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QUALIFICATIONS OF MANAGERS VS. EFFECTIVENESS OF INVESTMENT FUNDS IN POLAND

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ABSTRACT. *Purpose* – The main objective of this paper is to assess the impact of qualifications of the management staff on the effectiveness of open investment funds.

Design / methodology / approach – In the research the models derived from capital asset pricing model (CAPM) group, namely Henriksson-Merton model and Treynor-Mazuy have been applied.

Findings – Investment funds operating in the Polish market divided into four groups of funds have been subject to the analysis. Each of them has been analyzed individually keeping in mind the different design benchmark for individual markets investment funds. The main conclusion is poor predictability of executives regarding future market behavior and emerging problems with the correct selection of assets for investment portfolios.

Originality / value – An important aspect in the research is the issue of long-horizon of the analysis itself, as it dates back to the period of years 2000-2015. Emerging conclusions relate both to the period immediately preceding the global crisis and years of crisis. Another advantage seems to be the fact of the authors insights on the problems in the process of measuring the effectiveness of investment funds.

Keywords: Investment Funds, efficiency, investing, risk, financial market.

Introduction

The person of a fund manager is closely connected with the efficiency of portfolio management. The complexity of the investment decision making process in the given environments requires highly skilled manager, such as since prices of companies securities are affected by a wide range of factors (Kulišauskas & Galinienė, 2015), such as performance of business companies (Laužikas & Krasauskas, 2013); performance of industry sector, to which a company is attributed (Schröder *et al.*, 2015) mode of economic growth (Demir *et al.*, 2014), volatility of stock indexes (Peker *et al.*, 2014) etc.

Therefore the elements forming a broad portfolio of manager's qualifications include: education, experience, position, selection, market timing and intuition (Zamojska, 2012; Prakapavičiūtė & Korsakienė, 2016). He decides about the level and returns of the fund, determines the size, and also realizes style and investment strategy, which is to correspond to customers' preferences and objectives of the fund. The way in which he manages the fund and

returns which thus achieves determine the allocative decisions of investors that are expressed in the inflow or outflow of capital funds. It can be said that the effectiveness of investment funds is the result of the behavior of market participants standing on the side of supply and demand, which affect the shape of the characteristics of the funds (Perez, 2012).

Therefore, an essential prerequisite for writing this publication was to know the qualifications of Polish managers of investment funds. The assessments were based on quotations of these funds over the period 2000-2015.

1. A review of research

When making a literature review of the work on investment funds by domestic authors it is worth mentioning the publications by K. Perez (Perez, 2012). She carries out a broad review of issues related to investment funds, both in developed markets and in Poland. Also Z. Wilmowska and M. Madeira (Wilmowska & Madeira, 2001) focus their attention on the Polish market of investment funds. A large contribution to the development of knowledge about investment funds have T. Miziołek, who in the years 1998-2008 issued a number of interesting articles in the journal of Our Capital Market which was dedicated to the development of that market segment. In turn, A Zamojska (Zamojska, 2012) refers to the measure of effectiveness of these funds. The works by D. Witkowska (Witkowska, 2009) and K. Kompa (Kompa & Witkowska, 2010) are devoted to the same subject. Both Kompa and Witkowska tend mainly to research on the effectiveness of the investment funds market. However, it seems that one of the forerunners of information on the investment fund market in Poland is Tarczyński (Tarczyński, 1997). In the compact publication devoted to capital markets he presents a quantitative approach to the study, among others, investment funds which in those times was quite a pioneer approach when it comes to Polish investment fund market.

When analyzing the global market, the forerunners in this area were I. Friend, F. E. Brown, E. S. Herman and D. Vickers (Friend *et al.*, 1964) who described the study results of one hundred and fifty open-end investment funds existing in the US market in the years 1953-1959. Until now classic works devoted to the performance of investment funds include the articles by J.L. Treynor (Treynor, 1965), W. F. Sharp (Sharp, 1966) and M. Jensen (Jensen, 1968), which were of great importance because of the way the construction of measures for evaluating the performance of investment funds. A large contribution to the development of research on investment funds had the work by I. Friend, M. Blume and J. Crockett (Friend *et al.*, 1970), T. Kim (Kim, 1978), E. C. Chang and W. G. Lewellen (Chang & Lewellen, 1984), R. D. Henriksson (Henriksson, 1984) and J. D. Jackson and S. E. Skomp (Jackson & Skomp, 1985).

In the literature review one should also pay attention to the main objective, which was the driving force behind the creation of the funds themselves. Among a range of advantages for mutual investment, professional portfolio management is mentioned. Customers of investment funds, therefore, expect the return on investment at a given level of risk, and at the same time they do not take it. Thus, in building a marketing strategy of funds, an aversion of a large group of investors to the risks is used, associated with independent investment and at the same time fueling investor confidence in the professionalism of managers and the factor of the scale of company undertakings for collective investment. The authors of many works (Ippolito, 1992), (Sirri & Tufano, 1993) (Patel *et al.*, 1994), (Gruber, 1996); (Goetzmann & Peles, 1997), (Edelen, 1999), (Bergstresser & Poterba, 2002), (Deaves, 2004) and (Busse and Irvine, 2006) showed that achieved in the past investment results represent an important selection criterion fund for investors. It can, therefore, be argued that consumer awareness concerning the opportunities and risks of saving in funds is low.

2. Selected methods of measuring the effectiveness of funds

The study effectiveness of investment portfolios, and therefore the portfolios created by the institutions of collective investment have been an important element of research in the field of finance for many years. In the literature there is no uniform conclusions regarding the measures to be used to measure it, and under what conditions. The number of the methods used is large and in addition, there are also numerous modifications. Cogneau and Hubner (Cogneau & Hubner, 2009a, 2009b) have enumerated over 100 ways that can be used to measure effectiveness.

In order to enable the comparison of the effectiveness of management of portfolios of investment funds, the measures proportionate to the risk have been used. There are several ways to measure the rate of return relative to risk, the most famous and popular measure of selectivity is: Treynor's measure (Tp), Jensen's measure (J) and Sharpe's ratio (SP). The common feature of these methods is the method of calculating these indicators which measure the ratio of return and risk measures. All three indicators are derived from the CAPM, which assumes that the required rate of return on investment depends on the rate of return achievable with risk-free instruments, e.g. government bonds, and the premium for the risk of the incurred investment (Mikulec, 2004).

Treynor's ratio is a measure of returns in relation to systematic risk of systematic (market non-diversified) assuming that the market is in equilibrium and investors' expectations are realized at the level of the average. Sharpe's ratio, in turn, is a premium relation for the risk taken to the standard deviation of returns of an investment fund¹. In the case of a well-diversified portfolio, using the Treynor's and Sharpe's ratio, one can obtain similar rankings. In contrast, poorly diversified portfolio could have a high rating according to Treynor's ratio, and much lower in the case of the Sharpe's ratio. Both indicators provide complementary, but different information, so it is advisable to use them simultaneously (Brown & Reilly, 2001).

An improvement of Sharpe's ratio is Sharpe's Alpha which takes into account the expectations of investors posed by current market conditions, replaced by level of broad market index. This measure is sensitive to the general economic situation in the market² (takes into account investors' expectations dictated by market conditions), which is suitable for comparison of returns of investment funds from different periods (Czekaj *et al.*, 2001).

Jensen's index, also called the Jensen's Alpha³ is the equivalent of differential net profit. Its structure is also based on the standard model, wherein a measure of risk in this case is beta factor. This measure is based on the admission for comparisons of the line of securities. Therefore, the rate of return depends on the amount of risk-free rate, the risk premium (i.e. the amount by which the rate exceeds the risk-free rate) and the beta coefficient of the investment fund (Mayo, 1997). Jensen's Alpha is a relative measure (Brown & Reilly, 2001). Its use is particularly recommended for investment funds whose portfolios are well diversified. This is due to the fact that measuring of the expected rate of return depends on beta coefficient in an investment fund (systematic risk) (Dzielnicki *et al.*, 2005).

An advantage of Jensen's Alpha is that theoretically it is insensitive to the market trend (i.e. a boom or a slump) and the differences in the level of investment risk (Haugen, 1996).

¹ The risk premium is the difference between the rate of return of an investment fund and the rate of return on risk-free instruments.

² This measure, similar to Jensen's Alpha is diverse.

³ Very often in the literature Jensen's measure is designated as alpha (α), hence the name of this measure (Jensen's Alpha). See: H.B. Mayo, *Wstęp do inwestowania*, op. cit., p. 867. Apart from this name the Jensen's measure, see M. C. Jensen, The performance of Mutual Funds in the Period 1945-1956, *Journal of Finance*, May 1968, pp. 389-416.

Jensen's Alpha drawback is that it can be applied only to assess the effectiveness of investment funds whose portfolios include shares, or joint-stock, balanced investment funds and a stable growth. This indicator is not used to evaluate bond funds and money market funds. When the rate of return from the investment fund is greater than the expected rate of return taking into account the risks, then Jensen's Alpha assumes positive values. Positive values indicate how much the results of the fund are greater than expected. On the other hand, when Jensen's Alpha has negative values, they indicate that the investment fund has achieved worse results than expected and is located below the SML level (Haugen, 1996).

Jensen's measure is useful for properly diversified investment portfolios, and its advantage is theoretically insensitivity to the state of the stock market situation (Haugen, 1996). Jensen's Alpha is an absolute measure and one should not use it compare portfolios with different levels of risk, unless it is divided by a beta factor and it may be an assessment criterion (Witkowska, 2009).

The use of Treynor's, Sharpe's and Jensen's measures is possible only to a limited extent, because through these measures it cannot be assessed to what extent the ability to market timing by the fund manager helps to improve the profitability of the investment. The common problem with these measures is that the level of systematic risk is constant in time, and the failure to comply with this assumption in the case of investment funds was a conclusion which derived from a number of empirical studies written by, among others Klemkosky and Manesse (Klemkowsky & Manesse, 1978), Kon and Jen (Kon & Yen, 1978), Fabozzi and Francis (Fabozzi & Francis, 1979), Miller and Gressi (Miller & Gressi, 1980) and Bos and Newbold (Bos & Newbold, 1984). The fund manager is not obliged to maintain a constant proportion of risky and safe assets as during the bear markets it can lead to large losses. In practice, managers often change the level of their involvement in the shares, expecting changes in stock market conditions (Jamróz, 2013).

For the measurement of market timing the Henriksson-Merton model will be used based on partial assessments of probabilities accuracy of the forecasts for the downward and upward markets. In practice generally the parametric version of the model is used, e.g. in the form of (Czekaj *et al.*, 2000).

$$R_{jt} - R_{Ft} = \alpha + \beta_1 (R_{mt} - R_{Ft}) + \beta_2 Y_t + \zeta_t \quad (1)$$

where:

$Y = \max[0; -(R_{mt} - R_{Ft})]$,

R_{jt} – the rate on return on investment,

R_{Ft} – risk-free rate achieved in the analyzed period,

R_{mt} – the rate of return from the market measured by return on a stock market index,

α, β_1, β_2 – structural parameters of the equation,

ζ_t – the random component of the equation.

In this model, the estimates of parameters α_p and $\beta_{2,p}$ play an important role. Selectivity testing consists in verification of the hypothesis $H_o : \alpha_p = 0$ which means that the fund managers do not have the ability to predict at the micro level. In turn, market timing skills tests consists of the verification of the hypothesis $H_o : \beta_p = 0$ which shows that managers do not have the skills within market timing or do not use them (see: Henriksson, 1984). If $\beta_{2,p} < 0$, then the manager has the skills within market timing, however, this technique has a negative effect on the value of the portfolio. So the choice of the moment of the investment and its duration on the basis of short-term price expectations decrease the value of the portfolio. This may result from, e.g. the risk exposure associated with derivatives.

In turn, Treynor and Mazuy (1966) proposed a study of the parabolic curvature of the characteristic lines of the portfolio. The equation of this line has the form (Czekaj *et al.*, 2000).

$$R_j = \alpha + \beta R_m + \gamma R_m^2 + \xi_j \quad (2)$$

where:

R_j – the rate on return on investment,

R_m – the rate of return from the market measured by return on a stock market index,

α, β, γ – structural parameters of the equation,

ξ_j – the random component of the equation.

If the ratio γ has a value greater than zero, then the portfolio managers predict market correctly movements, the value of γ indicates the degree of this skill. The creators of the model recommend using it in both periods: a strong growth, as well as in periods of strong declines in stock market indices, as the reactions to small movements of the market are not noticeable by this model.

4. Empirical studies for the Polish market

In order to verify the ability to use the changing situation in the market by managers of the Open Investment Funds in the years 2000-2015, the *market timing* models have been used discussed. As a market factor in all models the WIG index was adopted. The analysis was conducted based on daily quotations ($n = 5475$ observations) for four selected funds, stocks, bonds, money market and balanced funds. When selecting funds, one took into account the longest period of operation of each of these funds. Calculations were performed using an Excel spreadsheet and econometric package STATISTICA 10. Each type of fund has been studied separately because each used a different investment policy. Therefore, each type of funds was compared to another reference standard as shown in *Table 1*.

Table 1. Benchmark structure for individual markets of investment funds

Market	benchmark
Investments funds of Polish stocks	100% average profitability of 52 – week treasury bills
Investments funds of Polish bonds	100% of the Index of Treasury Bonds Market (ITBM)
Investments funds of monetary market	Average profitability of 13 – week treasury bills
Balanced funds	(50%) – WIG-u i (50%) – ITBM

Source: Own research based upon: E. Ostrowska, A. Merchel, Fundusze inwestycyjne na rynku finansowym – stopy wzrostu i benchmarki, In: *Rynek kapitałowy – skuteczne inwestowanie*, pod red. W. Tarczyńskiego, Wyd. Uniwersytetu Szczecińskiego, Szczecin 2002, p. 60, oraz K. Stańczak, *Klasyfikacje funduszy...*op. p. 297.

The estimates of the average value of γ for the Treynor-Mazuy (T-M) model for individual fund groups are shown in *Figure 1*. Nearly 80% of the estimated parameters were statistically significant. As previously mentioned evaluation of the gamma parameter indicates the degree of market timing skills. The results indicate that all tested four groups of funds in most cases adopt a negative gamma, which according to J. L. Treynor and K. Mazuy proves of the negative impact of market timing on the achieved rate of return funds. Mainly, this situation relates to the funds in the bond market and to some extent money market funds. Equity funds and balanced in the initial phases of the analyzed period, i.e. in the years 2000-2005 they were effectively managed by the management staff. After a period of crisis, only

the so-called group aggressive funds rebounded in this regard. Forecasts of market movements are in this case largely correct. But, admittedly, in the context of an analysis γ group is the most vulnerable to any turmoil in the financial markets. When doing strictly a cross-section analysis it should be pointed out that only in the case of equity funds and balanced market we are dealing with a positive average value γ throughout the entire period. This is because it was 0,2915 and 0,2046 respectively. When assessing the technical side of the T-M model it is worth saying that the average value of the coefficient of determination was around the level of 0,8824, which means that in nearly 90% of the rate of return on fund portfolios are explained by the volatility of stock market index returns.

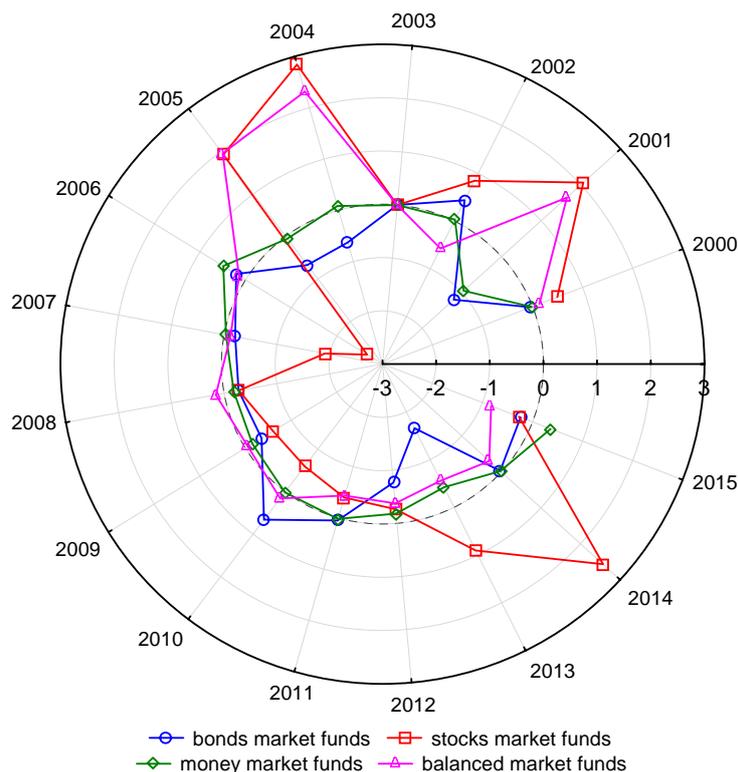


Figure 1. Mean values of γ for investment funds in the years 2000 to 2015 (Treynor-Mazuy model)

Source: own research.

An analysis of counterpart γ (in Treynor-Mazuy model), i.e. a β_2 parameter in Henriksson-Merton model (Figure 2) can be traced, to a large extent, similar conclusions as it was before. In the present aspect, still very important were the funds in the stock market and the balanced market, except that the latter analogous to the previously considered model in the final period 2011-2015 were in the red. One can see, therefore, that managers responsible for the management of this group of funds have not dealt with them in recent times.

For the assessment of the *H-M* model for balanced and monetary market one can conclude that managers generally show no predictive ability. It should be remembered that an important drawback of the parametric model of Henriksson-Merton is the assumption of a constant during the probabilities of correct predictions. This assumption may not be satisfied if the investor predicts more easily movements of large markets than small ones (Czekaj *et al.*, 2000).

Negative, in most cases, values of the α parameter, in turn, allows only for the conclusion that the fund manager does not have the ability to predict at the micro level, and

thus has problems with the correct selection of securities. In this area the equities, which significantly positive α had mainly in the period of crisis, performed well.

When analyzing the *H-M* model it is important to remember about the β_1 parameter. Its assessment shows the percentage of funds invested in the market portfolio. It is natural, therefore, that the highest of its value occurred in the case of a group of equity funds (on average close to 0,85) and a balanced market funds (here about 0,67).

Summing up, one can see that generally the managers of the analyzed fund were able to get above-average returns only in the context of forecasting of the overall stock market conditions. Problematic becomes a matter of abilities of stock selection for the portfolio.

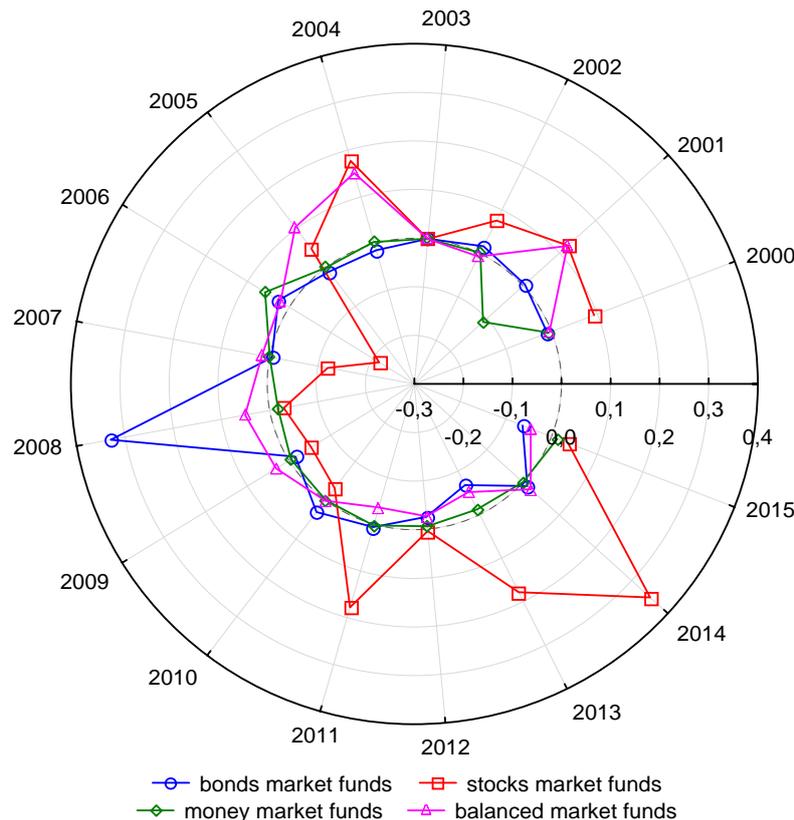


Figure 2. Average values of β_2 for investment funds in the years 2000-2015 (Henriksson-Merton model)

Source: own research.

Making a brief assessment of the compatibility of the described models in the context of relations indications γ (T-M) and β_2 (H-M) which we get as a result of their estimation, it should be emphasized that the greatest similarity we have for a balanced and monetary market funds. Here, the value of coefficients of correlation oscillates around 0,94. There are similar values depending on the analysis of market shares (0.83). The worst in this regard is the case of possible links to the bond market. Here, the relationship is relatively weak and is on the level of 0,22.

With all the above analysis on should, therefore, bear in mind that, an important issue when testing efficiency, is that the index selection, both in the context of the very representative of the market as the risk-free instrument. Their choice is of fundamental importance in that case. This is apparent especially when we want to evaluate the so-called

funds in the global market. Then there is the lack of one representative that could be a possible point of reference.

In the studies two approaches are used. One of them is a structure specifically for research purposes of market index or an application of existing market indexes "global" and even Morgan Stanley Capital International World index. Another approach is used in this publication, the national stock exchange indices like WIG.

But this is not the only problem. No coverage in numerous rankings funds also stems from the problem of choosing a representative of a risk-free instrument. It should be assumed that these are often treasury bills of various maturities.

It seems that an important subject is the issue of investment performance of funds in different market situations. Mostly because they differ in a period of declines and increases. Hence, the above analysis should clearly distinguished into the years of crisis and the period immediately preceding it.

Conclusion

The relationship between the efficiency of funds and the characteristics shaping it is a derivative of operations of management and investors, who react with the transfer of capital between funds operating in this market on historical rate of return. Allocative decisions of investors are often subject to psychological errors such as incorrect perception and processing of information, overconfidence or an excessive suggest to historical rates of return forming an anchor or imitating the behavior of other investors, e.g. a greater tendency to take profits than losses. Only few who accept the volatility of returns of funds resulting from changes in the shape of their fundamental characteristics, direct their resources to the profitable funds.

The size of the transferred funds or the capital withdrawn from it influences on the behavior of their managers who, based on the new value of the assets, adjust realized investment strategy and adjust to it the other fundamental characteristics of the funds, which is expected to bring above-average or absolute returns. As in the case of investors the behavior management is not free of psychological errors. Among those which contribute most to the low efficiency of funds, we can distinguish an incorrect interpretation of market information and failure to comply with the right to return to the medium that contribute to the creation of incorrect market forecasts, the conviction of being an expert, especially in the local market or imitating the behavior of existing ones, older and more experienced or young and taking excessive risk managers. Errors in the behavior of funds may negatively affect the market balance. If they are committed by many managers, the market is in disequilibrium. Its consequence is the advantage losers over winners and persistence of rates of return of many of them (Perez, 2012a).

The described characteristics of open investment funds managers mean that it is reasonable to ask the question about the quality and efficiency of skills used and innate predispositions of asset managers. Well used, they make that professional management becomes an advantage of investment funds. At the same professional management means not only the possession and use of the analytical database, technological, infrastructural and human resources to support management activities, but also providing specific financial products and services to meet the needs and preferences of specific investors.

To sum up, the main thesis of this article may be a statement that the discussed funds do not reach an additional premium for the use of market trends and the selection of securities. One should bear in mind, however, that this observation stems from an analysis two considered models. We know, however, that the global and reasonably objective evaluation is so difficult that often there is no consensus on the method of assessing the effectiveness of the funds. The reason for this can be the specifics of their activities or even

statutory limits on the composition of the portfolios of financial instruments. But a more important issue in this matter is the lack of a common benchmark, which could refer to earnings. Similarly, taking into account the different risk factors can be of a great importance.

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