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ANALYSIS OF THE PERFORMANCE OF INVESTMENT FUNDS IN SERBIA DURING TIMES OF UNCERTAINTY

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ABSTRACT

The level of development achieved in the financial market is a fundamental indicator of the overall development of the national economy. Investment funds represent another alternative for small investors to place their funds and thereby attempt to preserve the value of their assets. However, the question remains whether this investment strategy is effective in an underdeveloped capital market. The aim of this paper is to analyze the performance of investment funds in Serbia during a period of significant global uncertainty and instability, characterized by high inflation rates and geopolitical tensions. The research focuses on the operations of investment funds in Serbia from the beginning of 2017 to the end of 2022. The findings indicate a negative trend in the performance of investment funds, highlighting the challenges in fully utilizing their potential in Serbia, a transitioning economy, unlike their role in more developed countries.

KEYWORDS

investment funds, Sharpe ratio, inflation

INTRODUCTION

An investment fund is a collective investment organization that gathers and invests monetary resources into various types of assets with the goal of generating income and minimizing investment risk. A fund management company is a business enterprise that establishes, organizes, and manages investment funds. (Republic of Serbia Securities Commission, 2023). An investment fund is a financial institution that collects funds from smaller investors to whom it issues shares or issues certificates of the fund's financial assets (Šoškić, Živković, 2006).

Efficient investment of fund assets is entrusted to a professional manager or expert team representing the portfolio management company. Leveraging the knowledge of their managers and the scale of their resources, they have greater capabilities than individuals—from high-quality and professional market analysis to risk diversification through investment in various securities. Revenues from securities are distributed in proportion to their participation, reduced by the value of the portfolio manager's service fees. Investment funds are managed by an Investment Fund Management Company. This company is structured as a closed joint-stock company and can oversee multiple investment funds with different

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investment policies and returns. The Investment Fund Management Company manages the fund, implements the investment policy, makes investment decisions, maintains records of fund members and the value of their holdings, and performs specific administrative, accounting, and marketing tasks on behalf of the fund (Brcanski, 2011).

Investment funds in developed economies have solidified their position in the financial market, generating considerable interest among small savers. Their rapid expansion in the 21st century has firmly established them as essential institutions within a broad range of financial entities. The global growth of investment funds correlates closely with the rise of the middle class. These funds have enabled middle-class participation in securities markets through small investments and regular savings, opportunities previously accessible primarily to investors with significant capital.

In Serbia, investment funds entered the scene relatively late. Legalization and operationalization of investment funds occurred only recently, lagging behind other transition economies that implemented these measures much earlier. Investment funds were formally established in Serbia in 2007. Prompted by a significant surge in the stock market during that period, numerous equity funds were swiftly launched, achieving notable returns until the market crisis ensued, causing a significant decline (Đekić et al., 2017).

Leading up to the global economic crisis in 2008, investment funds had been performing well. However, during the crisis itself, there was a marked decrease in demand and securities prices, resulting in a devaluation of investment units and subsequent years of negative outcomes. Prior to the crisis, investment funds had concentrated on high-risk investments with substantial returns, but by 2008, they had shifted their investment strategies towards more conservative portfolios (Pavlović, Muminović, 2010).

The contemporary development of the investment funds sector plays a vital role in ensuring the effective functioning of financial markets and expanding options for investors to diversify their capital allocation. For example, as of Q4 2021, investment funds held 22.5 trillion euros in net assets in the United States, 15.2 trillion euros across Europe, including 2.7 trillion euros in Ireland, 2.2 trillion euros in Germany, and 1.8 trillion euros in France (Kravchuk, 2022).

As of December 31, 2022, the total net asset value of all open-end investment funds in Serbia amounted to 62.6 billion dinars or approximately 534 million euros, which is a decrease of about 19% compared to December 31, 2021 (Republic of Serbia Securities Commission, 2023).

The subject of this research is the performance of investment funds in Serbia from 2017 to 2022. The aim is to determine whether investing retail savings in investment funds in Serbia is a sound investment decision or carries excessive risk with insufficient returns. For the purposes of this study, the following hypotheses have been formulated:

- H1: Open-end investment funds in Serbia have achieved a positive return during the period of 2017-2022 and represent a good investment alternative.
- H2: Investing in investment funds in Serbia from 2017 to 2022 has preserved the real value of money and mitigated the negative effects of inflation.

The rest of the article is structured in the following manner: the second section provides a brief overview of the literature concerning investment funds and their characteristics. The third section defines the research sample and methodology. Moving forward, the fourth section presents the findings and discussion, while the fifth section concludes the paper and offers directions for further research.



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LITERATURE REVIEW

In most developed market economies, investment funds have emerged as significant players in the securities market. While there are open-end, closed-end, and private investment funds, open-end funds are the most prevalent worldwide. Based on their investment objectives, risk tolerance, and desired returns, open-end investment funds can be divided into several categories: asset preservation funds, which invest in short-term debt securities and cash deposits; income funds, which allocate at least 75% of their assets to debt securities; balanced funds, which invest at least 85% of their assets in both equity and debt securities; and growth funds, which invest at least 75% of their assets in equity securities (Republic of Serbia Securities Commission).

The emergence of investment funds has enriched the structure of the financial sector, increased competition, deepened the capital market, and facilitated a transition to modern practices. Their rapid growth has driven explosive expansion, particularly in the securities market. Their establishment primarily aims to address the shortcomings associated with individual investing (Brcanski, 2011).

Since investment funds have provided an alternative for small investors, analyzing their performance is of crucial importance. Brueggeman et al. (1984) found that real estate investment funds exhibit positive investment performance, offer inflation-hedging properties, and provide diversification benefits compared to other types of investments. Conversely, Bollen and Busse (2005) determined that the exceptional performance of mutual funds is temporary and fades when assessed over extended timeframes.

Phalippou (2006) concludes that, after adjusting for sample bias and inflated accounting values, private equity funds significantly underperform relative to the S&P 500. Liang (2006) asserted that hedge funds boast higher Sharpe ratios and superior management skills relative to mutual funds, with their average returns being tied to factors such as incentives, assets, and lockup periods.

Kozak & Ochnio (2016) analyzed monthly data from 26 investment funds operating continuously in Poland from 2005 to 2014 and concluded that the financial crisis significantly reduced the efficiency of these funds from 2008 onwards. Returns achieved in the years following the crisis were substantially lower compared to the pre-crisis period. The negative impact of the crisis on fund performance was further confirmed by the decline in the Sharpe index values. The level of risk indicates that funds took on additional risk to increase returns in favorable economic conditions, but this strategy also weakened their performance during recession periods.

In their study on U.S. small-size value mutual funds, Korenak & Stakić (2022) discovered that factors such as the market premium and a portfolio emphasis on stocks from companies with robust operating profits, small market capitalization, and an aggressive investment approach were key drivers of positive investment performance.

Kaufmann (2023) analyzed the impact of US monetary policy and the influence of loose monetary policy on fund inflows. He concluded and empirically proved that easing US monetary policy leads to spillover effects of liquidity into the Euro Area (EA) during the period from 2007 to 2019. The results have shown that loosening US monetary policy leads to inflows into the investment fund sector globally.

Korenak et al. (2023) analyzed the performance of ETFs in the U.S. market and found that the bear market starting in early 2022 had a uniformly negative effect on the observed ETFs, largely because of their long-only exposures. This period also indicated a shift in the relative performance between value and growth styles, with conservative investment approaches outperforming, highlighting the need to adapt to evolving market dynamics.



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In capital market practice, investment funds offer several advantages: professional management by experienced experts who handle portfolios more effectively than individual investors could; diversification within the fund's portfolio, reducing risk by investing in securities from various issuers; and flexibility in (re)investment, often without minimum initial investment requirements, allowing investors to buy additional shares later even with smaller amounts of capital (Šoškić, 2006).

Apart from their advantages, it's important to consider the drawbacks of open-end investment funds to get a comprehensive picture. These include limitations on the types of assets they can hold, trading costs, tax implications for investors, regulatory challenges, and fund expenses (Haslem, 2009).

DATA AND METHODOLOGY

For the research on the performance of open-end investment funds in Serbia, data on the achieved results of investment funds from 2017 to 2022 were used. The data were sourced from reports by the Republic of Serbia Securities Commission (2018, 2019, 2020, 2021, 2022, 2023). The Sharpe ratio was utilized for the econometric analysis of the data. Many authors also used Sharpe ratio for analyzing the performance of investment funds (Bogołębska, 2018, Filip, Karaś, 2018, Homa, Mościbrodzka, 2020).

The Sharpe ratio is a fundamental and extensively used measure for evaluating portfolio performance, which adjusts returns to account for risk. The Sharpe ratio is among several metrics designed to quantify the balance between return and risk (Switkay, 2022). The Sharpe ratio is widely appreciated because it integrates two key statistics that are highly relevant to investors: the mean (average return) and the variance (square of the standard deviation), combining them into a single metric (O'Connor, 2022). It measures the difference between a portfolio's average return and the risk-free rate, relative to the portfolio's volatility. This metric quantifies the excess return per unit of total risk taken. Essentially, the Sharpe Ratio assesses the net performance of a portfolio considering the level of risk assumed. A portfolio deemed "risk-free" would have a Sharpe Ratio of zero. Typically, a higher Sharpe Ratio indicates a more favorable risk-adjusted return (Brinza et al., 2023).

The ex post Sharpe ratio is calculated using the formula introduced by Sharpe (1994):

$$S_h = \frac{\overline{(r_i - r_f)}}{\sigma(r_i - r_f)} \quad (1)$$

In equation (1): S_h - represents the Sharpe ratio; r_i - represents the return rate of an open-end investment fund; r_f - represents the risk-free rate; $\overline{(r_i - r_f)}$ - represents the average excess return above the risk-free rate and $\sigma(r_i - r_f)$ - represents the standard deviation of the excess return above the risk-free rate.

There is not a universally optimal value for the Sharpe ratio, unlike some other financial ratios commonly used in financial analysis. Ideally, the ratio's denominator should be low, indicating low risk for the investment fund, while the numerator should be high. A negative numerator indicates that the fund has yielded a lower average return than the risk-free asset, suggesting the investment was suboptimal. In such cases, investing in risk-free securities could have potentially yielded a better return. A negative overall ratio indicates that the fund's risk-reward performance has been worse compared to the risk-free rate. One drawback of the Sharpe ratio is its inability to distinguish whether a high value is a result of prudent investment decisions or mere luck.

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DISCUSSION OF RESULTS

The performance analysis of investment funds was conducted using the Sharpe ratio based on data for all open-end investment funds that operated continuously from 2017 until the end of 2022. The analysis was performed for 3 growth funds (Ilirika Dynamic, WVP Dynamic, WVP Premium), 6 capital preservation funds (Ilirika Cash Dinar, KomBank devizni fond, KomBank novčani fond, Raiffeisen Cash, Raiffeisen Euro Cash, WVP Cash), and 4 balanced funds (Ilirika Balanced, KomBank IN Fund, Raiffeisen World, WVP Balanced). The risk-free rate used was the 10-year US Treasury bond note rate. The obtained results are presented in Table 1.

Table 1. Performance of Investment Funds - Sharpe ratio

	Realized yield of the fund (r)						Risk free rate (r _f)						(r-r _f)						avg (r-r _f)	σ(r-r _f)	Sh
	2017	2018	2019	2020	2021	2022	2017	2018	2019	2020	2021	2022	2017	2018	2019	2020	2021	2022			
Growth Funds																					
Ilirika Dynamic	-0.0050	-0.0940	0.2140	-0.0610	0.1760	-0.1442	0.0233	0.0291	0.0214	0.0039	0.0145	0.0295	-0.0283	-0.1231	0.1926	-0.0699	0.1615	-0.1737	-0.0068	0.1378	-0.0493
WVP Dynamic	-0.0230	-0.1490	0.2520	0.0160	0.1530	-0.2679	0.0233	0.0291	0.0214	0.0039	0.0145	0.0295	-0.0463	-0.1781	0.2306	0.0071	0.1385	-0.2974	-0.0243	0.1785	-0.1359
WVP Premium	-0.0070	-0.0930	0.2310	-0.0490	0.2090	-0.0578	0.0233	0.0291	0.0214	0.0039	0.0145	0.0295	-0.0303	-0.1221	0.2096	-0.0579	0.1945	-0.0873	0.0178	0.1333	0.1331
Capital Preservation Funds																					
Ilirika Cash Dinar	0.0170	0.0280	0.0190	0.0070	0.0010	0.0079	0.0233	0.0291	0.0214	0.0039	0.0145	0.0295	-0.0063	-0.0011	-0.0024	-0.0019	-0.0135	-0.0216	-0.0078	0.0075	-1.0454
KomBank devizni fond	-0.0050	0.0030	0.0080	0.0390	0.0150	0.0060	0.0233	0.0291	0.0214	0.0039	0.0145	0.0295	-0.0283	-0.0261	-0.0134	0.0301	0.0005	-0.0235	-0.0101	0.0204	-0.4950
Kombank novčani fond	0.0100	0.0340	0.0250	0.0150	0.0130	0.0267	0.0233	0.0291	0.0214	0.0039	0.0145	0.0295	-0.0133	0.0049	0.0036	0.0061	-0.0015	-0.0028	-0.0005	0.0066	-0.0760
Raiffeisen Cash	0.0090	0.0280	0.0300	0.0130	0.0080	0.0150	0.0233	0.0291	0.0214	0.0039	0.0145	0.0295	-0.0143	-0.0011	0.0036	0.0041	-0.0065	-0.0145	-0.0040	0.0087	-0.4534
Raiffeisen Euro Cash	-0.0060	0.0040	0.0010	0.0060	0.0030	0.0075	0.0233	0.0291	0.0214	0.0039	0.0145	0.0295	-0.0293	-0.0251	-0.0204	-0.0029	-0.0115	-0.0220	-0.0135	0.0088	-2.0976
WVP Cash	0.0010	0.0210	0.0220	0.0130	0.0120	0.0188	0.0233	0.0291	0.0214	0.0039	0.0145	0.0295	-0.0223	-0.0081	0.0006	0.0041	-0.0025	-0.0107	-0.0065	0.0086	-0.7493
Balanced Funds																					
Ilirika Balanced	0.0030	-0.0790	0.1130	-0.0020	0.1320	-0.1136	0.0233	0.0291	0.0214	0.0039	0.0145	0.0295	-0.0203	-0.1081	0.0916	-0.0109	0.1175	-0.1431	-0.0122	0.0949	-0.1288
KomBank IN Fond	-0.0040	0.0040	0.0630	-0.0420	0.0500	0.0138	0.0233	0.0291	0.0214	0.0039	0.0145	0.0295	-0.0273	-0.0251	0.0416	-0.0509	0.0355	-0.0157	-0.0070	0.0339	-0.2058
Raiffeisen World	-0.0050	-0.0710	0.1210	-0.0130	0.0960	0.1207	0.0233	0.0291	0.0214	0.0039	0.0145	0.0295	-0.0283	-0.1001	0.0996	-0.0219	0.0815	0.0912	0.0203	0.0749	0.2713
WVP Balanced	-0.0200	-0.0610	0.1280	0.0140	0.1110	-0.1182	0.0233	0.0291	0.0214	0.0039	0.0145	0.0295	-0.0523	-0.0901	0.1066	0.0051	0.0965	-0.1477	-0.0137	0.0933	-0.1463

Source: Authors

As previously mentioned, negative Sharpe ratios indicate that the fund's achieved results are below optimal, meaning the returns are lower than those that would be achieved by investing in a risk-free asset (although there is no truly risk-free asset, it is generally accepted that investing in 10-year T-bonds is relatively safe). As we can see from Table 1, only two funds (WVP Premium and Raiffeisen World) have positive Sharpe ratios, indicating that only by investing in these two funds could one achieve returns above the risk-free rate.

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Furthermore, to fulfill the analysis, we compared the nominal returns of the funds with the inflation rate during the observed period to see if investing in investment funds at least preserved real value. The cumulative inflation is presented in Figure 1.

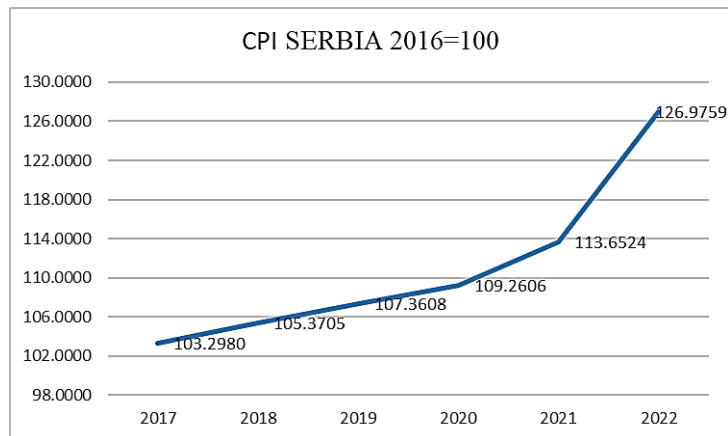


Figure 1. Inflation in Serbia 2017-2022

Source: Authors

From Figure 1, it is evident that the cumulative inflation rate during the observed period in Serbia is a high 26.98%.

In Table 2, the cumulative nominal returns of the investment funds are shown, indicating how much 100 invested units at the beginning of 2017 would be worth at the end of 2022.

Table 2. Cumulative nominal yield of investments funds

Investment fund / Time	2017	2018	2019	2020	2021	2022
Iirika Dynamic	99.50	90.15	109.44	102.76	120.85	103.42
WVP Dynamic	97.70	83.14	104.09	105.76	121.94	89.27
WVP Premium	99.30	90.07	110.87	105.44	127.47	120.11
Iirika Cash Dinar	101.70	104.55	106.53	107.28	107.39	108.24
KomBank devizni fond	99.50	99.80	100.60	104.52	106.09	106.72
Kombank novčani fond	101.00	104.43	107.04	108.65	110.06	113.00
Raiffeisen Cash	100.90	103.73	106.84	108.23	109.09	110.73
Raiffeisen Euro Cash	99.40	99.80	99.90	100.50	100.80	101.55
WVP Cash	100.10	102.20	104.45	105.81	107.08	109.09
Iirika Balanced	100.30	92.38	102.81	102.61	116.15	102.96
KomBank IN Fond	99.60	100.00	106.30	101.83	106.93	108.40
Raiffeisen World	99.50	92.44	103.62	102.27	112.09	125.62
WVP Balanced	97.10	91.18	102.85	104.29	115.86	102.17

Source: Authors

Since the cumulative inflation during the observed period was 26.98%, none of the investment funds managed to preserve the real value of the invested funds. The closest were Raiffeisen World with a nominal return of 25.62% and WVP Premium with 20.11%, while WVP Dynamic achieved a negative nominal return of -10.73%, indicating that holding cash would have been more profitable.



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CONCLUSIONS

Serbia faces considerable challenges compared to developed countries in the realm of investment funds. This is largely due to factors such as underdeveloped capital markets, heavy reliance on banks and credit for financing, a lack of widespread investment culture marked by low public awareness and limited knowledge. These issues have hindered the effectiveness of investment funds in transitional economies.

The hypotheses set in the research were not confirmed. Despite achieving positive nominal returns, none of the open-end investment funds realized a positive real return. Therefore, investing in Serbian investment funds did not represent a good investment strategy during the observed period. The majority of surplus funds (savings) in Serbia end up in the real estate market, leaving little room for portfolio managers to diversify. This, coupled with fund management costs, significantly hinders the ability to achieve positive results and renders this type of investment unattractive. It creates a vicious cycle: inadequate inflow of money into investment funds significantly reduces the chances of positive results, while poor outcomes deter investors and push them towards more profitable markets.

Further research could focus on identifying the causes of inefficiencies in investment funds and developing strategies to attract more capital into these funds, thereby increasing the potential for generating returns.

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