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RAFAŁ CZYŻYCKI[1]
Szczecin University

BRAND OF THE INVESTMENT FUND COMPANIES AND RISK OF AN INVESTMENT AT A CAPITAL MARKET FOR AN INDIVIDUAL INVESTOR

Summary

Individual investors differ from each other in many aspects. Some of them treat investments in shares of stock as the way to diversify their budget surpluses and other ones as full-time job, which should cover their cost of living. For some investors, investment horizon refers to a period of a few or more than ten months, others invest for a time perspective of more than ten years or even a few dozen years. Despite many differences, it is common for all investors to try achieving as high rate of return as possible, and at the same time, to protect invested capital in the best possible manner. One of the methods, which ensure achieving such goal, i.e. diversification of the portfolio of investments, is compliant with Markowitz theory. The investor may diversify his investment portfolio by himself by buying suitably selected, diversified assets, or he may buy participation units of investment funds, which operations are based on investment diversification. The most often, the investor selects a particular fund based on perceived brand, which is mainly identified by historical results achieved by the fund. This article refers to problems related to risk of investments at a capital market and it presents results associated with an attempt to reduce it by purchasing participation units or portfolio of participation units of the investment funds.

Keywords: individual investor, risk, portfolio analysis, mutual fund

Introduction

Uncertainty and risk are the elements, which are inseparably connected with investment operations at the capital market. According to K. Jajuga, each investment means resigning from current consumption for the future and uncer-

[1] rafal.czyzycki@wzieu.pl.

tain benefits.[2] Risk of investing at the capital market is mainly associated with duration of investments, which are medium- and long-term.[3] There is tiny, but significant difference between expressions "uncertainty" and "risk". Uncertainty is of subjective nature and it mainly depends on individual characteristic of a human. Due to subjective nature, it is an immeasurable phenomenon. Risk means potential variability of events, and possible variants of development of a given scenario are known as well as chances of their occurrence, then risk is objective and measurable.[4] It is always associated with uncertainty, however, it cannot be said that uncertainty is related to risk. Uncertainty itself may result from our lack of knowledge about a phenomenon.[5] While source of uncertainty includes complexity, vagueness and discontinuity of social and economic phenomena, source of risk includes people, who make decisions.[6] As J. Pfeffer said, "risk is combination of gambling and it is measured by probability; uncertainty is measured by the level of confidence. Risk is state of the world; uncertainty is state of mind".[7] T. Gruszecki differentiates uncertainty and risk in other way, by stating that in case of risk we know possible number of future scenarios of a given event, however, we do not know probability of occurrence of each of them, but uncertainty is a state, when we are not familiar with possible scenarios and we do not know probability they may occur.[8] H. Büschgen identifies risk with a suitable decisive situation, when on the one hand, there is uncertainty about future events and development of decisive situation, and on the other hand, a person, who makes this decision, has subjective information regarding probability distribution in development of this situation in future.[9] R*isk, Uncertainty and Profit* by F.H. Knight is a classic publication in terms of differentiation between uncertainty and risk and it indicates that risk relates to future

[2] K. Jajuga, *Elementy nauki o finansach*, PWE, Warszawa 2007, p. 65.

[3] W. Dębski, *Rynek finansowy i jego mechanizmy*, Wyd. Naukowe PWN, Warszawa 2010, p. 94.

[4] A. Wawiernia, I. Jonek-Kowalska, *Zarządzanie wartością i ryzykiem instrumentów rynku finansowego*, Wyd. Fachowe CeDeWu, Warszawa 2009, p. 75; C.A. Williams Jr, M.L. Smith, P.C. Young, *Zarządzanie ryzykiem a ubezpieczenia*, Wyd. Naukowe PWN, Warszawa 2002, pp. 29, 35.

[5] K. Kuziak, *Pomiar ryzyka przedsiębiorstwa. Modele pomiaru i ich ryzyko*, Wyd. Uniwersytetu Ekonomicznego, Wrocław 2011, p. 16.

[6] T.T. Kaczmarek, *Zarządzanie ryzykiem w przedsiębiorstwie eksportującym*, ODiDK, Gdańsk 2001, p. 22.

[7] J. Pfeffer, *Insurance and economic theory*, Irving Inc. Homewood, Illinois 1956, p. 42, according to: E. Ostrowska, *Ryzyko inwestycyjne. Identyfikacja i metody oceny*, Wyd. Uniwersytetu Gdańskiego, Gdańsk 1999, p. 23.

[8] T. Gruszecki, *Teoria pieniądza i polityka pieniężna. Rys historyczny i praktyka gospodarcza*, Oficyna Wydawnicza, Kraków 2004, p. 57.

[9] H. Büschgen, *Przedsiębiorstwo bankowe*, Poltext, Warszawa 1997, t. II, p. 189.

events, which probability of occurrence may be estimated with statistical methods, but uncertainty is immeasurable.[10] Risk is ambiguous and complex concept, which leads to analyzing its various aspects. Risk at financial markets means opportunity to make profit at a price of possibility to incur loss. Risk results from volatility, which means uncertainty in terms of rate of return, which may deviate (up or down) from its expected (the most probable) level.[11] Main source of risk at financial markets refers to uncertainty of information. At the moment of decision-making, an investor does not have complete set of necessary information, i.e., there is uncertainty in terms of the level of rate of return in the future. Sources of uncertainty associated with investment decisions may be of an external nature (it may relate to environment where the companies operate) and an internal nature (related to decisions made by the management boards of the companies)[12].

Risk measurement

From statistical point of view, risk and its measurement depend on statistical model and they are defined by probability distribution of values, which describe this risk.[13] Depending on the fact, whether these models of risk measurement consider risk factors or not, risk may be treated, as either measure for volatility of rates of return, or as measure for sensitivity to risk factors.[14] If the risk is perceived as volatility (fluctuation) of rates of return, then only measurement of the changes in rates of return is performed, without analysis of factors causing these changes. Within this area, measures are used, which establish value of risk based on distribution of rates of return. Interpreting the risk as sensitivity to factors causing it, degree of volatility of rates of return is evaluated as a result of action of a suitable factor. Within this area, some regression functions are used, which describe dependence of rates of return on shares of stock on values of adequate risk factors.[15]

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[10] F.H. Knight, *Risk, uncentainty and profit*, Reprinted 2002 by Beard Books, Washington, D.C.

[11] A. Sławiński, *Rynki finansowe*, PWE, Warszawa 2006, p. 49.

[12] W. Tarczyński, *Fundamentalny portfel papierów wartościowych*, PWE, Warszawa 2002, p. 52.

[13] W. Szkutnik, *Zarządzanie ryzykiem ekonomicznym z uwzględnieniem badacza i decydenta. Wybrane modele oceny ryzyka inwestycyjnego i ubezpieczeniowego*, Wyd. Akademii Ekonomicznej, Katowice 2010, p. 28.

[14] K. Jajuga, T. Jajuga, *Inwestycje*, Wyd. Naukowe PWN, Warszawa 2008, p. 181.

[15] *Ibidem*, p. 181–185.

Risk measurement as variability of rates of return includes measures for variability, quantiles of distribution and measures based on value of cumulative distribution function[16]. Measures of variability are methods of risk measurement, which have been used for the longest time. Their use is based on assumption that the higher variability of rate of return, the higher the risk that its level would be different from an expected level. Among measures of risk, the following are used in classic approach: variance of rate of return, standard deviation of rate of return, semivariance of rate of return and semi standard deviation of rate of return. Variance of rate of return (σ^2) is weighted average of squared differences between possible execution of rate of return (r_i) and its expected value ($E(r_i)$), but weights include probabilities (p_i) of execution of a given rate of return, i.e.:

$$\sigma^2 = \sum_{i=1}^{n} p_i[r_i - E(r_i)]^2.$$

Variance may be expressed only as non-negative value, but the higher its value, the higher risk is associated with a given share of stock. Based on established variance, the level of standard deviation may be established, which is square root of variance, i.e.

$$\sigma = \sqrt{\sigma^2} = \sqrt{\sum_{i=1}^{n} p_i[r_i - E(r_i)]^2}.$$

Standard deviation is determined mainly due to potentially easy interpretation, as opposed to variance. Its properties are the same as the ones for variance.

Semivariance and semi standard deviation occur, when the risk is treated as negative phenomenon. In such case, the area of interest includes only negative deviations of rates of return form an expected values, which means that semivariance is defined as follows:

$$S\sigma^2 = \sum_{i=1}^{n} p_i[(r_i - E(r_i))_-]^2,$$

and semi standard deviation as:

$$S\sigma = \sqrt{SV} = \sqrt{\sum_{i=1}^{n} p_i[(r_i - E(r_i))_-]^2}.$$

Reduction of an investment risk through diversification of the portfolio comprising shares of stock

Diversification proposed by Markowitz, which includes increasing number of shares of stock in the portfolio, is the way to reduce an investment risk at the capital market. Increased number of shares included in the portfolio allows reducing share of variance of the respective shares of stock in the total risk for the whole portfolio to zero. The lowest possible risk of the whole portfolio cannot

[16] *Ibidem*, p. 184.

be lower than covariance, which share in total risk cannot be lowered. On the other hand, the risk of the portfolio comprising more than one share of stock is never higher than the risk associated with the most risky share of stock included in such portfolio.[17] While creating portfolio theory, Markowitz defined the risk related to a given portfolio as a sum of variances of the respective financial instruments and values of covariance between them. For the portfolio comprising *n* financial instruments, variance of the portfolio is calculated in accordance with the following formula:

$$\sigma^2(R_p) = \sum_{i=1}^{n} w_i \sigma^2(R_i) + 2 \sum_{i=1}^{n} \sum_{\substack{j=2 \\ j>i}}^{n} w_i w_j cov(R_i, R_j)$$

$$= \sum_{i=1}^{n} \sum_{j=1}^{n} w_i w_j cov(R_i, R_j)$$

where:

r_{ik} – *k* rate of return on *i* instrument,

p_k – probability to achieve *k* rate of return on *i* instrument,

r_{jk} – *k* rate of return on *j* instrument,

p_{kj} – probability to achieve *k* rate of return on *i* and *j* instruments,

Risk of the portfolio defined with the formula above indicates that it depends not only on risk of individual financial instruments, but also on interrelations among rates of return of the respective instruments. It means that despite the use of vertical diversification (i.e., classically interpreted diversification, which includes moving towards reduction of the risk of the portfolio of assets through increasing their number in the portfolio) and horizontal diversification (which means an investment in various securities of the same type), also parallel diversification should be considered while creating investment portfolios (which means including alternative assets in the investment portfolio).[18] Due to the fact that investors differ from each other with place of residence, wealth, professional position etc., which means that they are in different position, this position determines preferred investment portfolio. The investment portfolio also depends on an individual attitude to risk, or current and future gratifications, i.e. on preference of the investors. They select various portfolios of in-

[17] W. Tarczyński, *Fundamentalny portfel...*, p. 72–76.

[18] U. Gierałtowska, *Dywersyfikacja równoległa oparta na instrumentach alternatywnych na rynku polskim*, w: *Finanse – nowe wyzwania teorii i praktyki*, Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu nr 174, Wrocław 2011, p. 99–100.

vestments also due to differences in perception of the future[19]. Portfolio theory by Markowitz is based not only on statistics and probability theory, but also on theory of financial economics. Within the scope of financial economics, it uses assumption related to the utility function and an indifference curve. The utility function presents value of all possible selections, which may be executed by an individual, where higher value corresponds to higher utility. Considering given limitations, an individual makes such selection, which maximizes his utility. In case of portfolio theory, it is assumed that among various combinations of expected rates of return and risk, the investor makes such selection where higher level of expected rate of return always corresponds to higher level of risk. Higher level of rate of return increases the level of utility of the portfolio for the investor, but higher level of risk leads to lowering utility of such portfolio. It means that investors are able to obtain various utilities for various combinations of rates of return and risk. According to assumptions of behavioral finances, investors prefer risk aversion, while making financial decisions. It means that among various possible combinations of the investments providing the same expected rate of return, they prefer the ones, which relate to lower risk. Alternatively, at accepted level of a given risk, they will select such an investment portfolio, which maximizes an expected rate of return. Among all investments creating the effective portfolio[20], an optimal portfolio is the one, which is the most preferred by the investor.

Effective portfolios at Polish capital market

In case of attempt to build a portfolio comprising "r" instruments, it is necessary to estimate "r" expected rates of return on these instruments, "r" variances on these rates of return, and in addition, $\binom{r}{2}$ covariance values should be determined between the respective assets. If share of the respective instruments in the portfolios change by "s", i.e. each asset may be divided into $k = s^{-1} + 1$ parts, then number of investment portfolios, which may be created is:

[19] W.F. Sharpe, *Investors and markets. Portfolio choices, asset prices, and investment advice*, Princeton University Press 2007, p. 11.

[20] According to an assumption of the portfolio theory by Markowitz, effective investment portfolios include such portfolios comprising the respective assets, which provide maximum expected rate of return at each level of risk.

$$n = \prod_{i=2}^{r} \left(\frac{k + (i-2)}{i-1} \right) = \frac{(k+r-2)!}{(k-1)! \cdot (r-1)!}$$

It means that in case of building the portfolio comprising only 20 shares of stock of the companies included in WIG20[21] index, while assuming that their share in the portfolio will be a multiple of 10%, it is possible to construct

$$n = \frac{(11+20-2)!}{(11-1)! \cdot (20-1)!} = 20030010$$

various investment portfolios, previously establishing only 20 values of expected rates of return, 20 variances of rates of return and 190 covariances between rates of return on assets included in the respective portfolios. Some limitation in calculation process related to necessity of estimation of covariance value was proposed in the late 1950's by Markowitz himself.[22]

Set of all portfolios obtained as a result of using aforementioned assumptions, by developed average daily rates of return and risk described with standard deviation of daily rates of return, is presented in figure 1.

For 200300010 obtained investment portfolios, in 8202261 cases, the portfolios provided positive daily rate of return, but maximum daily rate of return was at the level of 0.2089% (portfolio comprising only shares of stock of BZWBK) and minimum was "-0.1981%" (for the portfolio of shares of stock of JSW). Risk was measured with standard deviation ranged from 0.9972% to 2.7117%, and mean value was 1.2927%, and only in case of three portfolios, the result was below 1%. Effective portfolios mean all, which are located near breakeven point, i.e. the ones, which create "upper" edge of the area of obtained portfolios. Characteristics of selected portfolios are presented in the table 1.

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[21] In further part of the article, only analyses of for the companies included in WIG20 index on 31.XII.2013 were performed, while considering daily rates of return within the period of 1.I.2013-31.XII.2013.

[22] Assuming occurrence of linear relationship between the rate of return on securities and rate of return on the stock exchange index, the following models may be obtained for any two securities: $r_a = A_1 + A_2 I + u$, oraz $r_b = B_1 + B_2 I + v$, where r_a, r_b are rates of return on securities (a) and securities (b), A_1, A_2, B_1, B_2 are constant values (structural parameters of the models), I is a value of stock exchange index, u and v are random components of the models. Assuming that random components are independent from each other ($cov(u,v)=0$) and they are random components with expected value equal to zero ($E(u)=0$, $E(v)=0$), and that value of the index is not affected by random components ($cov(I,u)=0$, $cov(I,v)=0$), covariance between rates of return on shares of stock (a) and (b) may be presented as follows: $cov(r_a, r_b) = A_2 B_2 \sigma^2(I)$. See: H.M. Markowitz, *Porfolio selection efficient diversification of investments*, John Wiley & Sohn, Inc., New York, Chapman & Hall, Limited, London 1959, p. 100.

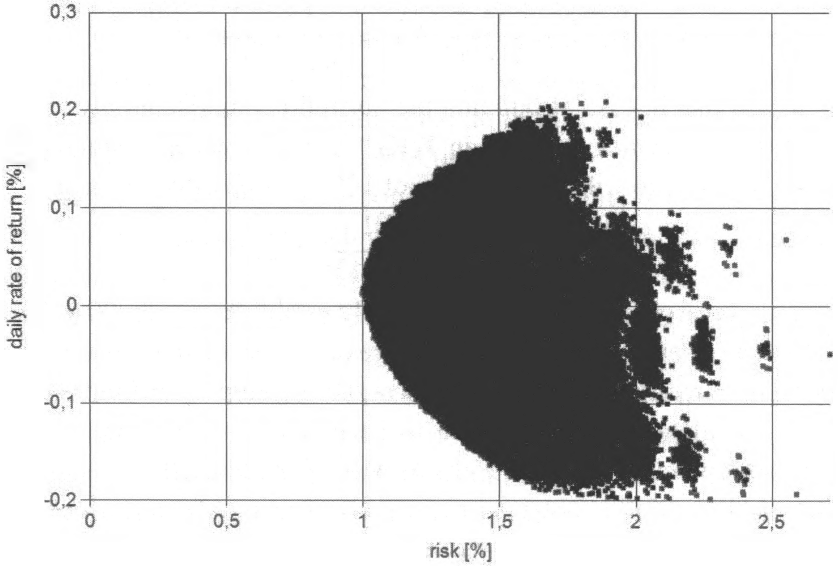

Fig. 1. Portfolio of shares of stock included in WIG20 index by income and risk

Source: own elaboration.

Table 1

Numerical characteristics of selected portfolios

Mean daily rate of return in %	Risk in %	Content of the portfolio[23]
0.0127	0.9972	0,1:0,2:0:0,1:0:0:0:0:0:0:0:0,1:0,1:0:0:0:0,2:0,1:0:0,1
0.0140	0.9993	0,1:0,2:0:0,1:0:0:0:0:0:0:0:0,1:0,1:0:0:0:0,3:0:0:0,1
0.0115	0.9997	0,1:0,2:0:0,1:0:0:0:0:0:0:0:0,1:0,1:0:0,1:0:0,2:0:0:0,1
0.2012	1.6594	0:0:0,5:0:0:0:0:0:0:0:0,5:0:0:0:0:0:0:0:0:0
0.2027	1.6573	0:0:0,6:0:0:0:0:0:0:0:0,4:0:0:0:0:0:0:0:0:0
0.2043	1.6809	0:0:0,7:0:0:0:0:0:0:0:0,3:0:0:0:0:0:0:0:0:0
0.2058	1.7292	0:0:0,8:0:0:0:0:0:0:0:0,2:0:0:0:0:0:0:0:0:0

[23] The respective numerical values present share in the following securities (values of means [%] and standard deviations [%] for daily rates of return in 2013 are provided in the brackets): Assecopoland (0,023;1,8247), Bogdanka (-0,0168;1,7140), BZWBK (0,2089;1,8914), Eurocash(0,0681;2,5513), GTC (-0,0896;2,2594), Handlowy (0,0509;2,1961), JSW (-0,1981;2,2723), Kernel (-0,1981;2,5884), KGHM (-0,1709;2,0753), Lotos (-0,0406;2,0064), Mbank (0,1935;2,0195), OrangePL (-0,0490;2,7117), PeKaO (0,0404;1,5655), PGE (-0,0260;1,9626), PGNIG (0,0119;1,8207), PKN Orlen (-0.0577;1,9274), PKO BP (0,0364;1,3850), PZU (0,0234;1,5806), Syntos (0,0325;2,3657), Tauronpe (-0,0176;1,7876).

0.2073	1.8002	0:0:0,9:0:0:0:0:0:0:0:0,1:0:0:0:0:0:0:0:0:0
0.2089	1.8914	0:0:1:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0
-0.0490	2.7117	0:0:0:0:0:0:0:0:0:0:0:1:0:0:0:0:0:0:0:0
-0.1981	2.2723	0:0:0:0:0:0:1:0:0:0:0:0:0:0:0:0:0:0:0:0

Source: own elaboration.

Three first portfolios include portfolios characterized by the lowest value of standard deviation, i.e. the lowest risk. The next 6 portfolios include all portfolios, which provided mean daily rate of return at the level above 0.2%, the tenth portfolio characterized by the highest level of the risk, and the last one is the portfolio, which would provide the highest loss in 2013.

Investment fund companies, as the way to reduce an investment risk for individual investors

While making investment decisions, some individual investors trust only and exclusively in analyses, which they perform by themselves, but other investors would be willing to trust recommendations issued by persons or institutions professionally associated with capital market.[24] Persons, who make their investment decisions based on suggestions of other entities, may do it based on public information, which acts as recommendations free of charge, hoping that not all information provided in these opinions have already been discounted by the market, or they "buy" priority for access to such information. Purchase of such information may be of direct nature, when an individual investor pays for recommendations, but he makes final decision of using this information for his own, or it may be of indirect nature, when the investor buys such information by purchasing participation units or certificates of a certain investment fund. Purchasing participation units of an investment fund allows individual investors to save not only time related to making selection and purchasing suitable shares of stock, but fist of all, it provides opportunity for quick diversification of his investment portfolio, without necessity to buy shares of stock of the respective companies. It is especially important for small investors, who do not have sufficient financial resources to make diversification of his portfolio in an appropri-

[24] Results of the studies related to quality of provided securities recommendations at Polish capital market, may be found, i.a. at: R. Czyżycki, *Marka instytucji finansowych a jakość udzielanych rekomendacji giełdowych*, w: *Marketing przyszłości. Trendy. Strategie. Instrumenty. Wybrane aspekty marketingu w handlu i usługach*, red. G. Rosa, A. Smalec, Zeszyty Naukowe nr 776, Problemy Zarządzania, Finansów i Marketingu nr 31, Wyd. Naukowe Uniwersytetu Szczecińskiego, Szczecin 2013, pp. 155–166.

ate manner. On the other hand, it requires some confidence in managing capabilities of persons, who manage these funds and in correctness of decisions they make. Some investors, who acquire participation units in an investment funds, monitor results achieved by the respective funds on regular basis and systematically move their assets among these funds, while other investors are more passive and they believe over longer time, that choice they made was correct. While selecting an investment fund, individual investors may consider only results achieved in past, or they may consider their preferences related to investment strategy used by the fund (choice of the funds acquiring shares of stock quoted at domestic or international market, coming from a broad market or form a specific industry, growth based funds or dividend based funds etc.). Currently, 163 funds are operating in Poland, which invest in shares of stock.[25] Assuming that investors would consider historical rates of return in 2012, while purchasing participation units in the respective funds at the beginning 2013, then the best twenty funds (number of shares of stock assumed for the purpose of portfolio analysis was equal to number of shares of stock included in WIG20 index) investing at Polish capital market included (in the brackets, mean daily rates of return were provided together with standard deviation [in %]): QUERCUS lev (0,1710;0,2081), Pioneer Dynamicznych Spółek (0,1353;0,0866), Arka Prestiż Akcji Polskich (0,1128;0,0943), Quercus Agresywny (0,1024;0,07), Skarbiec–Akcja (0,0958;0,0933), PKO Akcji Małych i Średnich Spółek (0,0958;0,0566), Noble Fundusz Akcji (0,0943;0,0762), BNP Paribas Akcji (0,0920;0,0728), Investor Top 25 Małych Spółek (0,0916;0,0671), Credit Agricole Akcyjny (0,0915;0,0755), KBC Subfundusz Akcyjny (0,0899;0,0866), Aviva Investors Polskich Akcji (0,0872;0,0686), KBC Portfel Akcji Średnich Spółek (0,0859;0,0812), Investor Akcji (0,0850;0,0775), Pioneer Akcji Aktywna Selekcja (0,0850;0,0883), PZU Akcji Małych i Średnich Spółek (0,0848;0,0663), Millennium Akcji (0,0826;0,0787), Arka BZ WBK Akcji (0,0825;0,0794), KBC Akcji Małych i Średnich Spółek (0,0821;0,0656) and Arka Prestiż Akcji Polskich (0,0813;0,0762). Table 2 presents results, which an investor would have expected in 2013 by investing only in one selected fund, but figure 2 presents graphical portfolios, which would be obtained conducting diversification of the investment in the respective funds (making the same assumptions, as in building portfolio of shares of stock).

[25] Based on: http://www.bankier.pl/inwestowanie/notowania/fundusze/?aktywny=1 (1.03.2014).

Table 2

Performance of selected investment funds in 2013

No.	Fund	Mean daily rate of return (%)	Risk (standard deviation) in %
1	QUERCUS lev	–0.0413	2.2100
2	Pioneer Dynamicznych Spółek	0.1037	0.7693
3	Arka Prestiż Akcji Polskich	–0.0415	1.1033
4	Quercus Agresywny	0.0764	0.6846
5	Skarbiec-Akcja	0.0237	0.9631
6	PKO Akcji Małych i Średnich Spółek	0.1069	0.5554
7	Noble Fundusz Akcji	0.0355	0.8044
8	BNP Paribas Akcji	0.0301	0.8574
9	Investor Top 25 Małych Spółek	0.1429	0.6204
10	Credit Agricole Akcyjny	0.0467	0.8119
11	KBC Subfundusz Akcyjny	0.0399	0.9056
12	Aviva Investors Polskich Akcji	0.0641	0.7347
13	KBC Portfel Akcji Średnich Spółek	0.1032	0.8950
14	Investor Akcji	0.0857	0.6760
15	Pioneer Akcji Aktywna Selekcja	0.0522	0.8469
16	PZU Akcji Małych i Średnich Spółek	0.1203	0.7517
17	Millennium Akcji	0.0326	0.7795
18	Arka BZ WBK Akcji	0.0097	0.8428
19	KBC Akcji Małych i Średnich Spółek	0.1290	0.8266
20	Arka Prestiż Akcji Polskich	0.0660	0.8314

Source: own elaboration.

Probability of obtaining negative rate of return by an individual investor, who has invested only in one out of twenty analyzed investment funds, is 10% (assuming that selection of such investment fund would be finally made at random). In case of using portfolio approach, this probability is reduced to 0.18% (for 20030010 portfolios, only in case of 35833 of them negative rate of return was recorded). Maximum rate of return, which amount to 0.1429%, would be possible in case of portfolio, which would include only participation units in Investor Top 25 Małych Spółek fund, but it would be possible to achieve at

least such rate of return in case 3825 previously discussed portfolios comprising shares of stock.

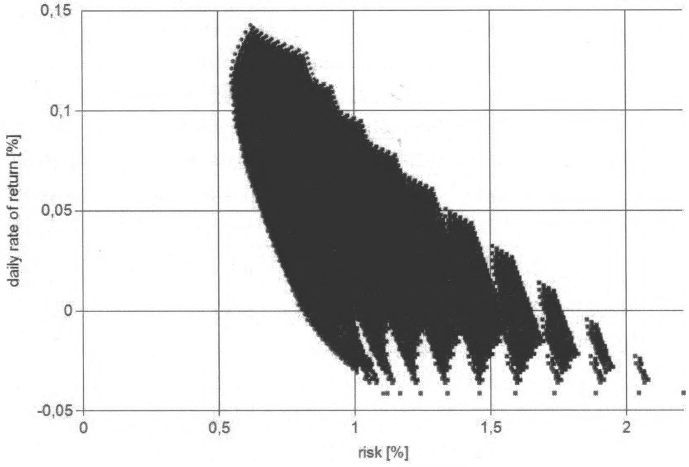

Fig. 2. Portfolios of the funds by income and risk

Source: own elaboration.

On the other hand, significant reduction of risk for individual investors undoubtedly support an investment strategy based on building portfolio of participation units in investment funds. In case of previously discussed portfolio comprising in shares of stock, minimum risk measured with standard deviation was 0.9972%, but in case of building portfolio of participation units of investment funds, even lower risk was achieved in 18294183 cases, i.e. in more than 91.33%. At the same time, 2592 portfolios comprising shares of stock and only 20 portfolios of the funds revealed standard deviation of daily rate of return at the level, which exceeded 2%.

Conclusion

Conducted studies confirm opinion that the risk related to investments at capital market may be significantly reduced by diversification in the portfolio of assets. In case of individual investors, who do not have too much time, willingness and knowledge to perform their own analysis of the respective assets and to select suitable instruments for their portfolio by themselves, purchasing participation units in investment funds operating at the capital market may turn out to be a perfect investment strategy. Such strategy ensures a significant reduction

in investment risk comparing to independently created portfolios based on shares of stock included in WIG20 index. Considering the fact that in case of selecting companies of the broad market while building an investment portfolio, it is possible to limit the risk of the portfolio at least to the level, which is offered by investment funds, but it should be emphasized that there are two corresponding problems for individual investors: conducting necessary analyses are time- and labor-consuming and there are problems with liquidity of securities of some companies. However, an investor, who invests in the investment funds, should be aware that possible repeatability of historical results obtained by the funds is limited. It means that making a decision regarding selection of the fund based on past results may also be risky, and QUERCUS lev fund, which was the best in 2012 and incurred loss in 2013, would be the best example. For this reason, in case of investing at capital market using investment funds, the best possible approach for the investors is to build a portfolio of funds.

Bibliography

Büschgen H., *Przedsiębiorstwo bankowe*, Poltext, Warszawa 1997.

Czyżycki R., *Marka instytucji finansowych a jakość udzielanych rekomendacji giełdowych*, w: *Marketing przyszłości. Trendy. Strategie. Instrumenty. Wybrane aspekty marketingu w handlu i usługach*, red. G. Rosa, A. Smalec, Zeszyty Naukowe nr 776, Problemy Zarządzania, Finansów i Marketingu nr 31, Wyd. Naukowe Uniwersytetu Szczecińskiego, Szczecin 2013.

Dębski W., *Rynek finansowy i jego mechanizmy*, Wyd. Naukowe PWN, Warszawa 2010.

Gierałtowska U., *Dywersyfikacja równoległa oparta na instrumentach alternatywnych na rynku polskim*, w: *Finanse – nowe wyzwania teorii i praktyki*, Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu nr 174, Wrocław 2011.

Gruszecki T., *Teoria pieniądza i polityka pieniężna. Rys historyczny i praktyka gospodarcza*, Oficyna Wydawnicza, Kraków 2004.

Jajuga K., *Elementy nauki o finansach*, PWE, Warszawa 2007.

Jajuga K., Jajuga T., *Inwestycje*, Wyd. Naukowe PWN, Warszawa 2008.

Kaczmarek T.T., *Zarządzanie ryzykiem w przedsiębiorstwie eksportującym*, ODiDK, Gdańsk 2001.

Knight F.H., *Risk, uncentainty and profit*, Reprinted 2002 by Beard Books, Washington, D.C.

Kuziak K., *Pomiar ryzyka przedsiębiorstwa. Modele pomiaru i ich ryzyko*, Wyd. Uniwersytetu Ekonomicznego, Wrocław 2011.

Markowitz H.M., *Porfolio selection efficient diversification of investments*, John Wiley & Sohn, Inc., New York, Chapman & Hall, Limited, London 1959.

Pfeffer J., *Insurance and economic theory*, Irving Inc. Homewood, Illinois 1956, according to: E. Ostrowska, *Ryzyko inwestycyjne. Identyfikacja i metody oceny*, Wyd. Uniwersytetu Gdańskiego, Gdańsk 1999.

Sharpe W.F., I*nvestors and markets. Portfolio choices, asset prices, and investment advice*, Princeton University Press 2007.
Sławński A., *Rynki finansowe*, PWE, Warszawa 2006.
Szkutnik W., *Zarządzanie ryzykiem ekonomicznym z uwzględnieniem badacza i decydenta. Wybrane modele oceny ryzyka inwestycyjnego i ubezpieczeniowego*, Wyd. Akademii Ekonomicznej, Katowice 2010.
Tarczyński W., *Fundamentalny portfel papierów wartościowych*, PWE, Warszawa 2002.
Wawiernia A., Jonek-Kowalska I., *Zarządzanie wartością i ryzykiem instrumentów rynku finansowego*, Wyd. Fachowe CeDeWu, Warszawa 2009.
Williams C.A., Smith M.L., Young P.C., *Zarządzanie ryzykiem a ubezpieczenia*, Wyd. Naukowe PWN, Warszawa 2002.

MARKA TOWARZYSTW FUNDUSZY INWESTYCYJNYCH A RYZYKO INWESTYCJI NA RYNKU KAPITAŁOWYM DLA INWESTORA INDYWIDUALNEGO

Streszczenie

Inwestorzy indywidualni różnią się pod wieloma względami. Niektórzy traktują inwestycje giełdowe jako sposób na dywersyfikację swoich nadwyżek finansowych, inni jako pełnowymiarową pracę, która powinna zapewnić im bieżące utrzymanie. Dla części inwestorów perspektywą inwestowania jest okres kilku–kilkunastu miesięcy, inni mają perspektywę czasową kilkunastu czy kilkadziesięciu lat. Mimo wielu różnic cechą wspólną wszystkich inwestorów jest dążenie do osiągnięcia jak najwyższej stopy zwrotu przy jednoczesnym dążeniu do jak najlepszej ochrony zainwestowanego kapitału. Jedną z metod zapewniających osiągnięcie tak zdefiniowanego celu jest dywersyfikacja portfela inwestycji zgodna z teorią Markowitza. Dywersyfikacji inwestycji inwestor może dokonać albo samodzielnie kupując odpowiednio dobrane różne aktywa, albo poprzez zakup udziałów w funduszach inwestycyjnych, które swoją działalność opierają na zasadzie rozproszenia inwestycji. Wyboru określonego funduszu inwestor dokonuje najczęściej w oparciu o postrzeganą markę, przede wszystkim utożsamianą z historycznie osiągniętymi przez fundusz wynikami. W artykule przybliżono problematykę ryzyka inwestycji na rynku kapitałowym oraz przedstawiono wyniki związane z próbą jego ograniczenia przez zakup udziału lub portfela udziałów w funduszach inwestycyjnych.

Słowa kluczowe: indywidualny inwestor, ryzyko, analiza portfelowa, fundusz

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