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PERFORMANCE EVALUATION OF MUTUAL FUND MANAGERS IN SLOVENIA

Up until the beginning of the financial crisis Slovenia was marked by exceptionally high growth rates in the mutual fund industry. The reason for this was in the performance of Slovenian stock market index, which was one of the best performing in 2007 with the growth of more than 70%. In this paper mutual funds performance in Slovenia to discover the quality of fund managers in the market has been analysed. The focus was made on the energy investment funds. Different risk-adjusted measures such as the M2, the Treynor ratio, the Sortino ratio and the Information ratio using monthly log returns have been analysed. Selection ability of fund managers with Jensens alpha and timing ability using the Treynor-Mazuy model was also studied. The analysis outcomes revealed that the risk and return performance of mutual funds in Slovenia does not deviate from those in the developed markets and the selection and market timing ability of fund managers cannot be confirmed.

Keywords: *investment policy, mutual funds, risk-adjusted measures, emerging markets.*

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ОЦІНЮВАННЯ ДІЯЛЬНОСТІ МЕНЕДЖЕРІВ ІНВЕСТИЦІЙНИХ ФОНДІВ У СЛОВЕНІЇ

У статті показано, що до початку фінансової кризи у Словенії спостерігалися виключно високі темпи зростання інвестиційних фондів. Словенський індекс фондового ринку був одним з найефективніших у 2007 р. з рівнем зростання більш ніж на 70%. Проаналізовано діяльність інвестиційних фондів у Словенії і якість управління цими фондами на ринку. Акцент зроблено на фондах з інвестиціями в енергетичній галузі. Проаналізовано різні заходи з подолання ризиків, такі як коефіцієнти М2, коефіцієнт Трейнора, коефіцієнт Сортіно та інформаційний коефіцієнт із використанням показників місячної прибутковості. Вивчено здібності менеджерів щодо правильного вибору активів і своєчасності прийняття рішень методами альфи Дженсена і за моделлю Трейнора-Мазуї. Результати аналізу виявили, що ризик і прибутковість інвестиційних фондів в Словенії не відрізняються від аналогічних показників по розвинених ринках, а здібності менеджерів щодо правильного і своєчасного прийняття рішень не можуть бути підтверджені.

Ключові слова: *інвестиційна політика, інвестиційні фонди, заходи подолання ризиків, ринки, що розвиваються.*

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ОЦЕНКА ДЕЯТЕЛЬНОСТИ МЕНЕДЖЕРОВ ИНВЕСТИЦИОННЫХ ФОНДОВ В СЛОВЕНИИ

В статье показано, что до начала финансового кризиса в Словении наблюдались исключительно высокие темпы роста инвестиционных фондов. Словенский индекс фондового рынка был одним из самых эффективных в 2007 году с уровнем роста более чем на 70%. Проанализированы деятельность инвестиционных фондов в Словении и качество управления этими фондами на рынке. Акцент сделан на фондах с инвестициями в энергетической отрасли. Проанализированы различные меры преодоления рисков, такие как коэффициенты М2, коэффициент Трейнора, коэффициент Сортино и информационный коэффициент с использованием показателей месячной доходности.

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Изучены способности управляющих выбирать правильные активы и своевременность принятия решений методами альфы Дженсена и по модели Трейнора-Мазуи. Результаты анализа выявили, что риск и доходность инвестиционных фондов в Словении не отличаются от аналогичных показателей по развитым рынкам, а способности менеджеров в выборе правильных и своевременных решений не могут быть подтверждены.
Ключевые слова: *инвестиционная политика, инвестиционные фонды, меры преодоления рисков, развивающиеся рынки.*

1. Introduction

Mutual funds are often the subject of research and analysis, which all share the aim of identifying the best performing, or better performing funds than the benchmark. Investors focus a great deal of attention on the historical returns of a fund when making investment decisions. They disregard the fact that historical returns do not always assure future returns.

Investment and portfolio theory has introduced plenty of measures to compare the risk and return of a fund. The theory has emerged with the publication of an article by William Sharpe (1966) in which he first presented a measure of excess returns per unit of risk. The unit of risk was standard deviation.

In this paper we will analyse mutual fund performance in Slovenia. Most research on the mutual funds industry was performed on mutual funds in developed markets. With the rapid development of mutual fund industry in transition economies the research interest became stronger also for this area.

The enhancement of the Slovenian capital market has its roots in early 1990. Citizens received certificates through the process of privatization that allowed them to buy shares of different companies. In such a way they came into contact with capital investments. The next step in the development of a capital market was the introduction of closed investment funds and mutual funds. From that point on, the mutual fund industry made rapid progress until the beginning of the global financial crisis. In 2003 for example, The Wall Street Journal Europe ranked one of the Slovenian mutual fund (Galileo) at the top of the 15 most successful open funds.

In this paper an attempt was made to analyse mutual funds performance in Slovenia in past years to discover the quality of fund managers in the market. The research of mutual fund performance is limited to the period 2005–2009 and to the sectoral energy investment policy. We introduced different risk-adjusted return measures, such as M2, the Treynor ratio, the Sortino ratio, the Information ratio and examined the managers' selection ability with Jensens Alpha and the timing ability with the Treynor-Mazuy model.

The paper is organized as follows. In Section 2 we introduced the performance measures used in the evaluation of funds. In Section 3 we briefly explained the data. In Section 4 we calculated and discussed the performance measures of Slovenian mutual funds. Finally, the concluding remarks are given in Section 5.

2. Methodology

The Slovenian investor has focused much attention on nominal returns when investing in mutual funds in recent years. With the financial crisis, which prompted

[3] The model was first introduced by Jack L. Treynor (1961-1962), William F. Sharpe (1966), John Lintner (1965) and John Mossin (1966) independently, but based on earlier work of Harry Markowitz on diversification and modern portfolio theory.

the global stock markets to collapse, the attitude towards risk has changed. Investors are now more aware of the positive correlation of risk and return.

Modern portfolio theory uses a capital asset pricing model (CAPM[3]) to estimate the expected return of mutual funds, which is a linear function of systematic risk (β) and the selection ability (α). The fund's return is equal to the return on a risk-free asset, market premium and the selection ability of the fund manager.

$$R_{i,t} = \alpha_i + R_{f,t} + \beta_i (R_{m,t} - R_{f,t}) + \varepsilon_{i,t} \quad (1)$$

$R_{i,t}$ is return of fund i, $R_{f,t}$ risk-free return, $R_{m,t}$ market return. β_i is a measure of systematic risk and shows the market exposure of fund and $\varepsilon_{i,t}$ is stochastic and fund-specific return. A risk-free asset is by definition not exposed to the market, so the systematic risk is 0. If the fund's actual return is higher than the expected one, calculated with CAPM, the fund manager shows selection ability. In the equation 1, the constant measures are the manager's selection ability. In case $a > 0$ the manager is superior to the market in stock picking and vice versa – if $a < 0$ (Jensen, 1968).

In 1966, Treynor-Mazuy presented a modification of CAPM to assess a manager's ability to predict market fluctuations.

$$R_{i,t} = \alpha_i + R_{f,t} + \beta_i (R_{m,t} - R_{f,t}) + \gamma_i (R_{m,t} - R_{f,t})^2 + \varepsilon_{i,t} \quad (2)$$

α is a measure of selection ability and γ – of market timing. If the Treynor-Mazuy coefficient is positive, the fund manager is able to shift from high-beta stock to low-beta stock when the market falls. If the coefficient is negative, the manager is not able to properly assess the market condition and shifts from high-beta stock to low-beta stock when the market falls.

In this paper, we decided to evaluate the funds' performance with the absolute risk-adjusted return measures (M^2, Treynor ratio, Treynor-Mazuy), relative (Information ratio) and the downside risk-adjusted returns.

Modigliani and Modigliani (1997) first introduced M^2 to compare returns that have been adjusted to risk. The coefficient is a modified Sharpe ratio (1994), which shows the return per unit of risk and puts the benchmark and fund on the same risk basis.

$$M^2 = \frac{\overline{RP}_i - \overline{RF}_i}{\sigma_i \times \sqrt{P}} \times \left(\sigma_j \times \sqrt{P}\right) + \overline{RF}_i, \quad (3)$$

where: RP_i is the average return of the fund i, RF_i is the average return of a risk-free asset i, σ_i is the standard deviation of the fund i, σ_j is the standard deviation of the benchmark j, and P is the number of observations in a year.

Total risk is $\sigma^2 = \beta^2 \sigma_m^2 + \sigma_e^2$, which can be divided into systematic risk and unsystematic risk. With diversification, unsystematic risk can be reduced, but one can not avoid systematic risk when investing in the stock market.

The Treynor ratio (1966) is calculated by dividing excess returns with market or systematic risk (β). The fund lacks proper diversification if M^2 is low while the Treynor ratio is high.

$$T_p = \left(\frac{\overline{RP}_i - \overline{RF}_i}{\beta_i} - \right), \quad (4)$$

where: RP_i is the average return of fund i, RF_i is the average return of risk free asset i and β_i is the measure of market or systematic risk i.

William F. Sharpe (1966) is the author of the Information ratio, whose average value added over the benchmark divides by its standard deviation.

$$IR = \frac{\left(\frac{\sum RP_i - RM_i}{N}\right) \times \sqrt{P}}{\sigma(RP_i - RM_i) \times \sqrt{P}}, \quad (5)$$

where: RP_i is the return of fund i, RM_i is the return on benchmark i, $\sigma(RP_i - RM_i)$ is the standard deviation of value added i, N is the number of observations, and P is the number of observations in a year.

Feibel (2003) defines Sortino ratio as a measure of downside risk, where positive returns are not observed. In the denominator only returns that are smaller than the target return (T) are considered. The ratio measures excess return to downside risk taken.

$$S = \frac{\left(\overline{RP_i} - T\right) \times P}{\left(\sqrt{\frac{\sum (RP_i - T)^2; RP_i < T}{N}}\right) \times \sqrt{P}}, \quad (6)$$

where: RP_i is the return of a fund i, RP_i is the average return on the fund i, T is the target rate of return, N is the number of observations, and P is the number of observations in a year.

3. The Data

The research includes comparable mutual funds that were present in the Slovenian market at the end of 2008. The funds were selected in accordance to sectoral energy investment policy.

Funds with sectoral energy investment policy had to satisfy certain criteria: the fund had to have at least 75% of assets in shares of companies which produce, distribute oil, gas and electricity; mining coal and uranium; produce equipment for energy companies; produce and invest in R&D of renewable energy sources.

Mutual funds have at least 33 observations and they all ended at the same point in time. In the research we used log monthly returns $R_{i,t} = ln(S_{i,t}/S_{i,t-1})$, where $S_{i,t}$ is the monthly return of a fund i in month t. The risk-free asset was compounded by the 10-year German, Japanese and USA bonds and the benchmark was MSCI ENERGY in euros.

4. Results and discussion

In accordance with EFAMA (2008) Slovenia had the highest growth of mutual fund assets in 2007 with 45,9%. In that same year, the market of mutual funds reached a size of 2.97 bln. euros. The reason was that the Slovenian stock market had the high net inflows of money to mutual funds. The performance of the Slovenian stock market index was more than 70% and was one of the best performing indices in the world in 2007. A particular characteristic of the Slovenian investor was its high risk profile. The structure of mutual funds assets was dominated by equity funds. At the peak of the market in 2007, equity funds represented 66% of all mutual fund assets. The share of equity funds to total assets in the European Union was 41%. Net withdrawals and

drops in equity prices, as a result of the financial crisis, started to shift the structure of mutual funds assets in Slovenia toward the EU standards.

The mutual fund market in Slovenia shrank to 1.75 bln. euros in September 2009. However, this is still 91% higher than at the beginning of 2005. In addition to asset growth the number of investors in mutual funds jumped 200% to 393,000 euros.

To analyse the mutual fund performance in Slovenia with the energy investment policy in the period 2005–2009 we first started estimating CAPM (equation 1) with the standard method of linear regression: ordinary least square. In the Slovenian mutual fund market there were nine funds present with the energy investment policy at the end of 2008 (Table 1).

Table 1. **General figures**

Mutual Funds	N	Introduction of funds	2005	2006	2007	2008	2009*
ENERGY			%	%	%	%	%
Infond Energy	46	oct.05	-0.12	16.46	25.42	-47.80	24.52
KD-Surovine in energija	39	may.06	-	10.55	21.91	-46.98	22.48
EEF-Energy&Materials	56	jul.00	42.05	6.26	15.71	-41.81	17.12
Ilirika-Modra energija	33	nov.06	-	1.44	13.07	-45.40	18.37
MP-Energy	46	oct.05	18.47	9.72	7.93	-50.09	31.31
NLB-Naravni viri	43	jan.06	-	12.95	21.87	-43.38	25.23
PIA-Energy Stock	56	jun.01	53.04	13.41	24.31	-48.71	24.48
Raiffeisen Energie Aktien	56	feb.02	50.03	13.29	14.03	-48.58	26.36
SGAM-Global Energy	56	oct.98	12.73	-6.77	20.14	-40.19	10.35
MSCI WORLD ENERGY INDEX		dec.98	44.57	3.90	15.30	-36.61	7.96

* till the end of August 2009. Source: KD Financna tocka (2009) and Bloomberg (2009).

Table 2 shows the results for 9 funds with the energy investment policy. The average monthly log return for the benchmark in the period from January 2005 until August 2009 was 0.3%. The majority of funds had negative average monthly log returns. The Slovenian mutual funds had higher negative average returns. This is due to the fact that they were introduced to the market after January 2005. Infond Energy and MP-Energy started in October 2005, while Ilirika-Modra energija began in November 2006. Slovenian fund managers were not able to compete during the time when markets were surging. This fact has to be considered when interpreting the results.

The best performing fund was the PIA-Energy Stock, with an average monthly log return of 0.57%. In addition to the PIA-Energy Stock, two other funds outperformed the benchmark with an average return of 0.3%. Higher risk taking was profitable for only one third of the funds, which had higher average monthly log returns than the benchmark. 7 out of 9 funds had a standard deviation higher than the benchmark. EEF-Energy&Materials was able to outperform the benchmark while having a lower standard deviation and therefore being less risky. The R2 statistics range from 0.649 to 0.914, while the beta stretched from 0.867 to 1.044 – all significant at a level of 5%.

Table 3 shows the risk adjusted statistics of the M2, Treynor ratio, Sortino ratio, Information ratio and α-coefficient. Funds are sorted in accordance with M2, where a higher positive value represents a better relationship between risk and return. The average monthly log return for the majority of funds was negative – as well as M2. In this case, the fund with a lower negative value for M2 represents a better relationship

between risk and return. The PIA-Energy Stock has the best relationship between risk and return, followed by the Raiffeisen Energie Aktien. The two funds with the highest M2 value also have higher Treynor ratios. They were rewarded for taking higher risks, which is reflected in other ratios as well. The beta of both funds is higher than 1 and the standard deviation is higher than the benchmark.

Table 2. **Monthly Log Returns of Mutual funds with energy Investment Policy**

Mutual Funds	μ	σD	â	R^2	â*	γ
Infond Energy	-0.00036	0.07250	1.018 (11.648)	0.755	1.001 (9.84)	-0.365 (-0.322)
KD-Surovina in energija	-0.00348	0.06990	0.936 (9.807)	0.722	0.897 (7.773)	-0.78 (-0.625)
EEF-Energy&Materials	0.00311	0.06132	0.928 (23.964)	0.914	0.909 (21.752)	-0.587 (-1.178)
Ilirika-Modra energija	-0.00917	0.07156	0.871 (8.016)	0.675	0.841 (6.337)	-0.585 (-0.405)
MP-Energy	-0.00377	0.07202	0.937 (9.016)	0.649	0.892 (7.403)	-1.026 (-0.765)
NLB-Naravni viri	-0.00149	0.06177	0.867 (11.205)	0.754	0.86 (9.188)	-0.143 (-0.139)
PIA-Energy Stock	0.00572	0.07374	1.032 (13.891)	0.781	0.976 (12.399)	-1.743 (-1.857)
Raiffeisen Energie Aktien	0.00412	0.07221	1.044 (16.442)	0.834	1.003 (14.781)	-1.254 (-1.549)
SGAM- Global Energy	-0.00325	0.06711	0.928 (13.23)	0.764	0.842 (11.989)	-2.669 (-3.187)
MSCI WORLD ENERGY INDEX	0.00303	0.06319	1	1		

Notes: μ – average monthly log return; σD – total risk (standard deviation on fund); â –systematic risk; R^2 – statistics obtained from the equation 1; coefficients (â*,γ) are estimated with the regression equation 2; benchmark used is MSCI Energy Index; average annual return of a risk-free asset in the observed period is 3.09%; t-statistics is significant at a 5% level.

Table 3. **Risk Adjusted Statistics of Mutual Funds with Energy Investment Policy**

Mutual Funds	M2	T_h	α	S	IR
PIA-Energy Stock	0.06326	0.03656	0.003 (0.57)	0.18033	0.26953
Raiffeisen Energie Aktien	0.04711	0.01771	0.001 (0.266)	0.09083	0.12693
EEF-Energy&Materials	0.03750	0.00688	0.0001 (0.043)	0.03559	0.01409
Infond Energy	0.00017	-0.03467	0.003 (0.596)	-0.17307	0.30222
NLB-Naravni viri	-0.01905	-0.05633	0.004 (0.85)	-0.28746	0.58735
KD-Surovina in energija	-0.03475	-0.07754	0.002 (0.262)	-0.35489	0.19814
SGAM-Global Energy	-0.03496	-0.07536	-0.006 (-1.412)	-0.36084	-0.66251
MP-Energy	-0.03589	-0.08123	-0.001 (-0.102)	-0.37207	-0.02223
Ilirika-Modra energija	-0.09357	-0.16191	-0.003 (-0.39)	-0.64531	-0.13109
MSCI WORLD ENERGY INDEX	0.03640	0.00548	0	0.02998	0

Notes: T_h-Treynor ratio; α -coefficient; S-Sortino ratio; IR-Information ratio

When analysing the market timing ability of funds with the Treynor-Mazuy model (equation 2) none of 9 funds had a positive γ coefficient and none of them were significant at the 5% level. That means the managers increased their holdings of high beta stocks when the market performed poorly and vice versa. We can conclude that

fund managers lack market timing ability when making investment decisions. This is also in accordance with the findings of Cumby and Glen (1990), Hendrics et al. (1993), Jagric et al. (2004) and Jagric et al. (2007).

6 out of 9 funds had a positive coefficient α but with a low nominal value (third decimal). But none of them was statistically significant at a 5% level. These results are comparable to Ippolito (1989), who, in researching 143 funds, found that 127 funds had α 0, 12 funds were positive and 4 funds were negative.

5. Conclusions

We analysed mutual funds performance in Slovenia to discover the quality of fund managers in the market. Up until the beginning of the financial crisis, Slovenia was marked by exceptionally high growth rates in the mutual fund industry. The reasons for this were in the performance of the Slovenian stock market index, which was one of the best performing markets in 2007 with a growth of more than 70%. Additionally, the number of investors and mutual funds increased. This was all supported by a good macroeconomic picture of low budget deficits and public debt, which deteriorated during the financial crisis. Slovenia in 2009 registered a budget deficit of around 5.5% and a public debt of around 36% (SURS, 2010).

During the period of economic success, investors did not pay much attention to the risk and return analysis. With the financial crisis, investors became more aware of the fact that risk goes hand in hand with return.

The success story for the mutual fund industry in Slovenia ended with the financial crisis that caused net outflows of assets of 304 mln. euros in 2008. This represented 10% of all assets in 2007. According to EFAMA (2009), in Europe the net outflow of assets in 2008 accounted for only 4.4% of all assets. Regarding this data one should have in mind, that the structure of Slovenian household financial assets consisted of 6.3% of assets in investment funds (mutual funds and investment companies), while in Europe it was 9.1% (Banka Slovenije, 2009; ATVP, 2008). When we compared investment fund assets to national GDP, we saw that in Slovenia investment fund assets represented 5.1% of GDP, while in Europe it was 45.9% of GDP.

In the analysis of the performance of mutual funds in Slovenia from January 2005 until August 2009, we used the monthly log returns of funds. The research included mutual funds that were present on the market at the end of 2008. The focus was on funds with the energy investment policy. With the CAPM and Treynor-Mazuy models, we examined both selection and market timing ability. When analysing selection ability the majority of fund managers had a positive coefficient but none significant at the 5% level. The results of the market timing analysis states that fund managers were not able to properly predict market fluctuations. However, none of the analysed funds were statistically significant at a 5% level. In this paper, we can not confirm the selection and market timing ability of fund managers. This conclusion is in accordance with the findings of other research studies, mentioned previously.

The results show that the mutual funds in Slovenia have the same risk and return characteristics of other mutual funds in developed markets that have been active for several years. The performance of fund managers in the Slovenian mutual fund market does not lag behind the performance of fund managers in more developed countries.

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