benefits of team management of a fund seeing it as a chance for better investment results (cf. Miziołek, 2000).

The aim of this study is to examine whether there are any significant differences in the performance of funds managed by an individual and by a group, and establish whether management structure can be treated as a determinant of returns. Therefore, our paper makes a number of important contributions to the relevant literature. First, we compare the performance of solo-managed and team-managed funds by means of a proprietary database containing unique variables describing Polish mutual funds with organizational aspects taken into consideration. Afterwards, we use measures of abnormal returns regarding the stock picking ability of fund managers, including conditional and multifactor models, which have still been rarely calculated in CEE

markets. Finally, our methodological procedure consists of four research tools which ensure a greater certainty of statistical inference. We believe that the investigated issue should be of interest to both individual investors and fund families from the practical perspective.

## **1 Statement of a problem**

The mentioned trend might arise from two premises. Firstly, as shown by studies in the field of social psychology and management, decisions made by individuals differ from ones made by teams with respect to the riskiness and extremity of an individual's behavior (cf. Cooper & Kagel, 2005). This can manifest in particular in the phenomenon of group conformity consisting in individuals resigning from more extreme subjective views in favor of consensus solutions and trying to find a balance in order to reach a compromise (cf. Sah & Stiglitz, 1991). When translated into the area of investment portfolio management, such a phenomenon indicates avoidance of extreme investment strategies by a group, which could bring serious fluctuations of performance, including undesirable losses, to investors.

It is usually overlooked, however, that the so-called group-polarization effect, explained as the tendency for groups to make decisions that are more extreme than the initial attitude of an average group member (Cheng & Chiou, 2008), can occur in groups. Where the so-called risk seekers, who are persuasive individuals with a greater willingness to take risks, join a team, the group might become prone to make too bold investment decisions. This is the grounds on which the relevant literature has developed two contradictory hypotheses. One, called "the diversification of opinion hypothesis", assumes that work group decisions include the average opinion of its members and they are less extreme and more balanced (cf. Baer et al., 2007). The opposite is named "the group shift hypothesis", which results from the observation that teams make more extreme decisions than individuals.

The other reason for funds moving towards group management of investment portfolios stems directly from pragmatic motives of fund families. When a fund is solo-managed, its manager might become popular thanks to his or her good performance and the clients who are aware of the fact could follow him or her to another investment entity. In such a case the fund itself might experience high outflows.

In general, a management structure could mean a management form or a management team size. Team management is characterized by a variety of investment styles and a fair judgment concerning the selection of securities. Moreover, members of a team managing an investment portfolio improve their professional skills and knowledge by sharing experience and opinions. Funds managed collectively are able to analyze a greater amount of data. Moreover, the so-called "team spirit" may bring desirable effects in the form of higher returns. However, team management may account for a longer decision-making by managers who sometimes have problems reaching a consensus, which is never the case with single managers. One of the disadvantages of team management is the diffusion of responsibility, which is related to the agency problem (cf. Perez & Szymczyk, 2018). In other words, members of a team managing a fund take responsibility for the results collectively rather than individually. Furthermore, managers of collectively managed funds could feel anonymous, which theoretically might have a negative influence on performance. In fact, it could be argued that all funds

can be treated as team-managed. This may be due to many analysts and support staff working together on collecting and analyzing data. The differences are only in the number of individuals making the final transaction decisions.

As indicated by studies on the border of psychology and management, the potential benefits obtained for larger decision-making units might be reduced or even overcompensated. This might result from group decision-making processes and in particular from the pursuit of unanimity, coordination of actions and communication costs, which might reduce outcomes. Based on these points, we can investigate some differences in performance between individually and team-managed funds (cf. Liu et al. 2014). Therefore, our first hypothesis reads:

*H1: There are no significant differences in performance between solo-managed and team-managed funds.*

As regards substantial differences in the performance of individually and team-managed funds, they might lead to the conclusion that fund management structure will be a determinant of investment returns, which might be consistent with the observations made in the relevant literature (e.g. Ding & Wermers, 2009) that managerial attributes have an impact on the achieved performance. However a lot of studies provided contradictory findings (e.g. Prather et al., 2001; Han et al., 2017; Bertin & Prather, 2009) and hence it seems extremely interesting to examine the impact of an organizational structure on performance in the context of the Polish market as a CEE representative one. Therefore, our second hypothesis reads:

*H2: There is no significant relationship between fund management structure and performance.*

Some relations between fund management structure and performance, e.g. a relationship in the context of economic cycles, were observed in other studies (cf. Karagiannidis, 2010). It will be particularly interesting to reveal how the relationships have changed over time in Poland especially before and after financial crises. These facts lead to the following hypothesis:

*H3: There is no impact of the financial market situation on the differences in performance of individually and team-managed funds.*

To our knowledge, most of the previous studies concerning the investigated issue have so far been conducted using mainly U.S. equity mutual fund data. The links between organizational attributes, such as fund management structure and performance, have not been examined in the existing literature on CEE mutual fund research. Hence, this paper attempts to fill in the gap in the literature by offering the first study of the effect of management structure on the performance of Polish mutual funds.

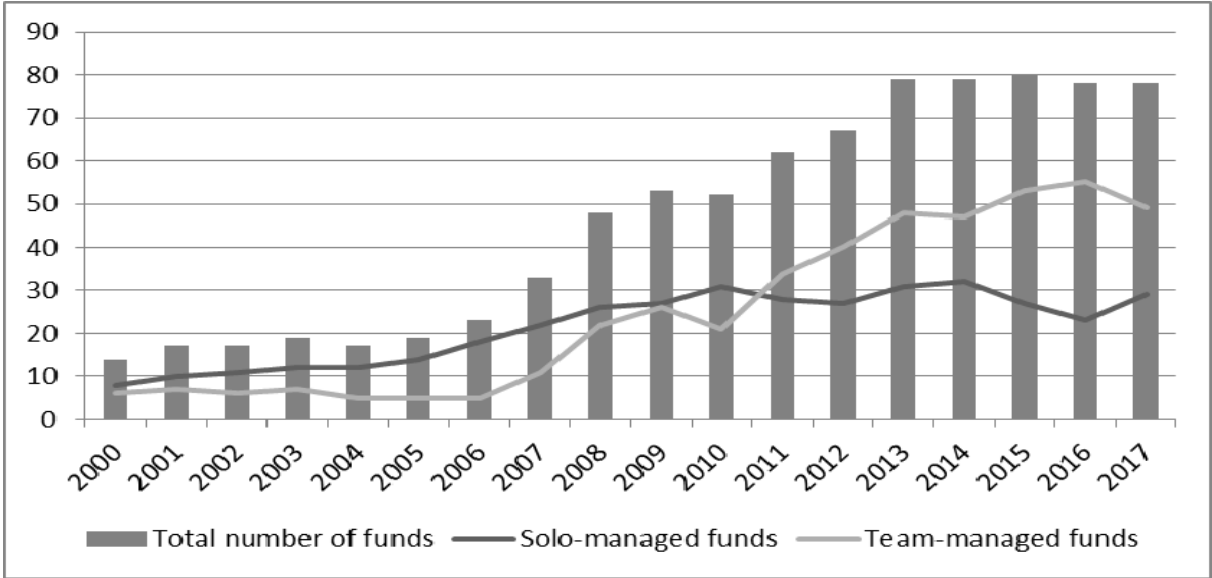
## **2 Data description and empirical design**

### **2.1 Dataset**

The collected database consisted of two types of information. One dataset was made of the monthly prices of units in individual open-end mutual funds operating in Poland in the period under examination. Domestic funds, which contained mainly equity instruments in their portfolios, were distinguished from the set. The other set encompassed the information about the persons managing individual funds. Therefore, it was possible to form subgroups of individually and collectively managed funds.

Both datasets were obtained from the Analizy Online web service, an organization collecting data on the mutual funds operating in Poland. Since the data provider does not publish records concerning non-existent funds, we decided to add some information about monthly returns and management teams of the funds from fund families' websites. As a result of the hand collection activities was a survivorship bias-free sample. Our sample period covers the years from 2000 to 2017. Ultimately, the dataset used in the research concerned 98 equity funds managed by 275 managers in total, which permitted 835 annual observations, 388 of which regarded solo-managed funds and 447 – team-managed ones. Figure 1 presents the total number of mutual funds in our sample for each year separately with a division into solo- and team-managed funds. In comparison to the number of funds registered by the Chamber of Fund and Asset Management (IZFiA), a mutual fund association in Poland, it seems that our sample is highly representative.

**Fig. 1: Changes in management structure in the Polish mutual fund industry on the basis of domestic equity funds**



*Source: Author's compilation.*

In the group of funds managed collectively, the average management team size was below 3.5 persons over the entire research period although an increase in the number of management team members was noticeable in the final years of the analysis. The biggest teams were composed of even as many as 10 managers. This confirmed the trend of changes in the mutual fund industry in Poland and a slow shift towards a one-person portfolio management structure, which is consistent with the trends recorded in the United States. As noticed by Patel and Sarkinssian (2017), more than 70% of U.S. domestic equity funds have been team managed in recent years, whereas on the Chinese fund market this relation was reverse until lately (cf. Chen et al., 2018). At the end of 2017, team-managed funds in the Polish domestic equity funds constituted over 60%.

**2.2 Measurement**

The database concerns unit prices of mutual funds in monthly periods. These data allowed the calculation of risk-adjusted returns regarding the stock picking ability of

fund managers. The first measure for evaluating the effects of asset management was the alpha from the three-factor model. In this case, the risk-adjusted return was calculated as an intercept of the CAPM with mimicking factors on the Polish capital market. The Fama-French (1993) measure is calculated from the following formula:

$$FamaFrench_{i,t} = r_{i,t} - (r_{f,t} + (r_{m,t} - r_{f,t})\beta_{m,t} + (r_{SMB} - r_{f,t})\beta_{i,SMB} + (r_{HML} - r_{f,t})\beta_{i,HML}) \quad (1)$$

where:  $FamaFrench_{i,t}$  is the measure of abnormal return of fund  $i$  in period  $t$ ;  $r_{m,t}$  is the return on the local equity market benchmark in period  $t$ ;  $r_{f,t}$  stands for the mean risk-free return over the analogous period;  $r_{SMB}$  is the simple excess return on the  $SMB$  portfolio in period  $t$ , which means the difference in the returns between a small stocks portfolio and a big stocks portfolio;  $r_{HML}$  is the simple excess return on the  $HML$  portfolio interpreted as the difference in the returns between a high book-to-market portfolio and a low book-to-market portfolio in period  $t$ ;  $\beta_{i,SMB}$  and  $\beta_{i,HML}$  are the measures of sensitivity of the fund return to changes in the  $SMB$  and  $HML$  factor returns, respectively.

The next ratio used was the Carhart measure (1997). In this case, the risk-adjusted return was calculated also as an intercept of the asset pricing model but for its four-factor equation. The mentioned author expanded Fama and French's three-factor procedure by the momentum effect according to the following formula:

$$Carhart_{i,t} = r_{i,t} - (r_{f,t} + (r_{m,t} - r_{f,t})\beta_{m,t} + (r_{SMB} - r_{f,t})\beta_{i,SMB} + (r_{HML} - r_{f,t})\beta_{i,HML} + (r_{UMD} - r_{f,t})\beta_{i,UMD}) \quad (2)$$

where:  $Carhart_{i,t}$  is the measure of abnormal return on fund  $i$  in period  $t$ ;  $r_{UMD}$  is the simple excess return on the  $UMD$  portfolio, which means the difference in returns between a portfolio of past one-year winners and a portfolio of past one-year losers in period  $t$ ;  $\beta_{i,UMD}$  is the measure of sensitivity of the fund return to changes in the  $UMD$  factor returns.

The last measure of return was Jensen's alpha, calculated as an intercept of an appropriately constructed one-factor model. However, we decided to use a conditional version of the one-factor model. It was valid because a portion of the market information is unavailable to all investors at the same time. Therefore, the applied ratio, which allowed for variables that responded to public information, was based on the study by Ferson & Schadt (1996). When implementing a conditional CAPM, a set of publicly available macro-factors, such as the predetermined market dividend yield ( $DY$ ), the rate of 52-week treasury bills ( $TB$ ), and the nominal exchange rate ( $FX$ ), were engaged. The conditional model can be expressed with the following formula:

$$CondAlpha_{i,t} = r_{i,t} - (r_{f,t} + (r_{m,t} - r_{f,t})\beta_{m,t} + (r_{m,t} - r_{f,t})z_{t-1}\beta'_{m,t}) \quad (3)$$

where:  $CondAlpha_{i,t}$  is the conditional alpha of fund  $i$  in period  $t$ ;  $\beta'_{m,t}$  is the vector measuring the sensitivity of beta to the vector of public information variables;  $z_{t-1}$  is the difference between the realization of macroeconomic variables (public information) and their unconditional average. The portfolio beta in this case can be written as follows:

$$\beta = \beta_{m,t} + z_{t-1}\beta'_{m,t} = \beta_{m,t} + DY_{t-1}\beta'_{1,t} + TB_{t-1}\beta'_{2,t} + FX_{t-1}\beta'_{3,t} \quad (4)$$

In order to obtain yearly returns, the observations related to the estimations of all risk-adjusted returns were made on a monthly basis. The study adopted the annualized return on the stock market portfolio, which was the main local market index (WIG). The benchmark's data were gathered from the Warsaw Stock Exchange (GPW), while the data on the macro-factors used in the conditional version of CAPM came from monthly reports of the GPW's and the National Bank of Poland's websites. However, the applied macroeconomic variables were one-month lagged. There was a difficulty with collecting the mentioned macro-factors for conditional alphas. As the market dividend yield (*DY*) had been reported by the Warsaw Stock Exchange only since 2002, we decided to omit two first years of the timeframe for the last applied measure. The values of factor-mimicking portfolios (*SMB*, *HML* and *UMD*) were obtained from a generally available website: <http://adamzaremba.pl/downloadable-data/> (cf. Zaremba & Konieczka, 2017). A proxy for the riskless rate was the weighted average yield on 13-week T-bills sold at auctions. The data of risk-free rates were derived from the International Financial Statistics quarterly reports prepared by the International Monetary Fund.

### 2.3 Research procedure

The methodological procedure consisted of four research tools, which ensured a greater certainty of the statistical inference. The approaches employed in the first group were the classical parametric test and two nonparametric tests to compare two unpaired sets of data. They were an element of the research procedure permitting the verification of *Hypothesis 1*, which refers to the differences in abnormal returns between solo-managed funds and team-managed funds. The methods used to this end were as follows:

- the two-sample *t*-test applied to the examination of the significance of the difference in means, which assumes unequal variances. If the means of independent samples vary sufficiently from each other, the population means are declared to be different. The well-known parametric test is one of the main inferential methods;

- the Mann-Whitney *U* test for the difference between two population medians. It assumes that the data are independent random samples from two distinct populations and have the same shape and identical distributions. The non-parametric test computed based on rank sums is a proper tool in the case of data that are not normally distributed;

- the Kolmogorov-Smirnov two-sample (KS) test for the hypothesis that two unpaired groups of data have the same distribution, without specifying what that distribution is. The KS is a nonparametric test that compares the cumulative distribution of the two data sets, and enables the computation of a *p*-value that depends on the largest discrepancy between distributions.

For all three tests, the null hypothesis verification consisted in determining whether the two independent samples were selected from populations having the same distribution. The samples consisted of entities classified as solo-managed funds and team-managed funds. In order to take the influence of the financial market situation on differences, if any, of fund groups' rates of return, the abovementioned tests were carried out for each year in the research period. This means that there is an indirect possibility to verify also *Hypothesis 3*.

The second group of approaches comprises regression analysis, which permits determination of the impact of management structure on the achieved returns (cf. Prather & Midelton, 2002). A relatively high number of yearly observations enables the use of panel models consisting of a time series for each cross-sectional entity in the data set to this end. The employed estimation procedure is static models with fixed effects. The nature of the applied models with management structure and size of the structure used as proxies is specified as follows:

$$R_{i,t} = \alpha + \beta_{Team} Team_{i,t} + \beta_{WIG} R_{WIG,t} + \varepsilon \quad (5)$$

$$R_{i,t} = \alpha + \beta_{Team} Team_{i,t} + \beta_{Size} TeamSize_{i,t} + \beta_{WIG} R_{WIG,t} + \varepsilon \quad (6)$$

$$R_{i,t} = \alpha + \beta_{Team} Team_{i,t} + \beta_{WIG} R_{WIG,t} + \beta_{IROS} R_{IROS,t} + \varepsilon \quad (7)$$

$$R_{i,t} = \alpha + \beta_{Team} Team_{i,t} + \beta_{Size} TeamSize_{i,t} + \beta_{WIG} R_{WIG,t} + \beta_{IROS} R_{IROS,t} + \varepsilon \quad (8)$$

$$R_{i,t} = \alpha + \beta_{Team} Team_{i,t} + \beta_{WIG} R_{WIG,t} + \beta_{IROS} R_{IROS,t} + \beta_{MSCI} R_{MSCI,t} + \varepsilon \quad (9)$$

$$R_{i,t} = \alpha + \beta_{Team} Team_{i,t} + \beta_{Size} TeamSize_{i,t} + \beta_{WIG} R_{WIG,t} + \beta_{IROS} R_{IROS,t} + \beta_{MSCI} R_{MSCI,t} + \varepsilon \quad (10)$$

where:  $Team_{i,t}$  is management structure created as a dummy variable which takes the value of one if the mutual fund is team-managed and the value of zero if the mutual fund is solo-managed;  $TeamSize_{i,t}$  is team size of fund  $i$  and it was measured as the number of managers in the team;  $R_{WIG,t}$  is the return on the local equity market benchmark in period  $t$  (WIG);  $R_{IROS,t}$  is the return on the local bond index (IROS);  $R_{MSCI,t}$  is the return on the foreign stock index (MSCI World);  $\beta_{WIG}$ ,  $\beta_{IROS}$  and  $\beta_{MSCI}$  are the values of sensitivity to benchmark WIG, IROS and MSCI, respectively;  $\varepsilon$  is a random error.

We decided to apply a few alternative models, where management structure and team size were used as regressors of performance in order to reduce the sensitivity of the obtained results to the benchmark used as a proxy of the market return. Starting from a single benchmark model (5-6), we modified the approach of Prather, Bertin and Henker (2004) with two additional benchmarks (7-10): bond index and foreign stock index, to minimize the potential benchmark error. The employed approach permitted the verification of *Hypothesis 2*. The verified null hypothesis states that management structure does not affect the achieved returns. In this case, the estimated  $\beta_{Team}$  parameter equals 0, which indicates the absence of the mentioned influence and confirms that a management manner is not a determinant of performance. Moreover, it was possible to establish whether mutual fund performance was related to the size of management teams ( $\beta_{Size}$ ). We used Arellano's procedure in order to correct the problems of heteroskedasticity and autocorrelation (HAC). Additionally, the study used the Wald statistic to examine the joint significance of several coefficients and the Doornik-Hansen test to check the normality of the residuals.

### 3 Empirical results

The assumptions made allowed the verification of the formulated hypotheses by means of various research tools which enabled a greater degree of certainty of statistical inference. First, *Hypothesis 1*, which refers to differences in the performance achieved by funds managed individually and funds managed by a team, was subject to verification. Testing differences in means, medians, and distributions of two independent samples with the use of the following tests:  $t$ , Mann-Whitney, and Kolmogorov-Smirnov, respectively, in the individual years of the timeframe of the





The division of funds into solo-managed and team-managed, which arose from the management structure adopted by a given fund and the reference to the investment returns generated in the abovementioned samples, permitted the verification of *Hypothesis 1*. As follows from Table 1, the obtained results were ambiguous. The employment of three tools for testing differences in the achieved abnormal returns, measured in several manners, resulted in the necessity to discuss the obtained findings for each of the applied methods separately. As a preliminary remark, it needs to be noted that the findings coming from the first tool (the  $t$  test) should be treated with caution due to the unsatisfied assumptions of the parametric tests, and in particular the assumption about normally distributed data. Nevertheless, significant differences in the mean values of the returns generated by solo-managed funds and team-managed ones were noticeable in very few annual subperiods. The results were not, however, robust to the employed performance measures. Similarly, in the case of the whole timeframe of the research, the significance of the difference in means for a two-sided  $p$ -value was observable only for the Carhart measure from the four-factor model. The findings correspond well with most observations occurred in the literature. For example, Prather and Middleton (2002) showed that investment effects of group and individual management are similar. Moreover, Bliss et al. (2008) found that there is no evidence that teams invest better.

In the case of the data that are not normally distributed and may include many outliers, non-parametric tests were applied. The two-sample rank test for the difference between two population medians indicated that significant differences in abnormal returns of unequal groups of funds were observed only in 2006 and 2011 for both the Fama-French and the Carhart measures. There are some significant results obtained on the basis of conditional alphas but they came from other yearly periods. The differences in the distributions of samples calculated with the use of the Mann-Whitney  $U$  test in the total period under study were noticed only by means of the Carhart ratio and conditional alpha. Therefore, significant differences in abnormal returns of group-managed funds for a few cases seemed to be random rather than depend on the financial market situation. It seems interesting since some differences in performance were observed in the context of economic cycles in developed (Karagiannidis, 2010) as well as developing markets (Huang & Shi, 2013).

The tool that is sensitive to any differences in the shape of distribution, spread or median, is the Kolmogorov-Smirnov two-sample test. Compared to the previous rank test, the results of the KS test were more in favor of the rejection of *Hypothesis 1*. They were observed in the total study period as well as in several yearly sub-periods. However, in most annual periods, significant differences in the distributions of the results measured in three ways did not overlap for the examined period. Therefore, the conclusions are ambiguous due to the weak robustness of the results. It means that the *Hypothesis 3* on the impact of the financial market situation on the differences in the performance of individually and team-managed funds should not be rejected. Thus, it should be mentioned that the contrary conclusions are frequently seen in the literature (e.g. Han et al., 2017; Mamatzakis & Xu, 2016).

Based on the results obtained in this part, that is lack of substantial differences in abnormal returns regarding the stock picking ability of individually and group-managed funds, it will be difficult to obtain the evidence for the impact of

management structure on performance. Nevertheless, for the sake of reporting, Tab. 2 presents the results of the analysis of a relationship between mutual fund management structure and performance.

**Tab. 2: The influence of mutual fund management structure on performance**

	one-index model (1)	one-index model (2)	two-index model (3)	two-index model (4)	three-index model (5)	three-index model (6)
const	-0.053690 *** (0.007591)	-0.047225 *** (0.011467)	-0.018650 (0.013349)	-0.008194 (0.016234)	-0.046664 *** (0.012634)	-0.042394 ** (0.017694)
$\beta_{Team}$	0.001763 (0.013645)	0.011175 (0.016847)	-0.002133 (0.014991)	0.011952 (0.018039)	0.002574 (0.013892)	0.007786 (0.016992)
$\beta_{TeamSize}$		-0.00499133 (0.006188)		-0.00751263 (0.006046)		-0.00281173 (0.006616)
$\beta_{WIG}$	0.985194 *** (0.024020)	0.984447 *** (0.024029)	0.968211 *** (0.023980)	0.966736 *** (0.024000)	0.985537 *** (0.023257)	0.984764 *** (0.023274)
$\beta_{IROS}$			-0.530430 *** (0.154994)	-0.541392 *** (0.155504)	-0.957312 *** (0.137009)	-0.955970 *** (0.136657)
$\beta_{MSCI}$					1.287360 *** (0.167833)	1.270950 *** (0.175707)
Funds	98	98	98	98	98	98
Observations	835	835	835	835	835	835
R-squared	0.7906	0.7908	0.7979	0.7983	0.8063	0.8064
Adj. R-squared	0.7776	0.7778	0.7854	0.7858	0.7943	0.7944
Wald test	841.1460	560.2850	547.4960	410.6430	493.2070	393.5550
p-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Doornik-Hansen test	117.4730	116.6980	108.4220	107.2950	94.9242	94.5793
p-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Note: \*\*\*, \*\*, \* indicate significance at 1%, 5% and 10% levels, respectively. Robust standard errors are given in parentheses.

Source: own study.

Tab. 2 presents the findings made with the use of several models which treated management structure and management team size as determinants of returns generated by mutual funds. The results obtained with the use of neither the single-benchmark model nor multifactor models provided evidence for a significant influence of the *Team* and *TeamSize* variables on the achieved performance. It means that there is no relationship between mutual fund management structure or its size and returns. Therefore, it does not matter whether a Polish equity fund is managed individually or by a team, and team spirit does not matter either, at least as far as Polish circumstances are concerned. *Hypothesis 2* should be strongly confirmed. Also, the lack of statistically significant evidences of the impact of fund management structure on outcomes was observed by Golec (1996), Prather et al. (2004) and Du et al. (2009).

In summary, the empirical results are consistent with the classical decision-making theory providing that the fund management manner does not contribute to any differences in the generated investment returns. Its contradiction, i.e. the behavioral decision-making theory, was not noticed in fund performance, and hence the findings supported the efficient market hypothesis. This does not mean, however, that teams do not make superior investment decisions in other areas, e.g. on extremity or riskiness, yet this needs to be examined separately.

#### 4 Summary and implications for future research

This study focuses on finding answers to two questions. One is related to the possible differences in performance between solo- and team-managed funds. The other one is supposed to establish whether management structure can be treated as a

determinant of returns generated by mutual funds operating in Poland. The above issues seem very interesting since organizational and managerial attributes start to be perceived as characteristics which might determine differences in the performance achieved by mutual funds. It was decided to use a set of measures of abnormal returns regarding the stock picking ability of fund managers, including conditional and multifactor models, in this study, which could prove some originality of the result measurement method. Moreover, four research tools were employed in our methodological procedure in order to ensure a greater certainty of statistical inference.

In the sample of 98 domestic equity funds, we observed some differences in performance of individually and team-managed funds only in a few subperiods between 2000 and 2017. However, they should not serve as guidance on how to choose funds with superior performance for individual investors. In principle, a fund management manner (by an individual vs. by a team) does not lead to differences in the generated investment returns. In addition, the impact of short-term market trends on various phenomena related to performance, which has been noticed in the existing literature, has not been confirmed here either.

Furthermore, management structure should not be treated as a determinant of returns generated by mutual funds operating in Poland. We have found no evidence that teams, regardless of the size of the portfolio management team, make better investment decisions. Hence, the findings support the classical decision-making theory rather than the behavioral decision-making theory. One possible explanation of our results is that, due to quite frequent changes on the position of portfolio manager in the Polish mutual fund industry, teams which start working together do it only temporarily, until the next change on the position of manager. In consequence, they do not have enough time to benefit from the groupthink phenomenon or at least be a part of team spirit. Outperformance, if any, of solo- or team-managed funds seems random and therefore our findings are consistent also with the efficient market hypothesis.

The paper contributes to the fast-growing literature concerning the relationship between organizational and managerial characteristics and fund performance by providing one of the first studies in European developing markets in terms of management structure. This study takes the first step towards studying the performance of solo- and team-managed funds separately in the context of Polish mutual funds. A further study may be carried out with the inclusion of more factors, especially the information when a change of fund managers or exchange of a team member took place, in order to capture modifications in team spirit. Furthermore, some other areas of differences should be examined in relation to CEE markets. The earliest findings suggest that the effect of team management is greater diversification of judgments, and hence return increase with the simultaneous risk reduction (Sharpe, 1981; Barry & Starks, 1984; Sah & Stiglitz, 1991). Additionally, according to more contemporary scholars, teams are able to handle larger amounts of information better and have a wider range of specialized skills, experience and knowledge among their individual team members, especially when the specialists are fully integrated in teams (Dass et al., 2013).

The results not only provide supporting evidence for this theoretical insight but also have important implications for fund management companies and individual investors. We are convinced that the former could interpret the findings in favor of the hypothesis that there are no superior individuals and managers can exchange their experience and improve their skills as team members. We also believe that mutual funds' clients deeply understand market rules and are aware that management structure is not a proxy for abnormal returns. On the other hand, the behavioral decision-making theory, which has its roots in social psychology, indicates certain inefficiencies and biases (e.g. social loafing) related to less effort of individuals when they are members of a group as compared to situations where they work independently. Besides, fund companies might treat management teams as training grounds for inexperienced but promising managers (e.g. Pizzani, 2004).

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