

MUTUAL FUND MANAGEMENT PERFORMANCE IN TRANSITION COUNTRIES: DOMESTIC VS. FOREIGN MUTUAL FUND MANAGERS – RESEARCH FINDINGS FOR SLOVENIA

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Abstract

In this paper, the performance of management approaches of different equity mutual funds marketed in Slovenia are compared based on their origin; domestic versus foreign. The purpose of this study is to determine whether foreign mutual fund managers are better performing than their domestic counterparts. Referring to the period 2006-2010, this research was carried out on a sample of selected domestic and foreign equity mutual funds, which were treated separately according to the geographical orientation of their investment policies (developed markets vs. emerging markets). Management performance was analysed by means of risk-adjusted return measures, i.e. Sharpe, Treynor and Sortino ratios. In general, the research findings do not confirm foreign mutual fund managers to be outperforming the domestic operators.

Keywords: domestic mutual funds, foreign mutual funds, mutual fund management performance, transition countries

JEL Classification: G10, G11, G14

1. Introduction

The objective of this research is to determine whether the foreign managers of mutual funds marketed in Slovenia are more efficient than their Slovenian counterparts. The research is limited to equity mutual funds. With their long history of performing on highly developed capital markets, the foreign operators are believed to be more experienced and generally more successful than the less experienced domestic managers acting on a more shallow financial market. For the purpose of our analysis of the mutual fund management performances, taking both the profitability and risks into account, some common tools are used, such as the Sharpe ratio, Treynor ratio and the Sortino ratio. The research covers the period 2006 to 2010. A limited number of domestic and foreign equity mutual funds marketed in Slovenia were included in the sample: the inclusion criteria being the period of the fund's operation at a minimum of five years and geographical orientation of its investment policy. Namely, for the purpose of comparability, funds have been

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divided into those with an investment focus on developed markets and those focused on the emerging markets.

The structure of this paper is as follows. The following section provides some characteristics of the Slovenian mutual fund market. In section 3 the literature review is shortly presented. In section 4, theoretical platform and basic tools are presented that enable the establishment of mutual fund management performance. The corresponding database is shown in section 5. Section 6 reveals the results of the empirical research on the effectiveness of the management pattern of selected mutual funds within the period selected. Final conclusions are presented in section 7.

2. Some of the characteristics of the Slovenian mutual fund market

Capital market has a relatively short history in Slovenia. Its development started when the country gained independence in 1991 and continued to grow strongly until the outbreak of the global financial and economic crisis. Thus in 2007, the SBI (Slovenian Stock Exchange Index) was one of the fastest growing, recording a growth rate of more than 70%. As a result, mutual funds, investors and assets kept growing in their numbers and volume. In 2007, the mutual funds' assets had increased by more than 50% arriving at €1,460 per capita (Bank of Slovenia, 2008), while the investment funds together made it to €2,100 per capita. However, these figures were still considerably inferior to the Eurozone average of €11,000 per capita at that time. A further important difference between Slovenia and the Eurozone detected during the pre-crisis period was a different structure of mutual funds in terms of their type. In this respect, the structure of funds in Slovenia moved further away from the Eurozone, where equity funds represented half of the share seen in Slovenia. By both the Slovenian investors' (perceived) high appetite for risk and their great interest in equity funds, local fund managers were soon led to primarily create this type of fund. 10 new domestic mutual funds were created in 2007, bringing the total to 109 at the end of that year, most of which were equity funds. Local mutual funds were soon exposed to direct competition coming from the increasing presence of foreign mutual funds; according to some estimation, their volume corresponded to some 30% of the assets of the domestic mutual funds at the beginning of the crisis. In other words, no fewer than 30 foreign funds joined the local market in 2007; the total of all funds and sub-funds (domestic and foreign) had already reached 260 at the end of that year (Bank of Slovenia, 2008).

Throughout 2008, the growth momentum in the number of mutual funds persisted. For example, 17 new domestic mutual funds were founded, 15 of which were equity funds. By the end of 2008, there was a total of 127 domestic mutual funds marketed in Slovenia, of which 76% were equity funds (Bank of Slovenia, 2009). During that year and including January 2009, 34 foreign funds officially began operating in Slovenia, bringing the total to 318 funds and sub-funds officially marketed in Slovenia at the of January 2009.

The positive atmosphere on the domestic and global capital markets during the first half of 2007 brought no less than €470 million worth of new net inflows into

mutual funds. That year, the asset unit value (AUV)-weighted mutual funds' annual return reached its highest level since 2002, scoring 28% (Bank of Slovenia, 2008). However, the situation started to change at the end of 2007. In November 2007, mutual funds recorded a net outflow of €18 million, their highest monthly net outflow since 2000; in January 2008, this figure increased to €37.4 million

Thus, the success story of the mutual fund industry gradually met its end. In 2008, the financial crisis provoked net outflows from mutual funds amounting to €304 million (Bank of Slovenia, 2008), which corresponded to 10% of the total mutual fund assets of 2007 (€2.9 billion). Comparatively, the assets net outflow from funds at a European level represented only 4.4% of their total in 2008, according to EFAMA (2009). However, the small financial depth of the Slovenian economy must also be taken into account; the share of funds in Slovenian GDP is just 10% whereas in the Eurozone this percentage is twice as high. Additionally, the booming investment funds' assets did not change this despite growing at 45% and reaching €4.1 billion in 2007 (Bank of Slovenia, 2008). At the time, the latter amount represented more than one third of the volume of bank deposits by households.

The persistence of the financial crisis through the years following led to a contraction of investment funds' assets. At the same time, the Slovenian legislation underwent changes; all investment companies were obliged to transform themselves into mutual funds by August 2011. Thus, while the total investment fund assets accounted for €4.1 billion in 2007 (€2.9 billion of which were mutual funds' assets), this figure only reached €1.9 billion in March 2012; following the previously mentioned Act of Transformation, this figure at the same time represented the entire volume of mutual funds' assets (Bank of Slovenia, 2012). Notwithstanding the considerable decline in the volume of mutual funds' assets, the mutual funds continued to increase in terms of their number. 140 domestic funds were operating on the local market at the end of 2011, most of them being equity funds; between the end of 2011 and March 2012, the number of foreign mutual funds operating in Slovenia increased by 33 to reach a total of 248 (Bank of Slovenia, 2012).

One more point should be highlighted when comparing investments funds in Slovenia and the Eurozone. The share of household investment in Slovenian investment funds is above the average, at around 60% for every year since 2007. Within the Eurozone, this percentage is around half as much and shrinking; from 35% at the beginning of the crisis, it has decreased by around 7 percentage points.

Some of the aforementioned characteristics of the Slovenian mutual fund market, such as the number of funds increasing counter-proportionally to the shrinking volumes of their assets and net inflows, provide a larger choice to potential investors. At the same time, however, these reduce the transparency of the market and make it difficult for investment decisions. Further, due to the high proportion of investment by households in funds, the Slovenian mutual funds industry is much more exposed to investors' impulsive reactions to events on the financial markets. With further local phenomena including low liquidity of domestic securities, slow restructuring of companies and lack of communication with investors on one hand,

and a comparably better atmosphere in the international financial markets on the other, mutual fund investments to foreign countries are tending to increase; therefore, greater care and sense of responsibility are required from fund managers.

3. Literature review

The issue of mutual funds performance has been present in finance literature since the late 1960s. The theory first appeared with the publication of an article by William Sharpe (1966) in which he presented a measure of excess returns per unit of risk. Since then, the analysis of mutual fund performance has drawn considerable attention.

The majority of empirical studies discuss the U.S. market, where the financial market has achieved the highest level of development, while studies for emerging markets are limited in terms of number and coverage. The issue of evaluation of mutual fund performance in Central and South-eastern European countries became popular after the early 2000s. The performance analysis of investment funds operating within the mentioned region include, among others, one from the Czech Republic by Faytova (2004), who examined the performance of investment funds from the perspective of market fluctuation and information on legislative changes. The issue of efficiency of the Czech capital market was also analysed by Hayek (2007). His conclusion was that the relative efficiency of the Czech capital market still lags behind the efficiency of the developed markets. Also frequently mentioned are the findings of Jindrichovska (2009). She analysed price reactions of investment trusts related to the legal conditions existing in the Czech Republic. The efficiency of fund managers concerning Croatian and Slovenian mutual funds and Bosnian investment funds was examined by Jagric et al. (2007). The authors rejected the selection and market timing ability of fund managers. For Polish mutual funds, the same issue was examined by Swinkels and Rzezniczak (2009). The authors rejected the market timing ability of fund managers, while found some evidence for selection ability. The performance analysis for investment fund industry in Poland was also the one made by Bialkowski and Otten (2011). The overall results of the study suggest that Polish mutual funds, on average, are not able to add value. However, the authors also found out that domestic funds outperform internationally investing funds, which points at informational advantages of local over foreign investors. In addition, they found out that “winning” funds are able to significantly beat the market. Such results deviate from studies in developed markets, which have concluded that even past winners are not able to significantly beat the market.

Unlike most of the aforementioned research on the mutual fund management performance, our aim is to investigate whether the foreign mutual fund managers are better performing than their domestic counterparts.

4. Methodological frameworks

The foundation for studying the risk-return quantification was first laid by Markowitz in 1952. In the 1950's, Markowitz, who was known as »the father of modern portfolio theory«, proposed the basic portfolio model based on the mean-variance characteristics of underlying investment. This later became the base of developing asset-pricing models in financial literature. He studied the implications of diversification on risk and return characteristics of a portfolio. He showed increasing diversification lowered the portfolio's standard deviation and variance.

Studies of mutual fund performance started gaining attention from 1960 on, with the introduction of the Capital Asset Pricing Model (CAPM) by William Sharp (1964) and John Lintner (1965). The CAPM is the pillar and the groundwork of Modern Portfolio Theory, which explains the relation between expected returns and risk. The aim is to maximize the expected returns of a portfolio for a given amount of risk. It became the mainstream occupation of financial literature in the years following its introduction.

The main message of the CAPM model is that, on an efficient market, the investor should only be rewarded for bearing the systematic risk. The expected return should depend on the systematic (market) risk (β). A rational investor is only willing to go for an above-average risky investment where an above-average profitability can be expected. The investor may reduce or even eliminate unsystematic risk by diversifying investments; therefore the overall risk taking into account unsystematic risk in addition to the systematic one would not be relevant.

As such, the expected return on investment can be expressed by the following equation (Baeza-Yates et al., 2005):

$$R_i = R_f + \beta(R_m - R_f) \quad (1)$$

where: R_i - expected return on investment; R_f - return on risk-free investment; R_m - return on market portfolio; β - beta coefficient.

The return on risk-free investment can be determined by using long-term government bonds. The term $(R_m - R_f)$ refers to the market risk premium.

With time, and keeping risk and return characteristics in mind, several measures of portfolio performance in CAPM framework were developed. Prominent contributors, whose performance measures have been accepted widely by researchers and academics worldwide, are William S. Sharpe (1966), Jack L. Treynor (1966), Michael C. Jensen (1968) and Eugene F. Fama (1970).

In this paper, we decided to value the mutual funds' performance with the Sharpe ratio, Treynor ratio and Sortino ratio.

Sharpe ratio

The Sharpe ratio was first presented in 1966 and further refined in 1994. It is one of the most commonly used risk-adjusted return measures. Sharpe ratio can be

defined as a rate of reward per unit of risk. It demonstrates the efficiency of a mutual fund business; positive values reflect a positive performance, while poor business efficiency would lead to a negative value.

The ratio represents the absolute measure of performance by comparing the excess return on the asset (i.e. the return of risky investment in excess of the return on a risk-free investment) with the variability of its return within the period observed. It shows the excess return per unit of total risk, where the total risk is represented by the standard deviation of the return. The Sharpe ratio allows calculation of the risk premium achieved, i.e. the excess return per unit of risk. It is calculated as the excess return over a given period divided by the standard deviation of the return over the same period (Hodges et al., 1997). To calculate the Sharpe ratio, the following equation is used:

$$S_p = \frac{\bar{R}_p - \bar{R}_f}{\sigma_p} \quad (2)$$

where S_p stands for the Sharpe ratio; $\bar{R}_p$ is the average return on investment for the period selected; $\bar{R}_f$ represents the average return on risk-free investment for the period selected; and σ_p stands for the standard deviation of the return for the period selected.

Sortino ratio

The Sortino ratio measures the risk-adjusted return and thereby upgrades the Sharpe ratio. To calculate the ratio, the difference is first calculated between the annual rate of return on the portfolio and the minimum required rate of return, and then divided by the annual downside risk (Feibel, 2003). Positive volatility is not accounted for as a negative by the Sortino ratio. Only downside risk is considered as a risk. The downside risk occurs where individual returns fall below the minimum required rate of return.

In terms of statistics, the downside risk is defined by the negative deviation of returns. The negative deviation of return stands for a potential loss that may result from the risk, which also takes into account the minimum acceptable return as a criteria. As a term, negative deviation differs from standard deviation in two respects. Firstly, standard deviation is measured relative to the average return, while the negative deviation refers to an external reference point - the remaining acceptable rate of return. Secondly, standard deviation measures all deviations from the average return, while the negative deviation only observes deviations below the reference point (Sortino and Satcheel, 2002).

To fix the minimum required rate of return, a rate required by the investor can be used. So these rates may vary. It may be the return on risk-free investments, but the minimum required rate of return may also be equal to 0 (Elton et al., 2009). To calculate the Sortinoratio, the following equation is used (Feibel, 2003):

$$S_r = \frac{(\bar{R}_p - T) \times P}{\sqrt{\frac{\sum (R_{P_i} - T)^2}{n}}} \times \sqrt{P} \quad (3)$$

where S_r stands for the Sortino ratio; $\bar{R}_p$ is the average return on investment in the period selected; T is the minimum required rate of return; R_{P_i} is the actual rate of return in the individual period observed; n stands for the number of periods observed; and P is the number of periods observed within a year.

Treynor ratio

The calculation of this ratio also takes both the return and the risk into account. Its calculation procedure is similar to that of Sharpe's, but the Treynor ratio only observes systematic risk, not the overall risk. As with Sharpe, a negative outcome indicates poor management performance (Travers, 2004). To calculate the Treynor ratio, the following equation is used (Feibel, 2003):

$$T_r = \frac{(\bar{R}_p - \bar{R}_f)}{\beta} \quad (4)$$

where T_r stands for the Treynor ratio; $\bar{R}_p$ is the average return on investment in the period selected; $\bar{R}_f$ is the average return on risk-free investment in the period selected; and β stands for the beta coefficient.

Contrary to the standard deviation of return on investment measuring the overall risk, the beta coefficient only measures the systematic risk. Its purpose is assessing an individual investment or an investment portfolio.

Systematic risk is the risk that cannot be eliminated by diversifying assets to various financial investments; it is the consequence of those factors (mainly macroeconomic variables) that affect all the investments on a capital market.

The beta coefficient's main message is that on an efficient capital market, the investor should only be rewarded for bearing the systematic risk; the expected or required return on investment should only depend on the systematic risk. To calculate the beta coefficient, the following equation is used (Brentani, 2004):

$$\beta = \frac{COV(R_p, R_m)}{VAR(R_m)} \quad (5)$$

where β stands for the beta coefficient; $COV_{(Rp, Bm)}$ is the covariance of the return on portfolio p and return on benchmark index; and $VAR_{(Bm)}$ stands for variance of the return on benchmark index.

In the equation above, the numerator represents the covariance between the return on the fund and the return on the benchmark (referential) index over a given period, while the denominator is the variance of return on a benchmark (referential) index over the selected period.

If β equals 1, the systematic risk is equal to the risk on the benchmark index; a value below 1 signifies that the risk (volatility) on the fund is lower than the risk on the benchmark index; a value higher than 1 indicates the fund's volatility or risk being greater than the risk on the benchmark index (Yao et al., 2002).

5. The database

Mutual funds included in the research invest at least 70% of their assets in stocks. At the same time, it is assumed that no single investment region or country would represent more than 60% of any fund's investments. Based on the investment region criterion, the funds are divided into four groups, namely: »Domestic Emerging Market Funds« (i.e. domestic manager investing in emerging markets); »Foreign Emerging Market Funds« (i.e. foreign manager investing in emerging markets); »Domestic Developed Market Funds« (i.e. domestic manager investing in developed markets); and »Foreign Developed Market Funds« (i.e. foreign manager investing in developed markets). These labels for the groups of funds will be used hereafter.

The research included: 9 funds in the group of "Domestic Emerging Market Funds"; 10 funds in the group of "Foreign Emerging Market Funds"; 8 funds in the "Domestic Developed Market Funds"; and 9 funds in the "Foreign Developed Market Funds."

Calculations of the Sharpe- and Treynor-ratios as well as Sortino ratios were performed for each of the four groups of funds. The research was conducted for the period 2006-2010. Websites of the included funds' managers as well as the Bloomberg Business Information System and other available data sources and information would serve as the data source for the empirical research.

To calculate the Sharpe ratios, information was needed for the average annual return for each mutual fund throughout the period analysed. In calculating their profitability, data on monthly returns of each mutual fund were used; based on these data, the geometric mean of returns on each individual fund were calculated and then converted to an annual level to obtain the average annual return for the period under observation (on each individual mutual fund). These data were then used for the

subsequent calculations of the ratios. The average annual return on each group of funds was calculated using the arithmetic mean of returns on each mutual fund.

For the overall risk on an individual mutual fund, calculations of standard deviations of returns on individual mutual funds were used, meaning the average deviation of returns from the average annual return over the entire period. First, standard deviations for each mutual fund were calculated on a monthly basis; these were converted to an annual level to obtain standard deviations of returns for each individual mutual fund; these were used to calculate the ratios.

The Sharpe ratios were calculated based on the average annual returns and standard deviation of returns on the individual fund over the given period. For the risk-free interest rate, the average return on a 10-year German government bond for the given period was used, its rate being 3.61%.

To calculate the Sortino ratios, data on monthly returns were used, which were then converted to an annual level. Data on the average annual return on the funds were obtained by using the geometric mean. The average Sortino ratio for a group of funds was calculated with the arithmetic mean. In calculating this, only the downside risks were taken into account, since positive volatility is not considered as a risk.

Therefore, only a return falling below the minimum required return on an investment was considered unwanted. In our case, the minimum required rate of return of 0% was fixed, meaning that any positive return would exceed the minimum required rate of return. As such, any negative return within the individual period would be considered risky (in our case, data on monthly levels were used).

Treynor ratios are calculated in a similar way to Sharpe's, except only the systematic risk is used for calculations instead of overall risk. As with the Sharpe ratio, the ratio between excess returns and risk is measured by the Treynor ratio.

To calculate the Treynor ratio, the average annual return was used calculated from the geometric mean of the monthly returns on each fund. As before, the average return on a 10-year German government bond for the given period would be used as the risk-free interest rate. As the benchmark for calculating the beta coefficient (β) on »Emerging Market Funds«, the values of the MSCI EM Markets Index was used, measured in €; for the »Developed Market Funds« the values of the MSCI WORLD Index was used, also measured in €.

6. Results of the research

6.1 Sharpe ratio

Sharpe ratio on »Emerging Market Funds«

Detailed calculations of the Sharpe ratios concerning the »Domestic Emerging Market Funds« and »Foreign Emerging Market Funds« are shown in Tables 1 and 2.

Table no.1: Sharpe ratios on »Domestic Emerging Market Funds«

<i>Equity Mutual Fund</i>	<i>Sp</i>	<i>Rate of return (%)</i>	<i>σ (%)</i>
NLB Funds - South/Central/Eastern Europe - Equity	-0.19	-1.43	25.96
Alta Asia	-0.23	-1.43	22.23
Alta Asian Tigers	-0.15	0.50	20.61
Ilirika BRIC Equity	-0.09	1.61	22.97
Ilirika Eastern Europe Equity	-0.03	2.85	25.08
Infond BRIC	-0.09	1.61	22.97
KD New Markets	0.15	7.48	26.65
Krekov Most Emerging Markets	0.06	4.92	22.45
NLB Funds - Fast Growing Economies - Equity	0.21	8.08	21.25
Average	-0,04	2,69	23,35

Notes: *Sp* – Sharpe ratio; *return (in %)* – average annual rate of return; geometric mean used to calculate the average annual rate of return; *σ (in %)* – standard deviation of the fund; overall risk.

The arithmetic mean of the average annual returns on »Domestic Emerging Market Funds« over the entire period was 2.69%. Among the domestic funds, the highest average annual return was reached by the NLB Funds - Fast Growing Economies - Equity (amounting to 8.08%). Close to that rate, the KD New Markets scored 7.48%. Lesser returns were achieved by the remaining funds, with two of them negative.

Among the »Foreign Emerging Market Funds«, three funds would stand out in terms of their average annual yields, namely the Templeton Asia Growth Fund scoring 14.89% (significantly more than the highest average annual return rate performed by a domestic emerging markets fund), followed by the RCM Emerging Markets Aktien at 12.07%, and at 11.09% the RCM Eurasien Aktien managed by Raiffeisen Kapitalanlage-Gesellschaft m.b.H. The average rate of return on the »Foreign Emerging Market Funds« group amounted to 7.09%, exceeding the average annual return on »Domestic Emerging Market Funds« only scoring 2.69%.

Table no.2: Sharpe ratios on »Foreign Emerging Market Funds«

<i>Equity mutual fund</i>	<i>Sp</i>	<i>Rate of return (%)</i>	<i>σ (%)</i>
ESPA stock BRIC	0.00	3.54	24.67
EEF equity emerging markets Asia	0.11	6.25	23.90
EEF Middle East & Africa	-0.03	2.79	24.66
Templeton Asia growth fund	0.43	14.89	26.13
Templeton emerging markets fund	0.09	5.57	22.17
PI Funds - Asia (ex. Japan) equity	0.09	5.57	22.33
PI Funds - emerging markets aktien	0.10	6.07	25.52

RCM emerging markets aktien	0.34	12.07	24.99
RCM Eurasien aktien	0.27	11.09	27.65
RCM Osteuropa aktien	-0.02	3.04	31.17
Average	0.14	7.09	25.32

Notes: *Sp* – Sharpe ratio; *return (in %)* – average annual rate of return; geometric mean used to calculate the average annual rate of return; *σ (in %)* – standard deviation of the fund; overall risk.

The riskiest or most volatile »Domestic Emerging MarketsFund« turned out to be the KD Emerging Markets (standard deviation of return over the entire period at 26.65%). The lowest volatility was shown by the Alta Asian Tigers Fund (still high at 20.61%). The standard deviation of return for the entire group of the »Domestic Emerging Market Funds« amounted to 23.35%, representing a high level of volatility.

The most volatile and risky »Foreign Emerging Markets Fund« turned out to be the RCM Osteuropa Aktien (standard deviation of 31.17%). Its high level of risk or volatility, however, was not reflected in a greater profitability, since its average annual rate of return was only 3.04%. Meanwhile, other funds achieved significantly higher returns at lesser risks. High risk did pay out for both the RCM Eurasien Aktien and Templeton Asia Growth Funds, who achieved high average annual returns within the group analysed. Over the period reviewed, the least risky foreign fund was the Templeton Emerging Markets Fund (standard deviation of 22.17%). The average standard deviation of this group of funds reached 25.32% in the period examined. On average, foreign funds showed greater volatility than domestic ones; they were riskier but also, on average, twice as profitable.

Calculating the Sharpe ratios enables explanation of what risk premium the funds reached per unit of overall risk and, consequently, which funds were better managed. As seen in Table 1, the average Sharpe ratio calculated for the »Domestic Emerging Market Funds« was negative at -0.04. This negative value indicates that the group reached a lower average return rate compared with a risk-free investment. On average, these managers achieved a negative result per unit of the overall risk.

In the group of domestic funds, only three reached a positive Sharpe ratio outcome. The best managed fund proved to be the NLB Funds - Fast Growing Economies - Equity (its Sharpe ratio was 0.21). This fund also had the highest annual return rate over the period analysed. Placed second was the most risky or volatile fund, the KD New Markets.

In the group of domestic funds, the poorest managed fund was the Alta Asia (Sharpe ratio of -0.23). Within the period observed, no less than 7 »Domestic Emerging Market Funds« achieved a negative return per unit of risk, reaching on average a lesser return than a risk-free investment.

The average Sharpe ratio of the »Foreign Emerging Market Funds« was 0.14, which was higher than the »Domestic Emerging Market Funds« average Sharpe ratio. Most of the foreign funds recorded a positive ratio and just two of the funds reached an average return below the return on risk-free investment. The best managed

foreign fund was the Templeton Asia Growth Fund, with a Sharpe ratio of 0.43, meaning that its surplus return per unit of risk reached 0.43%.

The two worst managed funds were the EEF Middle East & Africa (Sharpe ratio of -0.03) and the RCM Osteuropa Aktien (Sharpe ratio of -0.02). The RCM Osteuropa Aktien fund was also the riskiest one, meaning that its higher level of risk did not help it to achieve a higher rate of return when compared with the rest of the funds.

Sharpe ratio on » Developed Market Funds «

In the same way as with the »Emerging Market Funds«, Sharpe ratios were also calculated for »Developed Market Funds«.

Table no.3: Sharpe ratios on »Domestic Developed Market Funds«

<i>Equity mutual fund</i>	<i>Sp</i>	<i>Rate of return (%)</i>	<i>σ (%)</i>
Abancna DZU Equity Europe	-0.06	2.64	15.72
Infond Europe	-0.41	-4.37	19.70
NFD Euro/America	-0.31	-2.04	18.26
NLB Funds-Dynamic-equity	-0.19	-0.06	19.17
NLB Funds - Europe equity	-0.25	-0.85	18.17
NLB Funds – World developed markets-equity	-0.35	-1.87	15.83
PSP Blue Line	0.05	4.38	15.87
Triglav Steber I	-0.06	2.72	15.00
Average	-0.20	0.07	17.22

Notes: *Sp* – Sharpe ratio; *return (in %)* – average annual rate of return; geometric mean used to calculate the average annual rate of return; *σ (in %)* – standard deviation of the fund; overall risk.

Table no.4: Sharpe ratios on »Foreign Developed Market Funds«

<i>Equity mutual fund</i>	<i>Sp</i>	<i>Rate of return (%)</i>	<i>σ (%)</i>
PI funds – Top european players	-0.38	-2.80	16.84
Franklin mutual european fund	-0.18	1.09	14.25
PI Select Europe stock	-0.24	-0.47	17.36
RCM Europa aktien	-0.22	-1.09	21.22
RCM Global aktien	-0.44	-3.55	16.43
RCM Topdividend aktien	-0.29	-1.55	17.66
SGAMM Equities eu. opportunities	-0.35	-3.45	20.18
VB Dividend invest	-0.45	-4.89	18.84
EEF Equity Europe	-0.31	-1.82	17.26
Average	-0.32	-2.06	17.78

Notes: *Sp* – Sharpe ratio; *return (in %)* – average annual rate of return; geometric mean used to calculate the average annual rate of return; *σ (in %)* – standard deviation of the fund; overall risk.

A positive average annual rate of return was only achieved by three of the »Domestic Developed Market Funds« (Table 3), namely the PSP Blue Line scoring 4.38%, Triglav Steber I at 2.72% and the Abancna DZU Equity Europe at 2.64%. The average annual return on the entire group of domestic funds amounted to 0.07%.

As shown in Table 4, just one foreign fund, namely the Franklin Mutual European Fund, reached a positive average annual return of 1.09%. The lowest average annual return was achieved by the VB Dividend Invest scoring -4.89%. The average annual return on the entire group of foreign funds amounted to -2.06%, a value that was outperformed by the »Domestic Developed Market Funds« group.

The riskiest or most volatile of the domestic funds turned out to be the Infond Europe (standard deviation of 19.7%). Its higher risk generated no higher return, since this fund was also the least profitable of all within the group analysed.

Funds that outperformed in terms of return were also the least risky or volatile ones. The lowest volatility was seen in the Triglav Steber I Fund (standard deviation of 15%) and the Abancna DZU Equity Europe (15.72%). The average standard deviation within the group analysed amounted to 17.22%.

On average, the group of foreign funds proved more volatile or risky when compared with the domestic one. The differences, however, proved to be less important than in the case of emerging market funds. As before, the higher risk did not lead to higher returns. Domestic funds proved to be slightly less risky, but more profitable. The average standard deviation of the foreign group was 17.78%. The most risky fund turned out to be the RCM Europa Aktien (standard deviation of 21.22%), the least volatile and at the same time the most profitable was the Franklin Mutual European Fund (standard deviation of 14.25%).

The average Sharpe ratio of the »Domestic Developed Market Funds« fell negative at -0.20, so this group had lower average annual returns than a risk-free investment. All but one fund recorded a negative Sharpe ratio; the lowest one owned by the riskiest of them all, the Infond Europe, its higher risk not leading to a higher return. The best managed fund proved to be the PSP Blue Line, scoring 0.05% in surplus return per unit of risk.

The average Sharpe ratio of the »Foreign Developed Market Funds« also proved to be negative at -0.32. In the average, the managers of the group of funds analysed performed loss per unit of risk. Without exception, all funds within this group achieved negative values of the Sharpe ratio.

The poorest managed funds of this group were the VB Dividend Invest (Sharpe ratio of -0.45), while the best managed fund was the Franklin Mutual European Fund scoring -0.18. The latter were the only fund of this group to record a positive average annual rate of return and the lowest level of risk at the same time.

6.2 Sortino ratio

Sortino ratio on »Emerging Market Funds«

Tables 5 and 6 show the calculated Sortino ratios for “Emerging Market Funds”.

Table no.5: Sortino ratios on »Domestic Emerging Market Funds«

<i>Equity mutual fund</i>	S_r	<i>Rate of return (%)</i>	σ_n (%)
NLB Funds - South/Central/Eastern Europe -Equity	-0.07	-1.43	19.56
Alta Asia	-0.09	-1.43	16.64
Alta Asian Tigers	0.03	0.50	16.48
Ilirika BRIC - Equity	0.09	1.61	18.24
Ilirika Eastern Europe - Equity	0.16	2.85	18.22
Infond BRIC	0.08	1.61	19.02
KD New Markets	0.39	7.48	19.35
Krekov Most Emerging Markets	0.29	4.92	16.98
NLB Funds - Fast Growing Economies - Equity	0.53	8.08	15.13
Average	0.16	2.69	17.74

Notes: S_r –Sortino ratio; *return (in %)* – average annual rate of return; average annual rate of return calculated by using the geometric mean; σ_n (%) – negative deviation of the fund’s return.

The average value of the Sortino ratio on the »Domestic Emerging Market Funds« group (Table 5) was positive at 0.16. The highest Sortino ratio was scored by the NLB Funds - Fast Growing Economies - Equity (at the lowest rate of risk or volatility and featuring the highest average annual return). Two of these funds had negative Sortino ratio; their average annual return fell below the minimum required return fixed at 0%. The worst managed fund was the Alta Asia (Sortino ratio at -0.09).

Sortino ratios on »Foreign Emerging Market Funds« (Table 6) were each positive (their average value was 0.39). All funds also achieved returns superior to the minimum required rate of return. The highest Sortino ratio was achieved by the Templeton Asia Growth Fund, its value being far above the average. This is explained by its highest annual return of all the funds analysed. The lowest Sortino ratio was achieved by the RCM Osteuropa Aktien at 0.14. The reason for this could be the poor average annual return and the highest negative deviation of return.

Table no.6: Sortino ratio on »Foreign Emerging Market Funds«

<i>Equity mutual fund</i>	S_r	<i>Rate of return (%)</i>	σ_n (%)
ESPA stock BRIC	0.19	3.54	18.72
EEF equity emerging markets Asia	0.39	6.25	16.19
EEF middle east & africa	0.15	2.79	18.28
Templeton Asia growth fund	0.80	14.89	18.52
Templeton emerging markets fund	0.34	5.57	16.20
PI Funds - Asia (ex. Japan) equity	0.34	5.57	16.49
PI Funds - emerging markets aktien	0.31	6.07	19.45
RCM emerging markets aktien	0.71	12.07	16.89
RCM Eurasien aktien	0.57	11.09	19.45
RCM Osteuropa aktien	0.14	3.04	22.49
Average	0.39	7.09	18.27

Notes: S_r –Sortino ratio; *return (in %)* – average annual rate of return; average annual rate of return calculated by using the geometric mean; σ_n (%) – negative deviation of the fund's return.

Sortino ratio on »Developed Market Funds«

Tables 7 and 8 show the Sortino ratio calculations for »Developed Market Funds«.

Table no.7: Sortino ratio for »Domestic Developed Market Funds«

<i>Equity mutual fund</i>	S_r	<i>Rate of return (%)</i>	σ_n (%)
Abanca DZU Equity Evrope	0,23	2,64	11,45
Infond Europe	-0,27	-4,37	16,07
NFD Euro/America	-0,14	-2,04	14,56
NLB Funds–dynamic-equity	0,00	-0,06	14,31
NLB Funds – Europe-equity	-0,06	-0,85	13,31
NLB Funds – World developed markets-euity	-0,16	-1,87	11,84
PSP Blue Line	0,39	4,38	11,18
Triglav Steber I	0,25	2,72	10,92
Average	0.03	0.07	12.96

Notes: S_r –Sortino ratio; *return (in %)* – average annual rate of return; average annual rate of return calculated by using the geometric mean; σ_n (%) – negative deviation of the fund's return.

The average Sortino ratio of the »Domestic Developed Market Funds« (Table 7) group was positive at 0.03. PSP Blue Line scored highest in terms of the Sortino ratio (at the same time achieving the highest average annual return within this group of funds). The ratio owned by the best managed fund was 0.39. The worst-managed

fund in terms of the Sortino ratio was Infond Europe scoring -0.27. The main reason for this lies in its lowest average annual return and highest negative deviation in the group »Domestic Developed Market Funds«.

All but one of the Sortino ratio scores for »Foreign Developed Market Funds« were negative (Table 8). The best managed fund in terms of the Sortino ratio was the Franklin Mutual European Fund (scoring 0.10). This fund was the only to reach an average annual return above 0%, thereby exceeding the minimum required return. The average value of the Sortino ratio achieved by the foreign funds was -0.14, meaning that the funds' returns on average fell below the minimum required rate of return. The lowest value was seen in the VB Dividend Invest scoring -0.33.

Table no.8: Sortino ratio for »Foreign Developed Market Funds«

<i>delniški vzajemni sklad</i>	S_r	<i>donosnost</i> (v %)	σ_n (v %)
PI funds - Top european players	-0,23	-2,80	12,40
Franklin mutual european fund	0,10	1,09	10,85
PI Select Europe stock	-0,04	-0,47	13,04
RCM Europa aktien	-0,07	-1,09	15,74
RCM Global aktien	-0,27	-3,55	13,03
RCM Topdividend aktien	-0,12	-1,55	13,17
SGAMM Equities eu. opportunities	-0,21	-3,45	16,36
VB Dividend invest	-0,33	-4,89	15,01
EEF Equity Europe	-0,14	-1,82	12,96
Average	-0,14	-2,06	13,62

Notes: S_r – Sortino ratio; *return (in %)* – average annual rate of return; average annual rate of return calculated by using the geometric mean; σ_n (%) – negative deviation of the fund's return.

6.3 Treynor ratio

Treynor ratio on »Emerging Market Funds«

Tables 9 and 10 show the Treynor ratios and the items required for calculating this coefficient.

Table no.9: Treynor ratios on »Domestic Emerging Market Funds«

<i>Equity Mutual Fund</i>	T_r	<i>Rate of reurn</i> (%)	β
NLB Funds - South/Central/Eastern Europe -Equity	-5,54	-1,43	0,91
Alta Asia	-5,86	-1,43	0,86
Alta Asian Tigers	-4,10	0,50	0,76
Ilirika BRIC - Equity	-2,20	1,61	0,91
Ilirika Eastern Europe - Equity	-0,95	2,85	0,80

Infond BRIC	-1,85	1,61	1,08
KD Emerging Markets	3,58	7,48	1,08
Krekov Most Emerging Markets	1,43	4,92	0,92
NLB Funds - Fast Growing Economies - Equity	5,08	8,08	0,88
Average	-1,16	2,69	0,91

Notes: T_r – Treynor ratio; **return (in %)** – average annual rate of return; average annual rate of return calculated by using the geometric mean; β – beta of the fund; systematic risk.

With the β calculated for an individual fund, volatility of the fund is displayed compared with the referential MSCI EM Market Index. »Domestic Emerging Market Funds« (Table 9) proved to be less volatile or risky on average than the referential index. The average β value over the entire period was 0.91. Just two of the funds were more volatile than the referential index; the Infond BRIC and KD Emerging Markets (β equal to 1.08). The lowest level of risk was seen in the Alta Asian Tigers.

The average value of the Treynor ratio within the »Domestic Emerging Market Funds« group was negative at -1.16%. The highest Treynor ratio value was achieved by the NLB Funds – Fast Growing Economies - Equity at 5.08 %. Positive values were achieved by two more funds within this group, namely the KD Emerging Markets at 3.58 % and the Krekov Most Emerging Markets at 1.43 %.

In terms of the Treynor ratio, the poorest managed funds proved to be the Alta Asia at -5.86 %, followed by the NLB Funds South/Central/Eastern Europe - Equity at -5.54 %.

While the »Domestic Emerging Market Funds« proved less risky on average than the referential index, the »Foreign Emerging Market Funds« (Table 10) recorded greater volatility than the referential MSCI WORLD Index. Their average β value was 1.03. The highest β value was achieved by the RCM Osteuropa Aktien, but its high risk did not reflect a high rate of return. The lowest β values were achieved by the PI Funds-Asia (ex. Japan) Equity and the Templeton Emerging Market Fund. Both funds recorded a return that fell below the average of the group.

Table no.10: Treynor ratio on »Foreign Emerging Market Funds«

<i>Equity mutual fund</i>	T_r	<i>Rate of return (%)</i>	β
ESPA stock BRIC	-0.08	3.54	0.96
EEF equity emerging markets Asia	2.75	6.25	0.96
EEF Middle east & Africa	-0.82	2.79	1.01
Templeton Asia growth fund	10.44	14.89	1.08
Templeton emerging markets fund	2.06	5.57	0.95
PI Funds - Asia (ex. Japan) equity	2.28	5.57	0.86
PI Funds - emerging markets aktien	2.24	6.07	1.10
RCM emerging markets aktien	8.21	12.07	1.03
RCM Eurasien aktien	6.62	11.09	1.13

RCM Osteuropa aktien	-0.48	3.04	1.19
Average	3.32	7.09	1.03

Notes: T_r – Treynor ratio; **return (in %)** – average annual rate of return; average annual rate of return calculated by using the geometric mean; β – beta of the fund; systematic risk.

Values of the Treynor ratio on »Foreign Emerging Market Funds« were considerably higher compared with the »Domestic Emerging Market Funds«. The average Treynor ratio value for the foreign funds was 3.32%. The best managed funds were the Templeton Asia Growth Fund and the RCM Emerging Markets Aktien. Both stood out for the performance of their average annual returns; however, with their β values above 1, they proved to be riskier than the referential index. For the EEF Middle East & Africa, its risk level, far above the referential index, did not lead to a positive Treynor ratio (scoring -0.82 %).

Treynor ratio on »Developed Market Funds«

As for the »Emerging Market Funds«, the »Developed Market Funds« show a higher volatility for the foreign funds than domestic ones. For both markets, foreign funds were more volatile than domestic funds compared to the referential index.

Table no.11: Treynor ratio on »Domestic Developed Market Funds«

<i>Equity mutual fund</i>	T_r	<i>Rate of return (%)</i>	β
Abancna DZU Equity Europe	-1.37	2.64	0.71
Infond Europe	-7.75	-4.37	1.03
NFD Euro/America	-5.14	-2.04	1.10
NLB Funds-dynamic-equity	-3.19	-0.06	1.15
NLB Funds-Europe-equity	-4.33	-0.85	1.03
NLB Funds – World developed markets-equity	-5.60	-1.87	0.98
PSP Blue Line	1.14	4.38	0.68
Triglav Steber I	-1.22	2.72	0.73
Average	-3.43	0.07	0.93

Notes: T_r – Treynor ratio; **return (in %)** – average annual rate of return; average annual rate of return calculated by using the geometric mean; β – beta of the fund; systematic risk.

The average β value for »Domestic Developed Market Funds« of 0.93 confirms these funds as less volatile or risky on average than the referential index (Table 11). The average score in the Treynor ratio on the domestic funds group was -3.43%. Just one fund (the PSP Blue Line) achieved a positive value of the ratio and thus proved to be the best managed fund, while at the same time recording the lowest β score. The worst managed fund was the Infond Europe scoring -7.75 %.

For the »Foreign Developed Market Funds« group (Table 12), the average β value was 1.05, making the funds of this group more volatile or risky than the referential index. The highest β value was recorded by the RCM Europa Aktien (1.25), the lowest one by the Franklin Mutual European Fund (0.85).

Table no.12: Treynor ratio on »Foreign Developed Market Funds«

<i>Equity mutual fund</i>	<i>T_r</i>	<i>Rate of return (%)</i>	<i>β</i>
PI funds - Top european players	-6.29	-2.80	1.02
Franklin mutual european fund	-2.97	1.09	0.85
PI Select Europe stock	-3.96	-0.47	1.03
RCM Europa aktien	-3.76	-1.09	1.25
RCM Global aktien	-7.16	-3.55	1.00
RCM Topdividend aktien	-5.01	-1.55	1.03
SGAMM Equities eu. opportunities	-6.09	-3.45	1.16
VB Dividend invest	-7.95	-4.89	1.07
EEF Equity Europe	-5.17	-1.82	1.05
Average	-5.37	-2.06	1.05

Notes: T_r – Treynor ratio; *return (in %)* – average annual rate of return; average annual rate of return calculated by using the geometric mean; β – beta of the fund; systematic risk.

The average value of the Treynor ratio on »Foreign Developed Market Funds« was -5.37%. With no exception, all of the funds scored negative ratio values. The best managed among them was the Franklin Mutual European Fund scoring the lowest β value (the only one recording a lower volatility than the referential index), while the poorest managed fund was VB Dividend Invest (ratio value of -7.95).

7. Conclusions

Before the outbreak of the global financial crisis, the mutual fund industry was booming in most countries, both developed and transitional. Slovenia was not lagging behind, evidenced by the fact that Slovenian mutual funds assets recorded an increase of more than 50% in 2007. In parallel with the huge growth in assets, the number of new mutual funds on the market also increased, most of them being equity funds. In this context, foreign mutual funds represented a growing, direct competition to Slovenia's domestic mutual funds, not only in their number but also in terms of their asset volume. In 2007, they accounted for 30% of assets of domestic mutual funds (Bank of Slovenia, 2008). In the course of the following years, the financial crisis led to a substantial net outflow of assets from the funds, but this did not significantly affect growth dynamics in the number of funds and sub-funds. Although the increasing number of funds might have provided a greater choice to potential investors, at the same time it reduced transparency and made investment

decisions difficult. The objective of this research, conducted on selected domestic and foreign equity mutual funds marketed in Slovenia, was to analyse the management efficiency of one against the other, as a belief is often present, that foreign mutual funds managers trading in emerging markets were outperforming their domestic counterparts thanks to their longer history of operation and, consequently, more experience.

The findings of this research on a sample of selected domestic and foreign equity mutual funds for the five-year period (2006-2010) do not confirm the management of foreign equity mutual funds marketed in Slovenia to be more efficient than the management of domestic funds. Since the management performance of selected domestic and foreign funds were analysed separately by groups of funds according to their investment policy (funds investing in developed markets and funds investing in emerging markets), the research findings indicate that the management of foreign funds are only more effective in the case of »Emerging Market Funds«, but not in »Developed Market Funds«. Based on the calculations of all three indicators used for evaluating the management performance, the »Foreign Emerging Market Funds« group on average reached better results over the observed period. In terms of the Treynor ratio, the »Foreign Emerging Market Funds« turned out to be significantly better managed than the »Domestic Emerging Market Funds«. While the former scored a positive Treynor ratio of 3.32% per unit of systematic risk, the latter remained negative, their Treynor ratio showing -1.16 %.

In the case of the »Developed Market Funds«, the research outcomes proved that local managers were outperforming their foreign counterparts, based on the calculations of all three indicators used for evaluating management performance. On the one hand, this result might be somewhat surprising. One of the reasons could be in the investment policy followed by some of the »Domestic Developed Market Funds«; the structure of their investments featured a higher proportion of Slovenian companies' stocks; on average, these rates grew faster than foreign stocks or stocks in developed markets during the period prior to the financial crisis. This might have affected, in a positive way, the operating results of those domestic funds, which would largely invest in the stocks of Slovenian companies.

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20. Websites of mutual funds included in the research.